

**NEW GENERATION INNOVATION AND
ENTREPRENEURSHIP DEVELOPMENT CENTRE
(NewGen IEDC)**

*Progress Report
(2020-21)*

Submitted to:



**National Science & Technology Entrepreneurship
Development Board (NSTEDB), DST, GoI**

Submitted by:



**Entrepreneurship Development Institute of India
Ahmedabad**

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1. About the Project: New Generation Innovation and Entrepreneurship Development Centre (NewGen IEDC)

India is witnessing an upsurge of technology-driven and knowledge-based enterprises. Whether it is the field of conventional business or in IT and ITES a sudden spurt in the number of new ventures or start-ups has taken the country by surprise. Technology and Innovation are playing a major role in this process. It is as if all of sudden people, especially the young ones are no longer afraid to dream an idea and work actively to convert their ideas to commercially viable business. While a few years back, the conversion of idea to product might have sounded a distant dream, with both technology and market being uncertain, things certainly have changed now. More and more technocrats, students with practically no experience or industry experienced professionals are giving shape to their business ideas. It is as if the Silicon Valley story is reincarnating itself in India.

Encouraged by the motivating ecosystem students are no longer giving preference to campus placements and are going for deferred placement to give a chance to their dream projects. It has however been seen that initial support to the start-ups has been one of the deterrent in the process of the launch. Students (their parents) have already incurred a heavy expenditure for the payment of tuition fees and subsistence and are cash strapped. Anticipating this movement and to empower the younger generation to acclimatize themselves to innovation and entrepreneurship culture, the National Science & Technology Entrepreneurship Development (NSTEDB), Department of Science & Technology (DST), has taken an initiative of introducing this scheme for setting up “New Generation Innovation & Entrepreneurship Development Centers (NewGen IEDCs)” being implemented by Entrepreneurship Development Institute of India (EDII), Ahmedabad. In the year, 2017-18 and 2018-19 i.e. first year and second year of this project, the program received an overwhelming response and through robust screening and selection process, 14 NewGen IEDCs (2017-18) and 12 NewGen IEDCs (2018-19) have established in various parts of the country. **NewGen IEDC** has a mission to ***“promote knowledge based and technology-driven start-ups by harnessing young minds and their innovation potential in an academic environment”***

2. The Programme:

NewGen IEDC aims to inculcate the spirit of innovation and entrepreneurship amongst the young S&T students, encourage and support start-up creation through guidance, mentorship & support. Selected academic institutions host NewGen IEDCs where students are encouraged to take up innovative projects with possibility of commercialization. NewGen IEDCs also spread the message of entrepreneurship and create a culture of entrepreneurship in the Host Institution (HI). With faculty already trained in the nuances of entrepreneurship, the presence of NewGen IEDCs in HI creates a vibrant entrepreneurial culture amongst the students. Few amongst the “**Job-Seekers**” are converted to “**Job-Generators**” through the entrepreneurial route.

3. Objectives of NewGen IEDC:

- To channelize the knowledge and energy of youth towards becoming active Partners in the economic development process
- To catalyze and promote development of knowledge-based and innovation-driven enterprises and promote employment opportunities amongst youth specially students
- To inculcate a culture of innovation driven entrepreneurship
- To act as an institutional mechanism for providing various services including information on all aspects of enterprise building to budding S&T entrepreneurs.

4. Salient features of NewGen IEDC:

- ✓ It is a five-year programme to be implemented in an educational institution
- ✓ A maximum of twenty new projects per Institution would be supported in a year
- ✓ The projects should be students' projects with a high degree of innovation and commercial viability to lead to possible startup by students
- ✓ As far as possible, the projects should be multi-disciplinary in nature and to be executed by teams consisting of students drawn from various levels

5. Functions of NewGen IEDC:

- ❖ To motivate, support and mentor students for identification, development and Commercialization of their innovative ideas
- ❖ To initiate targeted number of innovative student projects each year for new product development
- ❖ To organize Business Plan Competitions/Innovation Camps/ Hackathons with active involvement of industry and alumni
- ❖ To guide and assist prospective entrepreneurs on various aspects such as preparing project reports, obtaining project approvals, loans and facilities from agencies of support system, technologies information, etc.
- ❖ To arrange interaction with entrepreneurs, bankers, professionals, potential customers and create a mentorship scheme for student innovators
- ❖ To facilitate creation of entrepreneur's club / E-Cells in the college to foster culture of entrepreneurship amongst students

6. Project Coordinating & Managing Agency:

Under the aegis of the NSTEDB, DST, NewGen IEDC programme is being coordinated and managed by EDII, Ahmedabad. The role of EDII is to;

- ✓ Invite and receive proposals for setting up NewGen IEDCs
- ✓ Initial scrutiny of proposals
- ✓ Convening of experts advisory committee (constituted by DST) meeting to consider the proposals for funding support
- ✓ Release of funds to selected institutions
- ✓ Convening progress review meetings
- ✓ Monitoring, evaluation, documentation
- ✓ Mentoring and handholding of NewGen IEDC
- ✓ Maintaining database and compilation of progress reports to be submitted to DST from time to time

7. Criteria for selection of an Institution to set up NewGen IEDC:

- The institution should be a University/Deemed University or a premier Institute/College offering Engineering, Technology, Science courses at degree level or above for at least 5 years. In case of a college/institute, it should be duly recognized, affiliated, and while in case of the private institutions, it should be promoted by a Trust or a Society registered under relevant Acts besides being recognized/affiliated to AICTE/Universities.
- Qualified and dedicated faculty in various disciplines with a good Research & Development base and background in industry related activities should be available.
- Availability of at least two faculty members trained in Entrepreneurship through DST sponsored Faculty Development Programme.
- Minimum dedicated space of about 5000 square feet for housing the NewGen IEDC with basic amenities like electricity, water, telephone and internet connectivity.
- Availability of workshops, laboratories and computational facilities
- Library with good collection of books and journals
- Experience in Entrepreneurship Development, Promotion and Industry related Activities such as Consultancy, Product Development, Testing, Calibration etc

8. Functioning/Status of the NewGen IEDC:

- ❖ NewGen IEDC should maintain separate books of account and saving bank account for the NewGen IEDC. It should function as a prominent Central Facility of the Host Institution and not as a facility for a particular Department of the parent institution.
- ❖ NewGen IEDC should enjoy flexible administrative and financial status for ensuring effective and speedy implementation of programmes and activities.
- ❖ It should have effective linkages with different Departments, Centers and other facilities of the institution to spread entrepreneurial culture for optimal utilization of expertise, resources and know-how available. It should network with other agencies involved in entrepreneurship development.

9. Budget & Funding:

Funding mechanism & Financial guidelines:

For setting up of NewGen IEDC, eligible Institutions shall submit online proposals to EDII, Ahmedabad as per the prescribed proforma. Financial assistance to the selected institutions for establishment of NewGen IEDC, towards its non-recurring (as one time establishment cost) and recurring expenditure (Project Development Cost, Travel, Training and Contingencies, etc.) up to five full operational years would be provided. However, the financial assistance would be available in the project mode on a year-to-year basis, based on successful implementation of the NewGen IEDC project and review by the National Experts Advisory Committee.

▪ **Non-Recurring Grant:**

NSTEDB will provide limited onetime non-recurring financial assistance, up to a maximum of Rs.25.00 lakh. The non-recurring grant would be provided towards the establishment cost, furnishing of cubicles for start-ups, purchase of PC with printers, UPS, library books, journals, laptop, multimedia projector, office communication equipment and other equipment like 3D printers, prototyping equipment/software and shared equipment etc. The grant should NOT be used for purchase of land and building.

The host institution should provide the support of two members of the faculty, trained in entrepreneurship development through DST sponsored Faculty Development Programme (FDP) in entrepreneurship development, 5000 sq. ft of dedicated space, a counseling/meeting room, office furniture, facility of conference hall/ auditorium, telephone and internet connection etc.

▪ **Recurring Grants:**

The recurring budget will be provided for each year of operation for a maximum of five years. The maximum number of student project supported each year would be as follows;

Year →	First	Second	Third	Fourth	Fifth	TOTAL
No. of Student Projects	10	15	20	20	20	85

Sl. No.	Budget Head	Amount in Rs. Lakh Per Year (Max Projects)				
		Year 1	Year 2	Year 3	Year 4	Year 5
1	No. of Student Projects	(10)	(15)	(20)	(20)	(20)
2	Prototype Development Grant (@ Rs 2.50 lakh per project)	25	37.5	50	50	50
3	Recurring Expenditure	10	10	10	10	10
	TOTAL	35	47.5	60	60	60

The recurring cost would include the honorarium to mentors, honorarium to NewGen IEDC coordinator, travel, expense for advisory board and review meeting, contingencies and misc. expenditures. Prototype Development Grant of Rs. 2,50,000/- per project would cover the following expenditure;

- A maximum amount of Rs. 25,000/- to the mentor for providing guidance to the project team
- A maximum amount Rs. 25,000/- per student group as stipend
- Rs. 2,00,000/- for cost of raw material, prototype development cost, external vendor/consultant cost.

In case the expenditure on item no (c) is more than the stipulated amount of Rs 2,00,000/- the additional expenditure will be borne by the student team/college/host institute.

The above funding is just indicative and may vary from case to case.

10. Review & Monitoring:

Periodic review of NewGen IEDCs would be carried out by EDII and/or NSTEDB, DST. The Host Institutions would provide access to the personnel, facilities and records for smooth conduct of the review. The National Experts Advisory Committee (NEAC) of Entrepreneurship in Education, constituted by DST, would review the activities of NewGen IEDC annually. NewGen IEDCs would submit their documents annually, duly approved by their Local Advisory Committees, to EDII, Ahmedabad.

11. Financial Discipline:

The Host Institution shall open a Savings Bank Account in which the grants-in-aid will be transferred. The bank account shall be jointly operated by the coordinator of NewGen IEDC and Head of the Institution or a person nominated by the Head of the Institution. The grants-in-aid will be credited to this account and utilized solely for the activities of NewGen IEDC. The interest earned thereon shall be accounted for in the Utilization Certificate and shall be refunded to NSTEDB, DST on yearly basis. All financial receipts/funds received by NewGen IEDC shall be credited to this account. Surplus funds generated through NewGen IEDC activities (and not the grants-in-aid) and revenue earned should be credited to the same bank account to continue the activities of NewGen IEDC beyond the project life (maximum 5 years). However, DST grants-in-aid or interest earned thereon should not be used to create the corpus. The accounts should be audited either by the Chartered Accountant in case of private Institution or by the Financial head in case of the Government Institution or as per the norms of the parent institution.

12. Organizational Requirements:

The NewGen IEDCs will function under the guidance and control of the Head of the Host Institution. The Head of Institution will be solely responsible for the implementation and successful operation of NewGen IEDC. He will appoint the NewGen IEDC Coordinator for day to day functioning of the NewGen IEDC. An Advisory Board will monitor its activities.

13. Advisory Board:

For effective implementation of the programmes, Host Institution would constitute an Advisory Board immediately after the sanction of the NewGen IEDCs by NSTEDB, DST. The Advisory Board will lay down policy guidelines, fix up physical and financial targets, suggest measures for raising funds, effective utilization of facilities and expertise available in the parent Institute and sourcing of expertise and facilities from other institutions in the region. The Advisory Board should approve student projects.

The Advisory Board may have the following composition:

- | | | |
|-------|---|---------------------|
| i. | Head of the Host Institution | Chairman |
| ii. | Member Secretary, NewGen IEDC Project, NSTEDB, DST | Member |
| iii. | Project Director & Co-Member Secretary-NewGen IEDC, EDII, Ahmedabad | Member |
| iv. | Two senior faculty members from Host Institution
Preferably with Relevant entrepreneurial /
Industry experience | Member |
| v. | Representative of a nearby Technology Business Incubator | Member |
| vi. | Representatives of SIDBI / NABARD / Lead Bank or
Local bank | Member |
| vii. | Representative from Local Industry Association | Member |
| viii. | Two Alumni Entrepreneurs from the Host Institution | Member |
| ix | NewGen IEDC Coordinator | Member
Secretary |

14. Manpower for the NewGen IEDC:

Appointment of all the staff of NewGen IEDC would be on contractual basis. Their appointments are co-terminus with the project. There will be no liability of any sort whether direct or indirect on the coordinating and managing agency i.e. EDII, Ahmedabad and /or Department of Science and Technology, Government of India.

15. Evaluation, Performance guidelines and Reporting:

NewGen IEDCs would prepare an Action Plan for each year and fix physical and financial targets to be achieved during the year for submission to EDII, Ahmedabad. The Advisory Board of the NewGen IEDCs would meet, discuss and approve these plans and targets. The HI will also submit a report on the progress made by NewGen IEDC to EDII, Ahmedabad as per the schedule. Participation of the NewGen IEDC coordinators in the Annual Review Meeting is mandatory, when invited. Adequate travel grants have been provided for this in the annual budget.

16. Project Progress and Outcome:

The project, has been doing extremely well as many institutions have reported excellent progress. Following are the highlights of the consolidated progress made under the project during the **FY 2020-21**;

Sr. No.	Outcome: FY 2020-21	Total
1	Total number of Student Projects supported	493
2	No. of Patents filed by students	• 68 • 36 (in process)
3	No. of Patents Granted	06
4	No. of companies/Starts up Set up by Students	• 45 • 21 under progress

Highlights of the Institution wise progress made during the FY 2020-21 is as under:

NewGen IEDCs Sanctioned during 2017-18

Sr. No.	NewGen IEDC	Progress Made: FY 2020-21	
1	Kuppam Engineering College, Kuppam, Andhra Pradesh	* Total number of Student Projects supported	21
		* No. of Patents filed by students	01
2	Ramachandra College of Engineering, Eluru Andhra Pradesh	* Total number of Student Projects supported	20
		* No. of Patents filed by students	12 (in process)
		* No. of companies/Starts up Set up by Students	01 07(in process)
3	Sasi Institute of Technology & Engineering, Tadepalligudem, Andhra Pradesh	* Total number of Student Projects supported	20
		* No. of Patents filed by students	01
		* No. of companies/Starts up Set up by Students	02
4	L J Institute of Engineering & Technology, Ahmedabad, Gujarat	* Total number of Student Projects supported	20
5	Manav Rachna International University, Faridabad, Haryana	* Total number of Student Projects supported	23
6	B. N. M. Institute of Technology, Bengaluru, Karnataka	* Total number of Student Projects supported	32
		* No. of Patents filed by students	01
		* No. of companies/Starts up Set up by Students	02
7	University of Science and Technology, Ri-Bhoi, Meghalaya	* Total number of Student Projects supported	20
		* No. of Patents filed by students	07 (in process)
		* No. of companies/Starts up Set up by Students	04
8	College of Technology and Engineering, Udaipur, Rajasthan	* Total number of Student Projects supported	27
		* No. of Patents filed by students	02
		* No. of companies/Starts up Set up by Students	02
9	Dr. MGR Educational and Research Institute, Chennai, Tamil Nadu	* Total number of Student Projects supported	20
		* No. of Patents filed by students	10 (in process)
		* No. of companies/Starts up Set up by Students	10 (in process)
10	National Engineering College, Kovilpatti, Tamil Nadu	* Total number of Student Projects supported	20
11	Velammal Engineering College, Chennai, Tamil Nadu	* Total number of Student Projects supported	20
		* No. of Patents filed by students	12
		* No. of companies/Starts up Set up by Students	01
12	Sphoorthy Engineering College Hyderabad, Telangana	* Total number of Student Projects supported	20
		* No. of Patents filed by students	05
		* No. of companies/Starts up Set up by Students	01
13	GLA University, Mathura, Uttar Pradesh	* Total number of Student Projects supported	29
		* No. of Patents filed by students	13
		* No. of companies/Starts up Set up by Students	01
14	University of Kashmir, Srinagar, Jammu and Kashmir	No Progress Reported So far	

Progress Summary

Sr. No.	Outcome	Total
1	Total number of Student Projects supported	292
2	No. of Patents filed by students	<ul style="list-style-type: none"> • 35 and • 29 in process
3	No. of companies/Starts up Set up by Students	<ul style="list-style-type: none"> • 14 and • 17 under progress

NewGen IEDCs Sanctioned during 2018-19

Sr. No.	NewGen IEDC	Progress Made: FY 2020-21	
1	Indian Institute of Technology (IIT), Guwahati, Assam	* Total number of Student Projects supported	15
2	Marwadi University, Rajkot, Gujarat	* Total number of Student Projects supported * No. of Patents filed by students * No. of companies/Starts up Set up by Students	15 01 01
3	Jawaharlal Nehru National College of Engineering, Shimoga, Karnataka	* Total number of Student Projects supported	15
4	Datta Meghe Institute of Medical Sciences, (Deemed to University), Wardha, Maharashtra	* Total number of Student Projects supported * No. of Patents filed by students * No. of companies/Starts up Set up by Students	15 02 06 (in process) 04 (in process)
5	Chitkara University, Rajpura, Punjab	* Total number of Student Projects supported * No. of Patents filed by students * No. of Patents Granted * No. of companies/Starts up Set up by Students	15 04 01 02
6	Mar Ephraem College of Engineering & Technology, Elavuvilai, Tamil Nadu	* Total number of Student Projects supported * No. of Patents filed by students * No. of companies/Starts up Set up by Students	15 02 01
7	Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu	* Total number of Student Projects supported * No. of Patents filed by students * No. of Patents Granted * No. of companies/Starts up Set up by Students	15 06 04 05
8	S. R. M. Institute of Science and Technology, Kattankulathur, Tamil Nadu	* Total number of Student Projects supported * No. of Patents filed by students * No. of Patents Granted * No. of companies/Starts up Set up by Students	26 04 01 04
9	C. V. R. College of Engineering District: Ranga Reddy, Telangana	* Total number of Student Projects supported * No. of Patents filed by students	17 01 (in process)
10	Sumathi Reddy Institute of Technology for Women, Warangal Urban, Telangana	* Total number of Student Projects supported * No. of companies/Starts up Set up by Students	17 06
11	I. T. S. Engineering College Greater Noida, Uttar Pradesh	* Total number of Student Projects supported * No. of Patents filed by students * No. of companies/Starts up Set up by Students	20 10 06
12	Indian Institute of Information Technology Allahabad, Uttar Pradesh	* Total number of Student Projects supported * No. of Patents filed by students * No. of companies/Starts up Set up by Students	16 04 06

Progress Summary

Sr. No.	Outcome	Total
1	Total number of Student Projects supported	201
2	No. of Patents filed by students	• 33 • 07 in process
3	No. of Patents Granted	6
4	No. of companies/Starts up Set up by Students	• 31 • 04 under progress

17. Institution wise progress report:

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	Kuppam Engineering College		
Year of starting NewGen IEDC	2017		
Name of the Head/Principal of the Institution/College	Dr.S Sudhakar Babu		
Name of NewGen IEDC Coordinator	Dr.G N Kodanda Ramaiah		
Contact Details of NewGen IEDC Coordinator <ul style="list-style-type: none">Mobile Numbere-Mail ID	Mobile No: 9502686286 E-mail: gnk.ramaiah@gmail.com		
Financial Details	Sr. No.	Sanction Order No./ Date	Amount Sanctioned
Previous Sanction Order Details	1.	EDII/DST-NewGen IEDC/2017-18/RLS-I/01 dated 31-7-2017	60 Lakhs
	2.	EDII/DST-NewGen IEDC/2017-18/RLS-II/01 dated 28-2-2019	47.5 Lakhs
	3.	dated 02-11-2020	21 Lakhs
		dated 06-01-2021	39 Lakhs

1. **Initiatives/Activities Undertaken as per the Action Plan Submitted: (Refer ENCLOSURE-I FOR ACTIVITY PHOTO's)**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1	“Entrepreneurship & its competencies” by Mr.Ravindra, Career Guide & Mentor for NGO's, Bangalore. Held on 5 th January, 2020.	<ul style="list-style-type: none"> • Insight knowledge on competencies for being entrepreneurs. • Identifying entrepreneurial traits and skills already within us. • Importance of some necessary qualities to become a successful entrepreneur.
2	Two days' workshop on “Innovation, Incubation, and Start-up Ecosystem” on 23rd and 24th February, 2020 By Dr. Siva Kiran, CEO, Atal Incubation Centre, SK University, Anantapuramu	<ul style="list-style-type: none"> • Enabled the student's community to inculcate the spirit creativity & innovation to choose an entrepreneurial journey. • Students have realized the significance of “Entrepreneurship” to curb the future employment crisis. • Motivated many students to come out with various innovative ideas. • The Program sparked the students mind to “Think out the Box”
3	“Innovation to Entrepreneurship Journey” by Mr. Sohail.P , Chairman, SEED Foundation, Kerala, Held on 14 th April, 2020	<ul style="list-style-type: none"> • Students have come to know the importance & benefits of choosing entrepreneurial route for socio-economic well-being. • Insight knowledge on competencies for being an entrepreneurs. • Learnt about start-up opportunities through entrepreneurship.
4	“Market Survey on Innovations” by Karthik Shekar, Incubation Manager, Atal Incubation Centre, SK University, Ananthapur held on 21 st November, 2020.	<ul style="list-style-type: none"> • Knowledge on market strategies and surveys on any Product/Services. • Learnt about the importance of marketing for the success of an entity. • Business opportunities in improving customer services & Experience.

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	“Ideation: Harnessing Innovations” Idea Competition held on 8 th March, 2020, Invitee Judge: Ms. C. Bhagavathi ,Senior Engineer, Nielsen, Bangaluru	<ul style="list-style-type: none"> • Students were able to gain insight knowledge on brain storming, identifying and screening of innovative ideas. • Students were asked to submit creative and innovative ideas. • Around 35 teams come out with various ideas • Few innovative ideas are selected for next year projects under NewGen IEDC.
2	“IDEATHON-2k21” Held on 26 th February 2021, chief coordinator, coordinators and mentors of NewGen IEDC scrutinized all the ideas based on performance metrics.	<ul style="list-style-type: none"> • Around 45 innovative idea's were presented by the KEC students. • A team from ECE won the First prize of Rs.5000/-, & a team from CSE won the second prize of Rs.3000/-, 3rd prize won by mechanical Rs.2000/- and EEE students grabbed 4th place with Rs.1000/- • Innovative Idea creation event increased the students enthusiasm to participate in innovation & entrepreneurship events.
3	“Business Canvas Model Development & PPR” by Dr. Siva Kiran, CEO, Atal Incubation Centre, SK University, Anantapuramu, on 18 th August, 2020	<ul style="list-style-type: none"> • Learnt about Business Canvas Model development on any innovative ideas, • Understood the preparation Pre-feasibility Report & Preliminary Project Report • Students were assigned with an activity to develop business canvas model for their ideas.
4	“Selection of Business Organization & Registration Process” on 29th September, 2020. Resource Persons: Mr. Santhosh B Panjagal, Director, Intellibin Solutions Pvt. Ltd., Kuppam Engg. College	<ul style="list-style-type: none"> • Understood the important criteria involved in selecting the right business organization. • Insight knowledge on Pro's and Con's of choosing right business • Understood the Detailed procedure for registering any start-ups, Trusts, Societies

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	3 Days National Level Online Workshop on “Introduction to Web Development” in collaboration with "SKILL TO HIRE" During 17th - 19th July 2020. Platform: https://www.youtube.com/watch?v=R-XnhuVBDYw&feature=youtu.be	<ul style="list-style-type: none"> • Learnt the languages and tools required for website development. • Understood the importance of Web Development which is useful platform for GUI used in many innovative projects • It provided an opportunity for the students to development hobby web pages for their ideas
2	“IPR PROTECTION FOR CREATION OF MIND” by Dr.K K Baseer, Coordinator, IPR Cell and IIC Innovation Ambassador for IPR & TT SVEC, Tirupathi, On 25 th July, 2020.	<ul style="list-style-type: none"> • Get to know what are the ways to protect our intangible/intellectual assets (like patents, Copyrights, trademarks, Geographical indicators & Trade secretes etc). • 2 Patents are filed by our student teams as a an outcome of the workshop.
3	3. A 3 DAYS NATIONAL LEVEL ONLINE WORKSHOP ON “ROBOTICS” in collaboration with "SKILL TO HIRE" During 31 st July – 2 nd August 2020, Platform: https://www.youtube.com/watch?v=QV4SSkXd5Hk&feature=youtu.be	<ul style="list-style-type: none"> • Students could able to understand the basics of Robotics and its design aspects • Understood the role autonomous robots in near future • One of the NewGen IEDC student team benefited by this workshop in developing floor clearing BOT.
4	A 4 DAYS NATIONAL LEVEL ONLINE WORKSHOP ON “INTRODUCTION TO IOT & ARDUINO” in collaboration with "SKILL TO HIRE" During 10th-12th August 2020 https://www.youtube.com/watch?v=huzEAoqhl6E&feature=youtu.be	<ul style="list-style-type: none"> • Discussed about innovative project development using Arduino. • Learnt about IoT configuration and uploading data from Arduino to IoT • Few student teams made use of the workshop to develop IoT application for their ideas.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

There are only few minor deviations or changes in the execution of activities and student projects according to the action plan submitted to EDII, they are;

- i. Under initiatives/Activities undertaken section, all the activities/events conducted in three sub-sections are having different dates from the actual proposed date and there is a slight change in the meaning & titles of few of the activities.

Important Note: Due to COVID-19 Pandemic, most of the programs/events were conducted in ONLINE Mode.

- ii. Student Project Section:

Many student projects are executed according to the proposed action plan but, in few cases, execution has been successfully completed with few changes in the plan of action.

With reference to the ADVISOR MEETING held on 21-01-2021, Advisory committee comprising of Dr.Naveen Vasista, Scientist, DST and Mr.S.B Sareen, Director, Department of Projects (Govt.), EDII, have suggested to change some of the project ideas and emphasized to focus on the IDEA's of the need.

Therefore, as per their suggestions we included some new ideas to address the COVID-19 Pandemic, 1. Automatic hand sanitizer dispenser, 2. Odorsense for alerting health issues poor air quality and odor gases and some more ideas.

3. Other important highlights (new initiatives), if any:

NewGen IEDC of KEC is working towards upgrading the existing facilities through many initiatives in the field of Innovations & Entrepreneurship development, for upgrading the technical skill sets of science & technology students, to bridge the technical gaps between industry & academia by providing the quality education and training.

Few of the new initiatives are as follows;

1. MSMSE-Business Incubator

- We applied for MSME Business Incubator last year and One of our NewGen IEDC project E-Toy got selected for Rs.15 Lac fund for developing the product by setting up the startup company.
- The complete Business Incubator will be established if one more innovative idea of our institute gets sanctioned by the MSME.
- So with the MSME-BI, we can able to support many budding entrepreneurs for developing their ideas through startups.

2. IDEA-LAB (AICTE)

Recently our institute has applied for IDEALAB under AICTE, presented our IDEALAB model to the AICTE expert committee and now waiting for the RESULT of IDEALAB.

4. Student Projects (Please provide the following details for each student project)

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
PROJECT 01: "SMART TOILET"				
1	<p>Student Team :</p> <ol style="list-style-type: none"> 1. A.GANESH 2. D.S.SREEJA 3. R.HARI 4. A.PRAGNA <p>Mentor : Mr. D.Siva Kumar</p> <p>Project Description : For the way to a smart and green urban society, sanitation is an important concern. In India public toilets are not clean.so we are implementing this project the "SMART TOILET".in our country under the scheme called Swachh Bharat introduced by our government of India.</p> <p>Smart toilet has its own intelligence and it keep hygiene even with improper usage. Smart toilet has good looking interiors and touch-free operations. Smart toilet is self-cleaning system. The timed pressure sprayers, perforated floors, auto-flush and the stainless steel body helps in self-cleaning of smart toilets. This project can be helpful in encourage the clean India.</p>	<p>"Analysis Level"</p> <ul style="list-style-type: none"> • A survey was conducted to identify the problems of public toilet. • Prepared the Innovative solutions for the problem of public toilets and make it as smart toilet. • Analyzed the marketing and preparing the business plan. • Prototype model is ongoing. 	<ul style="list-style-type: none"> • Consulted with Kuppam municipality for understanding the requirements in developing the proof of concept • Consulted with EveZon India Private Limited company for looking of possibilities in reducing the size of first version device. • For PCB design we are associated with Technilab Instruments, Bangalore. • The Project team has finally developed a "Demo Model" of the project. 	<ul style="list-style-type: none"> • The "Demo Product model" is demonstrated at Kuppam Engineering College to draw the Public attention for commercialization. • Visited Agastya International Foundation for presented the model at Agastya Foundation Campus Road, Gudivanka, Avulathimmanapalle, Andhra Pradesh. • Patent filing under process, Documents submitted for patent search and filing.

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
PROJECT 02 - "MULTILANGUAGE EDUCATIONAL E-TOY"				
2	<p>Student Team :</p> <ol style="list-style-type: none"> 1. P. DEEPAK 2. M.HARICHANDANA 3. S.SHAFIYA SULTHANA 4. A.G.HEMANTH <p>Mentor : Dr. Nanda Kishor S</p> <p>Project Description : In day to day life parents are too busy with their work, so they spend very less time with their kids. To look after their kids for fun and educational is being difficult. The kids have to grow in ability of thinking and broad minded with enjoyable. Multilanguage Educational E Toys can both teach and be fun for parents and kids. They can light up, make sounds, teach spelling and more. The E-Toys will challenge the kids to think and expand their minds with fun. The main aim of developing this project is to teach educational materials in a fun manner for the kids. The kids will develop an ability of lateral thinking using this project.</p>	<p>"Analysis Level"</p> <ul style="list-style-type: none"> • Proof of Concept is ready. • Preparing document for patent • Analyzed the marketing. and Business Plan of the Model. 	<ul style="list-style-type: none"> • Consulted various Infant Schools for understanding the requirements in developing the proof of concept • Consulted with Kuppam Electro Solutions Private Limited Company for looking of possibilities in reducing the size of first version device. • For PCB design we are associated with S Technologies, Bangalore, • The Project team has finally developed a "Demo Model" of the project. 	<ul style="list-style-type: none"> • Applied and presented the Project at Toycathan-2021 conducted by Government of India. • Applied the project to MSME – BI. • The "Demo Product model" is demonstrated at Kuppam School to draw the Teacher and Public attention for commercialization. • Visited Agastya International Foundation for presented the model at Agastya Foundation Campus Road, Guidance, Avulathimmanapalle, Andhra Pradesh. • Patent filing under process, Documents submitted for patent search and filing.

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
PROJECT 03 : Automatic Siren				
3	<p>Student Team :</p> <ol style="list-style-type: none"> 1. K. Akhileswar Reddy 2. K. Yugesh 3. V. Niranjan Reddy 4. Vinay <p>Mentor : M. Lakshmipathy</p> <p>Project Description: Our farmers are the backbone of our country. But unfortunately they are facing lot of problems. One of the big problem faced by our farmers are birds and animals damaging the crop pre harvesting. So to avoid the lose due to this they guard their lands day and night without proper sleep and food. In keeping this in the mind our team has came up with an innovation that automatic siren with additional features which is very much useful for the farmer.</p> <p>The features include</p> <ol style="list-style-type: none"> 1. Emergency light cum CFL inverter 2. 12 ultra hi-bright 8mm LEDs of life upto 1 lakh hours 3. 3 CFLs of 15W each can be used 4. Back up on full 45W load is upto 2 hours 5. Long back up of 20 hours only on LED load 	<p>“Analysis Level”</p> <ul style="list-style-type: none"> • A survey was conducted to identify the problems of farmers • Prepared the Innovative solutions for the problem. • Designed a prototype and tested in nearby fields. 	<ul style="list-style-type: none"> • Consulted with many carpenters and metal fabricators for the best enclosure making. • The enclosure should be robust with light weight and water proof. 	<ul style="list-style-type: none"> • The working model is ready and distributed to the local farmers to test. • Need to meet the mandal agricultural officer for the promotion and testing of the model in the mandal level.

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	6. Siren with 16 ON/OFF Program settings. 7. Solar/ Conventional power charging. 8. Mobile Charging point.			
PROJECT 04: “REAL TIME GAS LEVEL INDICATOR ALERTING SYSTEM FOR INDUSTRIAL, HOSPITAL AND DOMESTIC APPLICATIONS”				
4	Student Team : 1. P. Manoj 2. R. Rakshitha 3. Sathyam Kumar 4. M. Sathya Sree Mentor : N. Ram Kumar Project Description: A Device to be developed to be put up under cylinders which will gauge the fuel quantity and automatically inform the linked distributor for refill cylinders. In this way usage of all the customers can be exactly mapped and we can have more accurate predictive demand and supply. • System continuously measure the consumption of gas in the cylinder • Gas reaches to the minimum threshold level it will automatically sends an alert to the user as well as authorized agent so that they can act accordingly. • Real time weight measurement of the gas and makes an efficient system002E	<ul style="list-style-type: none"> • “Analysis Level” • A survey was conducted to Identified the problems and it is shaped dependent on review. • Designed plan of work and procedure • Discussed open issues and dangers. • A strategy for business plan is created. 	<ul style="list-style-type: none"> • Consulted with PES Medical College, Kuppam for understanding the requirements in developing the proof of concept • Design an onboard module with association of Technical Instruments, Bangalore. • Plastic casing is used as casing for electric shock prevention. • In the discussion with Atal Incubation Centre, SKU, Ananthapur, wheels are added for free moving to the model. 	<ul style="list-style-type: none"> • First version (Ver-01) module is designed and developed. • Present the model at PES Medical College for testing and redesign. • Present the model at Kuppam College of Nursing for testing purpose. • Demonstrate the demo model at Atal Incubation Centre, SKU, Anantapur for seeking industry support.

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
PROJECT 05 : “IOT BASED AUTOMATED AQUACULTURE SYSTEM WITH CLOUD ANALYTICS”				
5	<p>Student Team :</p> <ol style="list-style-type: none"> 1. P. Santhi 2. R. Jagadeesh 3. P.Thejasree 4. N. Yuktha Sree <p>Mentor : P. Ajay Kumar Reddy</p> <p>Project Description:</p> <p>The proposed work is an embedded system for automatic control of fish farming. Aquaculture, also known as aqua farming, is the farming of aquatic organisms such as fish, crustaceans and crabs by using the various sensors to reduce the risks. The proposed work supports remote monitoring of the fish farming system based on Internet of Things (IOT) for real-time monitor and control of a fish farming system. Objective of this manuscript is to provide an automatic fish farming monitoring system thereby saving time, money & power of the farmer. IOT technologies have revolutionized farm production in the country. In the fish farming process we use various sensors like pH value, temperature and level sensors. By using these sensors all the work is automated and it</p>	<ul style="list-style-type: none"> • Studied the literature to list out the possible requirements to develop the proof of concept. • Prepared all detailed concepts of working model. • Prepared business model. 	<ul style="list-style-type: none"> • Consulted various aquaculture farmers for the requirements in developing the proof of concept • Consulted Chittoor Dist Fisheries Department for understanding the requirements in developing the model. • For PCB design we are associated with Technilab, Bangalore, • Consulted with Kuppam Electro Solutions Private Limited company for looking of possibilities in design the aquarium and reduce the size of first version. 	<ul style="list-style-type: none"> • Demonstrated the demo model at Atal Incubation Centre, SKU, Anantapur for seeking industry support. • Presented the model at Balakrishnan fish farm, krishnagiri, Tamilnadu for testing and redesign the model. •

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	will also be easy to monitor the fish farming remotely from other location.			
PROJECT 06 : "BIO WASTE DEHUMIDIFIER AND COMPOST MAKING SYSTEM"				
6	<p>Student Team :</p> <ol style="list-style-type: none"> 1. K.Rohith Babu 2. P. Naveen Kumar 3. H. Poornima <p>Mentor : Mrs.SATHIYAVANI V</p> <p>Project Description: This project proposes to develop a "Bio WASTE DEHUMIDIFIER AND COMPOST FOR HOUSE HOLDS " and promises to obtain processed compost as output product. Generation of wastes in kitchen is not a new story in our houses. Everybody knows how to use that waste further for our advantage like composting, bio gas, etc. But there exist particular situations where it becomes impossible to dump the wastes in time. It may lead to bacterial action and foul smelling especially in apartments and houses. This project is designed to eliminate such a problem and to help in maintaining the waste for long time in the sited situation. It is a very simple design of a waste bin with some</p>	<ul style="list-style-type: none"> • Conceptual Level: • Conducted detailed study on Bio-waste Compost Making Process. • Prepared feasible solution in the form of home compost making Bins • Developed Conceptual paper model of compost making system 	<ul style="list-style-type: none"> • The project team designed the Compost making system prototype in collaboration with technologies, Bangalore. • Technical Expert team of Technologies assisted in designing Waste Cutting Blades. • Discussed with Director of Intellibin solutions Pvt. Ltd. KEC for design aspects of the Compost making Bins. • For mechanical casing design sought assistance from welding laboratory technical assistant of mechanical department. 	<ul style="list-style-type: none"> • Current Status: • Prototype Model • The De-Humidifier and Compost Making system prototype was successfully tested for various Bio-wastes. • Currently it has been installed at KEC Canteen Kitchen and under observation on to see No. of Days required to make the compost. • Discussed with Intellibin Solutions Pvt. Ltd. In-House student start-up company for possible collaboration of commercialization of Compost Making System, as the company is promoting Smart

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	additional heating coil and a blower to evaporate out the moisture present in the waste. The bin is powered with electricity to make it easier and simpler. Providing an outlet hole at the bottom also helps in collecting the extra water which may possibly per collate out. So, the waste can be managed for long and can be dumped for composting and other purposes in the next part of bin.			garbage Bin products.
PROJECT 07 : "SMART MICRO FARM: IOT BASED SPIRULINA GROWTH MONITORING SYSTEM"				
7	Student Team : 1. G. Singararelu 2. D. Madhumathi 3. J.Hema Mentor : Mr. T.H.JAYASIMHA Project Description: Spirulina can play an important role in human and animal nutrition. Spirulina is rich in proteins (60-70%), vitamins and minerals used as protein supplement in diets of undernourished poor children in developing countries. One gram of Spirulina protein is equivalent to one kilogram of assorted vegetables. The amino acid composition of Spirulina protein ranks among the best in the	<ul style="list-style-type: none"> Conducted Real-Time Survey to identify real problems on spirulina. Prepared Project Roadmap & requirements and worked on Sensors and actuators. Proof of Concept is completed. Prepared complete Business Plan and analyzed the 	<ul style="list-style-type: none"> Consult MD herbs and Organics, (farming spirulina and manufacturing spirulina power and tablets), Nandyal for the requirements in developing the proof of concept Consulted Chittoor Dist. Agriculture Department for understanding the requirements in developing the model. 	<ul style="list-style-type: none"> Tested the spirulina output at Dravida university, Kuppam and SV University, Tirupati for nutrition's levels. Demonstrated the automatic stirring model at MD Herbs and Organics Company for testing. Patent filing under process, Documents submitted for patent search and filing.

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	<p>plant world, more than that of soya bean. The mass cultivation of Spirulina is achieved both in fresh water and waste water.</p> <p>IoT has become an inevitable choice of technology application for improving high grade food source, assuring food safety, and standardizing the forms of cultivated Spirulina Algae. The main objective of this project is to cultivate spirulina using smart agri method. We are proposing this method to cultivate spirulina without intervention of human.</p>	marketing.		
Project 08: Automatic Hand Sanitizer Dispenser				
8	<p>Student Team:</p> <ol style="list-style-type: none"> 1. D.Sai Kumar 2. K.Navya 3. Thanuja.D <p>Faculty Mentor: Dr. K. Rasadurai</p> <p>Project Description:</p> <p>In this COVID19 pandemic, we must maintain social distance. During this corona viruses spreading situation, Automatic Safety & Health Monitoring system are used for offices, schools etc, as a Automatic Dispensary. This project module is done mainly to protect our health and safety during COVID19.</p>	<ul style="list-style-type: none"> • Conceptual Level: • Literature survey conduct for hand-sanitizer liquid can generate spray mist to users hand with minimal liquid and dispensing unit. • Developing a smart hand sanitizer, Pulse Oximetry& temperature sensing Product Module. 	<ul style="list-style-type: none"> • Mr. Ravikumar. V, MD, Technilab, Bangalore gives his value suggestion and guideline for Sensing the human hand & spread the sanitizer module components and low cost customized solution. • Team of IEDC members have acclamation for Smart Measurement Oxygen level & human 	<ul style="list-style-type: none"> • Status: Product • Automatic Hand Sanitizer consist the following four modules: <ol style="list-style-type: none"> 1. Automatic sanitizer dispenser is very easy to use. It is alcohol based hand sanitizers and more effective then soaps. 2. Temperature Sensor Senses the human body temperature and gives Warning /Altering.

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	<ul style="list-style-type: none"> Design and develop an automatic sanitizer dispenser for maintain Social distance during Corona Virus pandemic situation. Its collects some necessary facts such that human pulse rate and oxygen level, body temperature of people automatically. It is safety, healthy & eco-friendly Sanitizer dispensing. 	<ul style="list-style-type: none"> Developing Prototype Module for educational, healthcare, economic group in public. 	<ul style="list-style-type: none"> body temperature using IoT. COVID19 - Quick alert system & Dispensing system 	<p>3. Currently 30 pieces of automatic hand sanitizer dispensers fabricated and offered free of cost to all the sections of the institute and other degree colleges etc.</p>
PROJECT 09: “AI BASED DETECTION OF OVERALL FRUIT MATURITY OF LOCAL FRUITS ”				
9	<p>Student Team:</p> <ol style="list-style-type: none"> G. Mahesh Reddy V.Rupa G.Charan Theja <p>Mentor: Mr. T. SIVAKUMAR</p> <p>Project Description: India produces 88.8 million metric tons of fruits, and 168.3 million metric tons of vegetables. Fruits, and vegetables occupies 90% of national horticulture production (NHB, 2015), nearly 15% of which is lost at post harvest stage (ICAR-CIPHET, 2015).</p> <p>Judging the maturity, knowing the internal characteristics and proper method and stage of</p>	<ul style="list-style-type: none"> Conducted a Survey on identify the real problems on maturity of fruits. Preparing Project Roadmap & requirements Prepared the complete Business Plan and analyzed the marketing. 	<ul style="list-style-type: none"> Consulted Chittoor Dist Agriculture Department for understanding the requirements in developing the model. Approach many farmers and Market Yard for problems on exporting and developing the Proof of Concept. For PCB design we are associated with Technilab, Bangalore, 	<ul style="list-style-type: none"> Demonstrate the demo model at Atal Incubation Centre, SKU, Anantapur for seeking industry support. Present the model at NTR Market Yard, Kuppam for finding the Maturity of Tomato.

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	<p>harvesting the horticultural commodities not only retain the internal quality of these commodities, but also lead to reduced post harvest losses. Determining the ripening of a fruit is critical to a farmer, since the fresher the fruit, the better it will be priced and sold.</p> <p>Deviation of postharvest quality of fruit and vegetables due to internal and external factors lead to rejection of export commodities (APEDA, 2015).</p> <p>This project determine the maturity of local fruit, and will classify the fruits into three categories: pre-matured, matured, over matured using Artificial Intelligence (AI)</p>			
PROJECT 10: “AI BASED FLOOR CLEANING BOT”				
10	<p>Student Team:</p> <ol style="list-style-type: none"> 1. PRASANNA KUMAR 2. N.PREETHI 3. R. BALAJI <p>Mentor: Dr. G.N.Kodandaramaiah</p> <p>Project Description: Problems identified: Now a days cleaning a floor for the huge buildings will takes lots of time and</p>	<ul style="list-style-type: none"> • ‘Analysis Level” • A survey was conducted in the Kuppam local offices, business center, shops and the house hold people. • Prepared the 	<ul style="list-style-type: none"> • Consulted the local offices like Kuppam municipality, super markets, located in the kuppam for developing the proof of concept.. • Consulted with EveZon India Private Limited company for the designing the prototype 	<ul style="list-style-type: none"> • The “Demo Model” is demonstrated at “Kuppam Engineering College” to attract the customers for commercialization. • Visited Agastya International Foundation for presented the model at Agastya Foundation

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	<p>human efforts.</p> <p>To give a solution for that a automated machine which cleans the floor at fixed time without the man power. Not only the floors it helps to clean the windows for the huge buildings.</p> <p>The project main motive is to create a machine which helps the industry people who has no time to clean their premises. The machine which is proposed was the basic floor cleaning machine. With low cost and low power consumption devices helps to clean the floor and buildings. Simple device with wheels and a brush with a controller with it.</p>	<p>solution for the problem of cleaning large areas to save time.</p> <ul style="list-style-type: none"> Analyzed the need of the project and prepared the business plan. Prototype model is ongoing. 	<p>in effective way.</p> <ul style="list-style-type: none"> For PCB design and Casing we are associated with Technilab Instruments, Bangalore. The project team had made the “Demo Model “ of the project and started testing. 	<p>Campus Road, Gudivanka, Avulathimmanapalle, Andhra Pradesh.</p> <ul style="list-style-type: none"> Patent filing under process, Documents submitted for patent search and filing.
PPROJECT 11: “Single Window Smart Electricity Metering And Automatic Billing System”				
11	<p>Student Team:</p> <ol style="list-style-type: none"> G. GOVARDHAN ABHISHEK KUMAR S. LAVANYA K.N YOGESH <p>Mentor: Mr. V Harinath</p> <p>Project Description: Current electricity metering system involves manual and prepaid meters. This current system</p>	<p>Conceptual Level:</p> <ul style="list-style-type: none"> Team had collected information about current technologies used in Electricity Metering & billing. Power theft was identified in the conventional metering system. 	<ul style="list-style-type: none"> Project team interacted with ZenMeter Solutions Private Limited, Bengaluru, for selecting industrial components for the design. Worked with Technilab instruments for Customized PCB design & manufacturing. 	<p>Status: Demo Product</p> <ul style="list-style-type: none"> First, we developed the Proof-of-Concept (POC) prototype, after seeking feedback from R&D experts, Refined & Re-designed the same module as a demo product. Currently, the discussion is underway

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	<p>cannot overcome electricity theft as they are installed at every houses with complex meters (uses many resources).</p> <p>We propose Single window smart electricity metering and Automatic billing system, in which the metering will be implemented at electric Pole having Single Window, based metering covering multiple houses at the Pole. So this will Innovative solution avoids power theft completely and metering system uses very less resources costing 1/10th of the current system. Single Window system combines multiple power plugs with internal power measurement unit, dynamic power consumption by every household data shall be stored and uploaded to Cloud and then the real-time power usage and billing information ca be accessed via user-friendly mobile application.</p>	<ul style="list-style-type: none"> Formulated the single window metering solution after thorough discussion with experts. Developed detailed concepts on design & implementation. 	<ul style="list-style-type: none"> Discussed with Dr. Siva Kiran, CEO of Atal Incubation Centre, SK-University, about the feasibility and the commercial viability of the idea. 	<p>with Chairman of Kuppam Rural Electric Co-Operative Society Ltd. – Kuppam RESCO, for taking the idea up to the next level implementation.</p>
Project 12: Advanced Accident prevention system using IOT				
	<p>Student Team:</p> <p>1. M.DILEEP KUMAR</p> <p>2. D.VARGHERE</p> <p>3. VIJAY NARASIMHA</p> <p>Mentor: Mr. M.N. Vinay Kumar</p> <p>Project Description:</p>	<ul style="list-style-type: none"> Studied of existing methods & Technology of automobiles. Interacted with local 	<ul style="list-style-type: none"> Consulted local automobile industries for the requirements in developing the proof of concept 	<ul style="list-style-type: none"> The model is presented to Asahidenso Private Limited Company for seeking industry support. The Model is presented

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
12	<p>Problems identified: The problems in present world was the life in real is becoming harder day to day for that we have the vehicle accidents. Life of the people in the accidents can't be saved with lack of knowledge where the accident is occurred and how the accident is occurred like by the person or by the system failure.</p> <p>For that a solution is given in this project where the terminology BLACK BOX is heard in the plains. What we do means we create a black box for vehicles like cars and bikes to intimate the accident location to nearby hospital and also it must store the vehicle details. By this we can reduce the accidents and also, we can find the faults in the system too.</p>	<p>automobile industries.</p> <ul style="list-style-type: none"> Developed detailed concepts on design & implementation. 	<ul style="list-style-type: none"> For PCB design we are associated with Technilab, Bangalore,. The Project team has finally developed a "Demo Model" of the project. 	<p>at Kuppam Engineering college to to draw the Public attention for commercialization.</p>
PROJECT 13: "Solar Powered Smart Umbrella"				
13	<p>Student Team:</p> <ol style="list-style-type: none"> Masanam Balakrishna Amrutha V Sandhya R MANJUNATH <p>Faculty Mentor: Mr.Santhosh B Panjagal</p> <p>Project Description:</p>	<p>Conceptual Level:</p> <ul style="list-style-type: none"> Project team conducted survey on harmful health effects of UV rays. Developed detailed concepts for designing smart umbrella through 	<ul style="list-style-type: none"> Project team held discussion with Mr. Harish, Senior Embedded Developer, Utthunga Technologies, Bangalore, for selection of cost-effective components and simplified techniques for 	<p>Status: Prototype</p> <p>Three versions of self-powered Smart umbrella's developed for use in different application</p> <p>Version-I: SPV UV Umbrella</p> <p>Used for general applications</p>

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	<p>With the increase in Ozone layer depletion, UV Rays coming from sun have direct skin effect and UV index levels are not known to everyone. We propose to develop multipurpose UV umbrella to protect common man, farming laborers, street vendors, construction workers against harmful effects of UV radiation from Sun. It has Unique feature of alerting UV index information if the value reaches its limit (i.e. high, very high & extreme) and the same data will be uploaded to the IOT Cloud and also provides additional features like emergency light, cooling fan, and emergency charging ports for electronic gadgets. This smart umbrella connects with a weather forecast service and shares weather information collected from the server to let users through user-friendly Mobile application. It also has an interesting feature of detecting air contaminants present in the atmosphere and alerts the user.</p>	<p>optimized solutions.</p> <ul style="list-style-type: none"> Developing project plan and roadmap with timeline. 	<p>customized embedded unit implementation.</p> <ul style="list-style-type: none"> Assistance from Mr. Prakash, Computer Science Engineering Dept., KEC R&D, for developing IoT Cloud application. Collaborated with Laxmi electronics & suppliers for Customized solar charger PCB fabrication. 	<p>Feature:</p> <ul style="list-style-type: none"> Solar Powered UV detection LED Lighting(Specially for night during rain) Air Quality sensing Small DC FAN Mobile Charging Port IoT Application for remote monitoring <p>Version-II: SPV UV Umbrella Used for street vendors and individual applications</p> <p>Feature:</p> <ul style="list-style-type: none"> Solar Powered UV detection & alerting LED Lighting(Specially for night & during rain) DC FAN Mobile Charging Port <p>Version-III: Hands-free head mounted UV Umbrella for laborers/ workers in agriculture land.</p>

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
				Feature: <ul style="list-style-type: none"> • Solar Powered • Hands-free (Lightweight) • DC FAN Looking to collaborate with umbrella manufacturers.
PROJECT 14: “OdorSense: Sensing device for alerting health effects of odor pollution”				
14	Student Team: 1. Abdul Hameed 2. D Keerthana 3. M. Devika 4. Sanjay Kumar Jaiswal Faculty Mentor: Mr.Mukesh Project Description: Nowadays there is an increased conflict between residents and government bodies /or industries due to unpleasant or offensive odor smells emanating from different sources, interfacing with person’s enjoyment of life as they are frequent and persistent The main concern among all the residents is the health effects of toxic odor gases (like,	Conceptual Level: <ul style="list-style-type: none"> • Project team conducted real-time survey on health effects of exposure to odor concentrations using Questionnaire based sampling method. • Study of existing techniques/methods for developing optimal solution. • Preparation of detailed project plan and roadmap with timeline. 	<ul style="list-style-type: none"> • Project team worked with Mr.Peddulaih, Chemistry expert and Mr.Ravikumar, Environmental Engg. Specialist of KEC R&D for selection of efficient industrial odor sensors, characterization of sensor measurements and advanced techniques for developing mathematical modelling of Odor gas measurement. • Used Chemistry research lab for 	Status: Demo Product <ul style="list-style-type: none"> • Developed ready to install demo product • Currently, it is installed at our college campus and is under real-time field testing • We agreed to develop customized, low power, low cost Odor sensing device for “Intellibin Solutions Pvt. Ltd.” A student startup company registered at KEC. • Project team presented innovative work in BMESS’21 international

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	<p>ammonia, Sulphur dioxide, nitrogen, hydrogen sulfide) released from the waste dumping sites, drainages, food & meat processing industries, etc., causing dreadful diseases to the living beings</p> <p>Till date very little attention has been paid towards odor pollution issues in India, therefore odor pollution and its problems has become objectionable proportion with the growing population, industrialization, and urbanization. We designed an intelligent (Device) mechanism To Measure & monitoring Odor Concentrations i.e. bad odor coming out of different sources.</p> <ul style="list-style-type: none"> Develop User Interface for providing real time information about the odour concentration levels at the desired source and alerting the health effects and precautionary measures to tackle odor pollution. 		<p>calibrating odor sensors at standard test conditions.</p> <ul style="list-style-type: none"> Dr. Bishwajeet Kumar Pandey, Director-Gyancity Research Consultancy Pvt. Ltd, for presenting our innovation in BMES'21 international conference, Virtual, held @Indonesia and also publishing the demo product work in web of science indexed journal. 	<p>conference, Virtual, held @Indonesia.</p> <ul style="list-style-type: none"> And also published the innovative work in highly reputed international journal 3C Tecnologia, Spain indexed in web of science. Preparing the documents for filing the patent.
PROJECT 15: FABRICATION OF PNEUMATIC PAPER CUP MAKING MACHINE				
15	<p><u>Team Members:</u></p> <p>1.P Ravi sai tej 2.S Mohan kumar 3.R Bhaskar 4.C.Ashok reddy</p>	<ul style="list-style-type: none"> Studying existing problem. Selecting actuation method and materials. 	<ul style="list-style-type: none"> For developing prototype, we had a meeting with Mindset engineering solution and Agrosen private limited and came up with a 	<ul style="list-style-type: none"> Prototype model completed The Demo prototype model demonstrated at near villages like Banganatham,

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	<p>Mentor: Mr. NAGESH N</p> <p>Project Description: Generally, cups and plates are made from plastics. These plastics are harmful and it has many disadvantages. In a pneumatic system, energy is stored in a potential state in the form of compressed air. Working energy is produced in a pneumatic system when the compressed air is allowed to expand. So, in order to do work, a device is required which is able to supply an air tank with sufficient amount of air at a desired pressure. This device is usually a positive displacement compressor. This fabrication of paper cup making machine consists of the pneumatic punching machine, dye cup, screw rod, top plate, bottom plate, direction control valve, flow control valve, connectors and hoses. Compressor supplies high pressure air to the cylinder, whose flow is controlled by a flow control valve. The air passes through a direction control valve. This is used to actuate the piston and to specify its direction of movement. The piston and punch are the moving parts in this machine. The dye is fixed on the base of the machine by screw rods. The height of the base</p>	<ul style="list-style-type: none"> • Creating cad model by using CATIA. • Developed detailed design and concept. • Based on existing problem and customer requirement we are going to develop a prototype model. 	<p>primary design</p> <ul style="list-style-type: none"> • For additional information, we consulted to Arec bio leaf center tirupathi, Ajaya engineering works and exports Bangalore. • We have simplified the design also made it cost efficient and affordable to every rural employs and women's. • Project team was able to do die design of cup making machine. • For this machine we can made different cups • Project team has finally developed a "proto type model" of low cost pneumatic cup making machine. • This cup making machine helps the employs in large scale. 	<p>Vasanadu &Arec bio leaf center tirupathi.</p> <ul style="list-style-type: none"> • Tie up with small bio leaf manufacturing companies. • With this model we can achieve the production rate of 120-150 pcs/hr • we can get a production of on an average 1000 pcs/day • Will collect suggestions from expertise for improvisation. • We are going to develop product.

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	can be adjusted by rotating the screw rod. The punch, punches the paper placed over the die. The paper placed will be wet. To recover the wetness and make the shape stable a heating coil is placed in the die of this paper cup making machine. The cup can be taken out and the next paper can be placed over the die for the next cycle			
PROJECT 16 : “Design and Fabrication of livewire detector casing by using CAE Technique”				
16	<p><u>Team Members:</u></p> <p>1. 4. G.Lokesh 2.B.Hanumanthu 3.S.Ashok Kumar 4.Keshava</p> <p>Mentor: Mr. S N Nagaraj</p> <p>Project Description: A faulty live electrical line in remote areas and forest endangers the lives of Human beings and Animals. To overcome this, we have designed a device which will detect the faulty live wires. The device is prone to multiple impact damages, since it is carried in remote and hill stations. Taking all this impact loads into consideration</p>	<ul style="list-style-type: none"> Developed detailed design and concept Creating 3D Model by using Catia. Material and process selection. CAE Analysis is completed 	<ul style="list-style-type: none"> For developing product model to meet SOCH CAD Pvt Ltd,Indranagar,Bangalore and Jayalakshami industry, Mahadevapur,Bangalore To analyses impact resistance will be conducting Drop test. We have simplified the design also made it cost efficient and affordable. Project team was able to do vacuum casting for 	<ul style="list-style-type: none"> Prototype model completed The Demo prototype model demonstrated at World Wide Fund (WWF) Jabalpur. Tie-up with SOCH CAD Pvt.ltd Indira nagar, Bangalore. MoU signed between Kuppam Electro Solutions Pvt. Ltd, and World Wide Fund (WWF) for Nature. Will collect customer

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	the casing is designed and manufactured into two ways, the Vacuum casting and 3D Printing. The first PCB design is completed and according to PCB the casting is modelled and then designed using a Solid works Software and then analysed using ansys software for various Mechanical Properties and after multiple iteration Mechanical properties are optimized and then will go for proto type manufacturing		casing. <ul style="list-style-type: none"> For this casing, we can made different iteration with different material Project team has finally developed a product. 	suggestion for improvisation.
PROJECT 17: “Design and fabrication of MULTIPURPOSE AGRIBOT”				
17	Team Members: 1. Santhosh.C 2.T. Prasad 3.K.Vamsi Krishna 4.G.Harshavardhan Mentor: Mr. Naveen Kumar Project Description: This Agrirobotic vehicle is an agricultural machine of a considerable power and great soil clearing capacity. This multipurpose system gives an advance method to sow, plough, watering and harvest the crops with minimum man power and labor making it an efficient vehicle. The machine will cultivate the farm by considering particular rows and specific column	<ul style="list-style-type: none"> Studying of existing problems & Technology of Agribot Interacted with rural farmers & Collected data for precision technology of seed sowing Material selection is done. Creating a CAD Model by using CATIA V5. Developed detailed 	<ul style="list-style-type: none"> For developing product model to meet mind set engineering solution and manufacturing companies. We are going to take field survey Will collect farmer suggestion for improvisation. For proof of concept we have to meet agriculture university at GKVK, Bangalore and Atal 	<ul style="list-style-type: none"> The Demo prototype model demonstrated at agriculture university, Kuruburu, Chintamani and Atal incubation centre, S.K.R University Ananthapur Tie up with small scale farmers in rural. Collecting feedback data from farmers and experts. We are going to develop proto type model to product level.

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	at fixed distance depending on crop. Moreover the vehicle can be controlled through Bluetooth medium using an Android smart phone. The whole process calculation, processing, monitoring are designed with motors & sensor interfaced with microcontroller.	design concepts & implementation.	<p>incubation centre CEO Mr Sathish Kumar for proof of concept</p> <ul style="list-style-type: none"> • We have simplified the design also made it cost efficient and affordable to every rural farmer • Project team was able to do chassis frame design • For additional information to consult Atal incubation centre Ananthapur • We have to go field test after completion of prototype model. 	<ul style="list-style-type: none"> • Based on the farmer and experts suggestions, we are going to scale up the model.
PROJECT 18: Design and fabrication of low cost solar mini De-Weeder				
18	Team members: 1.B.Muneesh 2.G.Prakash 3.J.Vinay 4. R Mukesh	<ul style="list-style-type: none"> • Studying of existing problems & Technology of weeders • Interacted with rural 	<ul style="list-style-type: none"> • For developing product model to meet mind set engineering solution and manufacturing companies. 	<ul style="list-style-type: none"> • The Demo prototype model demonstrated at agriculture university, Kuruburu, Chintamani. • And Atal incubation centre, S.K.R University

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	<p>Mentor: Mr. K Ganesh</p> <p>Project Description: This project deals with the design and fabrication of solar mini de weeder to cut the Weeds which are presents in the field of crops and plants. This equipment utilizes the solar energy to cut the weeds. It works based on solar photovoltaic effect to generate solar energy, to run this equipment which moves the cutter or tiller. It is great saver of time and expenses on field operations. Thus it develops high efficient, Versatile machine. This solar mini weeder enhances the labour productivity, reduced unit cost of operation, improved timeline of operation and also it gives immense effect on handing of equipment that is it do not requires an skilled labour to drive the equipment.</p>	<p>farmers & Collected data for precision technology in weeder or tiller</p> <ul style="list-style-type: none"> • Material selection is done. • Creating a CAD Model by using CATIA V5. • Developed detailed design concepts & implementation. 	<ul style="list-style-type: none"> • We are going to take field survey • Will collect farmer suggestion for improvisation. • For proof of concept we have to meet agriculture university at GKVK, Bangalore and Atal incubation centre CEO Mr Sathish Kumar for proof of concept • We have simplified the design also made it cost efficient and affordable to every rural farmer • Project team was able to do plough blade design • For additional information to consult Atal incubation center, Ananthapur • We have to go field test after completion of 	<p>Ananthapur</p> <ul style="list-style-type: none"> • Tie up with small scale farmers in rural. • Collecting feedback data from farmers and experts. • We are going to develop proto type model to product level. • Based on the farmer and experts suggestions, we are going to scale up the model.

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
			prototype model.	
PROJECT 19 : Solar water purification system using thermal method				
19	<p>Team members: 1.Y V Siva reddy 2.M Nirmal kumar 3. N Yashawanth 4. A.Sagar</p> <p>Mentor: Mr. R Rajesh</p> <p>Project Description: Solar water purification system is a water purification system at household level based on solar radiation treatment and water distillation with additional use of solar heating. It is a combination of two water purification processes, the solar water disinfection system (SODIS) and the solar distillation process. Since SODIS is only ideal to disinfect small quantities of low turbidity, micro biologically contaminated water, a solar heater still is added to the system to address the issue of heavily contaminated water such as sea water, water with high turbidity and water contaminated by heavy metal or pathogenic microorganisms. Solar water disinfection is an effective way to disinfect</p>	<ul style="list-style-type: none"> • Feasibility study. • We are studying on existing problem and technology. • Deveoped detailed concept on design and implementations • Based on existing problem and households suggestions we are going to develop a prototype model 	<ul style="list-style-type: none"> • For developing prototype model to meet Mindset solution engineering, Vijayanagar, Bangalore. • For additional information to consult BCN water plant, Kuppam. • Tie up with some local water plants • We have to go water quality information test after completion of prototype model. 	<ul style="list-style-type: none"> • Proto type model completed • Start-up Company for developing solar water purification plants. • Tie-up with ISO standard water plants. • It can be used in households.

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	drinking water as it is recommended by World Health Organization. The solar water purification system uses only solar energy and can be built using recycling materials, thus the system is environmentally sustainable.			
PROJECT 20 : Low cost stir casting machine				
20	<p>Team members: 1.M.Chandra sekhar 2.M.Manjunath 3.K.Harish 4.Mani</p> <p>Mentor: Mr. Raghunath Reddy</p> <p>Project Description: The Aluminum metal matrix composites are the advance materials which have the capability to provide high strength to weight ratio and have high demand in the automobile as well as aerospace industries. The problem is only associated with high cost. During this review of fabrication of low cost Aluminum Metal Matrix Composites by stir casting method, the important facts can be discussed as below – 1. The Stir casting process is one of the low cost fabrication process due to low setup cost</p>	<ul style="list-style-type: none"> Studying the existing requirement from scholars and students Material selection. Creating a CAD Model by using CATIA V5. Developed detailed design concepts & implementation 	<ul style="list-style-type: none"> For developing product model, we visited B K Industries Pvt Ltd., Coimbatore. Raw material procurement Analyze existing design and simplifying it to make more affordable and easy to use. Met fabrication expert from adiyaman engineering college After that our team was able to do model setup. 	<ul style="list-style-type: none"> Working Setup is completed. Based on the experts and scholars feedback the stirrer speed was reduced. Till today five batches of students have casted various alloys. Previously for our experience, we have casted without any charge. Our future casting will be charged based on the alloy and no of castings.

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	<p>simple process and easy portability.</p> <p>2. There are several low cost reinforcements are available which can enhance the mechanical properties</p> <p>3. The effective parameters in stir casting method which are responsible for process control are particle size and percentage of volume mixed of reinforcement, pouring temperature and Stirring Speed.</p> <p>4. Promising future and opportunities The technological advancement in material science both in the area of new methods for processing the properties for their applications in various field of industry and defense sector, is demanding large number of highly specialized and sophisticated aluminum composites .</p> <p>From this stir casting machine we can produce small amount of composite materials with low cost.</p>			
Additional Projects				
Project 21: E-Kart				
21	Student Team: 1. R. Venkatachalam 2. Abdul Hameed 3. Akhila Faculty Mentor : Ms. H B Pavithra	<ul style="list-style-type: none"> • ‘Analysis Level” • A survey was conducted in the local super market 	<ul style="list-style-type: none"> • Consulted the ADS super market and JK Super market located in the Kuppam Municipal town in developing the 	<ul style="list-style-type: none"> • The “Demo Model” is demonstrated at “Kuppam Engineering College” and to draw the supermarkets attention

Sl. No	Team/Project Discussion	Project status at the beginning of the year	Interventions made	Current status
	<p>Project Description:</p> <p>Super market is a self-service shop offering a wide variety of food, beverages and household products, organized into sections. The main benefits of supermarket are low price, rapid and large-scale sale, low operating costs, freedom of choice to the consumers and large amount of profit.</p> <p>But in Super markets or shopping malls, customers face a difficulty to follow a queue for the process of billing, which takes a long time under huge crowd. Customer thought that, to avoid the standing time in the billing section at shopping malls. To overcome the above problems, we emerged the E-Kart system. To increase the pace of a billing process.</p>	<p>about the usage of trolley and carts</p> <ul style="list-style-type: none"> • Prepared the solution for the problem of billing and waiting in the Q-line for long time. • Analyzed the utilization of the project and prepared the business plan. • Prototype model was ongoing. 	<p>proof of concept</p> <ul style="list-style-type: none"> • Consulted with EveZon India Private Limited company for the designing the prototype in effective way. • For PCB design we are associated with Technilab Instruments, Bangalore. • The project team had made the “Demo Model” of the project and started testing. 	<p>for commercialization.</p> <ul style="list-style-type: none"> • Visited the super markets in Kuppam for presented the model. • patent searching and filing is under progress. •

- **Please Submit three/four high resolution (at least 300 dpi) pics in jpeg format showing the prototype/product along with the students and their mentor.**

-----Refer ENCLOSURE-II for Project Prototype Photos-----

- 5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:**

-----Refer ENCLOSURE-III for Best Projects/Products/Start-up Journey ----

ENCLOSURE-I: ACTIVITIES PHOTOS

Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

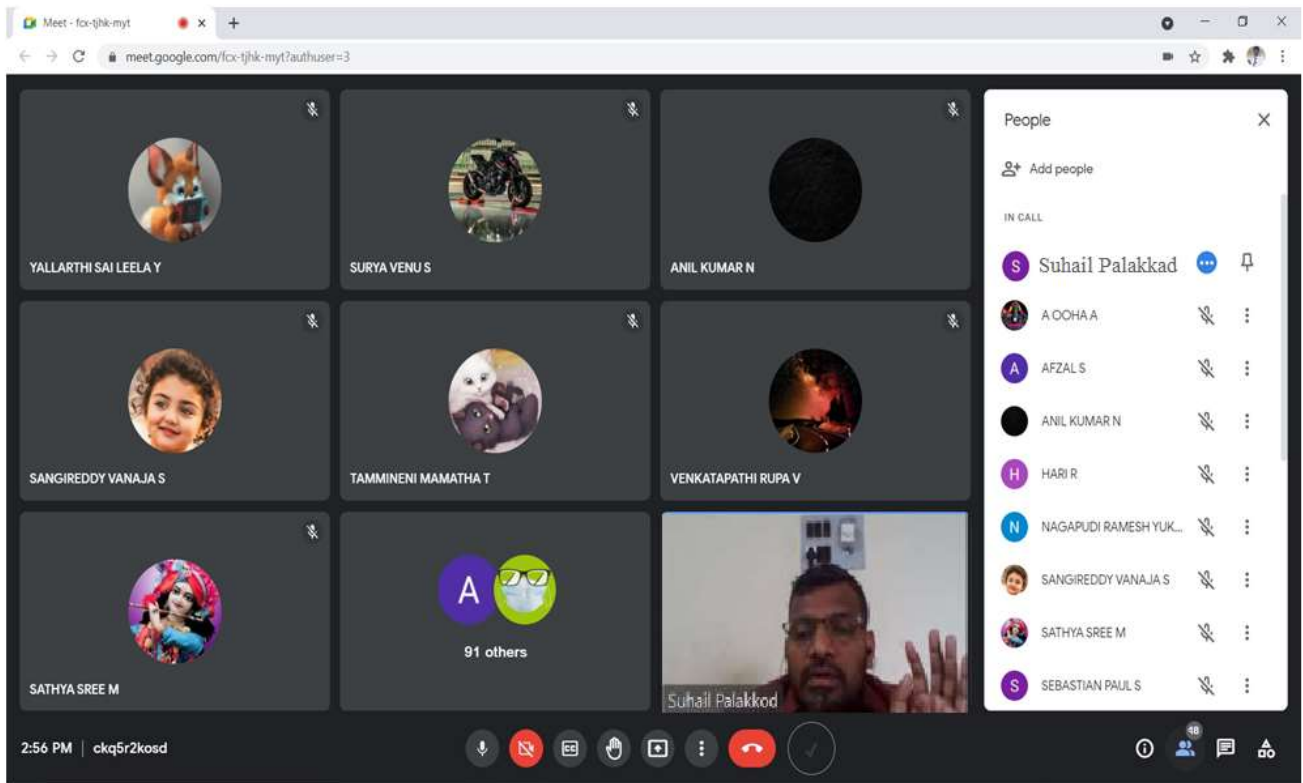
1. “Entrepreneurship & its competencies” by Mr.Ravindra, Career Guide & Mentor for NGO's, Bangalore. Held on 5th January, 2020.



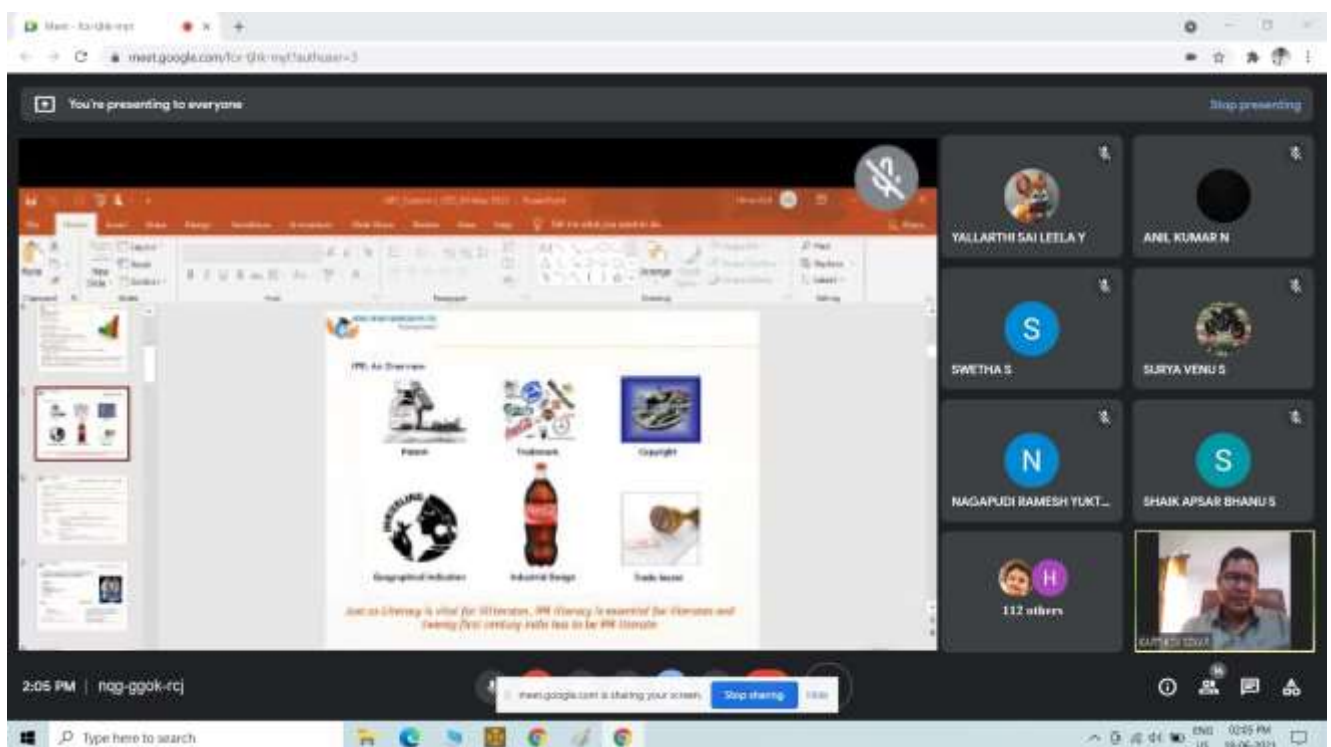
2. Two days' workshop on "Innovation, Incubation, and Start-up Ecosystem" on 23rd and 24th February, 2020 By Dr. Siva Kiran, Manager, Atal Incubation Centre, SK University, Anantapuramu



3. “Innovation to Entrepreneurship Journey” by Mr. Sohail.P, Chairman, SEED Foundation, Kerala, Held on 14th April, 2020



4. “Market Survey on Innovations” by Karthik Shekar, Incubation Manager, Atal Incubation Centre, SK University, Ananthapur held on 21st November,2020.



[B] To identify, develop & commercialize students' innovative ideas

1. “Ideation: Harnessing Innovations” Idea Competition held on 8th March, 2020,

Invitee Judge: Ms. C. Bhagavathi ,Senior Engineer, Nielsen, Bangaluru



2. "IDEATHON-2K21" Held on 26th February, 2021, chief coordinator, coordinators and mentors of NewGen IEDC scrutinized all the ideas based on performance metrics.



KUPPAM ENGINEERING COLLEGE

KES Nagar, Kuppam, Chittoor(Dist), A.P-517425

Supported By
NewGen IEDC, IIC MHRD



EDII
DST, Govt. of India



INSTITUTION'S
INNOVATION
COUNCIL
(Ministry of HRD Initiative)



IDEATHON-2K21

Explore the Power of Idea



UNLEASH YOUR
creativity

Brainstorming

EVENT DATE:
FEBRUARY 26, 2021



TECHNOLOGY
INNOVATION



**Reward for
Best
IDEA**

Awards!

1st Prize: Rs.5000
2nd Prize: Rs.3000
3rd Prize: Rs.2000
4th PRIZE: Rs. 1000



**Creative
BUSINESS
Idea**

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Founder & Chairman,
B.C.N Group of Institutions, Kuppam.

Dr.N.Sunil Raj, M.B.B.S
Vice Chairman,
Kuppam Engineering College, Kuppam.

Sri. N.Sagar Raj, B.Tech,M.B.A
Chief Executive Officer,
B.C.N Group of Institutions, Kuppam.

Patrons

Dr. S.Sudhakar Babu,M.E,Ph.D
Principal,
Kuppam Engineering College,
Kuppam.

Dr. S.Bhaskaran M.Tech,Ph.D
Vice-Principal,
Kuppam Engineering College, Kuppam

Convener

Dr. G.N.Kodanda Ramaiah,M.Tech,Ph.D
Chief Coordinator,
NewGen IEDC, KEC-Kuppam

SELECTION PROCESS:

First Round: Screening Process

Register & Submit the Paper@Below Link
<https://forms.gle/X5HPgIv6sUoyMXhp7>

Second Round: Presentation

Presentation Contents:

- > Origin/Need Of the IDEA
- > Specific Problems/Gaps Identified
- > Proposed Innovation(Uniqueness)
- > Similar Products/Services in the Market
- > Target Audience/Customers
- > Market Size & Growth Potential

Event Co-ordinators:

ECE Department:
Mr.Santhosh B Panjagal, M.Tech, (Ph.D)
Mr.M Lakshmipathy, M.Tech, (Ph.D)
Mr.P Ajay Kumar Reddy, M.Tech, (Ph.D)
Dr.K Rasadurai, M.E, Ph.D
Mr.T Jayasimha, M.Tech
Mr.M N Vinay, M.Tech

EEE Department:
Mr. S Zabiulla, M.Tech

Mechanical Department:
Mr.S N Nagaraj, M.Tech

CSE Department:
Dr.D Sumathi, Ph.D

Important Dates:

Last Date for Paper submission:
18-02-2021, 6 PM

First Round Results:
22-02-2021, by 6 PM

Paper Presentation Date:
26-02-2021, 10 AM

***Result Announcement & Prize
Distribution on the same Day of
the Event.**

EVENT VENUE:

Seminar Hall, NewGen IEDC
Kuppam Engineering College, Kuppam




3. “Business Canvas Model Development & PPR” by Dr. Siva Kiran, CEO, Atal Incubation Centre, SK University, Anantapuramu, on 18th August, 2020


REC


Incubator Name: AIC-SKU Confederation		Developed By: Shiva Kiran		Session #: Q3
Entrepreneur Segments & Selection Criteria: Mostly idea stage, individual driven, agriculture & eco friendly & sustainable, rural segment. We use 60 indicators with 10 point scale, clarity on the problem, solution, impact, business opportunity, scalability, team and commitment for going forward. Impact, Scalability, Team	Positive Sources and Channels: Flagship programs, seminars, startup, marathons, challenges, etc. Website, cohort invitations Academic Partners: External Ecosystem and Partners: Host Institute (SKU) TIC Hyderabad Duffin Group, IIMB Fellow AICs/Incubators For market access, funding, tech support, mentor support	Value Propositions: Co-working space & make space for agriculture Access to the grassroots sources of raw materials Scientific/tech know-how Mentor & investor access	Entrepreneur Training Program: Workshops defined while onboarding the incubation for 24 months Mentor attached Mentor mentor engagement reviewed periodically Resources & Facilities: Capital, IP, prototyping, marketing expertise Co-working space, labs, agri make space/industrial shed, Host Institute, labs	Outcomes and KPIs: Partners engaged Academic Corporate Ecosystem Funding Successful exits IP generated Funds raised Idea created by startups Impact Indicators women benefited improving farmers income
Funding Sources and Sustainable Revenue Streams: Govt. support, Rent, Consultancy, Equity, Interest on the Loans, Partnership fee, CSR		Cost Structure: About 2 lakhs for a batch of 25 students for a pre-incubation program (specimens for the core team-12 Lakhs, POC, Marketing 5 lakhs, Training program 35k to 1 lakh, Digital tools 3 lakhs, Mentor support 5-6 lakhs, IPW 2 lakhs; prototype services 13 lakhs)		

AIC - SKU is presenting




Dr. Shivakiran





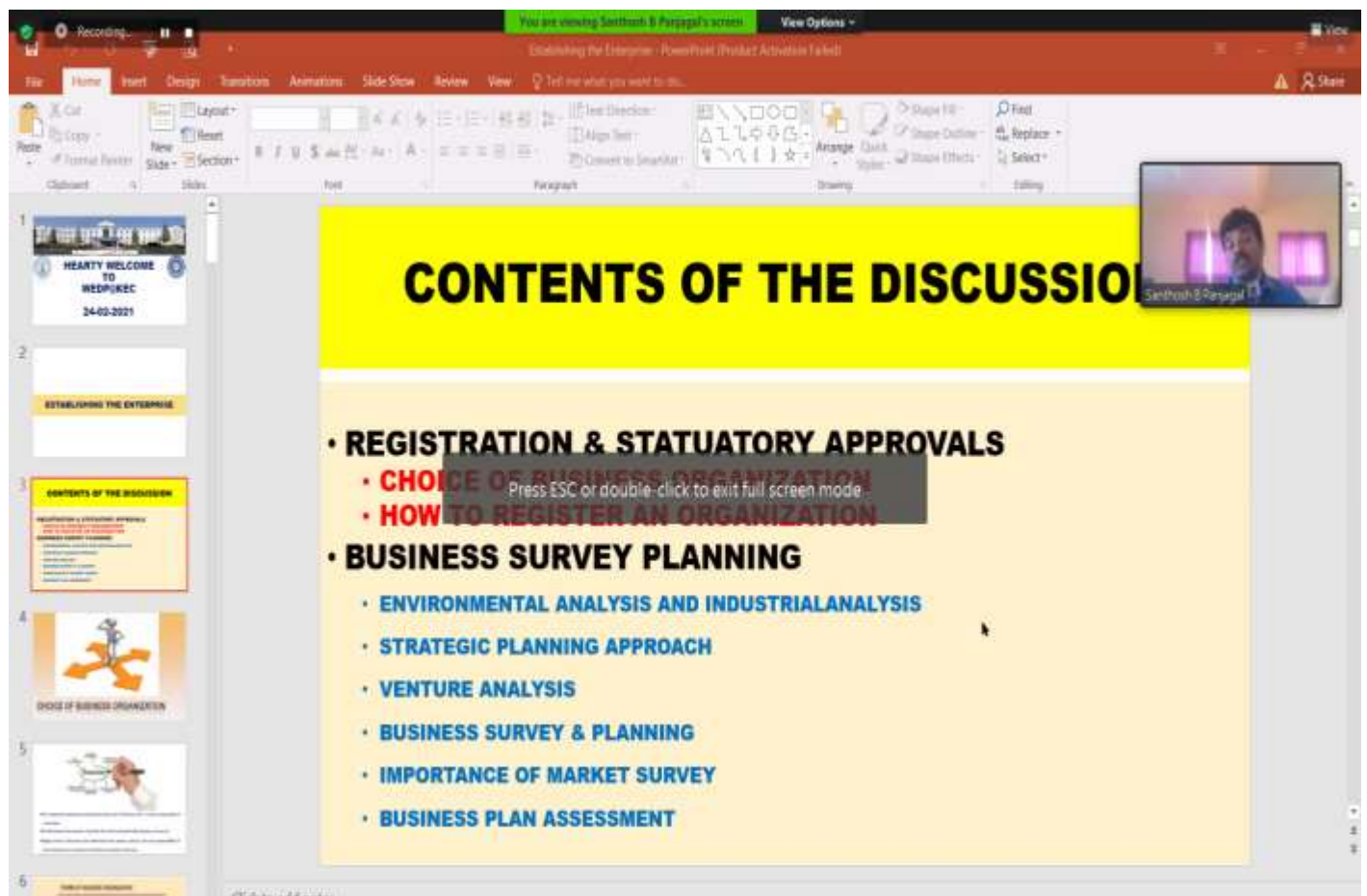
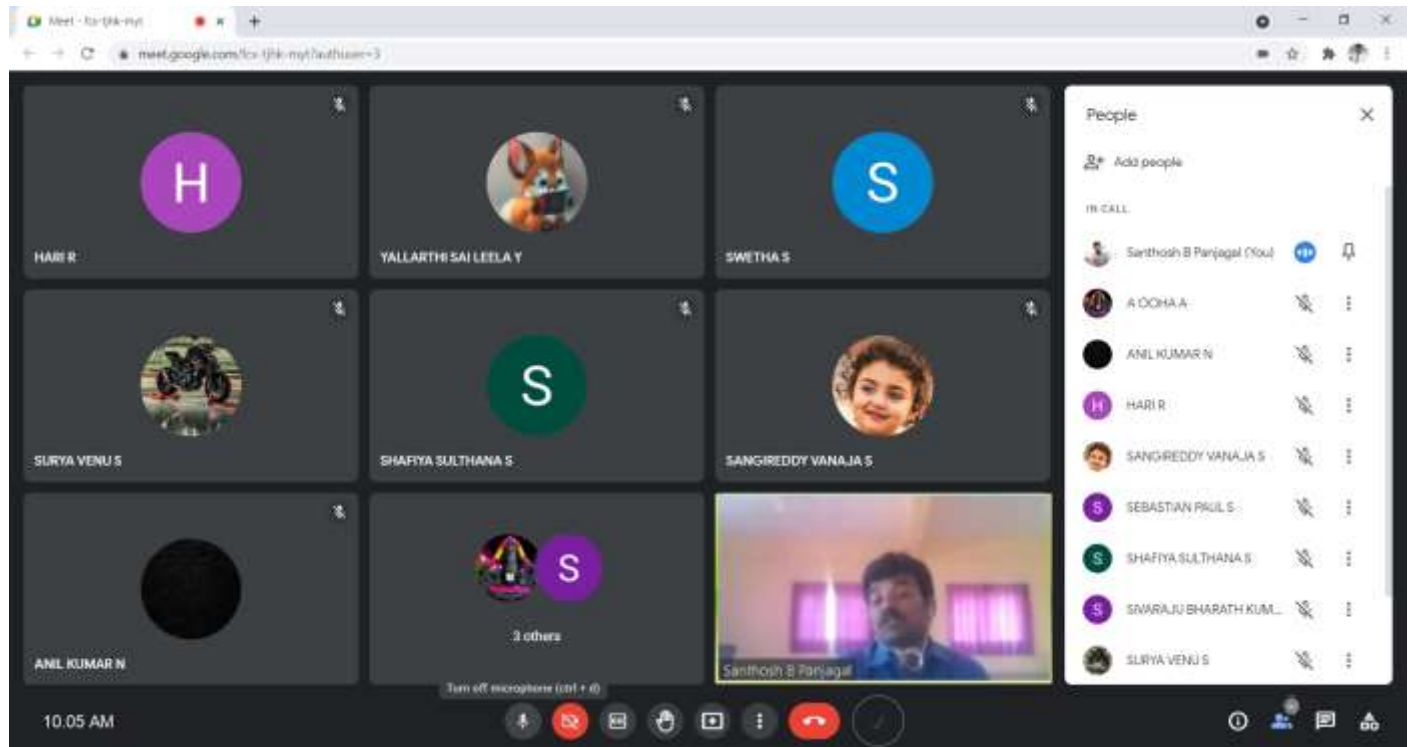
AIC - SKU



msg smith 103 others

4. "Selection of Business Organization & Registration Process" on 29th September, 2020.

Resource Persons: Mr. Santhosh B Panjagal, Director, Intellibin Solutions Pvt. Ltd., Kuppam Engineering College.



[C] To enhance Industry-Academia interaction

1. A 3 Days National Level Online Workshop on “Introduction to Web Development” in collaboration with "SKILL TO HIRE" During 7th - 19th July 2020. Platform: <https://www.youtube.com/watch?v=R-XnhuVBDYw&feature=youtu.be>

Registration Form

Three Days National Level Online Workshop on “Introduction to Web Development”

Date: 17th – 19th July 2020
Time: 6:00 PM to 8:00 PM

For Registration link:
<https://www.skilltohire.com/workshop/79>

Once the registration form is filled, participants will get confirmation mail before 17th July 2020.

Whatsapp link:
<https://chat.whatsapp.com/C6UfTe3Ffva3Dr6ESXleFNJ>
<https://chat.whatsapp.com/CIGV47eM7MCLCWInG4v5Bp>

Telegram link:
<https://t.me/joinchat/RF6tBr3Cd4LR3BIBrm9MA>

Coordinator:
Dr. K. Rasadurai, M.E. Ph.D.,
SPOC-NPTEL, Department of ECE
KUPPAM ENGINEERING COLLEGE, KUPPAM.
Email: krasadurai@gmail.com, Cell 9442316011



Chief Patrons:

Sri B.C. Nagaraj, M.B.A.,
Chairman, BCN Group of Institutions
Dr. N. Sunil Raj, M.B.B.S.,
Vice Chairman, KEC
Sri N. Sagar Raj, M.B.A.,
CEO, KEC

Patrons:

Dr. S. Sudhakar Babu, M.E., Ph.D, *Principal*
Dr. G.N. Kodanda Ramaiah, M.Tech, Ph.D
Director R&D, HOD.ECE
Dr. S. Baskaran, M.E., Ph.D, *Vice Principal*

Advisory Committee:

Dr. Ramesh K. M.E., Ph.D *HOD, EEE*
Mr. Logesh K. M.E., (Ph.D), *HOD, CSE*
Mr. K. Ganesh, M.Tech., (Ph.D), *HOD, ME*
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Mr. J. Madhavan, M.Sc., M.Phil., *HOD, HAS*
Dr. C G Saravana, M.L.I.S., M.Phil, Ph.D, *Librarian*
Dr. D. Jayakumar, M.E Ph.D, TPO, CDC



 **skill to hire**

Three Days National Level Online Workshop on “Introduction to Web Development”

Date: 17th – 19th July 2020
Time: 6:00 PM to 8:00 PM

 Organised by  **NBA**

Kuppam Engineering College
KES Nagar, Kuppam - 517425.
Chittoor Dist., Andhra Pradesh
www.kec.ac.in

In associate with
skill to hire



youtube.com/watch?v=R-XnhuVBDYw&feature=youtu.be

Day 1

- What is Web Development
- What is Front End
- What is Back End
- Technology used in Web Development
- Setting Up Environment
- HTML
- Layout
- Tags
- Semantics
- Intro to CSS

Introduction to Web Development-Day 1

6,151 views · Streamed live on Jul 17, 2020

200 likes · SHARE · SAVE

Skill To Hire
3,524 subscribers

APPLY TO LUT

CHAT

- santhia pal: hello everyone
- Rachana's Koushan: gud evening all
- Samarwita Bhawal: Good evening
- Sanjay 21: good evening all
- sunish babu: good evening to all
- pragati patil: Good Evening All
- Abu Atjan Fan Belokis: good evening all
- Riya Sharma: Good evening all
- Purusha Gollipalli: Good evening all
- Ragu Jatsath: hi... all... hello everyone...
- Vagdeviwar Padmanabham: good morning to all
- ARCHANA: good evening all
- Swartha Kando: good evening all
- VICE (ABEELING): GOOD EVENING
- Anish Patil: Good Evening everyone
- Ragu Jatsath: I have some network issue... that's why iam facing difficulties

WEE CHAT PREVIEW

2. “IPR PROTECTION FOR CREATION OF MIND” by Dr.K K Baseer, Coordinator, IPR Cell and IIC Innovation Ambassador for IPR & TT SVEC, Tirupathi, On 25th July, 2020.

KUPPAM ENGINEERING COLLEGE
(Approved by AICTE & Affiliated to JNTUA, Recognized of UGC 2(F) & 12(B))
KES Nagar, Kuppam – 517425, Chittoor Dt., Andhra Pradesh
Ph: 08570-256966 (O), 256988 (R), www.kel.ac.in

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

INSTITUTION'S INNOVATION COUNCIL
(AMBASSADORS OF IPR & TT)

Organizing a
National Live Webinar

“IPR - PROTECTION FOR CREATION OF MIND”

Guest Speaker
Dr. K. K. Baseer
Coordinator, IPR Cell &
IIC Innovation Ambassador for
IPR & TT
SVEC, Tirupathi

25th
JULY 2020
4.30 PM

Registration Link
<https://forms.gle/wdp9Yh1NRWWyWNn6>

Target Audience: UG / PG Students only

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Founder & Chairman
Dr. N. SunilRaj., MBBS
Vice Chairman
Sri. N. SagarRaj., BE., MBA
CEO

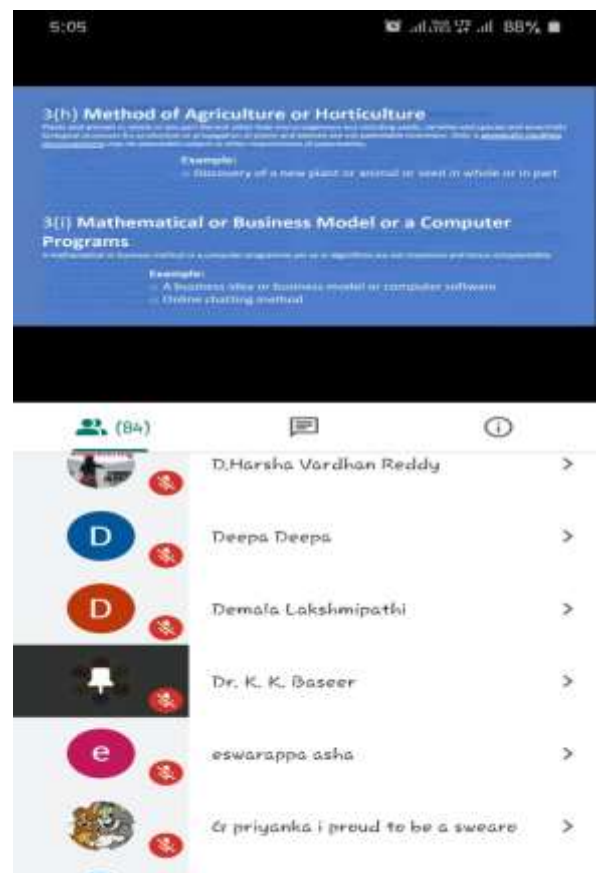
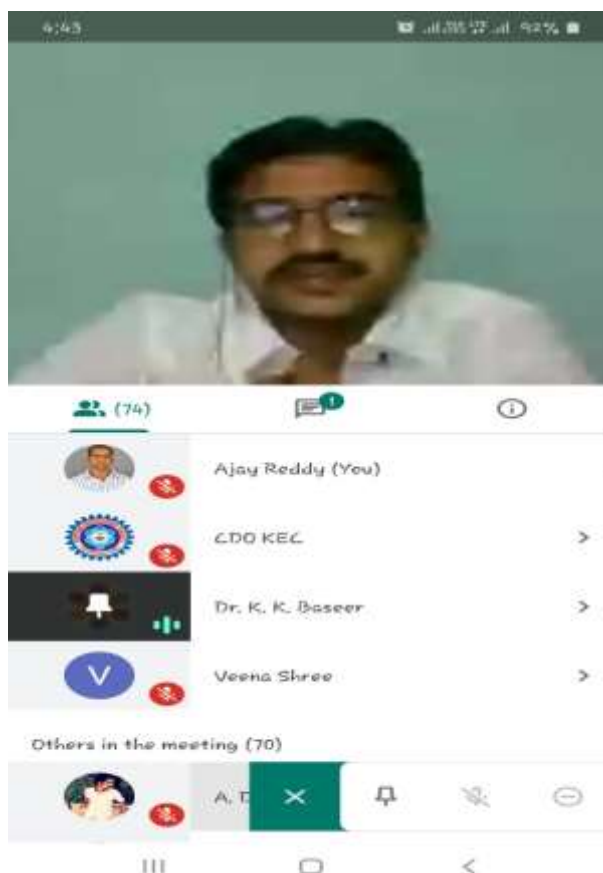
PATRONS
Dr. S. Sudhakar Babu., M.Tech., Ph.D.,
Principal
Dr. S. Baskaran., M.Tech., Ph.D.
Vice Principal

CONVENOR
Dr. G. N. Kedandaramaiah., M.Tech., Ph.D.,
HOD/ ECE & R&D Director

Registration is Free

E-Certificate will be provided

COORDINATORS
Dr. D. Jayakumar., M.Tech., Ph.D.,
Asst. Prof / ECE
TRAINING AND PLACEMENT OFFICER
Mr. P. Ajay Kumar Reddy., M.Tech., [Ph.D]
Asst. Prof / ECE
9609928625, 7961532864, 9851340210
Dr. S. Nandakishore., M.Tech., Ph.D
Asst. Prof / ECE



3. A 3 DAYS NATIONAL LEVEL ONLINE WORKSHOP ON “**ROBOTICS**” in collaboration with "SKILL TO HIRE" During 31st July – 2nd August 2020,

Platform: <https://www.youtube.com/watch?v=QV4SSkXd5Hk&feature=youtu.be>

Registration Form

Three Days National Level Online Workshop on “ROBOTICS”

Date: 31st July – 2nd August 2020
Time: 4:00 PM to 6:00 PM

For Registration link:
<https://www.skilltohire.com/workshop/71>

Once the registration form is filled, participants will get confirmation mail before 31st July 2020.

Whatsapp link:
<https://chat.whatsapp.com/LQ7PujycHV9PsgTM7LwrG>

<https://chat.whatsapp.com/EdDQF9tEHscCHcjfBXslzm>

Telegram link:
<https://t.me/joinchat/Rf6tBETA7Dc7c7ejb9pw>

Convener
Dr. K. Rasadurai, M.E. Ph.D,
SPOC-NPTEL, Department of ECE
KUPPAM ENGINEERING COLLEGE, KUPPAM.
Email: krasadurai@gmail.com, Cell 9442316011



Chief Patrons:

Sri B.C. Nagaraj, M.B.A.,
Chairman, BCN Group of Institutions

Dr. N. Sunil Raj, M.B.B.S.,
Vice Chairman, KEC

Sri N. Sagar Raj, M.B.A.,
CEO, KEC

Patrons:

Dr. S. Sudhakar Babu, M.E., Ph.D,
Principal

Dr. G.N. Kodanda Ramaiah, M.Tech, Ph.D
Director R&D, HOD,ECE

Dr. S. Baskaran, M.E., Ph.D,
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Mr. P. Ajaykumar Reddy M.Tech (Ph.D) AP/ECE
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Email: skivakumar990@gmail.com, Cell: 9700554296





Three Days National Level Online Workshop on “ROBOTICS”

Date: 31st July – 2nd August 2020
Time: 4:00 PM to 6:00 PM

Organised by 

Department of Electronics and Communication Engineering
Kuppam Engineering College
KES Nagar, Kuppam - 517425,
Chittoor Dist., Andhra Pradesh
www.kec.ac.in

In associate with




4. A 4 DAYS NATIONAL LEVEL ONLINE WORKSHOP ON “**INTRODUCTION TO IOT & ARDUINO**” in collaboration with "SKILL TO HIRE" During 10th-12th August 2020

Platform: <https://www.youtube.com/watch?v=huzEAoqhl6E&feature=youtu.be>



A three day workshop on Introduction to Internet of Things and Arduino

Introduction to IoT and Arduino: Day 1

6,877 views • Streamed live on Aug 10, 2020

Like 388 Dislike 1 Share Save

Skill To Hire

Type here to search

10-01-2021



<p>Registration Form</p> <p>Three Days National Level Online Workshop on “Introduction to IoT & Arduino” Date: 10th – 12th August 2020 Time: 6.00 PM to 8:00 PM</p> <p>For Registration link: https://www.skilltohire.com/workshop/90</p> <p>Once the registration form is filled, participants will get confirmation mail before 10th August 2020.</p> <p>WhatsApp link: https://chat.whatsapp.com/lynMcj1j8594gZfZtd6Su https://chat.whatsapp.com/Eunamc90WUjLwag5ViqPjp</p> <p>Telegram link: https://t.me/joinchat/RF6ltBzK-upZT0uJNRunmdg</p> <p>Convenor: Dr. K. Rasadurai, M.E. Ph.D, SPOC-NPTEL, Department of ECE KUPPAM ENGINEERING COLLEGE, KUPPAM. Email: krasadurai@gmail.com, Cell: 9442316011</p> 	<p>Chief Patrons:</p> <p>Sri B.C. Nagaraj, M.B.A., <i>Chairman, BCN Group of Institutions</i></p> <p>Dr. N. Sunil Raj, M.B.B.S., <i>Vice Chairman, KEC</i></p> <p>Sri N. Sagar Raj, M.B.A., <i>CEO, KEC</i></p> <p>Patrons:</p> <p>Dr. S. Sudhakar Babu, M.E., Ph.D, <i>Principal</i></p> <p>Dr. G.N. Kodanda Ramaiah, M.Tech, Ph.D <i>Director/R&D - HOD/ECE</i></p> <p>Dr. S. Baskaran, M.E., Ph.D, <i>Vice Principal</i></p> <p>Convenor:</p> <p>Dr. K. Rasadurai, M.E Ph.D Email: krasadurai@gmail.com, Cell: 9442316011</p> <p>Coordinators:</p> <p>Dr. S. Nanda Kishore, M.Tech, Ph.D, Asso.Prof/ECE Email : nankishor@gmail.com, Cell: 79818 32264 Mr. M. Lakshminpathy, M.E, (Ph.D), Asso.Prof/ECE lakshminpathiee@gmail.com, Cell: 96664 13937 Mr. V. Harinath, M. Tech, (Ph.D), Asso.Prof/ECE Email: harinathv@kec.ac.in, Cell: 94928 38715 Mrs J. Narmadha, M.Tech, Asst.Prof/ECE Email: narmadha004@gmail.com, Cell: 80722 66099</p> 	<p> skill to hire</p> <p>Three Days National Level Online Workshop on “Introduction to IoT & Arduino” Date: 10th – 12th August 2020 Time: 6:00 PM to 8:00 PM</p> <p> Organised by</p> <p>Department of Electronics and Communication Engineering Kuppam Engineering College KES Nagar, Kuppam - 517425. Chittoor Dist., Andhra Pradesh www.kec.ac.in</p> <p>In associate with skill to hire</p> 
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ENCLOSURE-II

Photos of Prototype/Product Modules along with students & Mentor Team

PROJECT 01: SMART TOILET



Project team with Smart Toilet Prototype Module



Smart Toilet Controlling Device

PROJECT 02: "MULTILANGUAGE EDUCATIONAL E-TOY"



Project team with E-Toy Prototype



PROJECT 03 : Automatic Siren



Automatic Siren Prototype model-1



Automatic Siren Prototype model-2

PROJECT 04: “REAL TIME GAS LEVEL INDICATOR ALERTING SYSTEM FOR INDUSTRIAL, HOSPITAL AND DOMESTIC APPLICATIONS”



Project Team with Porotype Module



PROJECT 05 : “IOT BASED AUTOMATED AQUACULTURE SYSTEM WITH CLOUD ANALYTICS”



Project Team with Porotype Module



Aquaculture Prototype Module

PROJECT 06 : "BIO WASTE DEHUMIDIFIER AND COMPOST MAKING SYSTEM"



Project Team with Compost Making Machine



Internal Design of Bio-Waste Cutting, Dehumidifying and Compost making Blocks

**PROJECT 07 :”SMART MICRO FARM: IOT BASED SPIRULINA GROWTH
MONITORING SYSTEM”**



Project team with Spirulina culture development module

Project 08: Automatic Hand Sanitizer Dispenser



Project Team with Automatic Sanitizer Dispenser



Real-Time Demonstration of Automatic Sanitizer Dispenser installed@ Principal Chamber

**PROJECT 09: “AI BASED DETECTION OF OVERALL FRUIT MATURITY OF
LOCAL FRUITS”**



Project Team with Fruit Maturity Prototype module



Fruit Maturity Testing Module

PROJECT 10: “AI BASED FLOOR CLEANING BOT”



Project team with Floor Cleaning Robot

PPROJECT 11: “Single Window Smart Electricity Metering And Automatic Billing System”



Project Team with Single Window Electricity billing demo product

Project 12: Advanced Accident prevention system using IOT



Project team with Advanced Accident prevention system



Working Module of Advanced Accident prevention system

PROJECT 13: “Solar Powered Smart Umbrella”



Project Team with 3 Versions of Smart UV Umbrella



Project Team with 3 Versions of Smart UV Umbrella (Outdoor Testing)



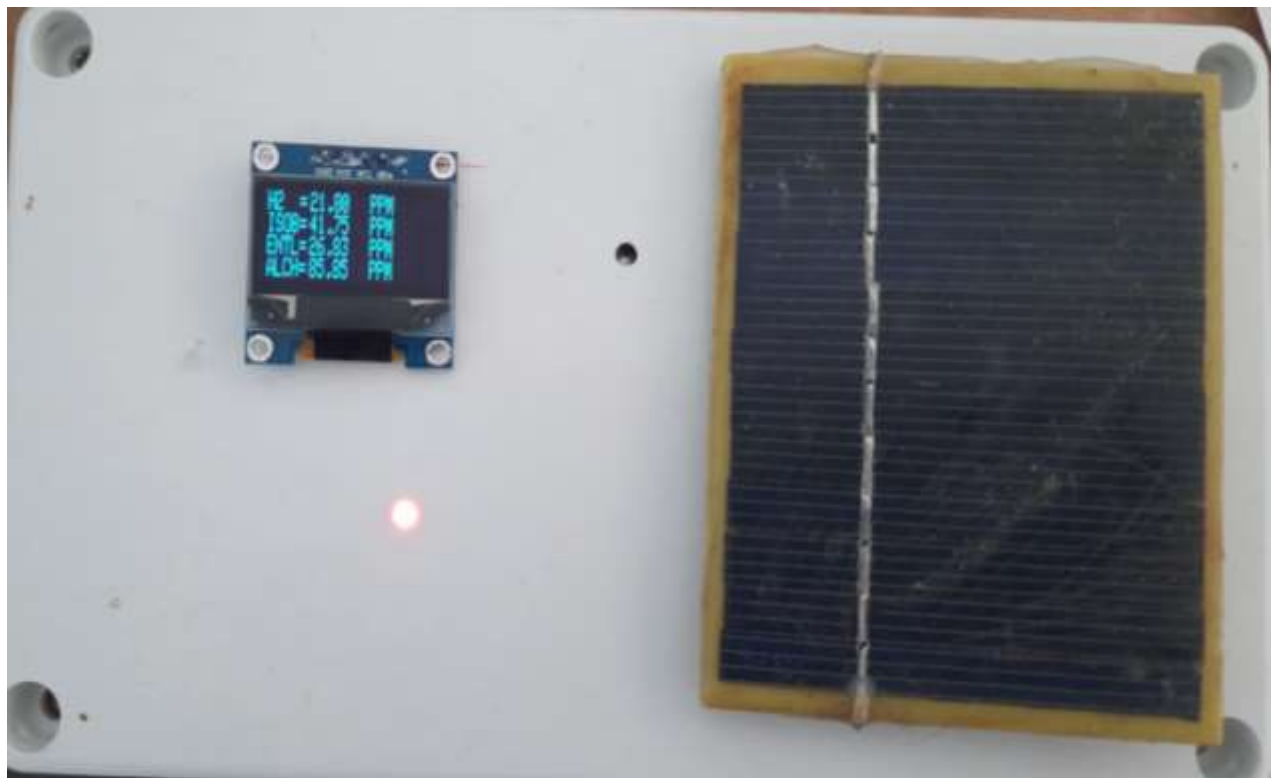
.Team demonstrated technical aspects of smart umbrella to Mrs. Sathivani, Member of KEC R&D

PROJECT 14: “OdorSense: Sensing device for alerting health effects of odor pollution”

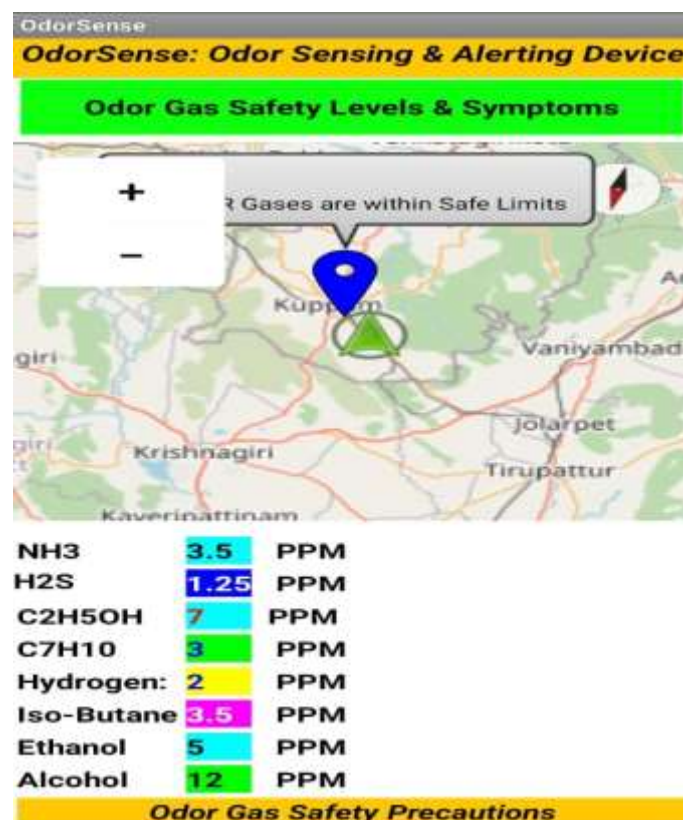


Project Team with OdorSense Device and IoT Mobile Application





OdorSense Demo Product



OdorSense Real-Time IoT Mobile Application

PROJECT 15: FABRICATION OF PNEUMATIC PAPER CUP MAKING MACHINE



Project team with Paper cup making machine



Project team testing the Paper cup making machine

PROJECT 16 : “Design and Fabrication of livewire detector casing by using CAE Technique”



Project Team with Fabricated LiveWire Casing



Different types of Fabricated LiveWire Casing



Project team has developed different designs of LiveWire detector casing, which is being sold to World Wide Fund(WWF) for forest patrolling. Recently, a news Clip in UCN News HD has telecasted on LiveWire Detector demonstration by WWF forest officers.

Published in Times of India News paper on Jun 25, 2021. In a first, Nagpur forest department to use live wire detect ..

Read more at:

http://timesofindia.indiatimes.com/articleshow/83822397.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

PROJECT 17: “Design and fabrication of MULTIPURPOSE AGRIBOT”



Project Team with Multipurpose Agribot prototype



Multipurpose Agribot Module

PROJECT 18: Design and fabrication of low cost solar mini De-Weeder



Project Team with module



Project Team Testing De-Weeder at farmers land

PROJECT 19 : Solar water purification system using thermal method



Project Team with solar water purification system



Project Team with solar water purification system

PROJECT 20 : Low cost stir casting machine



Project Team with Low Cost Stir Casting Machine



Low Cost Stir Costing Machine Setup

Project 21. E-Kart for simplified shopping at supermarkets



Project team with E-Kart Prototype Module.



Project team with E-Kart prototype module

Enclosure - III

Best Project Prototypes / Products / Start-ups Journey

1. Automatic Hand Sanitizer Dispenser

i) Student team details (with contact information)

Sl. No	Name of The Student	Year of Study	Contact Details
1	D. SAI KUMAR	II	Address: O.C.Palli, Maddinayanipalli Post, Pakala, Chittoor (dist) Mobile: 7995953618 E-Mail: saikumarsunny2002@gmail.com
2	K. NAVYA	II	Address: 8-159/14A,B.N.G.layout, T.B.Road, Kuppam, Chittoor (dist) Pin code:517425. Mobile: 9391190470 E-Mail: 19f41a0427@kec.ac.in
3	THANUJA.D	II	D/o Dhoraswamy R, Near Murugan Takies, Kuppam 517425, Chittoor Dist., AP Mobile : 9573059264 Email ID: thanuja2002maggie@gmail.com

ii) Brief description about the student start-up

***Right Now the Sanitizer Dispenser Product is added as a complimentary product under Intellibin Solutions Pvt. Ltd. student Start-up Company.**

The Main Objectives of the Proposed Product;

- Design and development an automatic sanitizer dispenser to maintaining Social distancing during Corona Virus pandemic situation.
- Sensing the human hand & release the sanitizer automatically.
- Contactless human body temperature measurement
- Quick alert about COVID19. It is safety, healthy & ecofriendly project.

iii) Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs.

- Project team & Mentor had discussed specific problems and need of automatic sanitization process, innovations, practical feasibility, Commercial viabilities & social impact at the beginning of the year.
- Discussed with Mr. Ravi Kumar, Technical Expert, Technilab Instruments, Bangalore for preparing design requirements & Project roadmap.
- Project team and KEC R&D team worked hard to design the proof-of-concept (POC) prototype successfully.
- Demonstrated the prototype model Technical Experts of Technilab Instruments, Bangalore to take up to the product level.
- Conducted many discussions online and finally a complete Automatic Sanitizer Dispenser in collaboration with Technilab Instruments.

Dr.S Sudhakar Babu, Principal, and Dr.G.N. Kodanda Ramaiah, NewGen IEDC Coordinator, R&D Director, Distributed "Automatic Hand Sanitizer Dispenser" to all the departments & Sections on 29-12-2020, Design and Developed by Students and R&D team, under NewGen IEDC.





Automatic Hand Sanitizer offered to HOD's of all Departments



Project Team with Automatic Hand Sanitizer



Project Team with Automatic Hand Sanitizer installed at ECE HOD Room



Our Sanitizer Product Installed at Principal Room



Our Sanitizer Product Installed at laboratories



Our Sanitizer Product Installed at office Room

iv) Contribution of NewGen IEDC in the same

The Chief-coordinator & Project coordinators of NewGen IEDC, KEC have played a key role in promoting the student idea to Demo Product level by working with industries & Incubation centers with our institution.

Varies levels of support & contribution made by KEC, NewGen IEDC are;

- Provided the financial assistance to develop the prototype & Demo Product module of the project idea.
- In this pandemic corona virus situation, This project provides solutions maintaining social distance and hand sanitizer for offices, schools and hospitals etc.
- Demonstrated to industrial experts, Mr. Ravi Kumar and Team, Technical Instrument, Bangalore.
- Extended this project to all the Public Place like College, Railway Stations, Bus Terminals etc.

v) Future plan

- After the final Approval from the government and proceedings from all the collaborators, we will apply for startup registration.
- Planning to collaborate with Technilab Instruments Bangalore for extend to collects some necessary health facts such as pulse level, oxygen level, human body temperature, automatic face mask vending and monitors person health status through IoT.
- Training rural youths & providing employment opportunities.
- Extending R&D activities to cope up with the future technologies.

2. FABRICATION OF PNEUMATIC PAPER CUP MAKING MACHINE.

i) Student team details (with contact information)

Sl.No	Name of The Student	Year of Study	Contact Details
1	P Ravi sai tej	IV	Address: # 1-54,Kamathamuru,kuppam,chittoor(Dist). 517425 Mobile:- 7416797476 Email :- pungurthi@gmail.com
2	S Mohan kumar	IV	Address: Vanaguttapalli (v), Chekkunatham (p), kuppam, 517425 E-mail:- smohankumarvvp@gmail.com Mobile :- 7997229876
3	R Bhaskar	III	Address: Lakshmipuram,kuppam, chittoor (Dist) 517425 Mobile:- 8688250847 baskarr: @gmail.com
4	C.Ashok reddy	IV	Address: 19-238/1,Red Cross Street, Chittoor, Chittoor E-Mail: cashokreddy143@gmail.com Mobile:9052780724

ii) Brief description about the student start-up

Not Yet registered the Start-up Company.

As this project was developed in collaboration with Arec bio leaf center tirupathi and jayalakshmi industry, Bangalore and small bio leaf manufacturing companies. We have simplified the design also made it cost efficient and affordable to every rural employs and women's. For this machine we can made different cups. After testing and approval from the government and proceedings from all the collaborators, we will apply for startup registration.

iii) Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs.

Our aim is to provide the product which can reduces the effort of manual work and also the time taken of making cups is to be less .It occupies the less floor space and continuous operation is possible without stopping and also the quick

response is achieved. In that the cheaper and easily available material is used, and making as a eco-friendly product

With this model we can achieve the production rate of 120-150 pcs/hr , the cooling time for the machine is about 30 mins and for 8 working hrs in a day we can get a production of on an average 1000 pcs/day

And the selling price of the product is 80 paise/pc

At stage (1) we loads the material in the die

At stage (2) we actuate pneumatic cylinder with (3/2) valve and we will allow the material to set

At stage (3) we will remove the product from the die (final product)

As we produced nearly 20 sheets of the product each sheet containing 50 pcs and we distributed as follows :

College canteen	6 sheets(300pcs)
Nearby college(provision stores)	4 sheets(200pcs)
College mess	8 sheets(400pcs)
Department	1 sheets(50pcs)

- Project team & Mentor had discussed the jayalakshmi industry and mind set engineering solution, Bangalore ways of innovations, practical viability, Commercial viabilities & Reliability at the beginning of the year.
- Discussed with technical experts Arec bio leaf center tirupathi, Ajaya engineering works and exports Bangalore,for practical feasibility and technological implementations.
- Project team was able to developed proof-of-concept (POC) prototype successfully.
- Demonstrated the prototype model to many industrial experts, investors for possible intervention to take up to the product level and rural women's.



(1)



(2)

Demonstration of the working model



(3)



(4)

Demonstrated "Cup Making Machine" working model to unemployed women in nearby villages



(5)Project Team with Cup making machine

iv)Contribution of NewGen IEDC in the same

The chief-coordinator & project coordinators of NewGen IEDC, KEC have played a key role in promoting the student idea to Demo Product level by bridging the industries & Government with our institution.

Varies levels of support & contribution made by KEC, NewGen IEDC are;

- Provided the financial assistance to develop the prototype & Demo Product module of the project idea.
- For developing prototype, we had a meeting with Mindset engineering solution and Agrosen private limited and came up with a primary design .
- Extended all the support system for the project team to work with Arec bio leaf center tirupathi, Ajaya engineering works and exports Bangalore and technical experts.
- Promoted the project team to participate in all innovation & Entrepreneurship activities at free of cost.
- Provided industrial exposure by referring student teams to various companies for Internships.

v) Future plan

- After the final Approval from the government and proceedings from all the collaborators, we will apply for startup registration
- For additional information we are going to consult with AREC BIO-LEAF center Tirupathi.

- Planning to collaborate with AREC BIO-LEAF center Tirupathi and, Aadiyaman College of engineering, Hosur for attracting angel investors and venture capitalists.
- Training rural women's & unemployed, providing employment opportunities
- We have to go thermal properties test after completion of product.
- Will collect customer suggestion for improvisation.

3. "MULTILANGUAGE EDUCATIONAL E-TOY"

i) Student team details (with contact information)

Sl.No	Name of The Student	Year of Study	Contact Details
1	P. DEEPAK	III	H.no : 5-55, Pedda Bommanapalli (v), Santhipuram (post & mandal), Kuppam, chittoor(dist), Andhra pradesh, INDIA, 517423. Mob : 7997671622 Email : 18f41a0457@kec.ac.in
2	M.HARICHANDANA	III	2-37 Vendugampalli, chittoor (D), Andhrapradesh Mob :-7337208985 Email : harichandana445@gmail.com
3	S.SHAFIYA SULTHANA	III	1-99, Kondhanda ramanagar, Ramakuppam, Chittoor district, Andhra Pradesh, 517401. Mob: 8555915277 Email : 19f45a0411@kec.ac.in
4	A.G.HEMANTH	III	18-59/1jp road newpet Kuppam, chittoor(dist), Andhra pradesh, INDIA - 517425 Mob: 6302772017 Email: 18f41a0401@gmail.com

ii) Brief description about the student start-up

Start-Up Status:

The Project is applied for MSME – BI for Product Development with Idea No.- IDEAAP001894 entitled with "Braille-Toy Indian Local Language Teaching

Toy” and 15 Lakhs has sanctioned. (Ref :F.No.3(10)/ Inc/ 6th PMAC/ 2020-21).

A Start-up company is under process.

Objectives of the Start-up to:

- Develop as a Low cost ergonomic design with high ease of use.
- Design the Teaching Aid for Local language alphabet and numbers
- Internal Speaker spells out the alphabet and numbers .
- Design a Long stand battery.

iii) Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs.

Start-ups entrepreneurial journey passed through the following two different stages with different activities undertaken to complete the project design & development process;

First Stage: (IDEA-to-Prototype)

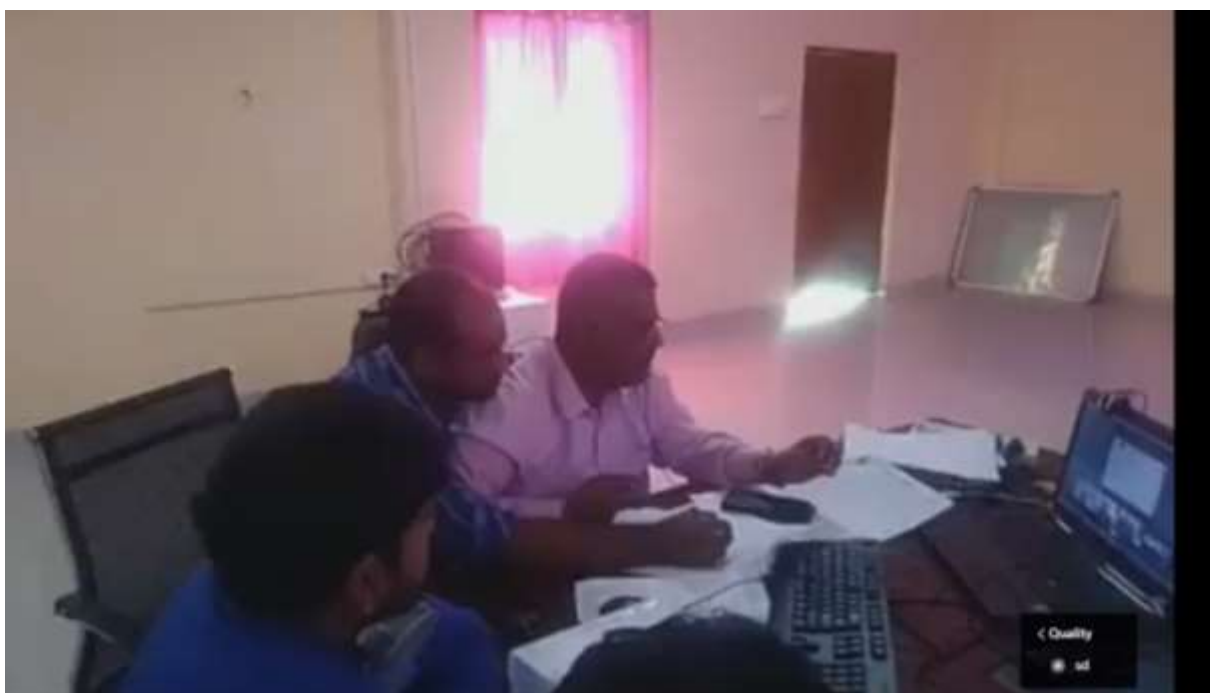
- Project team & Mentor had discussed the specific problems the E-Toy idea addresses, innovations, practical feasibility, Commercial viabilities & social impact at the beginning of the year.
- Discussed with technical experts of Technologics, Bengaluru for practical feasibility and technological implementations.
- Project team was able to developed proof-of-concept (POC) prototype successfully, under the supervision of technical experts of Technologics, Bengaluru.
- Demonstrated the prototype model to Mr. Shivakiran, CEO, AIC- SKU for possible intervention to take up to the product level. The experts had given the feedback to improve the design aspects.



The proposed idea won the first prize in the hackathon conducted by World Wide Fund (WWF) for Nation in association with Atal Incubation Centre – Sri Krishnadevaraya University (SKU) on 18-06-2019.

Second Stage: (Prototype-to-Demo Product)

- MoU has been signed between **MSME-BI** and the student for developing the product and to start the startup.
- Patent filing is on process.



Presentation of idea "Braille-toy" to MSME exports committee members on 23-12-2020 by Dr. Nanda Kishore and team.





Presented the prototype model in Innovation Festival 2020 conducted by Regional Science Centre Tirupathi during Feb. 28- March 01, 2020.



Certificate for Presenting the prototype model in Innovation Festival 2020 conducted by Regional Science Centre Tirupathi during Feb. 28- March 01, 2020.

iv) Contribution of NewGen IEDC in the same: The chief-coordinator & project coordinators of NewGen IEDC, KEC have played a key role in promoting the student idea to start-up level by bridging the industries with our institution.

Varies levels of support & contribution made by KEC, NewGen IEDC are;

- Provided the financial assistance to develop the prototype module of the project idea.
- Invited many industrial experts, R&D Directors, CEO's and Successful entrepreneurs for demonstrating the project modules developed by the students & sought the feedback for further improvement in the project design.
- Permitted the project team to work with R&D team of Technologies company to develop the proof-of-concept.
- Permitted the Project team to apply the project for MSME- BI.
- Encouraged the project team to demonstrated the Prototype & Demo Product model is at Atal Incubation Centre, S.K University, Anantapur (A.P) regarding Incubation work.
- Promoted the project team to take part in Innovation Festival – 2020 conducted by Regional Science center, NCSM, Ministry of Culture, GOI, at tirupathi to draw the government attention for commercialization and Won Third Prize.
- Promoted the project team to participate in all innovation & Entrepreneurship activities at free of cost.
- Provided industrial exposure by referring student teams to various companies for Internships.

v) Future plan

- To be a successful start-up firm for providing low cost, feasible and Reliable product within 3 years from the date of company registration.
- Collaborating with all the MSME- BI, Atal Incubation Centre, for introducing and Commercializing the product.
- Increasing customers base through market expansion.
- Training rural youths & providing employment opportunities.
- Extending R&D activities to cope up with the future technologies.

NewGen IEDC

**Under the Aegis of NSTEDB, DST,
Govt. of India, New Delhi**

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	Ramachandra College of Engineering		
Year of starting NewGen IEDC	2017		
Name of the Head/Principal of the Institution/College	Dr. Dola Sanjay S. Principal		
Name of NewGen IEDC Coordinator	K.Venkatesh		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	Mobile No: 9502686286 E-mail: gnk.ramaiah@gmail.com		
Financial Details	Sr. No.	Sanction Order No./ Date	Amount Sanctioned
Previous Sanction Order Details	1	EDII/DST-NewGen IEDC/2017-18/RLS-I/02 dated 31-7-2017	60 Lakhs
	2	EDII/DST-NewGen IEDC/2017-18/RLS-II/02 dated 28-2-2019	47.5 Lakhs
	3	dated 02-11-2020	21 Lakhs
		dated 06-01-2021	39 Lakhs

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1.	Entrepreneurship Awareness Program • EAP on Exist market survey • Implementing Optimization Techniques in Product survey	<ul style="list-style-type: none"> Create Awareness on Entrepreneurship Development. Student able to understand being an entrepreneurship is not the process of investment, it is the process of understanding market and strategies
2.	Women Entrepreneurship Development	<ul style="list-style-type: none"> Importance of women as an Entrepreneur. Schemes of assistance& support available from government to women entrepreneurs. Successful women entrepreneurs shared their experiences with the students.
3.	Innovation to Academicians	<ul style="list-style-type: none"> National Level one week online faculty development program. To analyse the germination of innovative Idea in students To identify and evaluate the student path of developing Idea to product

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	Training on required technologies to develop prototypes <ul style="list-style-type: none"> Machine Learning Deep Learning Computer vision Natural Language Processing 	<ul style="list-style-type: none"> To enhance the Student and Faculty on New trend setting technologies To support the Project with additional Knowledge Updating of Traditional Analytical Method with current tool while doing the project
2	Project Review on status of developing prototypes	<ul style="list-style-type: none"> To achieve the standards of stakeholder
3	Internal Hackthon	<ul style="list-style-type: none"> The goal of a Hackthon is to create functioning software or hardware by the end of the event. Hackthon tend to have a specific focus, which can include the programming language used, the operating system, an application, an API, or the subject and the demographic group of the programmers.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1.	Guest Lectures With Successful Entrepreneurs to improve Industry-Academia interaction	<ul style="list-style-type: none"> Increasing Complexity: The rapid changes in the business environment have made the business world very complex and have necessitated the academic institutions to deal with the changes. Growing skill gap: The statistics given by NASSCOM (mentioned earlier) highlight that majority of the graduates and post graduates are not work-ready. Our country's age demographic highlight that we are youth-driven country (as 65% of the population is below 35 years) and therefore it becomes imperative to provide them with high-quality education in order to make them employable. Expectations of the industry: The industry expects some kind of skills and professionalism from graduates but these expectations are not met with most of the times. The organisations have to start from scratch to train fresh recruits which leads to a lot of wastage of time and resources. Migration of students: Most of the students do not have faith in the Indian education system. They feel that there is

Sr. No.	Activities	Outcome/Achievements
		no emphasis on practical knowledge and research oriented work. Therefore they prefer to study in foreign universities and also end up working there. By improving the quality of education in India we will be able to avoid the brain drain.
2	Awareness Program On 3-D Printing Technology	<ul style="list-style-type: none"> 3D printing is one tool that helps students conceptualize and visualize their designs as they develop their work from the development stages of a sketch to the final product.
3.	Workshop on patent filing	<ul style="list-style-type: none"> The Patent Filing workshop is intended to impart first hand exposure of current IP practices in India and the focus of deliberations would be on the aspects of prior art search, documentation, establishing patentability, attending office actions, claims drafting and interpretation, comparative IP practices, technology transfer
4.	Learning Life skill Technologies <ul style="list-style-type: none"> Washing machine Working / Assembly / Disassembly Hydraulic Power management 	<ul style="list-style-type: none"> Life skills training equip people with the social and interpersonal skills that enable them to cope with the demands of everyday life. The objectives of this training are to build self-confidence, encourage critical thinking, foster independence and help people to communicate more effectively.
5	Internet of things Training Program	<ul style="list-style-type: none"> Internet of Things (IoT) training enabling the student knowledge related interconnection and integration of the physical world and the cyber space. It represents the trend of future networking, and leads the third wave of the IT industry revolution.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:




- No Deviation as per the given schedule.
- Additional Activities and Training Programs Conducted

3. Other important highlights (new initiatives), if any:

- Started Life skill technologies Training Programs
- Industrial IOT Training Program with collaboration of WIPRO 3D
- Technology enhancement Training Program (ML,DL,CV,NLP)
- Conducting Drone Technology training Course



4. Student Projects (Please provide the following details for each student project)



Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
1	<p>Project Name: Hydraulic operated Mechanical Weed Removal in Aqua Ducts and Drains-Canals.</p> <p>Team Members : P.Jayaram Rama Koteswara rao B.Leela Kumar Ch.Siva sankar Mentor: Bhavanarayana.K Project Description: “Vegetation and weed” these two aspects influenced on objectives of irrigation canals and drains.</p> <p>Mismanaging vegetation can lead to limited access and inspection capabilities, root damage, impact operational deliveries create blockages, provide habitat for burrowing animals, and contribute to the likelihood of failures of Reclamation’s assets, including canals.</p>	Idea with Literature survey and cad model	New model hydraulic circuit	Prototype Model

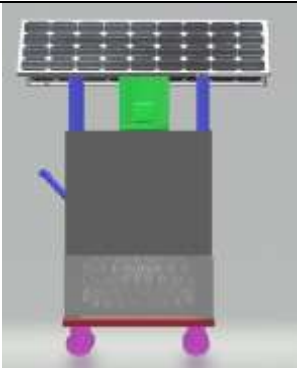


Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
2.	   <p>Project Name: IOT based High Capacity Disinfectant Spraying Machine with Auto-retractable Hose Reel for Use in Large Public Spaces</p> <p>Team Members : D.Ravi Sai G.Sumanth Durga Prasad Elike Novah</p> <p>Mentor: Bhavanarayana.k</p> <p>Project Description: The proposed project is to develop high-</p>	Prototype Model with analysis	A Spraying Machine equipped with quantitative and qualitative monitoring and measuring system	Working Model

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	<p>capacity designed disinfectant spraying machine with built-in flow control and automatically retractable hose reel feature so that the fatigue of healthcare service personnel is significantly reduced. This high capacity spraying machine is also equipped with target identifying torch system to facilitate working in low-light contexts. Pump with a capacity of 6.50 LPM draws pressurized liquid disinfectant from 100 litre capacity tank and delivers pressurized liquid to nozzle</p>			
	<div data-bbox="506 842 1162 1339">  <p>A photograph showing two men standing next to a disinfectant spraying machine. The machine consists of a white 100-litre tank mounted on an orange metal frame. A blue and black pump unit is attached to the top of the tank, and a hose with a nozzle is connected. One man is wearing a white t-shirt with 'T.H.U.G.' on it, and the other is wearing a dark blue patterned shirt. They are in an indoor setting with a plain wall and a small table in the background.</p> </div> <div data-bbox="1352 837 1785 1351">  <p>A photograph showing three men standing next to the same disinfectant spraying machine. The machine is on a stand with wheels. One man is wearing a white t-shirt with 'T.H.U.G.' on it, another is wearing a dark blue patterned shirt, and the third is wearing a light blue and white checkered shirt. They are in an indoor setting with a plain wall and a small table in the background.</p> </div>			



Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
3.	<p>Project Name: Solar powered Thermo electric water Cooler</p> <p>Mentor: M.Vimal Teja</p> <p>Team Members : B.Chahanbadhrinadh B.Mahesh Babu Ch.Suresh Kumar Ch.Vinay Kumar</p> <p>Mentor:</p> <p>Project Description: Our Project Vision is to attempt the technical thoughts to resolve the problem which effecting the atmosphere. It stated that point of Solar thermo electric technology full fills the current and future objectives of customers. This product intended as a guide to help the further research and make decisions that align with its technology and declared to set of goals. This product can be seems as a roadmap to where the company wants to be within a certain timeframe</p>	Project Idea With analysis	Voltage regulator and Cooling coil modified	Developed Working Model



Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
4	 <p>Project Name: Hydraulic operated Mechanized Fish pond Boat</p> <p>Team Members : Majeti Manikya Deepak N.Rajesh K.Anish Kumar</p> <p>Mentor: V.Sai surendra</p> <p>Project Description: In regular mechanism assist to run the boat is by direct engine coupled and it is not sophisticated to control torque evenly. Our developed technology will give solution</p>	 <p>Literature survey and Working model diagram with feasibility analysis</p>	Working and optimization of hydraulic circuit	Prototype working Model



Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
5				
	<p>Project Name: Portable Solar Powered Outdoor Air Purifier</p> <p>Team Members : P Sai Kumar Y Vamsi Gopal S Preethesh K Ujwala Ch L Priyadarshini</p> <p>Mentor: VNSR Murthy S.S.Sarma</p> <p>Project Description: Pollution has rocked the world with skyrocketing pollution levels. Though the long term solution to the pollution problem</p>	Idea with Circuit Diagram	Optimize the losses by adopting different technologies	<p>All essential Components are purchased. Solar Panel and Solar converter designs are completed. Fabrication of purifier is in progress. Assembling and testing of the final product will be completed</p>

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	lies in finding and minimizing pollution sources, we need to bring the current pollution levels under control by the time. The best way of controlling pollution is by using air purifiers. But regular indoor air purifiers are small low power devices that don't posses enough purifying capability needed for outdoor spaces. Along with this there is also an issue of power supply in outdoor machines.			
6				Working Model
	Project Name: High capacity low cost Extensive shaft pit water lifter Team Members : Tulasi Venkata Sai N.Ananth Kumar			


Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	<p>T.Naveen Kumar N.Rajesh N.Rushi Mentor: B.Sudhakar Rao</p> <p>Project Description: Project gives financial potential scope to farmers. We fix a road map to approach our product to customer to attain the feasibilities; our vision to develop this product by inculcating the technology to solve the farming problems with in defined directions. Outcome of our product undergo minimal new revolution during the life of a farmers with low cost.</p>			


Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
7	  <p>Project Name: Robotic Elevated Chairless chair</p> <p>Team Members : K.Anish Kumar N.Manimohan Sai E.Novah</p> <p>Mentor: P.Rajesh</p> <p>Project Description: In this project a new model robotic wheel chair is designing and developing for persons have health issues.</p>	Idea with CAD model	Robotic neural network Integration	Prototype Model completed




Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
8.	 			
	Project Name: Automatic Electric Bill Generation System Team Members : M.N.R.S.Kamesh P.Ashok Mentor: k.Venkatesh Project Description: In the Modern world, intelligent control is adopted in every field like communication,	Idea With Software Analysis	Designing to different mode of communications for data transfer	Working Prototype Model


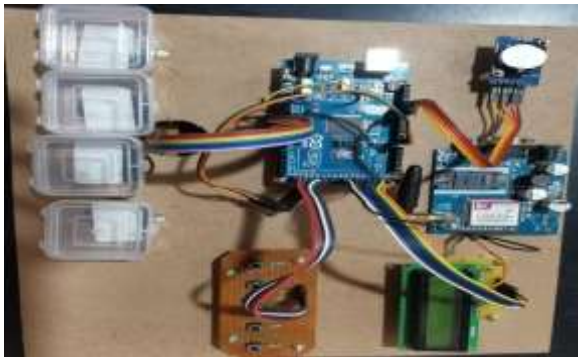
Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	<p>home gadgetry, medicine etc. Unfortunately, the service providers of electricity are still using the conventional methods for getting the information of energy consumed by the customer. The traditional method of energy meter billing is a long outdated, inefficient and time consuming one. Technology of e-metering (Electronic Metering) has gone through rapid technological advancements and there is increased demand for a reliable and efficient system i.e. Automatic Meter Reading (AMR).</p>			
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Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
9	<p>Project Name: Smart Attendance Management System Using Face Recognition</p> <p>Team Members : M.Sateesh Kumar Afreem Begum P.Pavaneswari P.Sravani</p> <p>Mentor:</p> <p>Project Description: To maintain the attendance record with day to day activities is a challenging task. The conventional method of calling name of each student is time consuming and there is always a chance of proxy attendance</p>	Idea with Software analysis	Applying different mode of operations for Bug detection	Prototype Model

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
10	 <p>Project Name: Railway track crack detecting Robot</p> <p>Team Members : Sateesh Kumar M.Snehitha G.Srujana B Naveen Raju</p> <p>Mentor: P.Sudhakar</p> <p>Project Description: The finding of cracks in railways tracks takes time consumption due to manual checking. It reduces the accuracy too. This method of design is having limited intelligence and time consuming. The main aim of this project is</p>	Idea with Theoretical analysis	Neural networks and NC controlled robotic system designing	Working Prototype Model

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	<p>railway track crack detection system using an Internet of things like as data analysis and Railway track monitoring and detect the crack and Prevents the train accidents and saves peoples life .This project pertains to a process for monitoring the condition of rail on train tracks and more specifically has the object of the identification of defects detected by monitoring equipment on the tracks to be checked to allow maintenance crack to subsequently find these defects. When we give the supply to the device, each sensor will produce the signal related position with the rail.</p>			
				

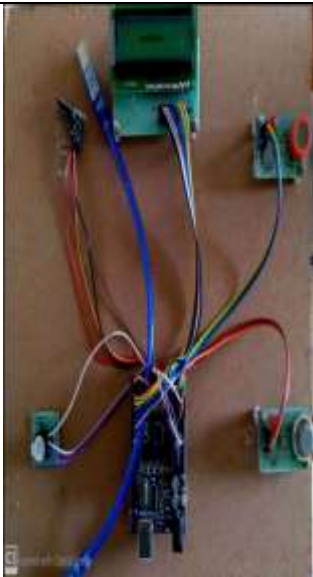

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
11	   <p>Project Name: MEDTRAK- A SMART MEDICATION TRACKING SYSTEM</p> <p>Team Members : Uma MaheswaraRao Annavarapu Ummadi Krishna Prasad Sepeni Rahul Ravuri China Gopi Reddy</p> <p>Mentor: Shameen Begam</p> <p>Project Description:</p>			



Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
12				
	<p>Project Name: IoT based Solar Powered Agri-bot for Irrigation and Farm Monitoring</p> <p>Team Members Sk.A. Mukheem Javvadi Rajesh; G Kiran; B Akhil</p> <p>Mentor: S.S.Sarma</p> <p>Project Description: This project discusses the design and development of an IoT based solar powered Agri-bot that automates irrigation task and</p>	<p>Already a prototype Agri-robot is developed & we are planning for mass production</p>	<p>Outdated irrigation techniques and availability of water resources are the primary reasons for incoherent production. Hence, technological solutions for agriculture task automation are the need of the hour. In particular, simplified irrigation mechanisms reducing water</p>	<p>Working model</p>

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
13	enables remote farm monitoring. The Agribot is developed using an Arduino microcontroller. The motive of the proposed prototype design of the Agribot in this project is to develop a low cost IoT based solar powered Agribot that automates irrigation task and enables remote farm monitoring system. The proposed system is economical. The battery incorporated can be recharged using renewable solar energy using solar panels		wastage are very essential, which encourage precision agriculture. We are expecting to make turnover of around 40-60 lakhs in the first year itself.	
				
13	Project Name: Low cost Industrial and Commercial grade water tank level controller Team Members : M.Annapurna Devi K.Naga Sri	Innovative Idea with circuit for illustration	Increase the efficiency by software programming	Proto type Model



Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	<p>U.Lahari K.N.B.E.Manikanta M.Jaswanth</p> <p>Mentor: Dr.S.Jagan Mohan Rao</p> <p>Project Description: Level indicators are devices used in the measurement of level of fluids at various industrial applications. These devices are used to determine the level of liquid in tanks, drums. pressure vessels etc.. There are many level indicators to suit the needs of different applications.</p>			
				

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
14	<p>Project Name: Automatic Self cleansed Toilet</p> <p>Team Members : M.Durga Manjula S.Sharmila B.Pravallika</p> <p>Mentor: Mr.K .Raju</p> <p>Project Description: The major problem in Toilets are identified due to releasing of dangerous gases. That makes people becomes unhealthy. In order to maintain clean and high-gene.</p> <p>We proposed a system that which, the system can perform automatic identification of dangerous toxins and automatic cleaning process</p>			


Sr. No.	Team/Project Description		Project status at beginning of the Year	Interventions Made	Current Status
	 				
15	<p>Project Name: Remote operated hubless e-bike with suspension</p> <p>Team Members : Mula saikiran NSP Karthik T.Mamatha Sri T.S.Sivani Durga</p>		Idea with sample project	Structure material change	CAD Model with Analysis, Components purchased need to assembly



Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	<p>P.Divya</p> <p>Mentor:</p> <p>1.CH S K B PRADEEP KUMAR</p> <p>2.S.S.Sarma</p> <p>Project Description:</p> <p>Our mechanism is a chain sprocket free ebike concept wherein our motor can directly power the wheel. The mechanism rests on a uniquely designed wheel driving mechanism. We use 2 x DC motors to Power the back wheel of the bike. The motors are used to drive the bike using 2 high friction rollers.</p>			
				

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
16	<p>Project Name:</p> <p>Fire fighting Robot</p> <p>Team Members :</p> <p>Kondeti Leela vardhini Kovvuri Sai Krishna Reddy Majji Bala Yaswanth Kumar</p> <p>Mentor:</p> <p>Project Description:</p> <p>Fire Fighting Robot</p> <p>This advanced firefighting robotic system independently detects and extinguishes fire. In the age of technology, the world is slowly turning towards the automated system and self-travelling vehicles, fire fighters are constantly at a risk of losing their life. Fire spreads rapidly if it is not controlled. In case of a gas leakage there even may be an explosion. So, in order to overcome this issue, safe guard live of our hero, our system comes to the rescue.</p>	Circuit diagram with Analysis	Dc powered pump and spray gun designed	Prototype model


Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	 			
17	<p>Project Name: Human Safe Sanitization Tunnel Using Silver ION Technology</p> <p>Student team: M.Tanuja Sri M.N.Prathima P.M.Pravallika N.P.Bhavya P.Naresh</p> <p>Mentor: 1.J.Suresh</p>	Prototype model with cad model	Reconfiguration of Ionization system	All essential Components are purchased. Fabrication of Tunnel is in progress. Assembling and testing of the final product will be completed

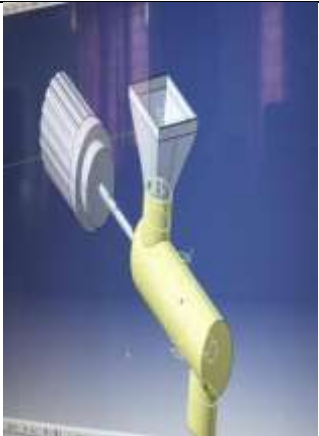

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	<p>2.S.S.Sarma</p> <p>Project Description: The earlier human sanitization tunnels developed in times of covid pandemic used chemicals such as sodium peroxide for disinfection. These tunnels had 4 major problems.</p> <p>*Sodium peroxide and chemicals were harmful for human skin and eyes too.</p> <p>*The spray of these chemicals wasted a lot of water.</p> <p>*A lot of the chemical too was used leading to recurring costs of chemical purchase.</p> <p>*So many chemicals drained to sewage every day also would lead to very bad environmental impact too.</p>			

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
18	 <p>Project Name: Three Layer Indoor Farming and Plant Growth Chamber Team Members : M.Poojitha M.Bhavani M.Viharika N.J.H Priyanka M.Bhanu Prakash Mentor: S.S.Sarma Project Description:</p>	Literature review is completes and identifying the materials available		All essential Component s are purchased. Solar Panel and Solar converter designs are completed. Fabrication of chamber is in progress. Assembling and testing

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	Indoor farming/gardening is the future for agriculture, where we don't need vast lands for agriculture. Gardening and farming can be done easily and even better using smart grow chambers that monitor and supply the plants with all necessary ingredients for proper growth. So here we design a 3 layer indoor farming/gardening unit using programmable hydroponic system.			of the final product will be completed
	<div></div> <div></div>			

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
19	<p>Project Name : Smart washbasin and disinfectant dispenser</p> <p>Team Members : K.Jasper K.Sravani K.Sathvika N.Krishna Teja</p> <p>Mentor: Dr.S.Jagan Mohan Rao</p> <p>Project Description : In this busy world everybody are interested in making their routine works automated and also want to monitor the elderly people and patients at home. One of the routine works at home is Plant watering and is very important when the people leave the home for vacation or emergency as the plants may end up drying due to lack of water. Helping the elderly and disabled people to control the taps for their daily activities is also a challenging job.</p>	Idea with circuit diagrams	Circuit reconfiguration and Sensors upgradation	Working Model Completed

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
				
20	<p>Project Name: Design And Development Of Automatic Fish Food Dispensing System</p> <p>Team Members:</p> <p>P.Pavan Kumar</p> <p>T.Vamsi</p> <p>S.Sai Pavan</p> <p>U.Tulasi Ram</p>	Idea with Theoretical Analysis	Manual Operated boat Updated in to Hydraulic Mechanism, Auto dispenser designed to dispense quantitative feed as per input	Working demo model

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	<p>P.N.Sai Ganesh</p> <p>Mentor : K.Venkatesh</p> <p>Project Description: Automatic fish food dispensing system it is mainly used to reduce the labor cost as well as develop pellet dispense (feeding) system. The device developed combines mechanical & electrical system in control fish feed activity</p>			
	<div>   </div>			

- Submit three/four high resolution (at least 300 dpi) pics in jpeg format showing the prototype/product along with the students and their mentor

5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

- Student team details (with contact information)
- Brief description about the student start-up
- Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs
- Contribution of NewGen IEDC in the same
- Future plan

Proforma for Submission of Progress Report Best Project-1

1. Title of Project: Design And Development Of Automatic Fish Food Dispensing System

2. Team Details

Project Batch members:				
Sr. No	Roll no	Name	Email id	Mobile
01	18ME5A0328	P.Pavan Kumar	ssaipavan65@gmail.com	8464824990
02	17ME1A0352	T.Vamsi	siddharthvamsi7@gmail.com	9515709502
03	17ME1A0349	S.Sai Pavan	ssaipavan65@gmail.com	7207340102
04	17ME5A0356	U.Tulasi Ram	ramuuyyuri007@gmail.com	6300325122
05	17ME5A0345	P.N.Sai Ganesh	pothurisaiganesh60@gmail.com	8464824990

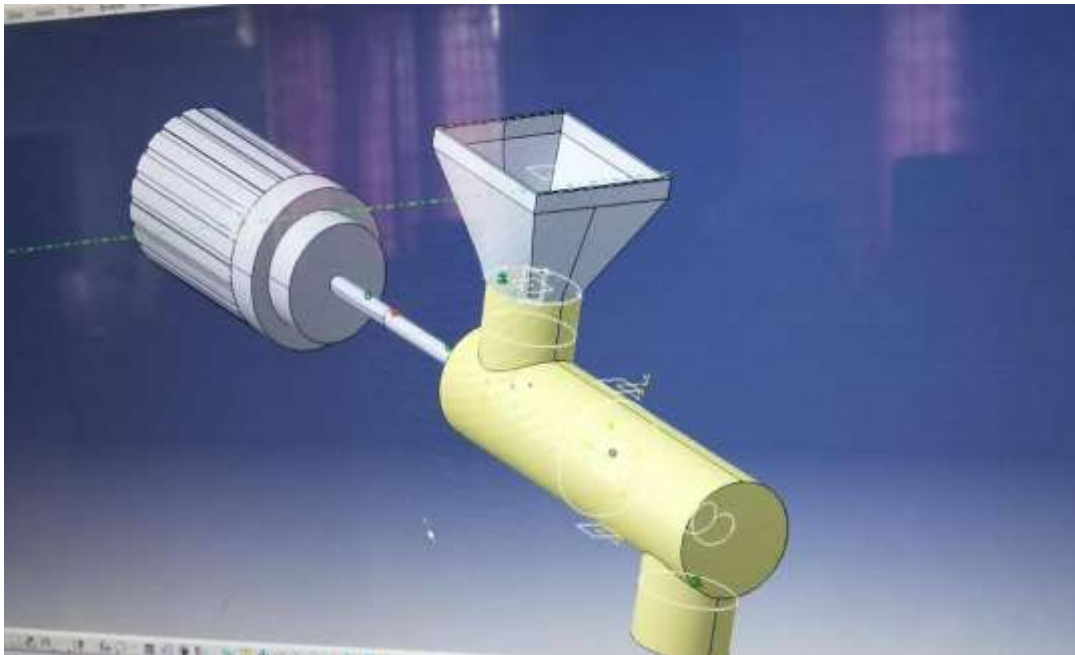
Details of The Mentor				
S.no	Name	Designation & department	Email id	Mobile
0101	Bhavanarayana.K	Assistant Professor	bhavanarayanakottu@rcee.ac.in	8333039416

3. Project Description

Automatic fish food dispensing system it is mainly used to reduce the labor cost as well as develop pellet dispense (feeding) system. The device developed combines mechanical & electrical system in control fish feed activity. In this system it contains hopper, dc motor (100rpm), screw conveyor, bearings, battery (12volts), regulator, charger (5amps), plug and supporting stand. The pellet controlled by dc motor which is located under the hopper(pellet storage).The pellets in the automatic fish dispensing system will be controlled by the rotation of dc motor Through this type of system we can increase the growth of the aquaculture and to overcome labor problems in aquaculture.

4. Project status at beginning of the Year

Idea with 3D- Model

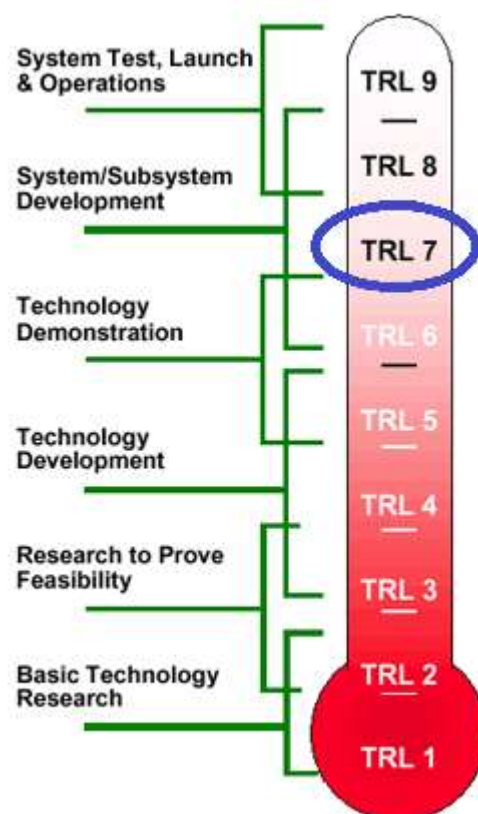


5. Interventions Made

Manual Operated boat Updated in to Hydraulic Mechanism, Auto dispenser designed to dispense quantitative feed as per input

6. Current Status of Project

Machine with Working Model



7. Brief description about the student start-up

- a. . Conduct demonstration features of this product to customers and dealers
- b. conduct awareness program about this product to aqua formers
- c. Printing and distribution of brochures
- d. Tie up with local Suppliers and dealers
- e. Creating publicity to our product at national level to get more investment for further development and up gradation

8. Start-up entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs



9. Contribution of NewGen IEDC in the same

New GEN IEDC channelizes our knowledge and the energy of our team towards becomes active partners in the economic development process. It catalyzes and promotes development of knowledge-based and innovation things in my team and it help us to promote employment opportunities among the students

10.Future plan

Starting Company by procuring financial support

11.Submit three/four high resolution (at least 300 dpi) pics in jpeg format showing the prototype/product along with the students and their mentor





12. Other important highlights

Andhra Pradesh ranks first in coastal aquaculture and fresh water aquaculture in India. It also ranks second in fresh water fish production and overall value of fish/prawn production. Andhra Pradesh contributes nearly 40% of the total marine exports of the country. So our product has higher feasibility.

Proforma for Submission of Progress Report Best Project-2

- 1. Title of Project:** IOT based High Capacity Disinfectant Spraying Machine
with Auto-retractable Hose Reel for Use in Large Public Spaces

2. Team Details

Project Batch members:				
Sr. No	Roll no	Name	Email id	Mobile
01	19ME5A0309	D. Ravi Sai	dudiravisai217@gmail.com	8186869938
02	19ME5A0312	G.Sumanth	Gollapallisumanth123@gmail.com	6304599142
03	19ME5A0318	DurgaPrasad	Durga Prasad@gmail.com	6303216088
04	19ME5A0310	Elike Novah	elikanovah@gmail.com	8886776458

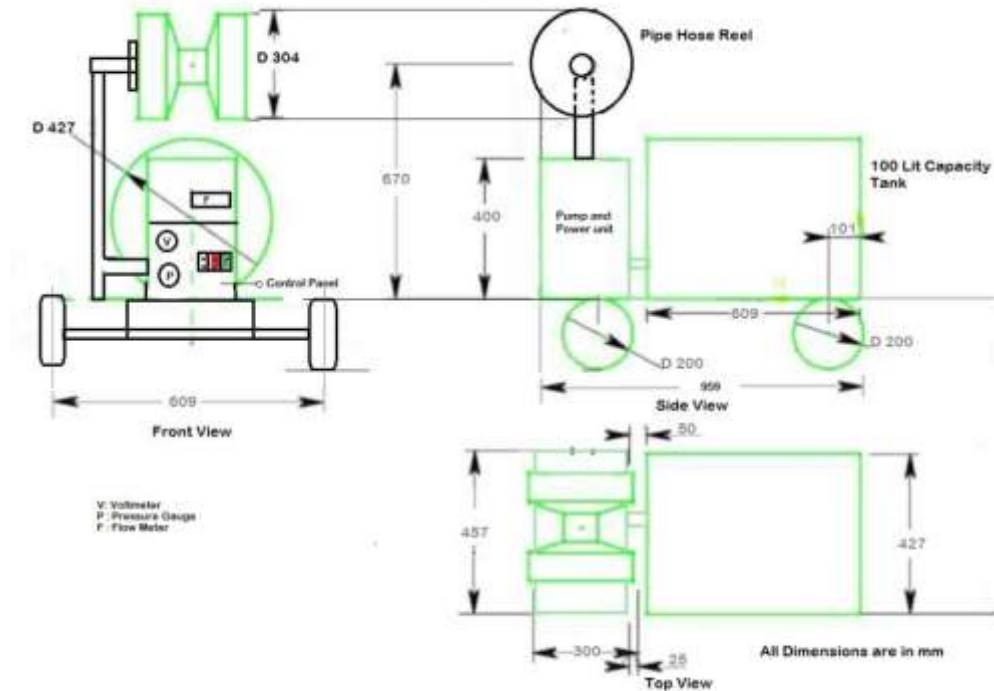
Details of The Mentor				
S.no	Name	Designation & department	Email id	Mobile
0101	Bhavanarayana.K	Assistant Profesor	bhavanarayanakottu@rcee.ac.in	8333039416

3. Project Description

The proposed project is to develop high-capacity designed disinfectant spraying machine with built-in flow control and automatically retractable hose reel feature so that the fatigue of healthcare service personnel is significantly reduced. This high capacity spraying machine is also equipped with target identifying torch system to facilitate working in low-light contexts. Pump with a capacity of 6.50 LPM draws pressurized liquid disinfectant from 100 litre capacity tank and delivers pressurized liquid to nozzle. Nozzle breaks the disinfectant fine droplets and distributes the droplets over the target surfaces at 8.5bar pressure. With one time filling of 100 liter capacity tank, the disinfectant can be sprayed to cover an area of 333 m² (2997sq ft-250-300ml/m² Recommended by health organization of India) with only one operator deployed in the process. Time required to sanitize the m² area is depend up on the rate of flow regulated by the operator. For example operator fixes it to 1.5lpm flow it can sanitizes 4.5m² of area.

4. Project status at beginning of the Year

Idea with CAD Model

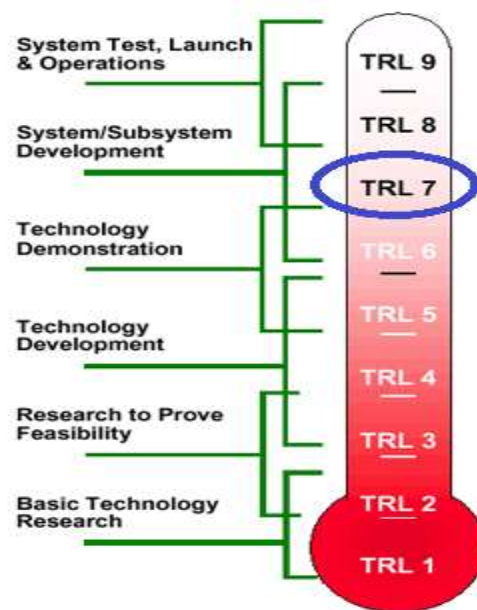


5. Interventions Made

Sr. No	Module of the proposed Product	Innovation
1	Target identifying torch	This is an integral feature of the machine to aid spraying on target surfaces in low-light settings. This is not available in existing spraying units.
2	Auto-retractable Hose Reel Technology	This automates the operation of rewinding the pipe to hose with minimal fatigue to the operator (only single operator is sufficient for this operation, whereas other comparable high capacity machines need 2 operators for rewinding)
3	Flow measuring system	This machine is fitted with flow measuring system to quantitatively estimate the extent of coverage.
4	Self-power unit	The machine can work up to 4 Hours after a complete charge.
5	Compactness	The foot print of the system is relatively less and it is light-in-weight to ensure operator's comfort.

6. Current Status of Project

Commercial Working model



7. Brief description about the student start-up

- Conduct demonstration features of this product to customers and dealers
- conduct awareness program about this product to Govt and Shopping mall owners
- Printing and distribution of brochures
- Tie up with local Suppliers and dealers
- Creating publicity to our product at national level to get more investment for further development and up gradation

8. Start-up entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs





9. Contribution of NewGen IEDC in the same

New GEN IEDC channelizes our knowledge and the energy of our team towards becomes active partners in the economic development process. It catalyzes and promotes development of knowledge-based and innovation things in my team and it help us to promote employment opportunities among the students

10.Future plan

Starting Company by procuring financial support and Tie-up with existed company for instant production of equipment

11. Submit three/four high resolution (at least 300 dpi) pics in jpeg format showing the prototype/product along with the students and their mentor



12. Other important highlights

Andhra Pradesh ranks first in coastal aquaculture and fresh water aquaculture in India. It also ranks second in fresh water fish production and overall value of fish/prawn production. Andhra Pradesh contributes nearly 40% of the total marine exports of the country. So our product has higher feasibility.

NewGen IEDC
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	Sasi Institute of Technology and Engineering, Tadepalligudem	
Year of starting NewGen IEDC	2017	
Name of the Head/Principal of the Institution/College	Dr. K Bhanu Prasad	
Name of NewGen IEDC Coordinator	Dr. Krishna Chaitanya Nunna	
Contact Details of NewGen IEDC Coordinator • Mobile Number, E-Mail ID	9553100007 newgeniedc@sasi.ac.in	
Financial Details	Sanction Order No./ Date	Amount Sanctioned
Previous Sanction Order Details	1 EDII/DST- NewGenIEDC/17-18/03 Dt. 15/06/2017	60,00,000

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

S. No.	Activities	Outcome/Achievements
1	Seminar Conducted for students	Audience received the objectives of New Gen IEDC centre.
2	Survey meeting by individual teams	Individual teams built their ideas by taking inputs from intended customers.

[B] To identify, develop & commercialize students' innovative ideas

S. No.	Activities	Outcome/Achievements
1	Project Idea Competition and Exhibition	Gathered variety of ideas from participants and prototypes were exhibited

[C] To enhance Industry-Academia interaction

S. No.	Activities	Outcome/Achievements
1	Guest lecture by G V S Chakravarthi, Product Manager, Honeywell, Bangalore	Audience experienced the stages of idea-to-product transformation.
2	Participated in Hackathon 2021	Experienced the variety of ideas that can be useful for solving societal problems.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

Seminar with local vendors and intended business partners is planned but not conducted due to COVID19 situations.

3. Other important highlights (new initiatives), if any:

One project won All India Hackathon 2021, sponsored by DST, First prize. Two projects are establishing startups.

4. Student Projects (Please provide the following details for each student project)

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
1	<p>Project Title: Fabrication of Vendor's Vehicle</p> <p>Mentor Name: S.Sriram</p> <p>Team Name: K.Srikanth M.Subhramanyam G.Bhargav G.Sai Sandeep</p> <p>Project Description: The issue of carrying goods is a very big problem for road side vendors, especially for women folk. Therefore we intend to aid that particular community by a vendor vehicle, the vehicle involves a chamber with wheels for arranging of all their goods, which can be moved by either pushing or pulling operation.</p>	Idea is developed and case study is performed	Street vendors were identified for market survey and valuable inputs. Several designs were tested on CAD for low cost and rugged structure for local terrains. CAD diagrams were developed and manufacturing is started.	Project Completed
2	<p>Project Title: Fabrication of Portable Spot Welding Machine</p> <p>Mentor Name: Kiran Kumar Bunga</p> <p>Team Name: J. Pandu Ranga Rao CH. Sai Krishna B. Bhaskar Kumar</p> <p>Project Description: Spot welding machine is a device used for joining the metal work pieces, by the application of light hand pressure on one of the electrode against the other by placing the work between them.</p>	Idea is developed and case study is performed	Several technical charts were developed for maintain temperatures required for variety of metals with different gauges. Items are procured for proof of concept.	Project Completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
3	<p>Project Title: Processing of Waste Plastic into Eco Friendly Building Materials</p> <p>Mentor Name: P. Chaitanya Krishna</p> <p>Team Name: P. Ram Sai K. Sai Manikanta M. Karuna Kumar K. Prakash</p> <p>Project Description: The main aim of this work uses waste plastics and converts them into building materials with the help of an extruder, thereby reducing the plastic waste which is a key factor for environmental pollution.</p>	Idea is developed	Local plastic industries were surveyed for processing of raw material. Cost and quality analysis is proposed with industry persons	Project is under development
4	<p>Project Title: Express Bus Wash</p> <p>Mentor Name: Shaik Abdulla</p> <p>Team Name: K.Kanthi Kumari, Gunna Mounica Abhiram Gajjarapu Karri Vijaya lakshmi</p> <p>Project Description: To keep up any company's image and quality of service, it is important for your fleet of vehicles to be impeccable at all times. This principle has led us to come up with a solution to overcome the drawbacks of manual washing for buses.</p>	Idea is developed	CAD diagrams are developed for different sizes of the vehicles. Electrical motors are tested for continuous usage in real-time.	Project is under development

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
5	Project Title: Folding Furniture Mentor Name: Dr.R.B.Choudary Team Name: K.Kanthi Kumari Gunna Mounica Abhiram Gajjarapu Karri Vijaya lakshmi Project Description: Folding furniture is usually a great option for small spaces. It takes very little space when not used and it becomes as functional and great as any other type of furniture. This project aims at making folding furniture with reusable items	Idea is developed	Material is procured and tested with different weights to hold. Few samples are locally manufactured for proof of concept.	Project completed
6	Project Title: Unloading Mechanism for Pickup Truck Mentor Name: Y Raghuram Team Name: E Pavan S SatyaSri G Naresh P Markandeyulu Project Description: For minivan truck and auto trucks, loading and unloading must involve at least single labor along with driver. It is very much expensive when compared to load value the truck is carrying. To reduce the cost of loading and unloading, the proposed idea is developed.	Idea is developed and case study is performed	Weight management is surveyed based on the size of the vehicle. Easy mechanism is propose through CAD diagrams	Project Completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
7	<p>Project Title: Water Management Techniques</p> <p>Mentor Name: R V Babu</p> <p>Team Name: K.Srikanth M.Subhramanyam G.Bhargav G.Sai Sandeep</p> <p>Project Description: If we observe some issues like the over utilization, wastage of water without proper care, contaminations because of industrial waste, urbanization are problems needed to be addressed based on the fact of depletion of water resources. The ideas suggested in this project will cover all sectors of people like domestic, agricultural based and commercial groups as well.</p>	Idea is developed	A survey is conducted with local irrigation department and municipalities for studying the water supply stages	Project is under development
8	<p>Project Title: Anti-Reptiles Solar Stick</p> <p>Mentor Name: M. Venkatesh</p> <p>Team Name: A. Prasad Reddy E.Bhargavi A.Bhavani M.Ajay Sharma</p> <p>Project Description: Identifying the snakes and small dangerous insects will increase safety for human life. The project aims at sensing the presence of snakes and dangerous insects.</p>	Idea is developed	Technical diagrams are developed and tested on simulators. Items are to be procured.	Project is under development

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
9	<p>Project Title: Solid waste management by Vermicomposting</p> <p>Mentor Name: Dr. Chanapathi Tirupathi</p> <p>Team Name: M. Sravya K. Supriya Ch. Prasad A.Nithin Kumar</p> <p>Project Description: The proposed work focuses on utilizing the organic solid and agricultural wastes into valuable products such as vermin compost and vermi-wash through vermin composting.</p>	Idea is developed	Compost pits are developed in the nearby villages to collect organic waste. Different variety of organic waste materials from household are studied.	Project is under development
10	<p>Project Title: Versatile Nutritious Fibrous Modified Soil</p> <p>Mentor Name: Dr. U. Arun Kumar</p> <p>Team Name: M.Srinija M.A.J.V.Rama Bhaskar P.Mohan Nagasai Krishna T.Bhavani</p> <p>Project Description: The proposed idea is to test modification of soil with different organic materials. The advantage that one can gain by soil modification is that the cost is greatly reduced for procuring borrow soil with certain prerequisite geotechnical characteristics in order to use the same in the civil engineering industry activities like construction of village/rural roads, earthen dams etc.</p>	Idea is developed	Study of soil properties based on local conditions is conducted with the help horticulture university people.	Project is under development

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
11	<p>Project Title: IoT based Intelligent charging solutions and accessories for electric vehicles</p> <p>Mentor Name: Aswani Kumar Eedara</p> <p>Team Name: A Anu Sree E B S Likhitha K Sai Jagadeesh S. Vasuki</p> <p>Project Description: The proposed idea targets smart charging solutions for EVs. Pushing electric automobiles could be one of the possible solutions to bring down the consumption of fossil fuels and also extenuate a separate issue - the amount of green-house gas emissions.</p>	Idea is developed	Different charging solutions are identified and studied. A comparison is developed for identifying performance improvement.	Project is under development
12	<p>Project Title: IOT based Real-Time Smart Attendance System using Face Recognition Technique</p> <p>Mentor Name: M.R.V.Murali</p> <p>Team Name: N.Navya Sree N.Suryachandrarao P.Satya Samata Dedipya & Y.Gayathri Devi</p> <p>Project Description: Among of all personal identification strategies face recognition is most natural, less time taken and high efficient one. The main strategy involve in this project is taking attendance in organizations, industries and etc. using face detection and recognition technology.</p>	Idea is developed	Microcontroller based experiments are conducted for taking data from real-time through face recognition. Various algorithms are observed for variety of data sets.	Project is under development

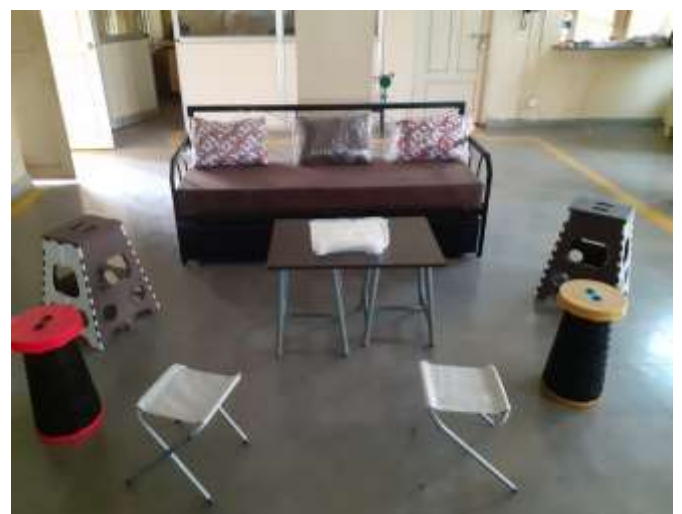
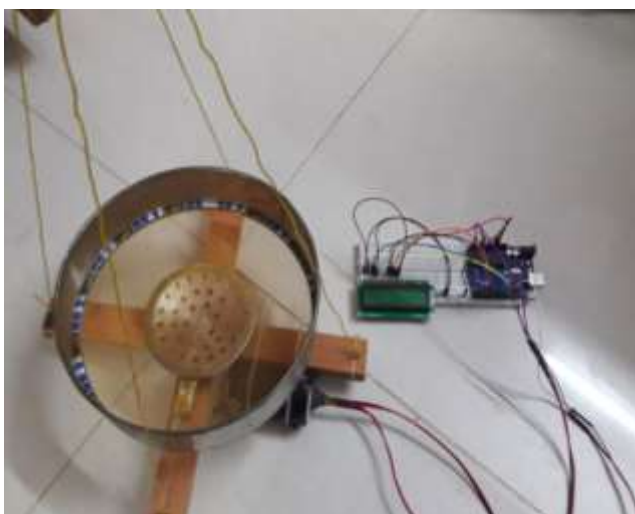
Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
13	<p>Project Title: Smart Notice Board</p> <p>Mentor Name: Dr. P. Hema Chandu</p> <p>Team Name: B. Aadi Narayana V. Aruna Keerthi P. Manikanta T. Naga Tulasi Devi</p> <p>Project Description: The main objective of this project is to develop a notice board system using an Arduino board with Wi-Fi being remotely controlled by system.</p>	Idea is developed	Items are procured for first stage of testing. Embedded code is developed for basic experiments.	Project Completed
14	<p>Project Title: Sewage Management</p> <p>Mentor Name: Ch L S S Pavan Kumar</p> <p>Team Name: P.Lakshmi Manasa E.Tejaswi K.Prasanthi D. V. V. P. Gopala Krishna</p> <p>Project Description: This proposed system would track the level of water and harmful gas, PH level of corresponding pond and cleans the solid wastes in the drain lines.</p>	Idea is developed	Hardware is procured and several experiments were conducted for testing motor requirements and rugged usage	Project Completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
15	<p>Project Title: Fetal Movement Detection</p> <p>Mentor Name: B Jeevana Rani</p> <p>Team Name: M P Pravallika M Naveena M Sai Vamsi M Chandra Priya</p> <p>Project Description: Fetal movement detection is a low-cost, non-invasive and portable system. Fetal movement is a significant indication of fetal well-being. The monitoring of fetal movement is an important measure taken against the fetal death.</p>	Idea is developed and case study is performed	Local hospital visits are conducted to discuss with poor women who comes to rural background and large distances. Block diagram is developed for technical presentation.	Project Completed
16	<p>Project Title: Water Quality Management and Leakage Detection</p> <p>Mentor Name: Dr. N K Chaitanya</p> <p>Team Name: G Nitish Satya Sai S Eswar Prasad A Sri Ganesh D Rohit</p> <p>Project Description: In this work, Water quality is calculated by considering water temperature, pH, TDS, Turbidity indicators. The water pollution monitoring system can help to detect the water pollution that means the quantity of Ph, turbidity, dissolved solids, and the temperature of the water.</p>	Idea is developed and case study is performed	Hardware is procured and experiments are conducted. Real-time usage is showcased for feedback from entities.	Project completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
17	<p>Project Title: Smart Junction Mirror</p> <p>Mentor Name: Dr. D Prasad</p> <p>Team Name: Tetala Jayanaga Surya Prakashreddy Y.B.Sai Kumar Karunasri U.Sreemai</p> <p>Project Description: The main theme of smart junction mirror is to prevent the Road accidents. Smart Junction Mirror is for the purpose of preventing road accidents through technology assistance at junction points of rural and urban local roads and also serves as parking guide in cellar areas of apartments and shopping malls.</p>	Idea is developed and case study is performed	Hardware is procured and developed with low cost equipment. Proof of concept is tested in nearby town junction streets and observed several times on how the people are reacting with the installed mirror.	Project completed
18	<p>Project Title: Smart Electronic Check Tray</p> <p>Mentor Name: P Siva Durga Rao</p> <p>Team Name: Lakshmi Manasa Palivela S S Sandeep K S C S Sarma T Manasa Devi</p> <p>Project Description: Manual assessment of Feeding may not be fully helpful to the farmer as the amount of feed for a particular pond increases and related feed wastage at the bottom of pond resulting in acidic nature of pond water. Instead of concluding after inspection time, transient analysis helps farmer to inspect instantaneously about feeding.</p>	Idea is developed and case study is performed	Hardware is procured and developed. The proof of concept is presented to customers and tested in real ponds.	Project completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
19	<p>Project Title: Automatic Fish Feeder for Aquariums</p> <p>Mentor Name: B Ramesh Babu</p> <p>Team Name: Y M U Aishwarya T J S Prakash Reddy V L Deepak R.V.R.Durga Prasad</p> <p>Project Description: To ensure that fish get the food they need when we aren't able to feed them, we might consider installing an automatic fish feeder. Automatic fish feeders which are available in market can be expensive, rugged in structure and high powered.</p>	Idea is developed	A case study is completed on how many aquariums are being sold per month within a district and also usage habits are observed based on the real-time data.	Project completed
20	<p>Project Title: Smart Traffic Control system for Emergency Vehicles</p> <p>Mentor Name: Dr. G L Chowdary</p> <p>Team Name: Alluri Samhitha Gajjarapu Sowmya Sri Kakarla Hima Sree Karuturi Praveen Chowdary</p> <p>Project Description: In this work, we propose a smart traffic control system to manage the traffic flows for emergency vehicles like Ambulance, Fire engine,...etc.</p>	Idea is developed	Items are purchased and developed first stage of the experiments. Different scenarios are studied for variety of traffic conditions.	Project Completed

- Please Submit three/four high resolution (at least 300 dpi) pictures in jpeg format showing the prototype/product along with the students and their mentor for each project.



5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

Project 1:

Problem Statement: In spite of the plethora of water resources, the people of the country are facing the problem of safe freshwater due to slope factor, management issues, urban conglomeration, deforestation, and other environmental factors. It is essential to know the quality of water before its consumption for human and agricultural uses. Continuous monitoring of the water resources can also help in predicting the flood chances if the water level rapidly goes up. Design a hardware solution to measure quality parameters of water along with an app to enable monitoring of water quality at various locations. Ensure that it is easy to use and connect to mobile devices.

Project Abstract: Water is an essential need for human survival but due to the rapid pace of industrialization and greater emphasis on agricultural growth combined with the latest advancements, agricultural fertilizers, and non-enforcement of laws have led to water pollution to a large extent. The availability of good quality water is paramount in preventing outbreaks of water-borne diseases as well as improving the quality of life. In order to ensure the safe supply of the drinking water the quality needs to be monitored in real-time. The internet of Things (IoT) is a revolutionary concept that has the potential to turn virtually anything to smart. IoT provides an interface to monitor and operate remotely from anywhere and anytime. Water quality refers to the chemical, physical, biological, and radiological characteristics of water. In this work, Water quality is calculated by considering water's physical (temperature) and chemical (pH, TDS, Turbidity) indicators. The water pollution monitoring system can help to detect the water pollution that means the quantity of Ph, turbidity, dissolved solids, and the temperature of the water. Pipe leakage detection is also an important thing to avoid wastage and contamination of water. So, to ensure the safe supply of drinking water and to avoid wastage of water we are proposing a Smart Water monitoring automation System using the techniques of different sensors (Internet of Things) and Analytics.

Team Members:

Sr. No	Name	Branch	Roll No	Contact
1.	G.Nitish Satya Sai (Leader)	3 ECE - B	17K61A0425	9515968118 nitishnitish118@gmail.com
2.	S. Eswar Prasad	3 CSE - A	17K61A05G6	
3.	A.Sri Ganesh	3 ECE - C	17K61A0459	
4.	D. Rohit	3 CSE - A	17K61A0522	
5.	Y. Shahi Poornima	3 CSE - A	17K61A05H8	
6.	K. Sai Manikanta	3 MECH - A	18K65A0327	

Market Analysis:

A. Customer Need Identification:

- a. A report said, 70 percent of water in India is contaminated, impacting 3 out of 4 people and contributing to 20 percent of the country's burden.
- b. 90 percent of water supplied in Dehradun is contaminated
- c. Water leaks from mains and service pipes amounted to 20-35% of the total flow in the system. At a conservative estimate, the national loss of processed water through leaks in the water distribution systems amount to 10^{12} liters per year, which is equivalent to 500 million rupees.

B. Serviceable Addressable Market (SAM) Identification & Justification:

- a. According to a survey by the UN State of the World Population report in 2007, by 2030, 40.76% of India's population is expected to reside in urban areas.
- b. At least 21 cities in India, including capital New Delhi, Bengaluru, Chennai, and Hyderabad, will run out of groundwater by 2020, affecting around 100 million people.

C. Differentiation w.r.t. Competition & Justification:

- a. There are other competitors in this field like Hitachi, SysArgus, Xylem India. They focus on just collecting sensor values and send to the cloud, or used for industrial purposes.
- b. Our solution will identify the areas of leaks and can automate most of the processes of a state-run water supply system to a given city. The process like valve closing, leak identification, bill collection, and contamination identification are easily identified and automated.

D. Understanding your customer & user:

- a. The customer is generally state governments that are thinking of automating the water grid systems or builders who generally are focused on providing their customers with extra functionalities.
- b. The user is generally water consumers with our device installed at their homes.

Proposed Solution: In this proposed solution, we are developing an IoT based water quality monitoring system. A prototype is being developed in which a system is attached to the existing water supply grid. Mechanical damages or corrosion in pipelines are the main reasons for water leakage and contamination of water. To address this problem, we propose an online monitoring system to identify the leaks and contamination by using appropriate sensors. An electronic device called node is developed which contains sensors for water quality and flow measurement. Water from reservoirs/canals is purified at water treatment plants and is sent to municipal water tanks. As a reference, we install a node at every municipal tank. It is taken as a reference node to measure the initial flow rate and water quality. At every junction in the water grid, smart valves and flow sensors are installed. At the user end, we have nodes that collect pH, TDS, Turbidity, and flow rate values. If any water leakage occurs it will be identified by using ML algorithms and location will be intimated to admin. And if the quality of the water declines, then the supply is closed, and both admin and user are informed.



Future Plan:

A startup is established in the name DevRishi Eco Projects.

Project 2:

Problem Statement: Electronic Check Tray

Abstract: Aquaculture is an activity producing fish or shellfish mainly for human consumption. It is carried out in ponds, enclosures or in open water bodies and thus involves continuous interaction with the environment. Providing feed to species inside pond on a regular basis is a timely job for the farmer which is a very important function in aquaculture. To assess the feeding to species inside the pond, and to save feed from wastage and further deterioration due to wastage of feed inside pond, *feed trays* or *check trays* are kept along the periphery of the ponds. Proposed work provides a smart way to check the feeding in shrimp culture and may paves path to technology support to aquaculture on-field. Electronic Check Tray will help farmers to assess the feeding to species inside the pond on a real-time basis. Thus reducing the feed wastage which leads to increase in profitability in aqua culture.

Specify newness/uniqueness of the innovation:

- Traditional Check Tray usage is manual throughout the world.
- Manual assessment of Feeding may not be fully helpful to the farmer as the amount of feed for a particular pond increases and related feed wastage at the bottom of pond resulting in acidic nature of pond water.
- Instead of concluding after inspection time, transient analysis helps farmer to inspect instantaneously about feeding.

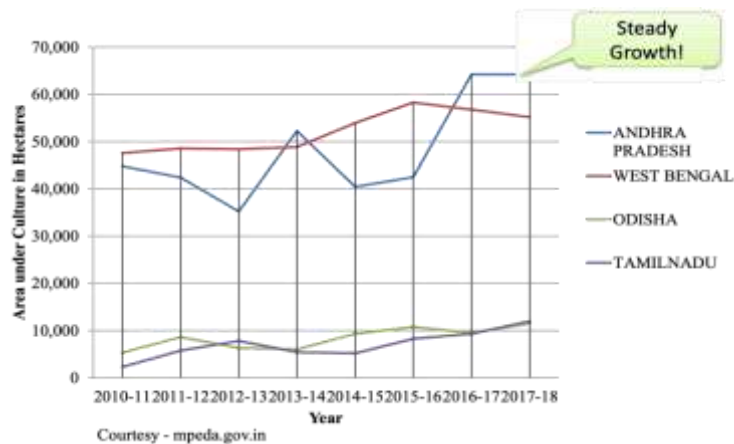
Potential areas of market

- From the statistics, if we consider Andhra Pradesh alone, 64,222 hectares or **1,58,696** acres of aquaculture is under cultivation during 2017-18 (Source: mpeda.gov.in).
- Over last five years, On an average, 52,731 hectares or **1,30,302** acres of aquaculture is irrigated.
- General trivia is at least **four** Check Trays are needed.

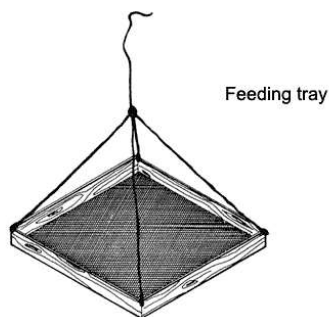
- That means, $1,30,302 \times 4 = 5,21,208$ Check Trays can be sold per year.

S.No.	Indian State		2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
1	W. Bengal	AUC	47,588	48,558	48,410	48,860	53,947	58,285	56,759	55,211
		EP	40,725	45,999	52,581	53,528	57,370	72,554	73,472	76,534
2	Orissa	AUC	5,324	8,622	6,302	6,008				
		EP	7,520	11,001	35,294	13,982				
3	Andhra Pradesh	AUC	44,794	42,402	35,218	52,286				
		EP	65,943	1,26,466	1,59,083	2,13,522				
4	Tamil Nadu & Pondicherry	AUC	2,265	5,757	7,804	5,430				
		EP	4,129	14,960	25,815	27,197				
5	Kerala	AUC	11,788	12,809	12,917	12,719				
		EP	8,075	8,138	5,175	3,360				
6	Karnataka	AUC	1,715	722	394	251				
		EP	2,090	841	158	573				
7	Goa	AUC	306	53	31	82				
		EP	320	51	63	81				
8	Maharashtra	AUC	924	1,225	1,486	1,725				
		EP	1,628	2,662	3,513	4,374				
9	Gujarat	AUC	2,030	2,059	2,359	2,082	4,426	4,552	7,982	7,542
		EP	6,392	6,064	9,393	10,688	30,157	35,499	42,755	56,781
Total		AUC	1,16,784	1,17,301	1,15,825	1,29,444	1,30,949	1,40,666	1,62,204	1,52,595
		EP	1,36,822	2,16,283	2,70,819	3,22,684	4,34,559	4,97,622	5,69,679	6,90,001

*AUC - Area Under Culture in hectares; *EP - Estimated Production in tons;
 Courtesy - mpeda.gov.in



Project Methodology: The use of *Check Tray* is very important to check the amount of feed, reflect the feeding possibility, health, and survival rates of shrimp, as well as conditions at the bottom of the pond.



Feeding tray is usually a net with a square or round steel frame with edges' height no more than 5 cm. Feed trays are generally 2'x 2' feet nets with frame with a float for identification location. Feeding tray should be placed close to the bottom of the pond, where it is clean and slightly far away from the pond edges.

Depending on the area and density, one or more feeding trays can be placed in pond. A pond of one hectare size would need 4-6 feeding trays. Depending on the actual situation, including pond



environment, weather, etc., increase or decrease the amount of feed for a day accordingly.

About 1-4 % of daily ration is kept in these check trays. Every day after each feeding, the feed in the check tray is checked to know whether feed is fully consumed. Checking period depends on the farming period as below:

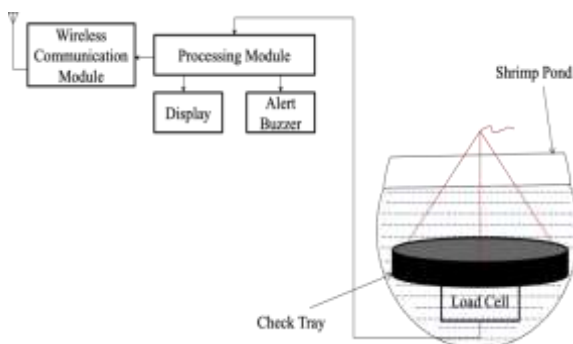
Farming period (days)	The amount of feed put in feeding trays	Checking period (hours)
21 - 60	10gr/1kg feed	2.5 - 2.0
61 - 90	15gr/1kg feed	2.0 - 1.5
>90	20gr/1kg feed	1.5 - 1.0

Depending on the quantity consumed, the following adjustment is made:

Check the feeding tray	How to handle the next feeding time
If shrimp eat all the feed	Increase 5% the amount of feed for the next feeding time
If the feed leftover is 10%	Keep the same amount of feed
If the feed leftover is around 11-25%	Reduce 10% the amount of feed for the next feeding time
If the feed leftover is around 26- 50%	Reduce 30% the amount of feed for the next feeding time
If the feed leftover is more than 50%	Stop feeding the next time

Traditional Check Tray usage is manual throughout the world. Manual assessment of Feeding may not be fully helpful to the farmer as the amount of feed for a particular pond increases and related feed wastage at the bottom of pond resulting in acidic nature of pond water. Instead of concluding after inspection time, transient analysis helps farmer to inspect instantaneously about feeding. Below are the expecting outcomes of the proposed product.

- Graph representation of Feeding process inside check tray during the inspection time.
- SMSs for concluding remarks of inspection.
- Alert Buzzer for alerting farmer about the total/required feed consumption in check tray.
- Mobile Application showing Transient Analysis of feeding process inside check tray.
- Following representation shows the technology adaptation in to Check Tray.



Future Plan: A startup is established under the name Vasishta Aqua Tech.

NewGen IEDC
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi
SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	L. J. Institute of Engineering & Technology		
Year of starting NewGen IEDC	2017		
Name of the Head/Principal of the Institution/College	Dr. Viral Shah		
Name of NewGen IEDC Coordinator	Ms. Debopriya Chakroborty Mr. Bhushan Mehta		
Contact Details of NewGen IEDC Coordinator	<ul style="list-style-type: none"> • +91-96207 27297 • dchakroborty@ljinstitutes.edu.in • +91-9033096486 • bhushan@ljinstitutes.edu.in 		
Financial Details	Sanction Order No./ Date		Amount Sanctioned
Previous Sanction Order Details	1	EDII/DST-NewGenIEDC/17- 18/04, 15.06.2017	Rs. 60,00,000
	2	EDII/DST-NewGenIEDC/17-18/04, 28/02/2019	Rs. 47,50,000
	3	EDII/DST-NewGenIEDC, 04/11/2020 & 08/02/2021	Rs. 21,00,000 Rs. 39,00,000

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1	IoT Challenge	We provided an extensive range of IoT challenges which were then worked on by various student and faculty teams. the main aim of it was to convert all machines into autonomous machines using the internet of things
2	Antra Quest	Antra quest is our flagship program aimed at generating problems. Yes, you heard it right. We all focus on ideas, while focusing on problems is equally important. So in this competition, we ask students to come up with problems.
3	Falcon (The Robotics Club)	Robots, Robotics A fascinating world of excitement, technology and development. In L.J.I.E.T, Robotics club named – “FALCON” which participates in regional, national level robotics events and also does robotics workshops. The journey of Robocon started from

Sr. No.	Activities	Outcome/Achievements
		2013 with a bunch of enthusiastic students. ROBOCON is an annual international robotics event conducted by Asia-Pacific Broadcasting Union (ABU) in different countries. Every year a new theme is introduced which brings about a fresh vibe in all the robotic-nerds. Generally, the theme of Robocon represents the culture of the country hosting the event. One team from each country represents and competes in the competition.
4	Blackhawks (The Automotive Club)	<p>Team Blackhawks is a team of L.J. institute of engineering and technology. The team consists up to 25 members of under graduate students and a faculty advisor. The team was started in 2014 by a group of auto enthusiasts students which designs, analysis, fabricate and construct All-terrain vehicle (ATV). We participate in various international and national competitions like SAE BAJA, MEGA ATV, ATVC, GTU ATV etc.</p> <p>In year 2020 team has its 6th edition since 2014 and has grew up significantly in performance. In 2014 our ATV weighed 375 kgs and by optimizing our design and material we reduced the weight of ATV to 152 kgs in 2020. We were able to reduce the weight by keeping safety as our No. 1 priority. Top speed of our ATV has been increased from 55 kmph to 74 kmph over the years. We also started making our own customized components by proper sound engineering technique in which we learn about the industry. We make our own customized ATV frame and other components by inhouse fabrication.</p>
5	Antra Tech Ride	A series of webinar aimed at introducing various technological topics to a larger audience. this not only enlightens them, but also opens up avenues for them to learn and work on latest technology.
6.	Antra women preneurs	A series on all the women entrepreneurs who have come up the ranks. this has been instrumental in encouraging female students to pursue entrepreneurship.

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1.	Antra Pitch	Antrapreneur: The Business Incubator (a unit of LJ Knowledge Foundation) run by LJ Group, conducted a uniquely designed Speed Dating event for Startups-Investors on 13th March, Saturday. The event was graced by 8 dierent Angel syndicate members, 28 investors, 2 Business associations and 85 startups participated for

Sr. No.	Activities	Outcome/Achievements
		<p>the event. In the final round of pitching, 10 startups were shortlisted from different geographies including Gujarat, Karnataka, Maharashtra, Madhya Pradesh. To call the success of the event, one of the potential funding platform, Shuru, announced spot funding of 30 lakhs to a Mumbai based startup named Newsreach. One strategic partnership was announced by Dr Dinesh Awasthi, Vice Chancellor of LJ University, along with Vice President Dr Manish Shah signed an MOU to promote Topbeat, a startup for learning music differently through online platform. Industries Commissionerate, Government of Gujarat sponsored this event to promote startups and create better employment opportunities in the state. Virtue Ventures, Ah Ventures, Lead Angels, Chennai Angels, RAIN, CIO Angels, YI angels, ShuruUP etc were participated in the event. AntraPitch 2.0 is known for fund raising events in the state.</p>
2	L J Innovation Village	<p>Acting as a driving force in building the backbone of the innovation ecosystem, L J has been organizing L J Innovation Village since 2013. It provides an opportunity to innovators to interact with students, faculties, industrial experts and potential seed investors. The additions and deletions during this process ignites a creative instinct in the innovator.</p> <p>The recent edition saw a total of 300 projects who portrayed their innovation to over 100 industrial mentors.</p>
3	L J Startup week	<p>L J Startup week comprises of</p> <ol style="list-style-type: none"> 1. Idea Improvisation 2. BMC/TMC training 3. Market study 4. Product Development 5. Customer Validation 6. Lean Startup methodologies 7. Mentor – Innovator relationship building 8. Multi domain mentoring 9. 12-15 hours of rigorous mentoring 10. One to many mentoring

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Faculty Hackathon	A faculty hackathon was conducted for development of faculties in association with jhaveri associates. The idea was to provide faculties with real life challenge in construction industry. The faculties were asked to design customized houses.
2	Design Centre	We run various design programs to empower our students with skills on latest design platforms like the solidworks.




2. Deviation (shortfall) from the proposed action plan (with reasons), if any:





- There have been a few shortfalls in the proposed action plan.
- The continuity in disruption in the education sector due to corona virus has affected the number of students opting for entrepreneurship. This was fueled by delays in getting their product ready.
- Majority of students who got their funding this year are still working on their product.



3. Other important highlights (new initiatives), if any:



- We conducted a pure fundraising event through which two startups have got private equity funding of upto Rs 50 lacs.
- We have been successful in developing solutions for the railways, wherein we provided them with a solution to their prolonged problem of tail lamps.



4. Student Projects (Please provide the following details for each student project)




Sr. No	Team / Project Description	Project status at beginning of the Year	Interventions made	Current status	Photograph
1	Project Title: Tacconnect Mentor's Name: Bhushan Mehta Student Team: Jainil Gandhi Project Description: Just tap and share. This is the main motto of this product. a way to socialize easily and still look cool.	The team came up with just the idea	1) Product Design 2) Business model 3) user testing	The prototype is ready	
2	Project Title: Safex360 Mentor's Name: Debopriya Chakroborty Student Team: Vaibhav Khalas Project Description: This product is a protective headgear for all the front line workers who face difficulty in	The team came up with just the idea	1) Product Design 2) Business model 3) user testing	The prototype is ready	
3	Project Title: Solar Panel Cleaning System Mentor's Name: Rahul Savaliya Student Team: Rachit Thakar Karan Shah Project Description: An automated system for cleaning of rooftop solar panels.	The team came up with just the idea	1) Product Design 2) Business model 3) Prototyping	The product has been deployed	



Sr. No	Team / Project Description	Project status at beginning of the Year	Interventions made	Current status	Photograph
4	Project Title: Wonderly Mentor's Name: Debopriya Chakroborty Student Team: Kalp Sanghvi Jeel Shah Project Description: An app which lets you explore short videos based on edutainment.	The team came up with just the idea	1) Product Design 2) Business model 3) user testing 4) Solutions Architecture	The product has been deployed	
5	Project Title: Currency sanitizer Mentor's Name: Rahul Savaliya Student Team: Neel Shah Project Description: A product designed to sanitize currency notes	The team came up with just the idea	1) Prototype Development 2) User testing	The product has been deployed	
6	Project Title: Kitchen Master Mentor's Name: Bhushan Mehta Student Team: Salif Alvi Project Description: A multifunction tool, specifically designed to serve numerous purpose for the kitchen master	The team came up with just the idea	1) Ideation 2) prototyping 3) Mentoring	the product is under development	
7	Project Title: Auto Synchronising Rough Grinding Machine Mentor's Name: Mr Vivek Parikh Student Team: Bhatt Varshil Nirajkumar Bera Abhishek Arup	The team came up with just the idea	1) Procurement of components 2) mentoring 3) Prototype development 4) Testing	The prototype is under development	



Sr. No	Team / Project Description	Project status at beginning of the Year	Interventions made	Current status	Photograph
	Project Description: This innovation focuses in human resource safety and management during the grinding operation. Adding to it, it pin points a very important parameter which might cause unwanted abrasions in the end product.				
8	Project Title: Virtual Lab mobile application for heat transfer & oil Hydraulic Mentor's Name: Mr Hardik Shah Student Team: Kathan Shah Project Description: An IoT based virtual heat transfer equioment which makes online practical education feasible.	The team came up with just the idea	1) Procurement of components 2) mentoring 3) Prototype one in developing phase	The prototype is under development	
9	Project Title: IOT Based Solar Panel Cleaning Robot Mentor's Name: Mr Mihir Mistry Student Team: Mehta Manan Vijaybhai Patel Aksh Alpeshkumar Project Description: One of the most crucial problems in the solar industry is cleaning and this innovation has targetted the same. With it's robotic technology coupled with IoT, the cleaning process is done with very less human intervention and is more efficient	The team came up with just the idea	1) prototype development 2) Idea Design 3) Product Design 4) Mentoring	The prototype is under development	

Sr. No	Team / Project Description	Project status at beginning of the Year	Interventions made	Current status	Photograph
10	<p>Project Title: Sensor Based Lathe Feed Rate Monitoring Module</p> <p>Mentor's Name: Mr. Pravin Zinzala</p> <p>Student Team: Preet Patel Nirmal Parmar</p> <p>Project Description: Bridging the gap between conventional mechanical devices and Industry 4.0, this product is a breakthrough for hands on training of skilled professionals in the field of manufacturing who can be upskilled for Industry 4.0</p>	The team came up with just the idea	1) prototype development 2) Idea Design 3) Product Design 4) Mentoring	The prototype is under development	
11	<p>Project Title: Sensor based actual COP measurement of Refrigeration Test</p> <p>Mentor's Name: Mr. Hitesh Patel</p> <p>Student Team: Pruthvi Patadiya Javandhra Darshil Manubhai</p> <p>Project Description: With constant increase in energy bills, it becomes imperative to check the consumption of appliances we have at home. so this project is aimed to measure the COP levels of Refrigerator so that we can know when to change it.</p>	The team came up with just the idea		The prototype is under development	

Sr. No	Team / Project Description	Project status at beginning of the Year	Interventions made	Current status	Photograph
12	<p>Project Title: Performance Monitoring of Radial Drilling Machine</p> <p>Mentor's Name: Mr. Milan Trivedi</p> <p>Student Team: Vinus Panchal Neel Patel</p> <p>Project Description: Manual Drilling is a critical job which requires precision. But it needs skilled labour for operation. So this project is about automating those parameters through which unskilled labourers can also be accommodated and the risk of failure can be mitigated</p>	The team came up with just the idea	1) Prototyping 2) Mentoring 3) Idea Design	The prototype is under development	
13	<p>Project Title: Control of Water Supply to Reduce the Water Wastage.</p> <p>Mentor's Name: Mr. Abhishek Trivedi</p> <p>Student Team: Samarth Mukeshbhai Patel Karmit Dilipbhai Patel</p> <p>Project Description: Water being one of the most important non renewable resource. Either recycling or regulating the usage is the answer. This innovation has targeted the later one by using IoT in its functioning for monitored use of water</p>	The team came up with just the idea	1) Setup area identified 2) procurement of material 3) mentoring	The prototype is under development	

Sr. No	Team / Project Description	Project status at beginning of the Year	Interventions made	Current status	Photograph
14	Project Title: IOT Based Smart Refrigerator Mentor's Name: Mr. Kartik Trivedi Student Team: Nirmal Patel Project Description: This project focuses on the main problem	The team came up with just the idea		The prototype is under development	
15	Project Title: Digitalize Measuring of Whirling Speed of Shaft Mentor's Name: Mr Hitesh Raiyani Student Team: Surti Dev Kalpeshbhai Project Description: To control the efficiency and reduce the human error, this innovation has a focused application in civil industry. Eg: for maintaining the quality of concrete. It can be used in various other customised applications.	The team came up with just the idea	1) industry mentor connect 2) component procurement 3) Prototyping lab facility	The prototype is under development	
16	Project Title: Development of IOT Based Smart Lawn Sprinkling System Mentor's Name: Mr. Lav Patel Student Team: Jainam N Sheth Rutvik Vijaykumar Nai Project Description: Agriculture is still one of the top most contributors to the Indian GDP. There is a lot of scope for improvement in the irrigation system. This project focuses exactly on that part. Taking the data of soil and timing the irrigation part accordingly. And all this without any human intervention	The team came up with just the idea	1) Idea Design 2) Mentoring 3) Procurement	The prototype is under development	

Sr. No	Team / Project Description	Project status at beginning of the Year	Interventions made	Current status	Photograph
17	<p>Project Title: Live Experimental Analysis of Output Parameters For Single Cylinder 4-Stroke Diesel Engine.</p> <p>Mentor's Name: Mr. Vimal Salot</p> <p>Student Team: Shah Dev Ajaykumar</p> <p>Project Description: This project is in the edtech segment. Converting an experiment totally digital. Testing of various fuels on a 4-stroke engine is highly important and if this can be done virtually. It maximizes learning and improves the productivity</p>	The team came up with just the idea	1) Experimental setup 2) Procurement 3) Mentoring	The prototype is under development	
18	<p>Project Title: Automation of Selection of Lathe Spindle Speed</p> <p>Mentor's Name: Mr. Vimal Salot</p> <p>Student Team: Pathan Amankhan Salimkhan</p> <p>Project Description: While doing manual lathe operation. There is always a problem of selection of spindle speed. Though this can be eliminated by a CNC machine but there are a lot of machines which needs to be updated. Ramacha spindle speed for different lathe operations</p>	The team came up with just the idea	1) Mentoring 2) Procurement 3) Product Design	The prototype is under development	

Sr. No	Team / Project Description	Project status at beginning of the Year	Interventions made	Current status	Photograph
19	Project Title: IOT Based Water Flow Meter Using Water Flow Sensor Mentor's Name: Mr. Ankur Patel Student Team: Kirtan Pravinbhai Mewada Project Description: This project is about converting a fluid mechanics instrument into IoT. The age old venturi meters can be replaced with flow meter and the flow can be monitored and controlled through an IoT device. This lets the students to understand the practical in a much better way	The team came up with just the idea	1) Prototyping 2) Mentoring 3) Product Design	The prototype is under development	
20	Project Title: Oxygen on wheels Mentor's Name: Bhushan Mehta Student Team: Himani Ramwani Het Shah Project Description: In the challenging times of covid, oxygen concentrators have proved to be really essential and by this project, the students aim to develop an indigenous one	The team came up with just the idea.	1) Prototyping 2) Mentoring 3) Product Design	The prototype is under development	

- Please Submit three/four high resolution (at least 300 dpi) pictures in jpeg format showing the prototype/product along with the students and their mentor for each project.

5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

1) **Wonderly Network: A Social media app that will make you smarter.**

Name of the members :

- 1) Kalp Sanghavi (CEO) / 9537827678
- 2) Jheel Mehta (COO) / 7990197269

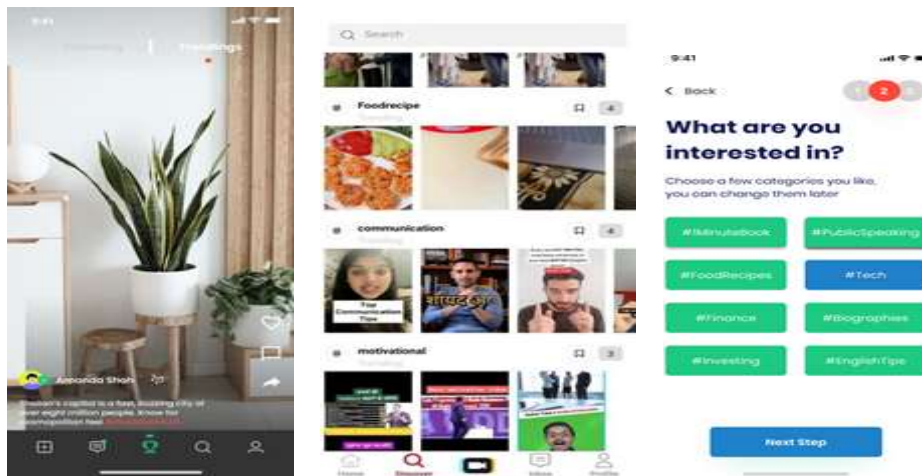
About Wonderly:

1. Wonderly is a video creation platform for micro- content.
2. It basically focuses on videos that are created for edutainment purpose.
3. It can be called as a tiktok for education. therefore wonderly is an application that would create an ecosystem for learning.
4. Content consists of 1-Minute Book Summaries , Money Investing , Communication Skills.

Startup entrepreneurial journey:

1. The Idea was started as **Books Exchanging & Sharing App** for book lovers of the town , Then **lockdown** happened and we pivoted to **Kowledge-Sharing App** “Tiktok For Education”, Where intelligent people come and share their knowledge. The application idea popped when there was a distinct rise in need of micro content videos
2. After Ban of TikTok Eventually, the edutainment creators got scattered to different platforms. Hence, this is an initiative with a vision to bring them together on a single platform so that people can instill some values from them in their day-to-day lives.

Screenshots:



Future Plan:

1. To create an impact on the inspiring youth of Bharat by educating them.
2. To make wonderly a globally recognized application.
3. To have mutual growth of Wonderly as well as its Education Ecosystem.

Contribution of NewGen IEDC:

NewGen IEDC supported project to become **Idea To Prototype Stage** Project got various support By LJiet NewGen IEDC including **finance, workspace, infrastructure and mentor connects** which helped this project to move from **Prototype To Market Stage**.

2) TAC Connect

Name of the members :

Jainil gandhi

Mo. No - 9586679342

Saakshi desai

Mo. No - 91576 76045

About TAC Journey

Our startup name is Tac(Tap & Connect) . The main problem people face when they meet each other for the first time was sharing the social details and contact details and for that they have to exchange business cards which has limited info on it and are also hard to manage, Thus this gave birth to tac.

We have digitalized the whole process by taking it online. It has all your info and can be shared with just a tap . Using NFC you can just tap the tac on another phone and your info is shared.



Journey was quite tough though, I had to learn whole coding language and code each and every part of it. Lot of challenges in building the product. Thus after numerous changes on website and many prototypes we got our perfect design. After that we started marketing on Instagram and sales started coming in .Our future view is to build digital business cards so we can target more people. Besides this I got enough help from new gen iedc. We got funding of around 40 k from NEWGEN IEDC. Though it was very tedious proses as there was delay in payment but with the help of our mentor **Bhushan sir** we managed it . He worked very hard in order for us to get to the end and also gave us wise knowledge as well as advice not just for start up but for life to and that everyone should look at while selecting their mentor.

NewGen IEDC
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	Manav Rachna International Institute of Research & Studies, Faridabad		
Year of starting NewGen IEDC	2017		
Name of the Head/Principal of the Institution/College	Prof. (Dr.) Sanjay Srivastava Vice Chancellor		
Name of NewGen IEDC Coordinator	Dr. Monika Goel Professor and HOD (Department of Commerce)		
Contact Details of NewGen IEDC Coordinator <ul style="list-style-type: none"> • Mobile Number • E-Mail ID 	09899876331 monika.fcbs@mriu.edu.in		
Financial Details	Sanction Order No./ Date		Amount Sanctioned
Previous Sanction Order Details	1.	EDII/DST-NewGen IEDC/17-18/RLS-1/05 (Dated 2 Nov 2020)	Rs: 21,00,000/-
	2.	EDII/DST-NewGen IEDC/17-18/RLS-1/05 (Dated 6 Jan 2021)	Rs: 39,00,000/-

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements	Month
1	Challenge Covid 19	A one week event was planned where seven student teams showcased their ideas in front of the Jury. The motive was to identify the teams/ideas who were actively working in the field of fighting the pandemic. Three projects were offered Newgen IEDC support.	June 2020
2	Induction program on different forms of entrepreneurship	The students of MRU and MRIIRS were briefed about entrepreneurship and the support provided by NewGen IEDC and the students were motivated to join e-cell (10 days in different batches)	October 2020
3	Create Your Own Success Story – Be an Entrepreneur	A webinar for aspirants of MBA in Innovation, Entrepreneurship and Venture Development (IEV) was conducted with the alumini's startups of Manav Rachna Institute	July 2020
4	Igniting The Success Within You	150 Students from all different streams participated in this One day session held with Mr Aman Dhattarwal. The objective was to create awareness and prepare students to start their journey as entrepreneurs	April 2021
5	Session On Intellectual Property rights	A one day session with the IPR expert was conducted where 67 students participated. The session focusses on the importance of IPR for any Startup	Feb 2021

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements	Month
1	Screening of Startups	Four student Teams from various departments presented their ideas in front of the jury members.	November 2020
2	Call for Ideas	5 teams pitched their idea in front of the selection committee and 2 Ideas were selected for the scheme.	March 2021

Sr. No.	Activities	Outcome/Achievements	Month
3	TEDP(2021)	A Technology Development program of 6 weeks, where 20 students participated to learn the insights of business with the help of industry experts. A program with over 100+ sessions on Cyber Security and cloud computing gave a great insight to the participants.	February – March 2021
4	Review Committee	Two day interactive session among the startups and the committee to understand the hurdles during the Pandemic.	June 2020
5	Review Committee	2 day meeting with the startups to understand and review the development stage.	October 2020
6	Review Committee	Two day interactive session among the startups.	May 2021

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements	Month
1.	Faculty Development program	A Two week FDP of 42 Sessions for 34 participants from all over India is being organized by Manav Rachna NewGen IEDC and it is sponsored by National Science and Technology Entrepreneurship Development Board, Department of Science and Technology, Govt Of India under DST-NIMAT Scheme and Entrepreneurship Development Institute of India. Resource persons shared the insights of business and how to promote it among the upcoming students.	October 2020
2.	Faculty Development program - AICTE	New-Gen IEDC Manav Rachna & Faculty of Management Studies, MRIIRS organized the Two-Week Faculty Development Program on 'Entrepreneurship Development' from April 5 – 17, 2021. AICTE, New Delhi sponsored the program and the FDP was designed to train and motivate the faculty members involved or likely to be involved in the promotion of entrepreneurship-related activities. The program was attended by 46 participants from reputed institutions from pan India, which helped the organizing team build the blocks for the program's success. Due to the pandemic, the program was conducted through online mode with innovative pedagogy.	April-May 2021

3.	Faculty Development program - AICTE	A two Week FDP, in collaboration with the FMS department of MRIIRS was conducted in the month of May 2021. Participants from various institutes participated and were trained by Industry professionals to inculcate the spirit of Entrepreneurship.	May 2021 – June 2021
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2. Deviation (shortfall) from the proposed action plan (with reasons), if any:


The major deviation faced was due to Covid, The events planned were shifted to online mode. The structure and duration of the events was changed in some cases looking at the requirement of the situation.


3. Other important highlights (new initiatives), if any:

- Organized two events under DST Nimat scheme for entrepreneurship promotion and development.
- Two events under AICTE with another department to spread awareness for Entrepreneurship.
- Few initiatives under pipeline to connect with the placement team to get interns to the startups working with the NewGen IEDC centre.

4. Student Projects (Please provide the following details for each student project)

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status	Pictures
1	<p>Project Title: KD TECH</p> <p>Team Member: Kashish Kohli Prince</p> <p>About: The Team is developing smart IoT camera detection devices for covid to stop/Control the spread of the pandemic in crowded places. With the upcoming Third wave the team has hired interns to help speed up the process.</p>	Ideation and Designing	Supported in concept refinement, USP identification, prototype development and business Model preparation.	Basic prototype is ready. Working on the final prototype to be market ready.	
2	<p>Project Title: Traya Tech</p> <p>Team Member: Ashish Jha Pankaj Baid</p> <p>About: A research company involved in solving, prototyping and disrupting the existing problems and processes in the society. They aim to improve the quality of life and make relevant technologies accessible to all.</p>	Designing, Market Analysis	Supported in concept refinement, USP identification, prototype development and business Model preparation.	One product ready filing patent. Second prototype in design phase and market analysis.	

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status	Pictures
3	<p>Project Title: Hobit Technologies Pvt Ltd.</p> <p>Team Member: Arpit Tyagi</p> <p>About: Team of students developing application which focuses on hobbies. The team has already collaborated with experts and has started selling the product to the customers. With over 10k + downloads on Google play store team works constantly on fixing the application.</p>	Commercialization	Supported in development and customer acquisition	Application launched.	
4	<p>Project Title: Li Koff</p> <p>Team Member: Kartik Jatwani Abhilansh</p> <p>About: Students from Biotechnology background working towards detection of nitrogen based alkylating agents by analysis using liquid chromatography.</p>	Prototyping Stage	Business model preparation and commercialization.	Prototype tested, working towards the MVP.	
5	<p>Project Title: Ground Water Purification</p>	Ideation & Prototyping Stage	Concept Refinement and Prototype development.	The team has move ahead from the conceptualization	

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status	Pictures
	<p>Team Member: Mahak Verma</p> <p>About: Team with background of Biotechnology plans to use organic materials and silver particles (Filter) to clean the water at rural areas to provide safe drinking water to masses.</p>			stage to development of Prototype.	
6	<p>Project Title: Addapt Events</p> <p>Team Member: Dipika Negi</p> <p>About: Team with vast experience in event management is now working on development of VR integrated technology, where the user can experience the complete layout of the venue without going anywhere. In the second phase the team plans to collaborate with architectures to help create big 3D models.</p>	Ideation & Prototyping Stage	Business model preparation and Prototype support	Team is working on collecting customer/market surveys and is also working towards developing the prototype as per market.	
7	<p>Project Title: Auto Car washing Touchless</p> <p>Team Member: Ankit Dagar</p>	Designing, Market Analysis	Prototype development	The team was able to perform its pilot run successfully and is working on MVP	

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status	Pictures
	About: Auto Car washing is a startup where a team of engineers with computer science background have joined hands to develop smart touchless automatic car cleaning system which will focus on Eco-Wash. The idea is to utilize as little water as possible with a comfort contact less cleaning.				
8	Project Title: WeKnownations Team Member: Shashwat Malik About: To create equipment's which could be installed in various rooms and sanitize the same using the UV technology. And also design a tracking system for universities/colleges to prevent/monitor the spread of virus.	Ideation	Concept refinement	The team is refining its current solution.	
9	Project Title: Attaware Biodegradable Team Member: Puneet Dutta About: Team is working on manufacturing cutleries from biodegradable food items like wheat etc. The plan is make edible cutleries	Ideation & Prototyping Stage	Business model preparation	Market surveys and customer acquisition.	

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status	Pictures
10	<p>Project Title: Smart Tee</p> <p>Team Member: Garvit Thukral</p> <p>About: Team is developing a smart traffic signal solution with the help of IoT. The idea is to sense the amount of traffic on road and accordingly let the signals to turn Green. The team wants to use this solution for emergency vehicles</p>	Ideation & Prototyping Stage	Concept Refinement and Prototype development.	Proof read of the idea is done and the team is working on developing refined prototype	
11	<p>Project Title: Farmbook Solutions</p> <p>Team Member: Raushan Kumar</p> <p>About: Team is working towards helping the farmers by increasing the growth rate of crops with the use of natural pesticides</p>	Ideation & Prototyping Stage	Development of prototype and business model preparation	The team is currently getting its product tested.	
12	<p>Project Title: Stallion Tech Solutions (STS)</p> <p>Team Member: Dhananjay Gautam</p> <p>About: Team of students from electronic department working towards development</p>	Ideation Prototype stage	Prototype development	The Team is working towards making ready the proof of concept.	

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status	Pictures
	of product to be utilized for charging Electric vehicles. The team has divided the project in two phases, in first phase the team is developing wireless charging solutions for mobile phones using free energy and is getting the technology patent.				
13	Project Title: Home smart center Team Member: Divyanshu Gulia About: Smart IoT based home appliances. Team focused towards development of energy saving equipment's which will be used on to conventional electric boards/switches	Ideation and designing	Concept refinement and prototype development	The first prototype is ready and team is moving towards final product development	
14	Project Title: Fat2Gold Team Member: Shivam Arora About: With covid in life the stress level of working professionals have increased drastically also with a big decline in physical activities have made the situation worst. Keeping in mind a young Nutritionist is developing module based nutrition diet plans for individuals with beginner to intermediate level training. In the second phase the team will focus on performance based diet plans for athletes and sports enthusiast.	Ideation	Concept refinement	Team is developing its web application.	

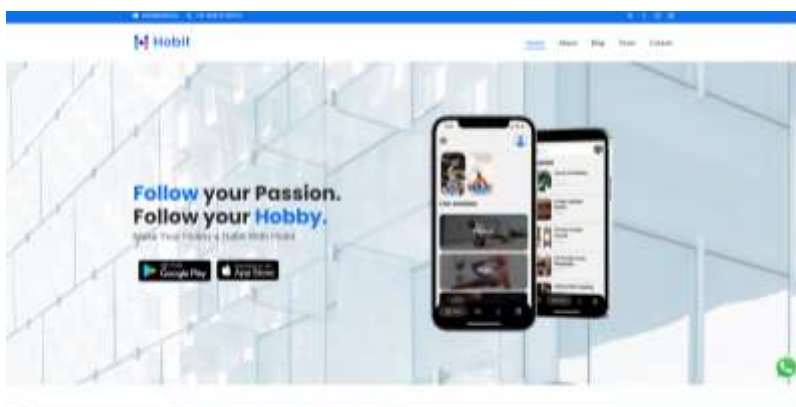
Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status	Pictures
15	<p>Project Title: CampConnect</p> <p>Team Member: Bharti Chaudhary</p> <p>About: With everything online a student from computer science is developing Android/Ios based application for campuses where the students will not only be updated about the Extracurricular activities but will also be able to connect with each other and will also act as a single platform to attend every event/program taking place in the campus premises.</p>	Designing and ideation stage	Market analysis and Concept refinement	The team has completed its survey and have prepared its business model and is now developing the smart campus connect application	
16	<p>Project Title: Onetap</p> <p>Team Member: Rayan Osta</p> <p>About: With the ongoing trend of Internet of Things, a BCA student is working towards development of portable devices which could be connected with any normal device and convert the device into smart Bluetooth/wifi based devices.</p>	Designing	Concept refinement and Prototype development	The proof of concept is ready and team is working on development of final product.	
17	<p>Project Title: Heptraction</p> <p>Team Member: Prachie Sharma</p> <p>About: A biotech research scholar developing a WBC based Hepatitis B virus sensor.</p>	Ideation	Concept Refinement and Prototype development and data analysis.	The team is ready with the base product POC and working on data analysis for final product development	

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status	Pictures
18	<p>Project Title: FoodFetish</p> <p>Team Member: Mansi Makhija</p> <p>About: The student is developing ready to go eatables which can be consumed anywhere anytime with same nutrients value as the original product. One of the products developed is organic based green tea gummies.</p>	Prototyping	Prototype development and Market Analysis	The team developed its POC and is working on variants	
19	<p>Project Title: Kineticma</p> <p>Team Member: Vansh Gupta</p> <p>About: With the use of Physics and kinematics a team of mechanical students is working on development of constant spring loaded kinetic sculptures which could run without any electric power for up to 24-36hrs. The sculptures are designed in such a way that every sculpture is unique on its own way and can be design patented.</p>	Designing and Ideation	Prototype development	The team is ready with designs and it's POC. Design Patent.	
20	<p>Project Title: EZ Wash</p> <p>Team Member: Aman Chaudhary.</p> <p>About: With its first phase completed a team of automobile enthusiast is working</p>	Market analysis and Product development	Concept refinement and development and Market analysis.	Phase 1 is ready; team is developing the web application.	

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status	Pictures
	on a service based startup which focuses on the problem of availability of automobile mechanics on a single platform. The team is collaborating with local mechanics and is providing services to the customers at the ease of his place.				
21	<p>Project Title: Gamerzpit</p> <p>Team Member: Ayush Goyal</p> <p>About: Our first game is going to be a 2d first person shooter game in which we are going to create multiple terrains, different weapons, etc. in this first stage. It will be a multiplayer game in which you will be able to play with random people across the globe. In the second phase, we will incorporate the team matches as well as mini matches in the next update of the game. This game will be a competition to the big games like cod, mini militia, etc. Indian gamer community constantly wants something new in gaming, so we'll be trying to accommodate all their preferences & needs to give out a better playing experience.</p>	Designing	Prototype development	The team is developing first phase prototype	
22	<p>Project Title: COVID RAKSHA</p> <p>Team Member: Shreya</p>	Ideation	Concept refinement	The team is doing data analysis	

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status	Pictures
	<p>About: Team from computer science background is developing a service based startup to help the rural population of India for getting help from the Govt. schemes to tackle Covid19 breakout. The team also plans to bring other health issues on the same platform.</p>				
23	<p>Project Title: Vee12 Auto</p> <p>Team Member: Aditya Pandit</p> <p>About: An automobile enthusiast and collector a student with a motto “WE sell emotions not furniture’s” is developing smart furniture’s which gives the users a feel of comfort and access to technology on his palms. With electronically adjusted seats to Ac vented seats the startup wishes to provide maximum comfort to its customers.</p>	Prototype development	Concept refinement and prototype development	The POC is ready and the team is getting market ready.	

- Submit three/four high resolution (at least 300 dpi) pictures in jpeg format showing the prototype/product along with the students and their mentor.



5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

1. Traya Tech formerly APE Technologies

Student team details (with contact information)

Ashish Jha (student)
YMCA
Mobile No- 8826389509
Email- Jhaa98732@gmail.com

Pankaj Baid (Student)
Mobile No- 7020472758
Email- pankaj.baid7@gmail.com
Company Website: <https://www.techtraya.com/>

Mr. Prashant Bharadwaj (Mentor)
Manav Rachna University
Email- prashant@mru.edu.in

Brief description about the student start-up: Traya Tech is a startup incubated under New Gen IDEC Manav Rachna Innovation and Incubation Centre, MRIIRS. A research company involved in solving, prototyping and disrupting the existing problems and processes in the society. They aim to improve the quality of life and make relevant technologies accessible to all.

Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs: The team started with the idea in June 2020 with 1 product and have come a long way since then, they have developed multiple new products keeping in mind the new problems (Coronavirus). They have started their journey towards getting incorporated.

Contribution of NewGen IEDC in the same: The NewGen IEDC has constantly supported the team all throughout in their journey. Be it in terms of connecting with people, participation in various events, in economic aspects, NewGen IEDC was always there to support and give shoulders.

Future plan

The team is filling patents.
Getting Incorporated.
Commercialization of the Smart Pen.

2. KD Technologies (F.A.C.T.S)

Student team details (with contact information)

Kashish Kohli (student)
Manav Rachna University
Mobile No- 9811624681
Email- kashishadhi@gmail.com

Brief description about the student start-up

KD Technologies is a startup incubated under New Gen IDEC Manav Rachna Innovation and Incubation Centre, MRIIRS. The idea is to develop smart crowd management systems in the time of covid. To help detect and control the spread.

Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs: The Team is developing smart IoT camera detection devices for covid to stop/Control the spread of the pandemic in crowded places. With the upcoming Third wave the team has hired interns to help speed up the process.

Contribution of NewGen IDEC in the same: Team got the best technologies as desired, that includes hardware, Eletrical equipments and the office space which helped them to work with a greater pace. The team also got mentoring on developing different business strategies and financials.

Future plan: The Team is focused on deploying the prototype on a faster level, and also to apply for patent. The team plans to expand by adding new members to boost up the development process. Getting is incorporated.

NewGen IEDC
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	B. N. M. Institute of Technology		
Year of starting NewGen IEDC	2017		
Name of the Head/Principal of the Institution/College	Dr. Krishnamurthy G N		
Name of NewGen IEDC Coordinator	Dr. L. Vijayashree		
Contact Details of NewGen IEDC Coordinator	9980356098 vijayashreel@bnmit.in		
	<ul style="list-style-type: none"> • Mobile Number • e-Mail ID 		
Financial Details	Sanction Order No./Date		Amount Sanctioned
Previous Sanction Order Details	1	EDII/DST – NewGen IEDC/2-11-2020	Rs. 21 Lakhs
	2	EDII/DST – NewGen IEDC/6-1-2021	Rs. 39 Lakhs


1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students






Sr. No.	Activities	Outcome/Achievements
1	FDP on “AI applications in Electric Power Systems and Locomotives” from 20 th to 24 th January 2020	The Faculty Development Program(FDP) organized by the department of electrical and electronics engineering was primarily focused on the hands on approach towards AI applications on the power system and electric vehicle. The sessions were dealt with experts covering the basics, research gaps, key focus areas and hands-on training.
2	Workshop on Mobile Application Development and Virtual Reality and Augmented Reality from 15 th March 2021 to 19 th March 2021	Workshop on Mobile Application Development and Virtual Reality and Augmented Reality from 15 th March 2021 to 19 th March 2021 designed by Information Science Department trained both faculty members and students for the updated technological issues.
3	FDP on antenna design and printing for practical applications from 15 th March 2021 to 19 th March 2021	Department of Electronics and Communication designed an FDP on antenna design and printing for practical applications from 15 th March 2021 to 19 th March 2021.

Sr. No.	Activities	Outcome/Achievements
4	FDP on Artificial intelligence and Machine Learning from 15 th March 2021 to 19 th March 2021	Faculty members of Mechanical Engineering Department got the funding from NewGen IEDC to host an FDP on Artificial intelligence and Machine Learning from 15 th March 2021 to 19 th March 2021.
5	FDP on Power and Energy Systems : Technical Progressions and Research Opportunities from 15 th March 2021 to 19 th March 2021	FDP on Power and Energy Systems : Technical Progressions and Research Opportunities was initiated from the Department of Electrical and Electronics Engineering from 15 th March 2021 to 19 th March 2021.
6	Workshop on Mobile Application Development from 15 th March 2021 to 19 th March 2021	Workshop on Mobile Application Development from 15 th March 2021 to 19 th March 2021 designed by Information Science Department trained both faculty members and students for the updated technological issues.



[B] To identify, develop & commercialize students' innovative ideas







Sr. No.	Activities	Outcome/Achievements
1	Innovative Project Lab (IPL)	BNMIT Entrepreneurship Cell conducts Innovative Project Lab Competition twice in a year for its students in order to foster the spirit of entrepreneurship. The Heads of all the Engineering departments will be asked to select the best projects from their respective streams to exhibit in the IPL Summer Competition which further will be taken to the product level under financial assistance from NewGen IEDC.
2	Technical Lecture	The Department of Mechanical Engineering organized a Technical Lecture on November 5, 2019 under the ISTE student chapter. The topic was on “ Success Mantras for Mechanical Engineers. ”
3	Technical Webinar	A two day webinar on ‘ Intelligent Dynamic Electrical Systems and its Applications ’ was organized by the Department of EEE under Institution of Engineers India Students’ Chapter, BNMIT on 26/06/2020 and 27/06/2020. This workshop was an opportunity for the pre-final year students to enrich their knowledge and skills in developing various engineering solutions.
4	Symposium on Nano Technology and its Applications	A two days “ Symposium on Nanotechnology and its Applications ” jointly organized by IEEE-BNMIT student Branch and IEEE Nanotechnology Council, Bangalore Section was conducted at BNM Institute of Technology. 

Sr. No.	Activities	Outcome/Achievements
5	Virtual Guest Lecture by Dr.Balaji, CEO, Whatznext on PEOPLE, PROCESS, PROGRAMME, POLICIES,PASSION among entrepreneurs– on 16.04.2020	<p>VIRTUAL GUEST LECTURE SERIES DR.BALAJI M.S, CEO, Whatznext 16/04/2020</p> <p>Summary of the speech Leader should be, → Responsible for the Highest Results → Give Freedom for the team Members → Give the freedom to fail → Should be a Transformational Leader → 5 P-PEOPLE, PROCESS, PROGRAMME, POLICIES,PASSION → 50 %DEMOCRATIC, 30 %AUTOCRATIC, 20 % LAISSEZ-FAIRE IS THE BEST STYLE</p> <p>Students of Management Department and ED cell were given lecture about the importance of People, process, programme, policies and passion in their career</p>
6	Webinar on Gaining Valuable Insights on Entrepreneurship for MBA and various Engineering studnets on 30.04.2020	 <p>Students of GIBS, Bangalore along with ED Cell students of BNMIT were able to understand the insights of entrepreneurship by Dr. Vijayashree, Head-Innovations, BNMIT</p>
7	Smart India Hackathon by MHRD, GoI at BNMIT on 29.07.2020	 <p>Smart India Hackathon(SIH), 2020 by MHRD, GoI was a much awaited programme of engineering. BNMIT conducted a pre qualifier round at campus before sending the projects to SIH.</p>
8	Webinar - Mr.Ashish, Chief Mentor and CEO, JSS Business Incubator, Noida on 24.08.2020	<p>The insights given by Mr. Ashish regarding the Incubation issues and Start up issues were very useful for the students of MBA and ED Cell at BNMIT.</p>
9	Webinar- Mr.VenkataRaghavan, Proprietor, Escalade Legal Services on Technology Transfers and its importance – 30.08.2020	<p>Technology Transfers and its importance should start from the ideation stage itself. Mr. Raghavan was able to stress upon this point in his lecture to all faculty members and management representatives of BNMIT.</p>
10	Webinar-Mr. E. Sarathbabu, Founder and CEO, Food king Founder & Managing Trustee, Hunger Free India Foundation on 02.09.2020	 <p>Not only success need to be shared but also the failures of an entrepreneur. Based on this theme, Mr. Sarath Babu shared his success stories and failures to MBA students and ED cell students to motivate them towards entrepreneurship,</p>

Sr. No.	Activities	Outcome/Achievements
11	Webinar presided by Dr. Sunil Shukla, Director, EDII on 02.09.2020	 <p>The tactics of entrepreneurship cannot be taught completely in class room environment. It needs to be experienced. Such comment was made by Dr. Shukla, Director EDII to the students of Engineering, BNMIT.</p>
12	Lecture on Post Covid career Prospects for Management Students on 09.09.2020	 <p>Career is not at stake, those who have gained exposure in various fields can survive in Gig economy. This was the message given to management students and ED Cell students at BNMIT.</p>
13	Speaker at Adarsh College, Bangalore on Entrepreneurship Orientation on 10.09.2020	 <p>Orientation programme to management students and ED cell students at Adarsh college, Bangalore by Dr. Vijayashree, Head-Innovations BNMIT gave a thoughtful insight about various issues revolving around entrepreneurs.</p>
14	Webinar on Entrepreneurship and Innovation Management at Govind Narayan Singh University, Jamuhar, Bihar 02.12.2020	 <p>Webinar on Entrepreneurship and Innovation Management was conducted by GNSU, Bihar and the insights of innovation was lectured by Dr. Vijayashree to the students of Engineering and Management.</p>
15	Virtual Talk on National Innovation and Start up Policy on 11.12.2020	 <p>NISP is the need of the day and Mr. Achar, NITTE was able to give the importance of NISP to the audience</p>

[C] To enhance Industry-Academia interaction




Sr. No.	Activities	Outcome/Achievements
1	Skill Development Program on Digital Design Modelling Using Verilog	 <p>A 10 day Student Development Program was organized by Department of Electronics and Communication Engineering from 27.07.2020 to 08.08.2020. 65 students participated in the program along with 4 faculty members and gained knowledge on Digital Design Modelling using Verilog.</p>
2	Skill Development Program on “Applications of Signal Processing using MATLAB”	 <p>A 10 day Student Development Program was organized by Department of Electronics and Communication Engineering from 27.07.2020 to 08.08.2020. 60 Students along with 4 faculty members participated in “Applications of Signal Processing using MATLAB”</p>
3	Hackathon 4.0	 <p>Collaborative approach to deal with the vuca (volatility, uncertainty, complexity, ambiguity) created by the pandemic in the business world</p> <p>College level competition was conducted for 2 days from 17.10.2020 to 19.10.2020 with 33 students participating in the event.</p>

Sr. No.	Activities	Outcome/Achievements
4	Relational Database using MySQL with PHP - Skill Development Program	 A Skill development program on Relational Data base using MySQL with PHP by Department of Information Science Engineering from 29.07.2020 to 17.08.2020 with 18 students participating each day.
5	Computer Networks- Skill Development Program	 A Skill development program on Computer Networks was organized by Department of Information Science Engineering from 29.07.2020 to 17.08.2020 with 18 students participating each day.
6	Data Science using Python Skill Development Program	 Department of Computer Science and Engineering organized a Skill development program on Data Science using Python from 29.07.2020 to 12.08.2020. 185 students along with 25 faculty members participated in the program and gained knowledge about the subject.
7	Drone Design using ROS – Skill Development Program	 Department of Computer Science and Engineering organized a Skill development program on Drone Design using ROS from 29.07.2020 to 12.08.2020. 21 students attended the program.
8	Bootcamp on how to Create and Deploy a Chatbot	 A Bootcamp was organized by Department of Computer Science and Engineering and created awareness among students on how to Create and Deploy a Chatbot. The program was conducted on 6.11.2020 with 77 students attending the same.
9	Industrial Visit	The Department of Electronics and Communication Engineering, BNM Institute of Technology conducted an industrial visit to BHEL-EDN , Mysore Road, Bangalore-26 for third semester students. The visit was a part of their educational trip under ISTE-Students Chapter on 4th November, 2019
10	Continuity in I-3 (Industry Institute Interaction) FDP	 A Faculty Development Program was organized by Department of Mechanical Engineering from 20.07.2020 to 24.07.2020 with 82 faculty members attending the same.
11	One day Student Workshop on “Awareness Course in Aircraft and Aerospace Engineering”	Dr.K.BadariNarayana, subject expert from the Aerospace & Defence, Centre of Excellence, VTU, R.O, Bengaluru conducted demonstration on modeling and analysis of aircraft components. The topics covered were on aircraft structures, materials used in aircrafts, avionic systems and aerodynamics”. ChetanRao S, another subject expert from the same Centre of Excellence demonstrated the usage of CAD tools in the product design.

Sr. No.	Activities	Outcome/Achievements
12	Technical Talk	<p>A Technical Talk on “Basics of Electrical Engineering Design” was delivered by Mrs.Manjula Y S, Senior Design Manager-Electrical, AIRTRON Consulting Engineers Pvt Ltd, Bengaluru on 2nd November 2019, organized by the Department of Electrical and Electronics Engineering under ISTE students Chapter. The talk gave an insight into electrical installation including protective devices in residential and commercial buildings. Dr. Parimala HoD , EEE department honouring Mrs. Manjula, Y S, Senior Design Manager-Electrical, AIRTRON Consulting Engineers Pvt Ltd, Bengaluru.</p> 

2. Deviation (shortfall) from the proposed action plan (with reasons), if any: Nil

3. Other important highlights (new initiatives), if any:

Sr. No.	Departments	Workshop Details
1	Hackathon 4.0	 <p>Collaborative approach to deal with the VUCA (volatility, uncertainty, complexity, ambiguity) created by the pandemic in the business world</p>
2	Bootcamp	 <p>A Bootcamp was organized by Department of Computer Science and Engineering and created awareness among students on how to Create and Deploy a Chatbot. The program was conducted on 6.11.2020 with 77 students attending the same.</p>
3	Webinar	 <p>Webinar to nurture the entrepreneurship eco system in campus is organized by ED Cell , BNMIT and presided by Dr. Sunil Shukla, Director, EDII on 02.09.2020</p>

4: Student Projects (Please provide the following details for each student project)

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
1	<p>Team :Karthik Keshav, Hrishikesh Kulkarni</p> <p>Manufacturing of 3D Printer using Linear Guide rail and Ball Screw Mechanism: Linear guide rails are the assemblies that contain parallel track and roller or rail on the top of the track. Where ball screw is like an actuator that contains thread pitch and smooth rollers which will travel over the guide. FDM 3D printer uses Linear guide rail & Ball screw mechanism for xy gantry and movement because of the higher accuracy and precision of the guide rails and ball screws which also provide smoother motion by reducing the friction.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed
2	<p>Team :Suraj S Shetty, Yuga Chandrashekar</p> <p>Liquid Based 3D Printed Products for Dental and Surgical Guides : Dental and surgical guides are the medical devices that can be 3D printed based on the data of the specific patient. It replicates the exact surfaces of the patient's intraoral situation and assists the surgeon to perform the clinical application of drilling implants into the bone with optimal accuracy</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	<p>Prototype Developed</p> <p>Market Testing Stage</p>
3	<p>Team :R V Ruthu, Niranjan B Gowda</p> <p>Development of 3D Printer using Heated Chamber : Heated chamber generally provides consistent temperatures throughout the 3D printing process. Heated chamber not only allows us to print with high-performance materials. It also allows us to print materials like ABS, nylon, PETG, etc. in higher temperature. It is important as Above printed materials in non-heated chamber is about 20-30% weaker than the same material printed in heated chamber.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
4	<p>Team: Pranav S V, Prashanth M, Prateek M</p> <p>Semi Automatic Screen-Printing Machine : The innovative idea that we are working on including in this machine are portable machine design, easy setup, one sheet instruction manual, simple UI, print speed of lesser than 5 seconds/print, High precision registration work for multi color printing.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	<p>Prototype Developed</p> <p>Market Testing Stage</p>
5	<p>Team :Brahma S P, Aishwarya A</p> <p>SatvaKhara:We have designed a palm wearable devise which can send electrical impulses to those regions of the palm corresponding to specific organs of the body. The impulses generated by this devise are similar to the impulses that are generated by impulse probes used by reflexology doctors.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	<p>Prototype Developed</p> <p>Market Testing Stage</p>
6	<p>Team :Abilesh M, Akilesh M</p> <p>Development of CNC Machine for PCB fabrication: CNC machine uses a blank copper clad PCB as a raw material and mills the tracks of the PCB and it will also drill the holes for the component. So,that students can easily solder the components and start using the PCB. This machine has the capability to fabricate 2 layer PCB with a tolerance of 0.2mm. Hence, complicated PCB can also be easily fabricated.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	<p>Prototype Developed</p> <p>Market Testing Stage</p>
7	<p>Team :Chinmai L, Harshitha G</p> <p>Vibhuthi Vending Machine : A compact machine made for using in the religious places for contactless dispensing of Holy Ash(Vibhuthi).</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	<p>Prototype Developed</p> <p>Market Testing Stage</p>

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
8	Team :B Sanjeev, Harsha Gururaj Math, Punith Dinesh Development of Low Cost Ventilators :Low Cost Ventilators can prove effective in case of patients who need external support for respiration. These ventilators are portable and used wherever necessary	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Product Development in Process
9	Team :Aishwarya G P, Pavithra S, Prithvi G K, Ruchitha S, Rahul S, Harsha R Intelligent Electric Car 10 (IEC-10) : The main objective of the project is to develop an Intelligent Electric Car capable of sensing surrounding objects at 360 degrees and adjust the speed of the vehicle and establishing a zero blind spot for the driver.	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Product Development in Process
10	Team :Aditya M, FakihaTabassum, Harshitha J, Likitha M Smart Battery Management System for Electric Vehicles : The main objectives of the project are: Assemble the battery cells to develop a 60 V, 20 A Lithium ion battery pack, To ensure that the energy of the battery is optimized to power the product, To ensure that the risk of damaging is minimal, To implement the monitoring and protection circuits to the battery pack of 60 V, To monitor & control the charging & discharging process of the battery and To implement active cell balancing using effective method.	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Product Development in Process
11	Team :Adithya Ramesh Srinivasa, Aditya Gautam, Harshal T.L, Sahil Sinha Comfy Electric Two Wheeler : The objective of the project is to develop a comfortable, compact, medium speed and efficient electric two wheeler. The aim was to make an environmental friendly portable automobile which would be easy to handle and would emit 0% emission.	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Product Development in Process

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
12	Team :Amrutha Dinesh, Dhanush K, Dharani G Sholapur Pushkart :New Power Trolley Project in campus to transfer the items from one place to another.	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed
13	Team : Sankarshan S, Vighnesh Nandavar CO2 Scrubber : The project deals with the development of a prototype scrubber to reduce carbon dioxide concentration in the atmospheric air. Carbon dioxide is absorbed by the alkaline solution when air is passed through the solution by forced circulation. The water soluble salts formed as a byproduct can be used in process industries as a raw material.	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed
14	Team :Ashwin K, Srinivas Shashank D, Varsha, Manjesh K EV Bike Charging Station using Solar Panels : This project aims at designing Solar Powered e-bike charging station using a 510 Wp Solar Module of 6 nos.	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed
15	Team :Aniruddh Aithal, Darshan Kumar, Girish P Digital Oratory solutions using NLP and Neural Networks : Speech prediction and corrections is a vital tool to aid people with speech disorders that are classified based on fluency, voice, articulation. The software predicts the user's voice and tries to interpret the words that he/she might be meaning to use.	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed
16	Team :Omkar N Kashyap, AdityaSunku Low Wind Velocity Turbine for Domestic Purpose : The goal of our project is to bring an efficient and robust wind turbine into the commercial market for low wind speeds	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
17	<p>Team : Manish Kumar G R, Gokul V G, Prathyaksh Narayan, Nikhil M L</p> <p>Face recognition with anti-spoofing: Speech prediction and corrections is a vital tool to aid people with speech disorders that are classified based on fluency, voice, articulation. The software predicts the user's voice and tries to interpret the words that he/she might be meaning to use.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed
18	<p>Team :Meghana, Namitha, Nikhita</p> <p>Under Water Image Enhancement: A Generative Adversarial Network (GAN) based model developed in Python to enhance underwater images. This model has a generator and discriminator network which compete with each other for better learning of the target image. A laplace transform based loss function is used as a feedback to the generator to update its weight. This weight helps the generator to efficiently enhance the image.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Copy Right Applied
Extra Pojects				
19	<p>Team : Sreenidhi, Sujith, Sri Krishna, SwastikKela</p> <p>Pi Skate – An Electric Skateboard :The objective of this project to improve the driving mode of skateboard on off road condition by electric wheels on the board and to reduces the effort of skateboard even on uphill area and to design it with acceleration control to improve the usability of the skateboard</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
20	<p>Team : Akshatha Pramod, Bhoomika M U, Deeksha R, FauziahBatoool I</p> <p>IKSHANA - Remote and real time monitoring system for people in need of special care : Our project "IKSHANA" is mainly designed to help the people in need of special care, who need to be under constant watch. If they are left alone, they can damage things and harm themselves to seek the attention of their guardians. Hence, using this system they can be continuously monitored by the use of cameras and Artificial Intelligence. When they start to act aggressively, an alert can be sent to the parents or the guardians who can act according to the alert system. During this course of action, the data will be continuously collected that can be accessed by the doctors. Children, on the other hand, can be on their own where they socialize and play which, will work towards building their confidence to do things on their own. Parents and Caretakers can be worry-free as our monitoring systems helps them.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed
21	<p>Team : Anirudh R Shandilya, Anusha AN</p> <p>Predicting Seizure onset with intracranial electroencephalogram (EEG) data : People with epilepsy often report that one of the most difficult aspects of living with the disease is not knowing when a seizure will occur. The objective is to design a non-patient-specific system to detect the electrical onset of seizures in patients. The preictal state is very useful for seizure prediction, as it starts few minutes before the seizure. This is possible to predict epileptic seizure, if the successful detection of the start of preictal state is done. A RaspberryPi is used to implement this. Hardware includes EEG Sensors, Body temperature sensors, pulse sensors. A cap with EEG sensor can be developed.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
22	<p>Team : J Ajay Kumar, Deepali B Ksheersagar, ChethanaSaligram, Gowri K S</p> <p>Health Bot :Interactive bot for geriatric healthcare using natural language processing and neural networks. The device serves tofacilitate self-diagnosis with triage educating the patients according to the symptoms and informs them whether they should seek medical help and if so where and with what urgency.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed
23	<p>Team : Vinay Kumar J, Samarth M H, Shivaswaroop J P, Yukthi V</p> <p>Raspberry pi based SOP Monitoring during COVID-19 : The possibilities of exploiting the available technology to solve real world problems are immense. This project proposes Raspberry pi-based SOP Monitoring System during COVID19. There are no such products available in the market, hence our objective is to make this project as a product and use it to monitor SOPs in public places. This project helps in reducing the spread of Coronavirus and control the pandemic.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed
24	<p>Team : Roshan Raj K, Yogesh N, M Tejas, Chetan Prasad S</p> <p>Design and Fabrication of Eco-Friendly Device for CO2 Adsorption: In this project, an effort is being made to overcome the deficiencies of conventional catalytic converters by designing and fabricating a 'biocatalyst'. This biocatalyst can be attached to the exhaust of automobiles which contains biodegradable materials. The key ingredient of this device is activated carbon obtained from biodegradable material which absorbs the harmful gases.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
25	<p>Team : Franklin P, Darshith Karthikeyan, Abhishek C, Darshan B</p> <p>Smart automotive system : People often visit the Local Regional Transport Office (RTO) for documents. However, manual work takes a lot of time, effort, and manpower. To increase efficiency and for people's satisfaction, a smart automotive system will be developed to monitor and regulate the use of vehicles. The system incorporated subscription-based operation while man-power is often reliable, the system will consistently update documents dynamically. The vehicle can operate normally only after it receives approval from the RTO. If documents aren't up-to-date and if fines are not paid off, the vehicle will be immobilized.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed
26	<p>Team : Bhargav D V, Hullura H R, Karthik Bharadwaj G M, Merlin Andriana Lobo</p> <p>Sthree Raksha: Panic intimation device for women : The safety of women in a country like India is of a major concern and it is the need of the hour to protect them and make them feel safe. We intend to come up with a model to overcome this issue by proposing a simple system using GSM module, nodemcu and a mobile application. This system aims to intimate the family and friends when a woman is in danger.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed
27	<p>Team : Swetha Holla U, Sri Haripriya, Nagaraksha N, Greeshmaa S</p> <p>Contactless Kiosk using Hand gestures: Usable for the informative retrieval purpose and can be useful in all the places where ever information need to be retrieved like in front desk , reception etc.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
28	<p>Team : Yathish N, M.S.Sumanth Raghav, Dhyanesh Lakshman, Rohan Ravi G</p> <p>Design and Development of Turning Circle Radius Measuring Device: In accordance with the changing times, the need for greater transportation equipment, transport equipment or vehicles, has a lot to offer production, at competitive prices. If a lot of road vehicles is one factor causing congestion.</p> <p>When there is expansion of the road, the vehicle would not be able to make a “U turn”; since they are often unable to turn the vehicle perfectly. One of the main parameters of the causes of these problems is the turning radius.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed
29	<p>Team : Rakshith Mahishi, Soma Charan Sai, Praneeth Kumar T, Rohan Sujay, Prajwal R, Param S</p> <p>Plug and Play cubicles: Design a safe, reliable, autonomous and connected smart home to provide safety, security, automation and many other crucial benefits for homeowners with reduced manual intervention pushing the reality market into digital upgrade.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed
30	<p>Team : Fatema Mustafa, Shashank, Shubhransh Gupta, Vishal Kumar</p> <p>Indoor Surveillance Drone : To detect fire in bigger indoor campuses like stadiums/auditoriums and send alarms to alert people around regarding the fire and its intensity. Opening of respective valves for injection of water stream during the fire as well as keeping a keen eye on the water level in the tanks.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
31	<p>Team : Shreya R Prakash, Sonika M, Rahul R B</p> <p>Development of technique to estimate the correctness of yoga posture: Yoga being treated as medicine fo various medicines, attaining correct postures becomes a must. This device will assist in attaining the perfect posture of any practitioners with a voice command stating the corrections.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed
32	<p>Team : Mahima R, Kshama G</p> <p>Fire Dire : This project aims at prevention or taking pre empmtive measures at reducing the risk of forest fires and reducing its severity and spread using GPS module, thermal sensor and smoke detector to send the information to the nearest forest office.</p>	Proof of concept	<ul style="list-style-type: none"> • Prototype Development • Business Analysis • Product Design 	Prototype Developed

Submit three/four high resolution (at least 300 dpi) pics in jpeg format showing the prototype/product along with the students and their mentor

1. Team :Pranav S V, Prashanth M, Prateek M

Mentor: Dr.AnilKumar

Semi Automatic Screen-Printing Machine :The innovative idea that we are working on including in this machine are portable machine design, easy setup, one sheet instruction manual, simple UI, print speed of lesser than 5 seconds/print, High precision registration work for multi color printing.



2. Team : Brahma S P, Aishwarya A

Mentor: Mr.Manjunath

SatvaKhara :We have designed a palm wearable device which can send electrical impulses to those regions of the palm corresponding to specific organs of the body. The impulses generated by this device is similar to the impulses that are generated by impulse probes used by reflexology doctors.



3. Team :Chinmai L, Harshitha G

Mentor : Dr.L.Vijayashree

Vibhuthi Vending Machine :A compact machine made for using in the religious places for contactless dispensing of Holy Ash(Vibhuthi).



5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

Team 1:

- **Student team details (with contact information)**

Team : Abilesh M – Phone No. 9663569799

Akilesh M – Phone No. 9108828792

Mentor: Dr.Shashikala, Dr.Geetha

- **Brief description about the student start-up** - The students are yet to start a company, but at present are with SwitchKase Technologies, a startup started by Students on November 2020.

- Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs

Development of CNC Machine for PCB fabrication : CNC is a Computer Numerical Controlled machine that will help in fabricating any 3D designs by the method of milling and drilling. PCB fabrication is a costly and lengthy process which is usually done by professional and it is not easily available for students for fabricating their own PCB for their projects. So, PCB CNC machine uses a blank copper clad PCB as a raw material and mills the tracks of the PCB and it will also drill the holes for the component. So, that students can easily solder the components and start using the PCB. This machine has the capability to fabricate 2 layer PCB with a tolerance of 0.2mm. Hence, complicated PCB can also be easily fabricated.



- Contribution of NewGen IEDC in the same: Initial funding and designing was mentored in NewGen IEDC.
- Future plan : Students are already a part of start up and want to establish this machine as one of their company product and want to sell to small manufacturers and colleges.

Team 2 : Vibhuthi Vending Machine :

Student team details : Chinmai L – Phone No.9742079731
Harshitha G – Phone No.9886114285
Mentor : Dr.L.Vijayashree

Brief description about the student start-up : Yet to start. They are a part of SwitchKase Technologies, a startup started by the Students in the year 2020.

Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs – The Vibhuthi Vending machine is in testing phase and put up presently in 2 Sai Baba Temples in Bangalore.

Vibhuthi Vending Machine : A compact machine made for using in the religious places for contactless dispensing of Holy Ash(Vibhuthi).



Contribution of NewGen IEDC in the same: Initial funding and designing was mentored in NewGen IEDC.

Future plan : Students are already a part of start up and want to establish this machine as one of their company product and want to sell to Religious places across India.

Number of Startups and their present status:

1. HyCube Works Pvt. Ltd., a Venture Started by our alumni Reethan Doijode & Shreyas S P (ME Dept) Started in 2018 and now has a client base across India. It has been selected as one among the Top 30 of 300 Startups from all over India and was pre-incubated by Launchpad Cohort 12 at NSRCEL, IIM Bangalore. They are now a very successful startup in NSRCEL Incubation Centre. <http://hycubeworks.in/>
2. VTRIKE : TRIKE was pre-incubated at our college and now Incubated at NID, Bangalore. Their company VOLTRIKE is into Battery manufacturing for four wheelers. <https://www.zaubacorp.com/company/VTRIKE-PRIVATE-LIMITED/U34300KA2020PTC131574>
3. Balance Mate: Balance Mate Team is been pre incubated at our college premises. They have started their company in the name of SwitchKase Technologies Pvt Ltd. They are chosen for incubation at IISC Centre, Bangalore. <https://www.zaubacorp.com/company/SWITCHKASE-TECHNOLOGIES-PRIVATE-LIMITED/U31900KA2020PTC138750>
4. Tedora Tech: Shreyas G S, Thrupthi N, students who designed Autonomous Ariel Medical Assistance started a web designing company in the name Tedora technology at Campus. <https://www.tedoratech.com/>

Present status of the patents:

Sl. No.	Patent Ref.No.	Patent Application No.	Date of Application	Patent Title	Inventors	Patents Applied by
1	201941008707	TEMP/E-1/9379/2019-CHE	06.03.2019	Balance Mate FER received	Brahma SP Keerthana Velilani Soumiya Rao T	Students of BNMIT
2	201941027532	TEMP/E-1/28958/2019-CHE	09.07.2019	Detachable Smart Faucet FER Received	Dr.Jyoti R Munavalli Ms.Sumathi A Raghavendra D S Rishabh Bhansali Vishnu Prasad Bhat	BNMIT - New Gen IEDC 2018-19 project
3	201941029985	TEMP/E-1/31642/2019-CHE	24.07.2019	Bio degradable Diapers FER Received	Hemanth KumarC Dr.Jayanna B K Kishan K Lohitkumar Shetty M Hariharan R N Karthik	BNMIT New Gen IEDC 2018-19 project
4	20194103584	TEMP/E-1/33397/2019-CHE	06.08.2019	Organic Dyes FER Received	Dr.Jayanna B K Dr.Vijayasaratthy Putti Ramachandra Rao Priyanka Prabhakar	BNMIT
5	201941033734	TEMP/E-1/35639/2019-CHE	21.08.2019	Image Analysis – CCTV FER received	Dr.Sejal Santosh Nimbhorkar Raksha H Ankitha S, Namitha G	BNMIT New Gen IEDC 2018-19 project
6	201941036072	TEMP/E-1/38189/2019-CHE	06.09.2019	Stereoscopic Images FER Received	Ms. Chaitra N Shashanka G Tejas R Simha Varun D Gurjar Vishnuvardhan G	BNMIT New Gen IEDC 2018-19 project

NewGen IEDC
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi
SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	University of Science and Technology, Meghalaya	
Name of NewGen IEDC Coordinator	Dr. Amit Choudhury	
Contact Details of NewGen IEDC Coordinator	Dr. Amit Choudhury Dean, School of Business Sciences Phone : 8761007133 / 9854453170 E-mail: amich1970@gmail.com www.newgen-iedc-ustm.com	
Financial Details	Sanction Order No./Date	Amount Sanctioned
	EDI/DST-NewGen-IEDC	Rs. 60,00,000

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements	
1	Entrepreneurship Awareness Camp	Duration	Participation
	EAC-01 01/09/2020 to 05/03/2020	3 days	Total : 43 (Male: 22 + Female: 21)
	EAC-02 14/03/2020 to 16/09/2020	3 days	Total : 41 (Male : 21 + Female: 20)
	EAC-03 28/09/2020 to 30/04/2020	3 days	Total : 49 (Male: 24 + Female: 25)
	EAC-04 07/10/2020 to 09/10/2020	3 days	Total : 30 (Male: 12 + Female: 18)
	EAC-05 23/10/2020 to 25/10/2020	3 days	Total : 44 (Male: 21 + Female: 23)
	EAC-06 05/11/2020 to 07/11/2020	3 days	Total : 41 (Male: 24 + Female: 17)
	EAC-07 20/01/2021 to 22/01/2021	3 days	Total : 45 (Male: 33 + Female: 12)
	EAC-08 04/02/2021 to 06/02/2021	3 days	Total : 42 (Male: 24 + Female: 18)
	EAC-09 26/02/2021 to 28/02/2021	3 days	Total : 58 (Male: 33 + Female: 25)
	EAC-10 02/03/2021 to 05/03/2021	3 days	Total : 34 (Male : 17 + Female: 17)
2	Brainstorming amongst Faculty of USTM and others E-Club Formation at USTM	November - 2020	14 Student Projects were initiated
			16 Student Projects were initiated

Sr. No.	Activities	Outcome/Achievements
3	Industrial Visit	03 Industrial Visit were conducted with total 127 students participations namely in the industries of Repose, Bitchem Industries and Nezone.
4	Motivational Talk by Successful Entrepreneurs/speakers	Mr. Dipankar Bhattacharya (NLP & Mind Coach) Mr. Jeet J Medhi, Asst Dir, FICCI Mr. Bhaskar Bora Alumni & Entrepreneur Mr. R Agarwala (CA

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	Sensitization on Entrepreneurship among newly enrolled students of USTM	Entrepreneurial discussion led to promote projects directed towards prototype development
2	Brainstorming of Project development	Project Idea generated
3	Initializing of projects	30 project groups shortlisted

[C] To enhance Industry-Academia interaction


Sr. No.	Activities	Outcome/Achievements
1	Industry Visits Conducted Speakers invited for talks, from Industry & Financial Institutions	Speakers involved during EAC to sensitize students on Entrepreneurship and motivate




2. Deviation (shortfall) from the proposed action plan (with reasons), if any:




Nil





3. Other important highlights (new initiatives), if any:




4. Student Projects (Please provide the following details for each student project)


Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
1	Project Name: Development and standardization of "fruit cheese" from locally available variety of Pineapple and Banana in NER Mentor Name: Dr. S Alamdar Hussain Student Name: 1. Tajreen Ahmed 2. Jubilee Rani Brahma 3. Madhu Ray 4. Alzinas Mukaria 5. Rajib Deka	Brainstorming Various Ideas Developing A Proper Plan To Execute The Project	Product developed Testing & Standardization Done	Application made for -FSSAI -IPR Invitation of Expression of Interest to Commercialize the Product
				

Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
2	Solar Powered Air Purifier * Mentor: Akshee Shivam, Jahidul Islam Student Name : Suresh Sarma, Arup Bharali Shoaib Akhtar, Hifzur Rahman Shirajul Haque	<ul style="list-style-type: none"> - Increasing air pollution and deteriorating air quality - To check ambient air quality - monitor and purify 	<ul style="list-style-type: none"> - Fabrication in progress - Testing of design - Analysis of different parameters & Standardization 	<ul style="list-style-type: none"> - Liaisoning with market - Inviting EOI for sharing Technology - Filing of IPR Application
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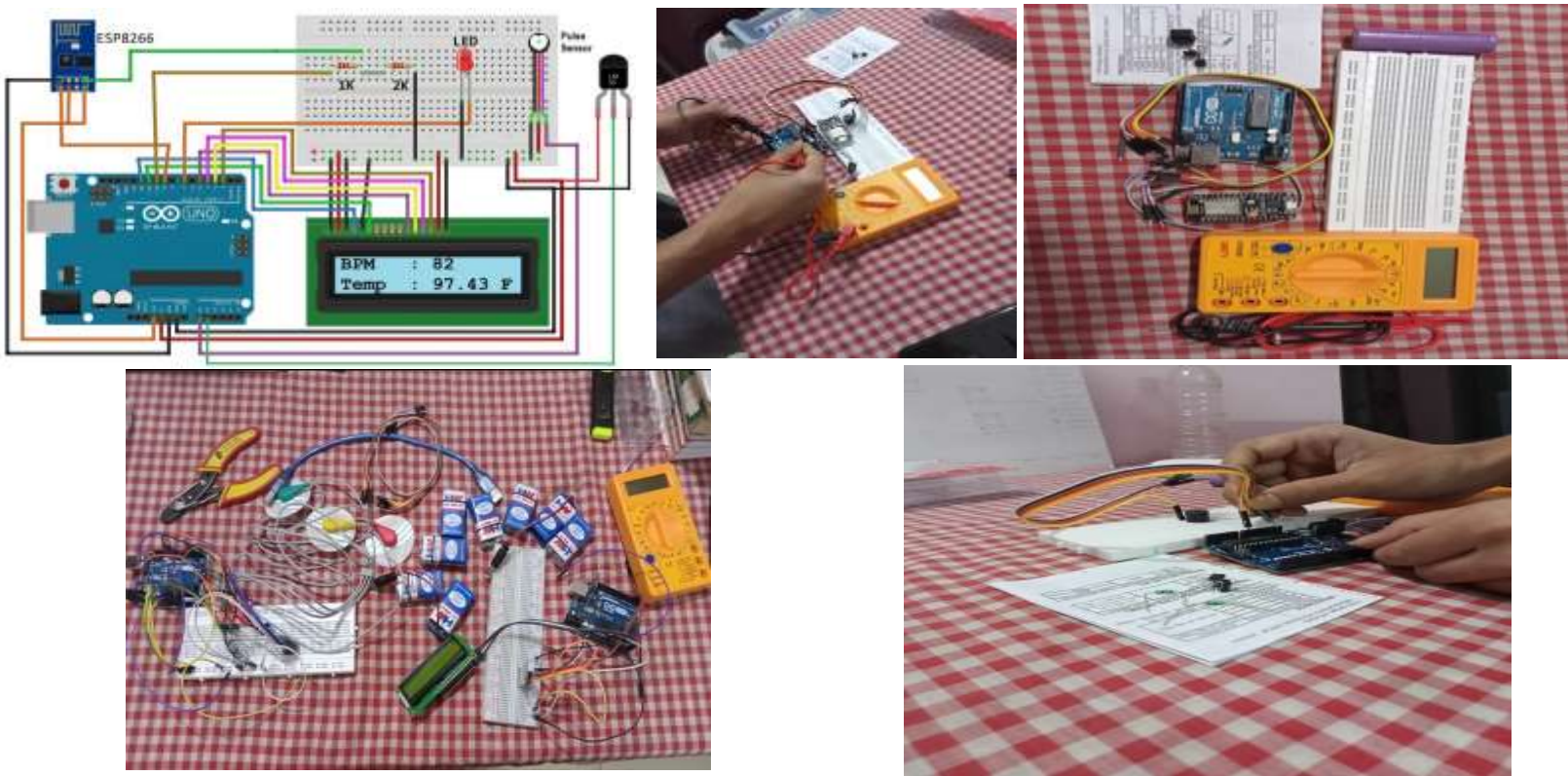
Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
3	Development of Bioplastic based organic sanitary napkin - AIKlin Mentor: Dr Deboja Sharma Student Name: 1. Saanya Chaturvedi 2. Tapashya Chetri 3. Jillimoni Nath 4. Puja Roy 5.Srijana Jalshi	<ul style="list-style-type: none"> - Environment friendly product - Processed from bio-degradable and organic materials 	<ul style="list-style-type: none"> - Product Prototype Development - Testing for skin sensitivity etc. 	<ul style="list-style-type: none"> - Analysis of different parameters & Standardization - Liaisoning with market - Inviting EOI for sharing Technology - Filing for IPR
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Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
4	<p>Spawn growth and Fructification of Specialty Mushrooms - an Initiative to value Added Products</p> <p>Mentor: Dr. Madhusmita Borthakur</p> <p>Student Name:</p> <ol style="list-style-type: none"> 1. Bhabana Garg 2. Rajshree Das 3. Indrani Laskar 4. Minakshi Devi 5. Mr. Sanjay Chanda <p>Spawn growth and Fructification of Specialty Mushrooms - an Initiative to value Added Products</p> <p>Mentor: Dr. Madhusmita Borthakur</p> <p>Student Name:</p> <ol style="list-style-type: none"> 1. Bhabana Garg 2. Rajshree Das 3. Indrani Laskar 4. Minakshi Devi 5. Mr. Sanjay Chanda 	<ul style="list-style-type: none"> • Harnessing the benefits of speciality mushroom and • Creating value added products • With necessary fructification • Harnessing the benefits of speciality mushroom and • Creating value added products • With necessary fructification 	<ul style="list-style-type: none"> • Lab scale production • Testing • Application for FSSAI • Lab scale production • Testing 	<ul style="list-style-type: none"> • Lab Scale Production completed • Product Testing & standardization ongoing • Proximate & Shelf life analysis ongoing • Inviting EOI for sharing Technology • Filing IPR Application
	   			

Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
5	Anti viral organic hand wash and hand sanitizer with timer circuit dispenser gadget. Mentor: Dr Mautushi Das Student Name: 1. Pankaj Chitrakar 2. Subrata Roy 3. Jakia Wahid 4. Manash Kumar 5. Jyotish Hafila	<ul style="list-style-type: none"> - Alcohol free organic sanitising solution - Timer based dispensing 	<ul style="list-style-type: none"> - Lab scale production of Hand wash & Sanitizer - Circuit design and fabrication 	<ul style="list-style-type: none"> - Working on adding different aroma based flavours - Liaisoning with institutions - Inviting EOI for sharing Technology
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Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
6	Development of natural cut flower preservatives: The Phoolmantra Mentor: Dr. Milu Rani Das 1. Saficul Islam 2. Sarika Parbeen 3. Aido Kopak 4. Ikramul Islam 5. Upasona Bora	<ul style="list-style-type: none"> - Organic preservatives - Reduce use of chemical supplements. 	<ul style="list-style-type: none"> - Lab scale production - Testing 	<ul style="list-style-type: none"> - Working on enhancing performance - Inviting EOI for sharing Technology
				

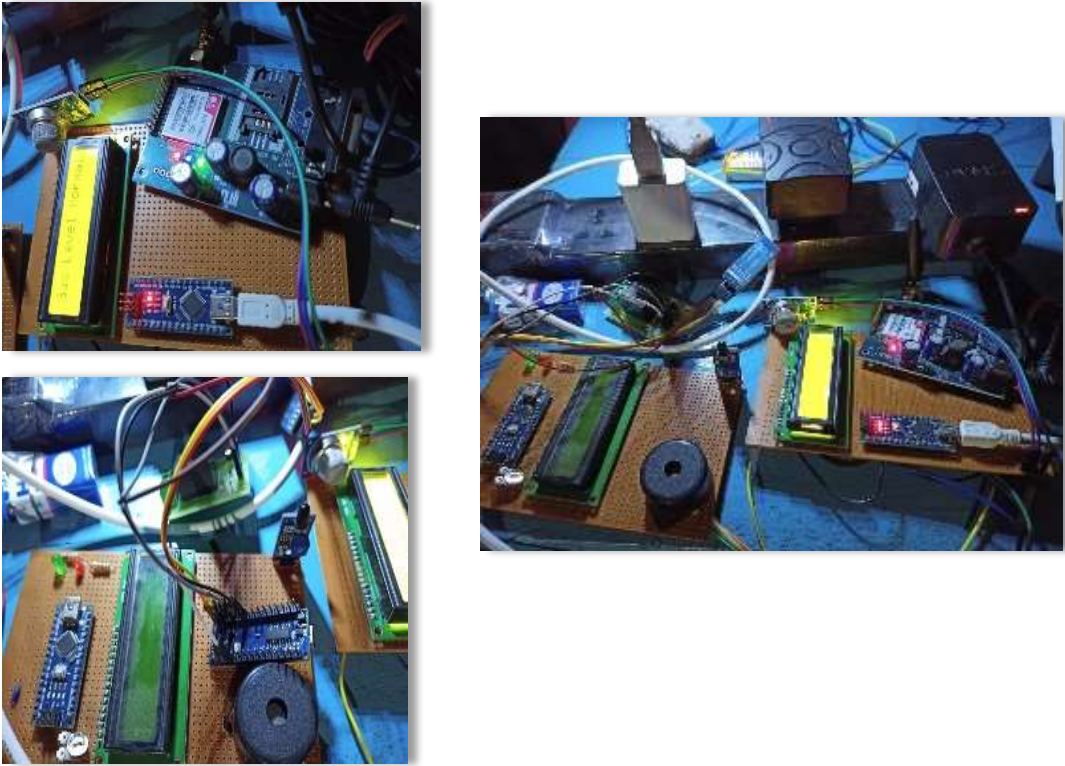

Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
7	Hybrid Steamer Mentor: Miss. Pallabi Gogoi Anushmita Baruah Ankita Dass Abinash Deka Kabyashree Kalita Ashimaa Verma	<ul style="list-style-type: none"> - Electro-mechanical steamer for food processing - Low cost and effective 	<ul style="list-style-type: none"> - Circuit design and fabrication - Product development 	<ul style="list-style-type: none"> - Standardization - Inviting EOI for sharing Technology to mass produce
				




Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
8	Patient Monitoring System Mentor: Miss Parimita Saikia Mrinmoy Haloi Hasan Safrid Shah Kuhima Begum, Rashmi Verma Tarup Haphila	<ul style="list-style-type: none"> - Meant for women - Especially to monitor ovulation cycle 	<ul style="list-style-type: none"> - Circuit design and fabrication - Product development 	<ul style="list-style-type: none"> - Calibration and standardization - Liaisoning with Health sector - Inviting EOI for sharing Technology - Filing for IPR
				


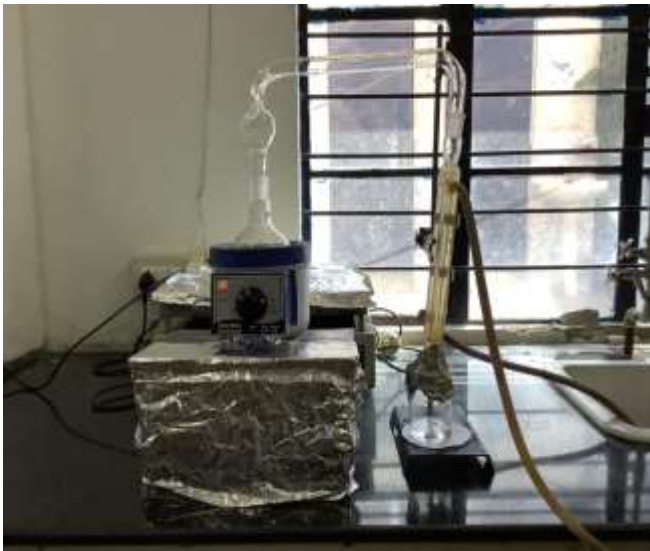

Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
9	Anticeliac supplement as an adjunct therapy for management for celiac disease. Mentor: Dr. Priyanka Kashyap K. Leengthoingambi Singha Sibani Bhowal Tazrifa Sultana Ahmed Nitu Basumatary, Shilpishika Borgohain	<ul style="list-style-type: none"> - Management and control of celiac diseases - Supplements 	<ul style="list-style-type: none"> - Blending and testing of different herbs & plants - Lab scale production 	<ul style="list-style-type: none"> - Testing and standardising - Inviting EOI for sharing Technology
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Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
10	Low Cost Multi-Exerciser Chair * Mentor: Dr Pooja Chaudhuri Ms. Rina Aran Ms. Nikita Nath Ms. Mridusmita Das Mr. Samiran Deka Mr. Hrishikesh Bora	<ul style="list-style-type: none"> - Targeted to cater for both therapeutic as well as fitness, health and wellness sector - Multiple exercising facility with optional add on items 	<ul style="list-style-type: none"> - Design finalization - Fabrication 	<ul style="list-style-type: none"> - Standardising design and testing - Liaisoning with market - Inviting EOI for sharing Technology
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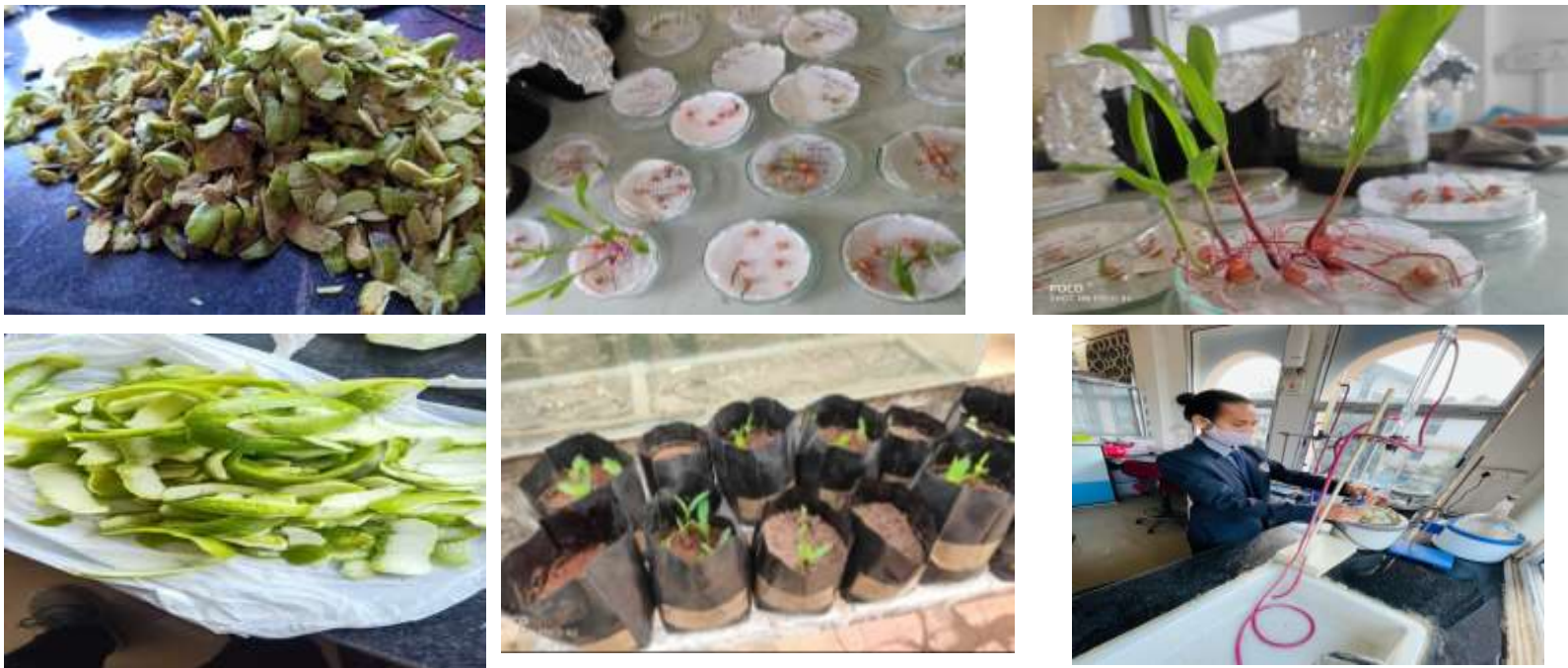
Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
11	Herbal Yogurt Mentor: Dr Mohammad Zaki Shamim* Sagarika Sarma Chayanika Kalita. Leeza Kalita. Bhaktima Goswami. Md. Ashish	<ul style="list-style-type: none"> - Value addition - Demand for fruit based value added products - Added nutritional benefits 	<ul style="list-style-type: none"> - Lab Scale Production completed - Product Testing & standardization ongoing - Proximate & Shelf life analysis ongoing 	<ul style="list-style-type: none"> - Analysis of final product to be made - Application for FSSAI to be made - Liaisoning with market - Inviting EOI for sharing Technology
				

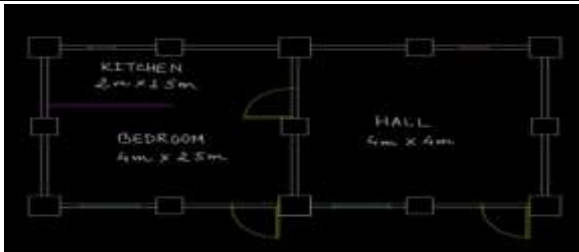




Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
12	Intelligent Emergency Alert System. Mentor: Mrs. Sangeeta Borkakoty Pinku mani Das, Manash Kumar Pramod Chetri Md. Mustaque Hussain Laskar Jyotish Hafila	<ul style="list-style-type: none"> - IoT based alert system - To prevent leakage of LPG - Fire etc - Handy 	<ul style="list-style-type: none"> - Circuit design and fabrication - Product development 	<ul style="list-style-type: none"> - Analysis of different parameters & Standardization - Liaisoning with market - Inviting EOI for sharing Technology
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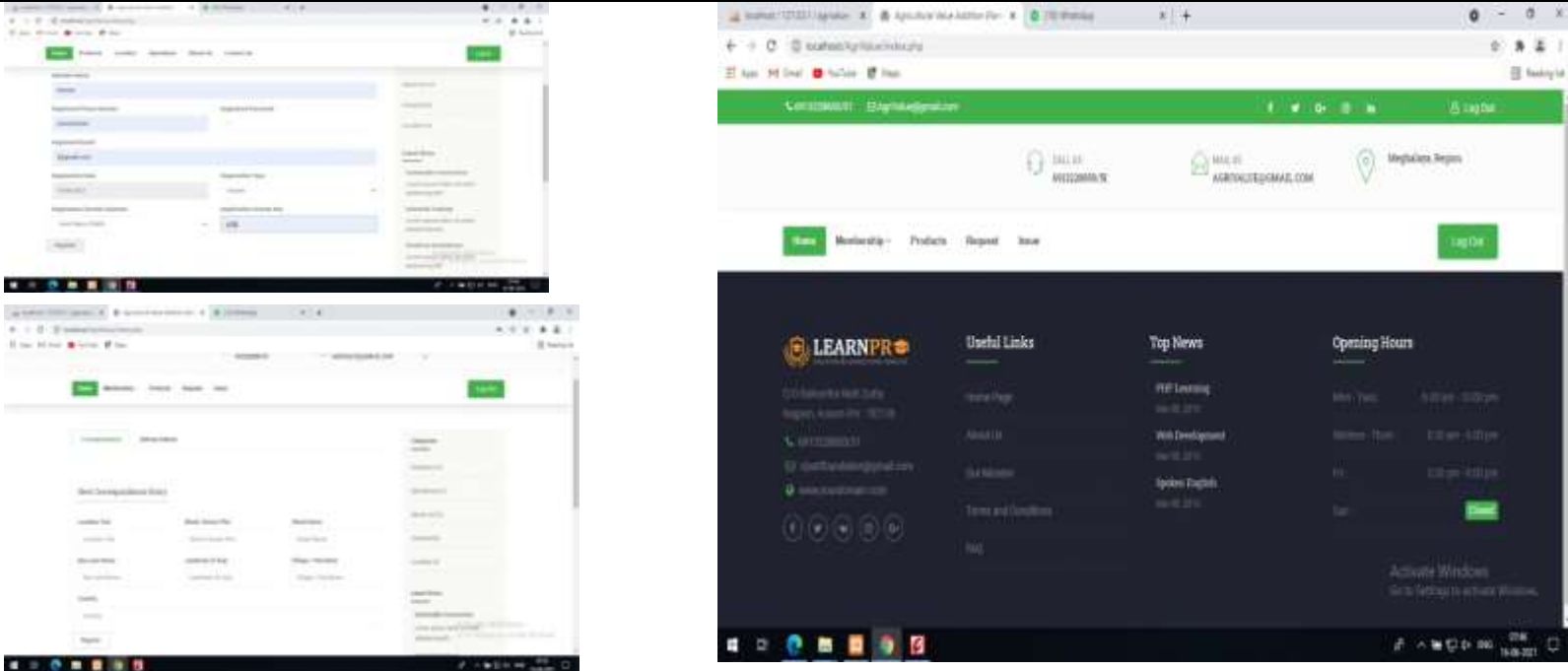
Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
13	Web App for Testing Credit Worthiness to Credit Utilization of the Underprivileged Clients of Financial Institutions Mentor: Miss. Santa Kar Priyangshu Borah Saurav Nandi Swahyne Kashyap Washim Ahmed Rahul Choudhury	<ul style="list-style-type: none"> - To enable financing institutions to keep track on the credit rating of individuals - Specific to micro-financing 	<ul style="list-style-type: none"> - Software development - Iteration with stakeholders - Testing 	<ul style="list-style-type: none"> - Analysis of different parameters & Standardization - Liaisoning with market - Inviting EOI for sharing Technology
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Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
14	Production and distillation of laboratory grade alcohol (70%) from Seasonal Fruits* collected from Assam Mentor: Mr Satyakam Agarwala Student Name: 1. Manowarul Islam 2. Dikshita Gohain 3. Ruchika Saikia 4. Sumee kalita 5. Saurabh Mahanta	<ul style="list-style-type: none"> - The need for lab grade alcohol locally in institutions, which as of now are being procured from the market. - To develop the technology for in-house development processing local seasonal fruits. 	<ul style="list-style-type: none"> - Lab scale production - Trial distillation - Testing 	<ul style="list-style-type: none"> - Enhancing strength to 70% - Liaisoning with institution - Inviting expression of interest for sharing Technology
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Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
15	Natural Dye using Local Herbs Mentor: Dr. Sony Kumari Student name: Animesh Sharma Md Saeed Ahmed Rajesh Adhikary Shrutashrini Hazarika Marngam Bam	<ul style="list-style-type: none"> - Augment the need for natural dyes - Facilitate the local handloom and textile sector 	<ul style="list-style-type: none"> - Lab scale production - Efficacy testing 	<ul style="list-style-type: none"> - Standardization & Testing - Liaisoning with market - Inviting EOI for sharing Technology
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Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
16	Development of novel bio-weedicide as an approach to sustainable agriculture Mentor: Dr. Bedabati Choudhury Student name: 1. Madhumita Roy 2. Mitu Roy 3. Abu Lahel Baki 4. Mijink Basumatary 5. Prianka Saha	<ul style="list-style-type: none"> - Reduce usage of chemical products - Organic with no side effects - Made from locally available resources. 	<ul style="list-style-type: none"> - Lab scale production - Application & testing 	<ul style="list-style-type: none"> - Testing efficacy - Liaisoning with market - Inviting EO for sharing Technology
				

Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
17	Low cost housing solution using alternative Material of Constructions Mentor: Mr. Dipankar Thakuria & Mrs. Lizmol A Peechattukudy Donboklang Sokhia Gyati Mamung Ramjan Ali Premadona Marak Digantamoy Singha Shakeel A Mazumdar	<ul style="list-style-type: none"> - Provide low cost durable housing solutions - Adhere to requirement of PMAY - Facilitate green & sustainable construction 	<ul style="list-style-type: none"> - Design - Construction - Testing 	<ul style="list-style-type: none"> - Testing of different civil engineering parameters - Liaisoning with housing development agencies - Inviting EOI for sharing Technology
<div>       </div>				

Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
18	App based Supply Chain Management System for Agro Produce in Ri-Bhoi, Meghalaya Mentor: Miss. Salma Shabnam Rakib R Marak Binod Sharma Leena Deka Madhurjya Kalita Jubayer Alam	<ul style="list-style-type: none"> - To link various stakeholders engaged in agri business - To facilitate agripreneurs with ready access to the data hands on - To accommodate and streamline the supply chain. 	<ul style="list-style-type: none"> - Software development - Iteration with stakeholders - Testing 	<ul style="list-style-type: none"> - Iteration and Testing - Liaisoning with stakeholders
				

Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
19	Solar Sterling Engine Generator Mentor: Matiur Rahman Abu Bakar Iaskar Abu Hanifa Saeed Taj Shubhrajyoti Dhar Shoaib Akhtar	<ul style="list-style-type: none"> - Better efficiency as compared to solar panels - Tapping non-conventional energy emphasized. 	<ul style="list-style-type: none"> - Design finalization - Fabrication - Testing 	<ul style="list-style-type: none"> - Fabrication - Performance & efficiency testing
<div style="display: flex; flex-wrap: wrap; justify-content: space-around;">      </div>				

Sr. No.	Project Title Mentor Name Student Name	Project Status at the beginning of the year	Interventions Made	Current Status
20	Low Cost Hygiene and Sanitization Solution Mentor: Rashel Sarkar Student name: 1. Saksham Saxena 2. Rashanara Ahmed 3. Saeed Taj 4. Subhrajyoti Dhar 5. Abu Bakr Siddiq Laskar	<ul style="list-style-type: none"> - Institutional demand for mass sanitization of it's members - Low cost solution - Auto-Controlled 	<ul style="list-style-type: none"> - Fabrication of dispensing unit - Testing 	<ul style="list-style-type: none"> - Fabrication - Liaisioning with institutions
<div>       </div>				

5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

Caselet-1

TITLE; Development of Bioplastic based organic sanitary napkin - AIKlin

MENTOR: Deboja Sharma

STUDENTS: 1. Saanya Chaturvedi, 2. Tapasya Chetri, 3. Jilimoni Nath, 4. Puja Roy & 5. Srijana Jaishy

Students Start up and start up entrepreneurial journey from ideation to prototype or commercialization

- The idea of present work is to develop an organic bioplastic based sanitary napkin which can be used in both rural and urban areas focussing mainly on female health and hygiene in an eco friendly manner without causing harm to the environment on its proper disposal.
- This low cost biodegradable sanitary napkin will prove to be a revolutionary invention for the coming ages, replacing highly toxic regular plastic materials that contribute to environmental pollution.

Role of NewGenIEDC: In this whole project, NewGen IEDC has been an immense help in providing us the amenities and fund which was released whenever the need occurred.

Uniqueness:

- ALKLIN, Sanitary napkin is made out from biodegradable plastic with added antispasmodic essential oil and antimicrobial activity collected from the natural resources of N.E India.
- The plastic used in the napkin is derived from biomass, mostly starch based along with the use of natural herbs collected from various parts of North East Assam to prevent microbial contamination of the napkin.

The pad gives a better experience to the user.

- Further, the absorbent of the noble product strictly maintains the pH keeping it free from any acidic or alkali material to provide the best quality of product.

Objectives of the Proposed work:

- Purchase of raw materials for the preparation of the product
- Final trial of the prototype based sanitary pad infused with essential oil, Invitro test for antimicrobial activity, invivo test and biodegradation test is on process.
- Preparation of customizable bioplastic cover for the sanitary pad for environmental friendly disposal.
- Patch test for allergy. Absorption test.
- Parameters for the study on bioplastic
- Products Market Segmentation

Further scope: To explore variants and develop packing material especially for Pharmaceutical and Food Processing Sector.

Future Plans

- To explore possibilities of initiating start-up
- To liaise with investors who had shown interests on the same during several Hackathon participation.
- To explore export market

Caselet-2

Low Cost Housing Solution using Alternate Material of Construction

Mentor: Mr Dipankar Thakuria & Mrs. Lizmol A Peechattukudy

Students name:

1. Donboklang Sokhia,
2. Gyati Mamung,
3. Ramjan Ali,
4. Premadona Marak,
5. Digantamoy Singha &
6. Shakeel A Mazumdar

Students Start up and start up entrepreneurial journey from ideation to prototype or commercialization:

The ongoing research endeavours to create and help provide low cost housing solutions to the under privileged sections of the society using locally available bio-resources such as Bamboo, Shrubs, Fibrous Grass Material, Thatch, Pallets, Stones, Limestones etc and blend the same into concrete composites.

Care has been taken to make the structure resilient, strong and energy efficient added with sufficient green approach to cut down the carbon footprint. A typical 400 sq.ft. Assam Type single shade House having a living room, a Bedroom Washroom & Kitchen is being worked upon to make available the same at a price sub Rupees One Hundred Thousand, which at present stage of prototyping is coming to approx Rs. 1,40,000/-. With commercialisation of the same in form of community housing projects for the semi-urban/ rural population under the Prime Minister Awas Yojana primarily for which this initiative is tailored to fit, it is expected that the Unit cost inclusive of Solar Energy Solution will be effective and affordable.

Furthermore, the recent Earthquake that shook entire North East India, with it's epicentre within 100kms from the place where the prototype has been developed has proven the strength and endurance of the structure.

UNIQUENESS OF OUR PRODUCT

- Environmental friendly & Green Technology
- Use of Locally available materials for Concrete Composites
- Harnessing age old techniques & traditional wisdom in using Bamboo as a Construction Material
- Energy Efficient
- Agile and enduring technology to overcome prevalent natural calamities
- LOW COST Community Housing Solution

Role of NewGenIEDC:

The NewGen IEDC at USTM took up this project seriously due to the local appeal and scope that it carried. NGIEDC helped the group set up necessary infrastructure required within the existing Laboratory facility of Dept. of Civil Engineering, USTM and supported the team all throughout from ideation to test production to test

marketing. Design Testing and Validation was facilitated with participation of external structural experts and designers. Site for prototype development was being provided by the University, and the first prototype (approx 650 sq ft) is being handed over to the University.

Objectives of the Proposed work:

The broader objective of this project was to harness the abundance of resource materials which can be used as alternate material of construction. And to provide low cost community housing solution to augur to the needs under PMAY scheme.

Future Scope

- Registration of "Start Up"
- Collaboration with development & welfare organization.
- To collaborate with rural development agencies

NewGen IEDC [2020-21]

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution with complete Address including Phone numbers	College of Technology and Engineering, Maharana Pratap University of Agriculture and Technology, University Campus, Udaipur- 313001 +91-294-2470378; +91-294-2471056; deanctae@gmail.com	
Year of starting of project	2017-18	
Name of the Head/Principal of the Institution/College	Prof. (Dr.) P.K.singh Dean, College of Technology and Engineering, Maharana Pratap University of Agriculture and Technology, Udaipur, +91-294-2470378; +91-294-2471056	
Name of IEDC Coordinator	1. Dr. Navneet Agarwal 2. Dr. Trilok Gupta	
Contact Details of IEDC Coordinator including phone numbers	Deptt. of Electronics & Communication Engineering & Coordinator NewGen IEDC Mobile: 09828276279 Email: navneetctae@gmail.com	
Mobile Number	09828276279	
e-Mail ID	navneetctae@gmail.com	
Financial Details	Sanction Order No.	Amount
	EDII/DST-NewGen IEDC/17-18/RLS-II/08 Dated 04.11.2020 and 05.01.2021	Rs.60 lakh

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1.	Sensitization workshop in various Departments of CTAE, Udaipur.	The workshops have resulted in developing an eco-system in the institute and large number of student innovators has submitted innovative projects.
2.	Creating awareness about opportunities.	Creating awareness among the young engineering students by presenting the opportunities to newly admitted students in Induction Program Organizing awareness workshops
3.	Mobilizing Workshop for youth	Mobilizing S&T youth of the city for preparing and presenting their innovative ideas. Analysis of various ideas and helping the students to develop their ideas by experts from the field.
4.	Impact Talks	Challenges on enabling Agriculture in rural/semi urban India (Stories of Initiatives in Agriculture and other Social Impact sectors across India & Challenges in Enabling Agriculture in Rural/Semi Urban India)
5.	Entrepreneurship Drive (18/08/2020 and 08/09/2020)	Online seminar “sequcity” organized by team genesis under guidance of Newgen IEDC
6.	Entrepreneurship Drive (28/08/2020)	Online seminar delivered by CS Surendra to motivate the students.
7.	Advisory Board Meeting of NewGen IEDC	Prof Naveen Vasistha from NSTEDB New Delhi and Prof. S.B. Sareen of EDII Ahmedabad attended the meeting
8.	Entrepreneurship & Innovation Club meet	An Entrepreneurship and Innovation Club started in the college with more than 120 students as members was established in the previous. Six online meetings with the members were organized during this pandemic period to create awareness and innovative challenges to be implemented in the forthcoming days.

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1.	Organizing innovative idea competition- The Centre organized a two days online Camp during 22-23 Sep 2020 at CTAE. The event is a part of the idea competition THE GENESIS.	Created awareness and enthusiasm among students about out of box thinking
2.	Awareness workshop on Entrepreneurship and Innovation held by Dr. S. Jindal addressed the participants regarding opportunities, Govt schemes, etc.	Created awareness on how to write business proposals
3.	Interactive talk on 'patenting' by Dr. S.M. Mathur, CTAE, Udaipur	Creating awareness about patent filing
4.	A expert talk on "Institute Industrial collaboration" by Er. Shafiq Ahmed, Secure Meters Pvt Ltd.	Institute Industrial collaboration
5.	Presentation of shortlisted ideas to experts	Opportunity to present concept in front of experts, who can identify innovative and commercial potential of idea
6.	Mentoring the students with potential ideas	Selected students were assigned Mentors who could help the student throughout during conversion of idea into prototype resulting into successful product ready for commercialization.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	<p>Linkages established with Institutions in the regions:</p> <ul style="list-style-type: none"> ➤ Udaipur Chamber of Commerce and Industries ➤ Indian Institute of Management, Udaipur ➤ Indian Society of Agricultural Engineers, India ➤ Institution of Engineers, India ➤ Small Scale Industries Association, Udaipur ➤ MSME, Udaipur ➤ The Creative Centre for Rural Development, New Delhi ➤ Rajasthan State Innovation Council, Jaipur ➤ Indian Council of Medical Research, Udaipur ➤ National Innovation Foundation, Ahmadabad ➤ Various Technical colleges/ Universities (25 Nos.) of Rajasthan ➤ Start-up Oasis Jaipur ➤ Regular interaction with entrepreneurs 	<p>Create opportunity for student to attend local and national workshops, trainings, seminars and other technical events. These institutions represent large set of small to medium industry. Interaction with them leads to identification of input resources needed by these, which can be converted into start-up idea or a regular enterprise by student entrepreneur</p>

Sr. No.	Activities	Outcome/Achievements
2	Talks of entrepreneurs: Success stories	<ul style="list-style-type: none"> * Understanding organization processes * Strategies for tackling day to day problems * Sources of finance and other resources
3	Planned visits to local industries	Students get opportunity to interact with people in these industries which help them in diagnosis of problem areas and specific problems for finding solutions which can be further converted into innovative solutions
4	Expert Lectures, Workshops, & Industrial Visit under MoU with Secure Meters Pvt Ltd Udaipur.	Skill Improvement with innovative approach, and exposure to latest industrial problems
5	Expert Lectures, Workshops, & Industrial Visit under MoU with Hindustan Zinc Pvt Ltd Udaipur.	Improvement in Critical thinking and Employability enhancement.
6	Technical Quiz, Design Contest, & Workshops, under MoU with Texas Instruments (TI).	Improvement in Design skills through hands on design practice

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

In the initial inception we had planned out to successfully implementation of all the sanctioned project with good numbers of projects to get commercialize and turn into entrepreneurship but because of the pandemic situation (COVID-19) since March 2020 we could partially achieve our goal as we had to strictly follow the COVID guidelines issued by Govt which forced enthusiastic students group to be away from their mentors and college premises. All the mentors were in touch with students groups through online mode and gave their best input to complete the project on time. But because of the lockdown prevailing for such a very long time and closure of the market, the requisite components and the hardware were not available to develop the prototype model. So most of project which could reach to their final stage were based on software or accessories available in house though our students group made umpteen efforts during this pandemic time also and succeeded in commercializing two of their projects and formed the company which are successful running and giving services to common mass. We are committed to

complete the remaining part of the ongoing projects very soon and ensure that they will come up with good results and at least two patents can be filed.

3. Other important highlights (new initiatives), if any:



IIT Kharagpur, Business Model Competition



IIT Gandhinagar – ICon, Amalthea Techfest

4. Student Projects:

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions	Current Status
1	<p>Title of Project : Helping Hands of Udaipur</p> <p>Project Description: Helping Hands of Udaipur is an android application which provides online domestic workers at their doorstep. It is a remote application user can book a worker from remote location at the particular time according to his preference. The admin will verify the worker physically. In this project our main focus is based on the Domestic Workers because occasionally people need help of them for functions, elder care, baby-sitting, cooking and other household works. So in this project we are aiming to help people to easily find a domestic worker for them with an app and this app provides a way to workers to make their own identity online for more and better household jobs. The workers don't need to find the household jobs visiting door to door asking for work, they can easily find the job without more physical potential. And this also provides ease to the customers, they don't need to go out to find the workers for their use. In this the customer can interact with workers.</p> <p>Name of Leader Naman Singhvi</p> <p>Name of Mentor Ms. Palak Jain/ Ms. Diksha Goyal</p>	Proof of concept was prepared.	<ul style="list-style-type: none"> • Mentored for product development, design and selection of equipment, • Hiring fabricator and procurement of raw materials; • Field testing of developed technology; • Motivation and assistance for participation in various competitions and events 	<ul style="list-style-type: none"> • Prototype completed. • Ready for commercialization
2	<p>Title of Project: Architectica Start-up Solution</p> <p>Project Description: This is a business model innovation where we have designed a business model through which we are able to provide economical job- guaranteed training for students and free support for startups till one month of their traction in the market. We are utilising the technical knowledge of student aligned with mentoring of an industry professional which can together develop a project and hence help the startups technically and in the process students gain the skills from the mentor. Technology trends from the literature survey and patent search: Current worth of edtech Industry is more than 256 Billion , and it is growing at a rate of 13%. Considering startups India is the home of many unicorns and it hold 4 rank in having maximum</p>	Proof of concept was prepared.	<ul style="list-style-type: none"> • Mentored for product development, design and selection of equipment, • Hiring fabricator and procurement of raw materials; • Field testing of developed technology; • Motivation and assistance for participation in various competitions and events 	<ul style="list-style-type: none"> • Android App has completely developed& is live on play store

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions	Current Status
	<p>number of startups. India is producing 1.5 million engineers every year, 80,000 of which are computer science engineers, who are our early adapters and the numbers, are growing immensely every year.</p> <p>Name of leader Ashish Aryan Name of Mentor Dr. S. Jindal</p>			
3	<p>Title of Project: Event Planner Project Description: Planning an event can be tricky and sometimes tedious. "Event planner app" will be one stop solution all the needs of event planner. Currently for planning small events (such as monthly meet up ,small scale seminars) the planner has to do everything manually. The problem increase exponentially when the event has to be organized in other cities. The market is full of hardworking and creative workers which have specialization in some services but have limited knowledge of internet and computer application. The app will provide them a means to explore the online market that is full of opportunities. Event planner' will assist the user with all of it needs and provide the service providers a platform to unlock a whole new world of opportunities.</p> <p>Name of Leader Sneha Jain Name of Mentor Ms. Diksha Goyal, Ms. Palak Jain</p>	Proof of concept was prepared.	<ul style="list-style-type: none"> • Mentored for product development, design and selection of equipment, • Hiring fabricator and procurement of raw materials; • Field testing of developed technology; • Motivation and assistance for participation in various competitions and events 	<ul style="list-style-type: none"> • Prototype completed. • Ready for commercialization
4	<p>Title of Project: Kangaroo Rooms Project Description: The idea is to eliminate the brokerage system involved in the room rental business with the use of technology. The hassle in finding a room in a new city is annoying and we are trying to provide the functional value by providing seamless and hassle free experience. We have developed software where anyone can list their rooms by paying a minimal charge by themselves and room seekers can easily search the rooms by applying different filters based on locality and rent. There is no brokerage involved both the parties gets connected by themselves and do the deal. Landlord register their rooms online through an Android app by filling all the details of the</p>	Proof of concept was prepared.	<ul style="list-style-type: none"> • Mentored for product development, design and selection of equipment, • Hiring fabricator and procurement of raw materials; • Field testing of developed technology; • Motivation and assistance for participation in various competitions and events 	<ul style="list-style-type: none"> • Prototype completed. • Ready for commercialization

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions	Current Status
	<p>available room including rent and location; and the counterpart, room seekers and find the room on the app, chat with the landlord and schedule the meet.</p> <p>Name of leader Vishal Singh Name of Mentor Dr. S. Jindal</p>			
5	<p>Title of Project: Stone Paper Manufacturing using Marble Slurry. Project Description: The raw materials of stone paper is provided in this process. After cleaning and broken, Calcite block is grinded to lime carbonate powder (600mesh), and the average grain diameter could be 5um- 8um, It would be sent to the warehouse after grading screening. After surface active treating, the lime carbonate powder fully mixed with polyethylene. In high temperature and high-pressure conditions, with organic fertilizer catalyst of complete mixer and the granulating process, then produce the high fill and high dispersion of master batch. It is made through the blown film method, by controlling the air pressure, air volume, traction speed, discharge speed and other parameters, automatically output after being processed and calculated, so as to precisely control the paper thickness and uniformity. Name of Leader Rishabh Doshi Name of Mentor: Ranveer Singh Shekhawat, Asstt. Prof. (CE)</p>	Proof of concept was prepared.	<ul style="list-style-type: none"> • Mentored for product development, design and selection of equipment, • Hiring fabricator and procurement of raw materials; • Field testing of developed technology; • Motivation and assistance for participation in various competitions and events 	<ul style="list-style-type: none"> • Prototype completed. • Ready for commercialization
6	<p>Title of Project: Attendance using Face recognition Project Description: Video captured by CCTV cameras will be fed into a deep learning model which will be deployed on a desktop. Video will be taken at specific intervals and model will be trained on previous footage Deep learning model will predict the number of student on the basis of object detection/ face detection. It will able to detect number of students with their name tag allotted earlier from database. Output of deep learning model that is number of student can be stored and displayed on some screen.</p>	Proof of concept was prepared.	<ul style="list-style-type: none"> • Mentored for product development, design and selection of equipment, • Hiring fabricator and procurement of raw materials; • Field testing of developed technology; • Motivation and assistance for participation in various competitions and events 	<ul style="list-style-type: none"> • Prototype completed. • Ready for commercialization

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions	Current Status
	Name of Leader: Er. Deep Manwar Name of Mentor: Jigyasu Sen			
7	Title of Project: Bricks made up of ceramic and rubber tyre crumb waste. Project Description: The project aims at utilizing the waste from construction industry and used automobile tyres. The innovation is in developing bricks made up of these wastes. The processes involves crushing of ceramic obtained from construction waste and crushing and pulverizing rubber tyres in to fine chips . The mixture is added with water in pug mill for making a homogeneous plastics clay mass ready for forming into bricks. The dried bricks are baked in the ovens or kiln for firming. The bricks so obtained will be light in weight, essay to handle and of low cost . Name of Leader: Vivek vyas Name of Mentor: Ranveer Singh Shekhawat	Proof of concept was prepared.	<ul style="list-style-type: none"> • Mentored for product development, design and selection of equipment, • Hiring fabricator and procurement of raw materials; • Field testing of developed technology; • Motivation and assistance for participation in various competitions and events 	<input type="checkbox"/> Prototype completed.
8	Title of Project: Design and development of Biogas Operated Vapour Absorption Refrigeration System Project Description: In this proposed vapor absorption refrigeration system the compressor will be replaced with a generator – absorber assembly where the generator would be provided heat by burning of biogas with the help of a suitable burner. (The gas has a high calorific value of the range 20 - 25 MJ/m ³ and could be used for driving the generator of the refrigeration cycle). The refrigerant (NH ₃ -H ₂ O) on absorbing heat will vaporize and will move towards the condenser where it will come in the liquid form, from here it moves towards the evaporator from where heat is extracted and cooling effect is produced. This cooling effect can be used for refrigerating food stuffs, chilling milk, preserving meat etc. in rural as well as industrial areas. Name of Leader: Anupriya Gupta Name of Mentor: Dr. Deepak Sharma	Proof of concept was prepared.	<ul style="list-style-type: none"> • Mentored for product development, design and selection of equipment, • Hiring fabricator and procurement of raw materials; • Field testing of developed technology; • Motivation and assistance for participation in various competitions and events 	Prototype completed.

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions	Current Status
9	<p>Title of Project : TICKOUT</p> <p>Project Description: Tickout is a device which will count the people entering and leaving the bus. It is a bidirectional setup consisting of ultrasonic sensor, Arduino, GPS, esp—8266. When a person passes through the first ultrasonic sensor to the second sensor the count will be increased by one and when a person passes from the second sensor to the first sensor the count will be decreased by one. The gps along with the esp is used for live tracking. Both the people counting and live tracking works parallelly to give The location and count of people together in the format of Latitude, longitude and number of people at that particular time in bus. This will help in proper fare generation.</p> <p>Name of leader: Hunain Hasan Quazi</p> <p>Name of Mentor: Vishwapriya Verma</p>	Proof of concept was prepared.		Ongoing
10	<p>Title of Project: Certificate Verification Using Block chain</p> <p>Project Description: to develop a certificate verification application on Private Blockchain. By integrating the blockchain technology we will be able to eradicate the problem of fake certificates. To create the blockchain based unmodifiable certificates, initially the university needs to get registered. Each university will be having its own digital certificate/ signature from which it is going to issue certificates. University can be added only by the authorized personnel of blockchain network which are pre-decided and given authentication during blockchain network deployment. Once added the university can access the system and issue certificates. Each created certificate will be stored in the blockchain with its unique identity and hash. Anyone can use the transaction id to verify the certificate detail.</p> <p>Name of Leader: Raghav Mangal</p> <p>Name of Mentor: Ms. Diksha Goyal, Ms. Palak Jain</p>	Proof of concept was prepared.		Ongoing
11	<p>Title of Project: DIGIDOCX</p> <p>Project Description: DigiDocx will help to digitize and manage hard</p>	Proof of concept was prepared.		Ongoing

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions	Current Status
	<p>copy of documents. The very first step is to convert hard copy of documents into electronic/digital format using scanner. After scanning, the well trained model will extract the keywords for sorted arrangements of the documents and classify them by applying machine learning concepts. It will save a lot of time to search the documents using keywords. In current scenario the world is on the path of digitization but the traditional old way of using hard copies of papers is still there. Now suppose we want to extract some information from these hard copies. So first we have to search for files that contain that information, then we have to search for information that is in need. It's a long and tedious process. So there was a need to digitize documents by sorting and classifying them.</p> <p>Name of Leader: Mudit Jain Name of Mentor: Ms. Diksha Goyal, Ms. Palak Jain</p>			
12	<p>Title of Project: Magic Menu Project Description: The product is about the restaurant menu app. In modern restaurant and café where the menu is standard, we sometimes get a problem that we cannot imagine the food just with its name. But using our menu app you can see the virtual 3D object of the food prior to order the same by just scanning the original menu card. Not only this we can also rate the particular food item by just touching on the hard menu card and also read the food item reviews in a more interactive way. Second use case of our product is in cake shops, where before giving the cake order we can see the actual cake virtually and customize according to our requirements. This product can reduce wastage of cakes in shop and can help the customer to make the cake according to their choice.</p> <p>Name of Leader : Mr. Vipin Khandelwal Name of Mentor: Ms. Diksha Goyal, Ms. Kalpana Jain</p>	Proof of concept was prepared.		Ongoing

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions	Current Status
13	<p>Title of Project: Automatic cleaning and Painting Machine for walls.</p> <p>Project Description: Sketch painting, logo painting and poster painting on wall is very common these days. Generally a trained painter is hired to paint them and it takes almost 1-2 days for completing the whole sketch. But if this whole task is completed using a machine then the time consumed in painting would reduce, also the cost. The machine will be assisted by 3-axis CNC mechanism. The creative art/painting, which is to be made, will be programmed for the system. It will be converted into coordinates and the chuck with the painting brush/ pen will move according to the commands and draw the painting. Similarly, the machine can be used for cleaning windows in high rise buildings. The chuck can be replaced by a wiper and foam dispensing unit.</p> <p>Name of Leader: Hardik Longakshi</p> <p>Name of Mentor: Dr. B.L. Salvi</p>	Proof of concept was prepared.		Ongoing
14	<p>Title of Project: Design and Development of automatic sensor based hydroponics system for fodder production</p> <p>Project Description: Green fodder feeding to livestock ensures optimization of productivity. Though India is the top producer of milk in the world but livestock feed not sufficient. Fodder is one of the constraints affecting growth, health, production and reproduction potential of livestock. In India only 4.9 % of cropped land area is utilized for cultivating fodder. novel method called 'Hydroponics' which means growing plants without soil by using nutrient water at desired temperature and humidity. Through hydroponics it is easier and quick to produce nutritive green fodder. Maize, Ragi, Bajra, Cowpea, Horse gram, Sun hemp, Jowar and Foxtail millet Seeds are found to be suitable to grow by hydroponic method. The hydroponic fodder was fed to small and large ruminants and pigs and found to be highly palatable with no wastage.</p> <p>Name of Leader: Manju H M</p>	Proof of concept was prepared.	<ul style="list-style-type: none"> • Mentored for product development, design and selection of equipment, 	Ongoing

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions	Current Status
	Name of Mentor: Er. Manjeet Singh, Asstt. Prof.			
15	Title of Project: DAA (Detachable Audio Amplifier Band) Project Description: In current situation, everyone likes to share and enjoy loud and pleasant music with their friends and colleagues. In crowded place, for normal mobile phone it is not possible to give that enjoyment. For that they either need Bluetooth speaker or Aux/Jack loud speaker. But these all are power consuming i.e.; they need a power source to function either direct or indirect. So, the main purpose of this project is to provide the user the loud sound without any power source (No charging required). Name of Leader: Ritika Neemrot Name of Mentor: Ranveer Singh Shekhawat, Asstt. Prof. (CE)	Proof of concept was prepared.		Ongoing
16	Title of Project: Design and Development of a Solar Vapour absorption air conditioning System Project Description: In this proposed vapor absorption refrigeration system the compressor will be replaced with a generator – absorber assembly where the generator would be provided heat by burning of biogas with the help of a suitable burner. (The gas has a high calorific value of the range 20 - 25 MJ/m ³ and could be used for driving the generator of the refrigeration cycle). The refrigerant (NH ₃ -H ₂ O) on absorbing heat will vaporize and will move towards the condenser where it will come in the liquid form, from here it moves towards the evaporator from where heat is extracted and cooling effect is produced. This cooling effect can be used for refrigerating food stuffs, chilling milk, preserving meat etc. in rural as well as industrial areas. Name of Leader: Maga Ram Patel Name of Mentor: Dr. N.L. Panwar	Proof of concept was prepared.		Ongoing
17	Title of Project: Hostel Utility App Project Description: This idea is about making a generalized mobile application for better management of hostel systems. It has two ends – one for students and other for management. In student end, features	Proof of concept was prepared.	<ul style="list-style-type: none"> • Mentored for product development, design and selection of equipment, • Hiring fabricator and procurement of raw materials; 	Ongoing

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions	Current Status
	covered are: complaint lodging, tracking, raising with higher authorities; mess off applications; get all the notices and information. The features of Management end are: Detailed information about students enrolled available on a touch, tracking the staff and their deployment, tracking complaints and there disposal; passing on instructions/orders to all students immediately. Name of Leader: Ayaz Alam Name of Mentor: Dr. Vikramaditya Dave			
18	Title of Project Multipurpose Eco Grid Floating Panels Project Description: Floating solar or FPV refers to an array of solar panels on a structure that floats on body of water, typically an artificial basin or a lake. The main advantage of FPV plants is that they don't take up any land except the limited surface necessary for electric cabinet and gird connection. These are more compact than land based plants. The partial converge of water surface of the basin reduces water evaporation. The floating structure allows implementation of a simple cooling system and there by enhance the efficiency of system. As the system is floating, the solar tracking mechanism is also very simple. Name of Leader: Chunendra Kumar Singh Name of Mentor: Dr. Vikramaditya Dave	Proof of concept was prepared.	<ul style="list-style-type: none"> • Mentored for product development, design and selection of equipment, • Hiring fabricator and procurement of raw materials; 	Ongoing
19	Title of Project Multipurpose Economical Solar Tree Irrigation Pump with Tracker Project Description: The solar tree resembles a real tree, but the branch is changed for solar panels that produce energy from the sun. This will be used to operate water irrigation pumps. It will require less land area rendering larger area for agriculture. The tracker based system will keep the panels oriented in the direction of sun rays resulting in higher amount of energy generation. The extra energy produced will be stored in battery banks for use during night time. Name of Leader: Bhupendra Singh Sisodiya	Proof of concept was prepared.	<ul style="list-style-type: none"> • Mentored for product development, design and selection of equipment, • Hiring fabricator and procurement of raw materials; 	Ongoing

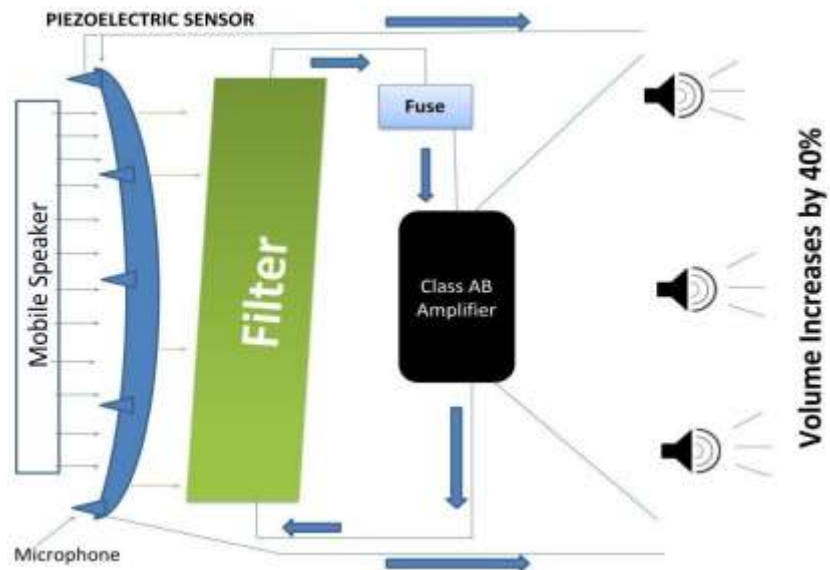
Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions	Current Status
	Name of Mentor: Dr. Vikramaditya Dave			
20	Title of Project: Smart RO with self-Repairing Project Description: Drinking water is a basic requirement of human survival and the best solution for clean drinking water is RO purifier. By using some microcontrollers and electronics its maintenance cost can be reduced. As Maintenance costs of RO is increased due to short life of RO membrane. But by changing the other cheaper filter in time we can increases RO membrane's life. RO available in market already have an indicating feature that indicates the filter needs to be change but none of them have auto switching of filter. Water cooler currently in the market does not use Peltier module for cooling as well as heating of water. Biggest challenge that we face in this is auto replacement of filters with the new one using microcontrollers and servo motors. Proper packaging of electronic components. Name of Leader: Chirayu Purohit Name of Mentor: Dr. Sunil.Joshi	Proof of concept was prepared.	<ul style="list-style-type: none"> • Mentored for product development, design and selection of equipment, • Hiring fabricator and procurement of raw materials; 	Ongoing
21	Title of Project: Smart Compress Project Description: SmartCompress will help to save storage, speeding up websites and in increasing rank of websites in search results. The very first step is, uploading of the image that needs to be compressed. After uploading, the well trained model will compress image using deep learning based neural networks, and the resulting outputs are better in visual quality and compression rate compared to other existing methods without damaging any pixels. We estimate that compression rate such that there is no great difference between the original and the compressed image. Recently it has been observed that loading of website takes too much time. The reason behind this is that the images used in the website were too large, so they were taking large bandwidth for loading images. In today's era, everyone wants to store more images but they have limited space in that cost. So there is a need to reduce size of those images without compromising the	Proof of concept was prepared.		Ongoing

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions	Current Status
	quality of those images. Name of Leader: Mudit Jain Name of Mentor: Ms. Diksha Goyal			
22	Title of Project: AMVRON Classes Project Description: Project helps in educating engineering students. The project helps students visualize and learn things through animations, lessons, quizzes and much more at home. We are utilizing the VR technology aligned with mentoring of an industry professional which can together work on and learn project and in this process students gain the skills from the mentor. According to research there are many companies supporting school scholars but not Engineering scholars. So they will be our early adapters. Technological challenges in design and prototype manufacture based on innovator's skill. Name of Leader: Monil Jain Name of Mentor: Dr. S. Jindal	Proof of concept was prepared.		Ongoing
23	Title of Project: Automatic Free Dumping Trolley Project Description: DC Motor is used is used to rotate the trolley in multi -direction and air piston is used to lift the trolley so we can achieve the multi -direction dumping trolley with this arrangements. Transformer is used to reduce the speed according to our need. Chain sprockets are used to transfer the rotatory motion of the motor to the main Trolley axel. The trolley is : (1). Environmental friendly; and (2). This model can be processed in congested areas and streets. Name of Leader: Palash Nagori Name of Mentor: Jigar K Pathak	Proof of concept was prepared.		Ongoing
24	Title of Project: Automated Fruit Harvester Project Description: The innovation aims at the automation of the process of fruit harvesting process. Seeing the ergonomic problems while harvesting of fruits on high rise trees s input labour cost, time, we should think of ways of automating this process. Thus here we present the automated fruit harvester. Deviating from the normal technology	Proof of concept was prepared.		Ongoing

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions	Current Status
	<p>trends, this innovation makes use of scissor mechanism. Unlike the existing products in the market, which are either hand operated or make use of hydraulics, our innovation is remote operated and uses scissor mechanism for increasing height as well as depth into the tree. We have used a 4 channel remote circuit in this device for four purposes: a) Increasing the height, b) Increasing the depth, c) Changing the direction of the depth, and d) Cutting operation.</p> <p>Name of Leader: Abhinav Shukla Name of Mentor: Dr. Chitranjan Agrawal</p>			
25	<p>Title of Project: WashPool (e-Laundry) Project Description: This is an economical and affordable laundry service which provides online and easy access to our customers to get their clothes cleaned easily in a time efficient manner while carrying on with their daily routine. We have collaborated with numerous local dhobis utilizing their labor to make the process time efficient. We also have planned to treat the water adhered with chemicals and reuse it for further washes thus preventing extra use of water. We have also planned to use organic materials instead of chemicals and detergents thus reducing water pollution.</p> <p>Name of Leader: Swaraj Kumar Name of Mentor: Dr. S. Jindal</p>	Proof of concept was prepared.		Ongoing
26	<p>Title of Project: Solar Based Universally Operated Sewing Machine Project Description: Solar based sewing machine for the empowerment of the financially weaker community of society where they have chance to start their own business and earn money to fulfill their daily needs. This machine completely indigenous and solar powered with no operational cost of electricity. To boost the income of women in weaker section, it is proposed to supply solar power paddle operated sewing machine along with LED lamp for illumination, with an attached fan. The system should be capable of working for 6-8 hour on solar power. In the absence of solar power we can also use grid supply</p>	Proof of concept was prepared.		Ongoing

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions	Current Status
	<p>as an alternative. It is suitable for such areas where electricity is not available, such as rural, remote areas. It is for women workers of the weaker section & also used for industrial application along with the household application.</p> <p>Name of Leader: Sahil Khan Name of Mentor: Dr. Vikramaditya Dave</p>			
27	<p>Title of Project: Design and Fabrication of Wheelchair cum stretcher using different mechanisms such that it can be easily and safely operated by the patient itself. It will also eliminate the difficulty for nurses and/or other supporting staff while transferring the patient from wheelchair to stretcher and vice -versa. Instead of using wheelchair and stretcher separately, we can use combined wheelchair & stretcher using a convertible mechanism and electric jack. Salient Features: - The wheelchair cum stretcher has features of:• Convertible mechanism (Z -bar mechanism), • Height adjustment system, and Comfortable seats.</p> <p>Name of Leader: Sourabh Mehra Name of Mentor: Sh. Manish Singh</p>	Proof of concept was prepared.		Ongoing

Photographs of Innovation



Project: DAA (Detachable Audio Amplifier Band)}



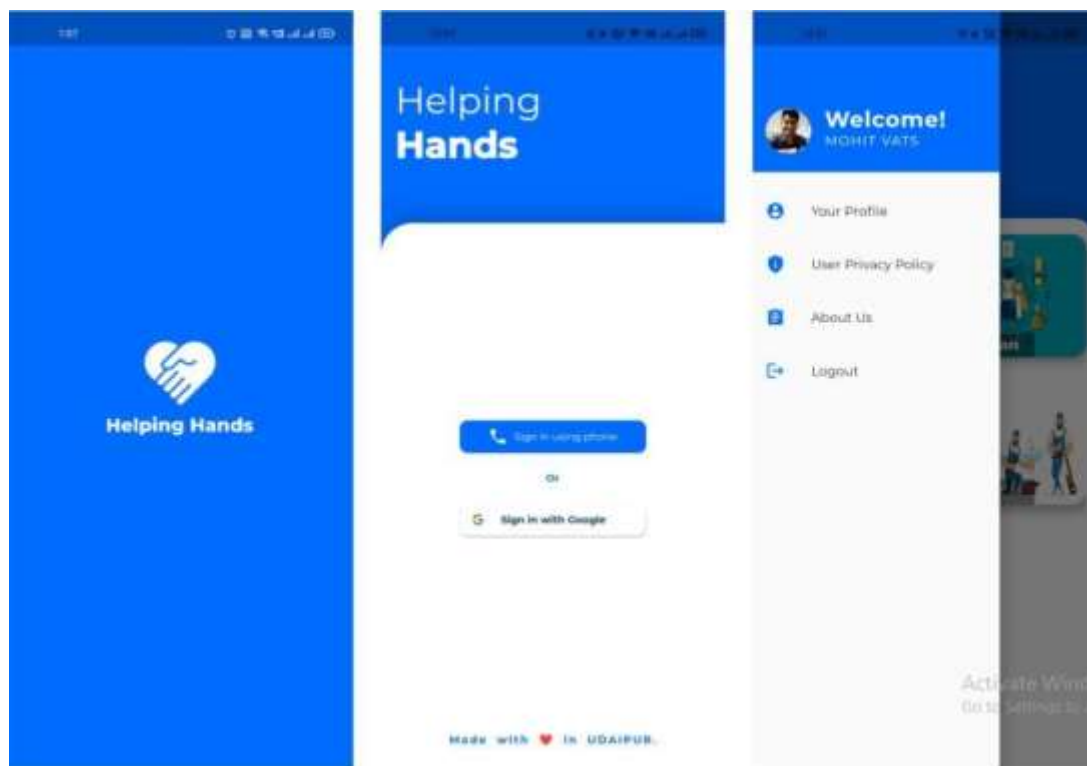
Project: Bricks made up of ceramic and rubber tyre crumb waste



Project: Stone Paper manufacturing using Marble Slurry.

End product/Prototype/Process developed along with specification and target achieved:

- a. Developed prototype which recognize multiple faces



GUI of the App developed under project “Helping Hands of Udaipur”

5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list.

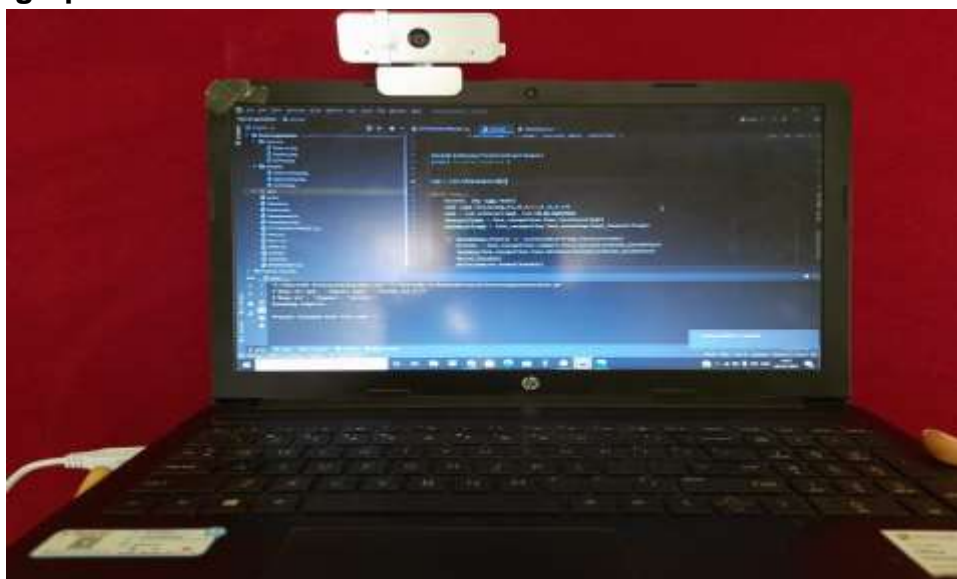
I. Attendance using face recognition

Name	Jigyasu Sen
Degree	B.Tech
Nationality	Indian
Address	31, Jain Colony, University Road City: Udaipur : 313001 State: Rajasthan
Email	jigyasusen29071999@gmail.com
Contact No	7297844742
Aadhaar No	511532661369

1. **Sponsoring/collaborating agency, (if any other then NewGen IEDC):**
NewGen IEDC

2. **Brief Summary of the project :** Attendance is a very important tool to keep a check on the students. Attendance is noted down manually in most of the institutes which may lead to inaccuracy of data; other students generally mark attendance for their fellow classmates which leads to false data gathering and later on this result in false statistics. Registering attendance manually can be really a time consuming task which may lead to teaching and learning time for teachers and students. Other solutions viz. RFID cards, Biometric attendance systems are also time consuming. In the developed prototype of the Attendance system using face recognition it registers the name of student, time and date in an excel sheet to keep the record of attendance automatically. The method proposed is to record the attendance through image using face recognition. It not only saves time but also prevents the students from giving fake attendance and automatic attendance record is developed. Hence, it creates the motivation for the students to attend classes daily since the attendance is going to be recorded by an automated process.

3. **Photographs of Innovation:**



Prototype of "Attendance using face recognition"

8. Patenting if done: No

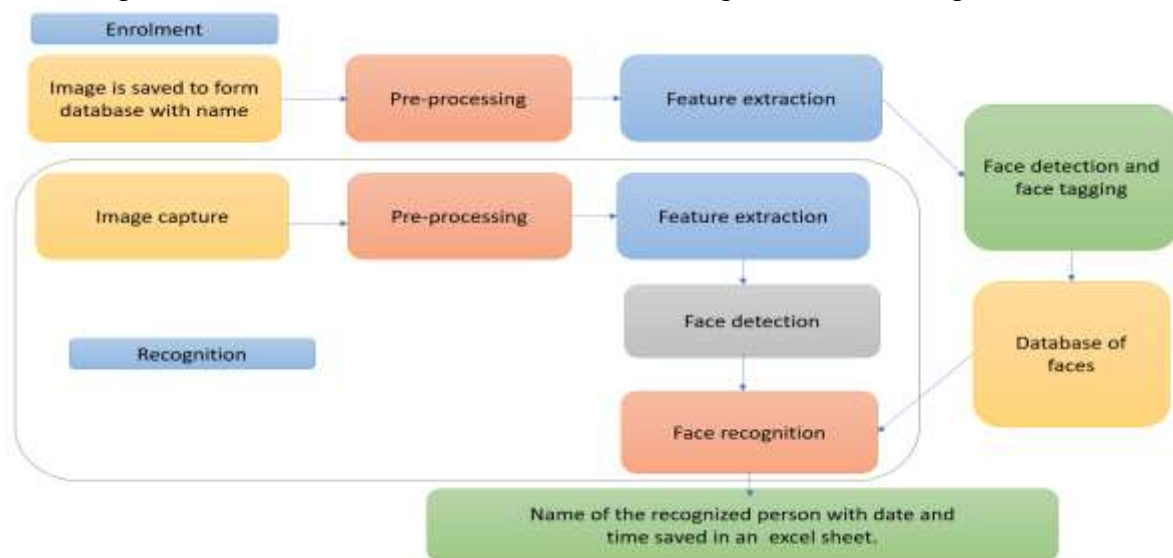
9. Equipment installed for the project:

S.No	Equipments/Components	Specifications
1	Camera	To detect human face

10. Product/technology details developed through the project: The developed prototype uses the face recognition method to identify the captured face

Image of the student by comparing it with the existing database of all the students.

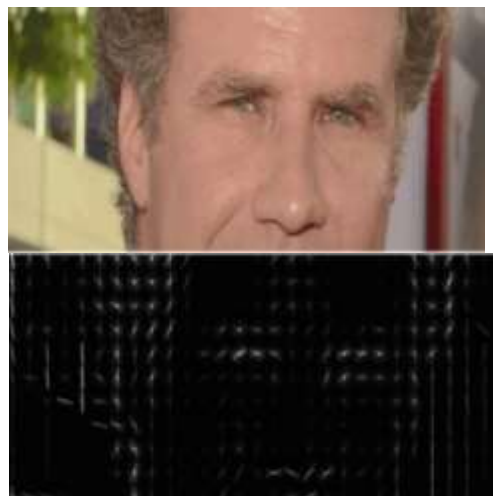
Following which the attendance of the student is registered including date and time.



Flowchart

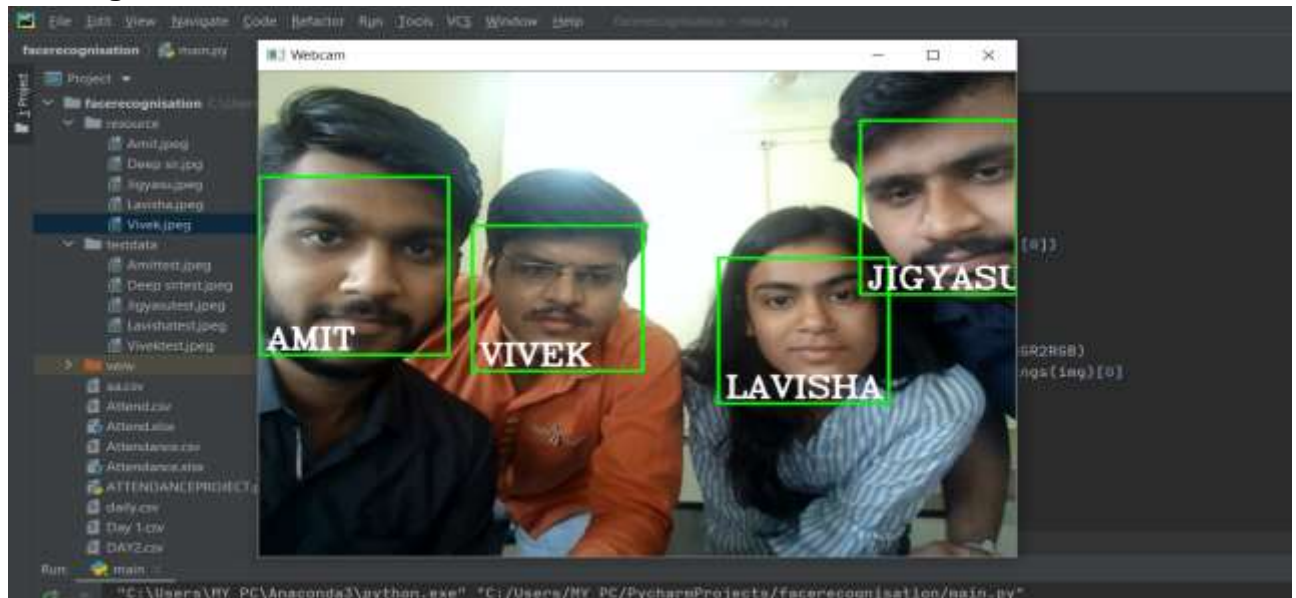
1. Firstly, we create a database by enrolling each student of the class by collecting their details (image and name).
2. Pre-processing is done on all the collected pictures.

3. Prototype uses the HOG (Histogram of Oriented Gradients) algorithm for preprocessing which converts the real time picture of an individual from colored to black and white. In this method, all the pixels present in the picture are analyzed, then an individual pixel is compared with the surrounding pixels and gradient is calculated with an arrow placed where the brightness/darkness is varying. So, with this algorithm the original picture is turned into a very simple representation comprising arrows that captures the basic structure of the human face in a simple way. This algorithm will store the basic features of an individual in a simplified way.



4. When in the real time an individual passes in front of the camera it will compare the features of that individual with the stored data and recognize its name which will be displayed on the screen.
5. Also an excel sheet will store the attendance of the person coming in front of the camera with time and date.

11. End product/Prototype/Process developed along with specification and target achieved:



Developed prototype which recognize multiple faces

	A	B	C	D	E	F	G	H	I	J	K
1	Name	Date	Time								
2											
3	VIVEK	08-03-2021	11:47:12								
4	AMIT	08-03-2021	11:47:32								
5	JIGYASU	08-03-2021	11:47:35								
6	LAVISHA	08-03-2021	11:47:38								
7											
8											
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25											

Attendance is saved in the excel sheet.

Target Specifications

- Detect the human face at a distance of 40 cm and recognize the name of the person standing in front of the camera.
- It saves attendance of a person with name, date and time in an excel sheet.

12. Studies on techno-economic viability undertaken for the commercialization of result of the project & plans for commercialization, if any:

- Identified the key growth areas matching our products.
- Evaluation of market opportunity and developing suitable business plans.
- Pitching the idea and availing the seed money for the startup.
- Building a team with members having dedication, determination, discipline, skills and integrity for the commercialization of the product.
- Collecting constant feedback from the users and improving the product.

13. Name of Perspective Buyer of the technology/product:

- Various organizations and institutions mainly educational institutes.
- It can also be used in various companies for attendance of employees.

14. Export potential of the product/process developed:

- Our product is associated with healthcare and mankind so the company has great opportunity to serve society worldwide.
- As manufacturing cost in India is expected to be less compared to other developed nations, companies can provide products with best quality at an affordable price.

II. Kangaroo Rooms

1. Team Details including leader:

- **Name of the Student** : Vishal Gurjar
- **Class & Branch** : IT
- **Date of Birth** : 05\09\1996
- **Father's Name** : Dinesh Kumar
- **Position** : Founder
- **Mobile Number** : 9549953208
- **Aadhaar Number** : **688977389705**
- **PAN Number** : **CSCPG3546H**

2. Detail of work done on innovation so far:

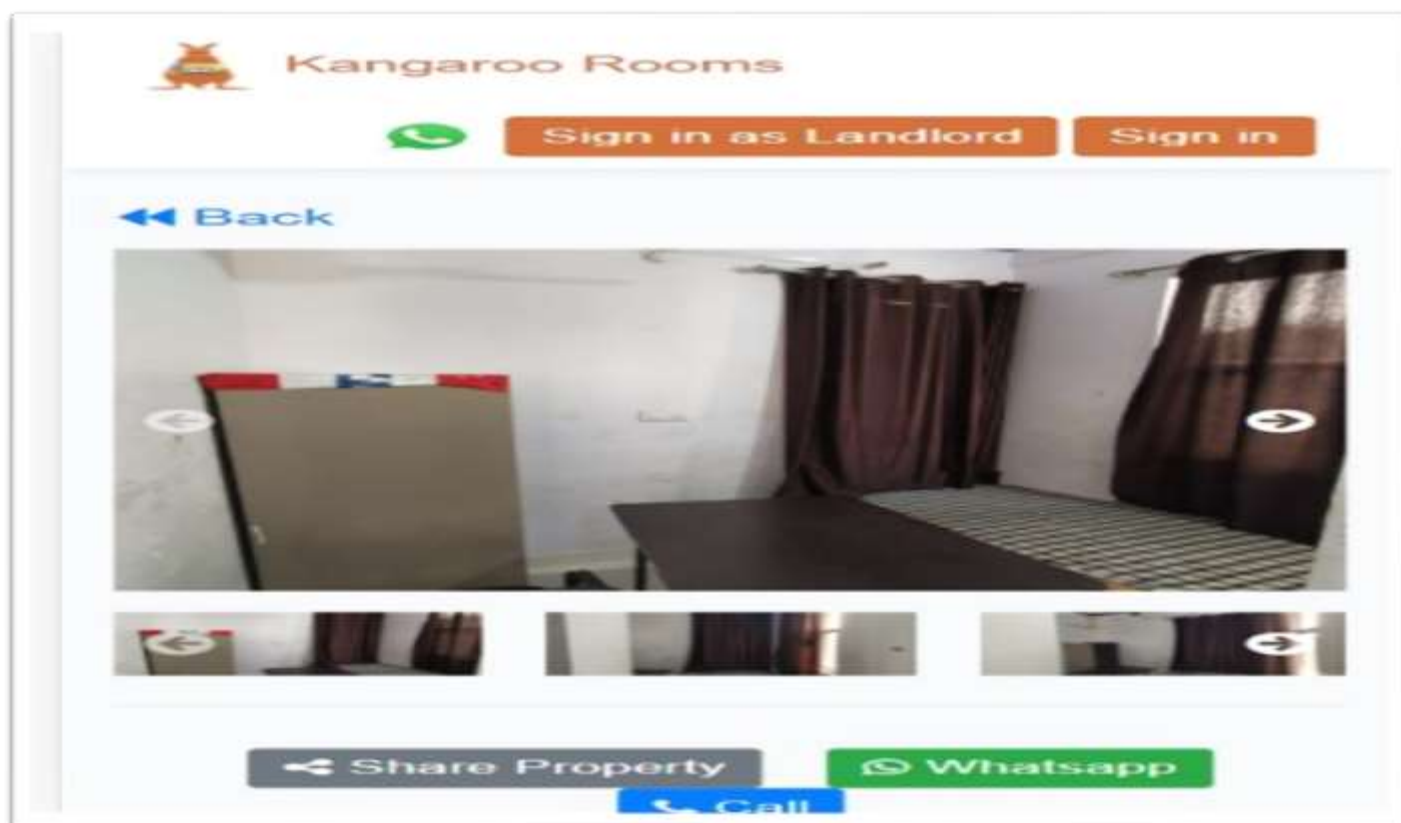
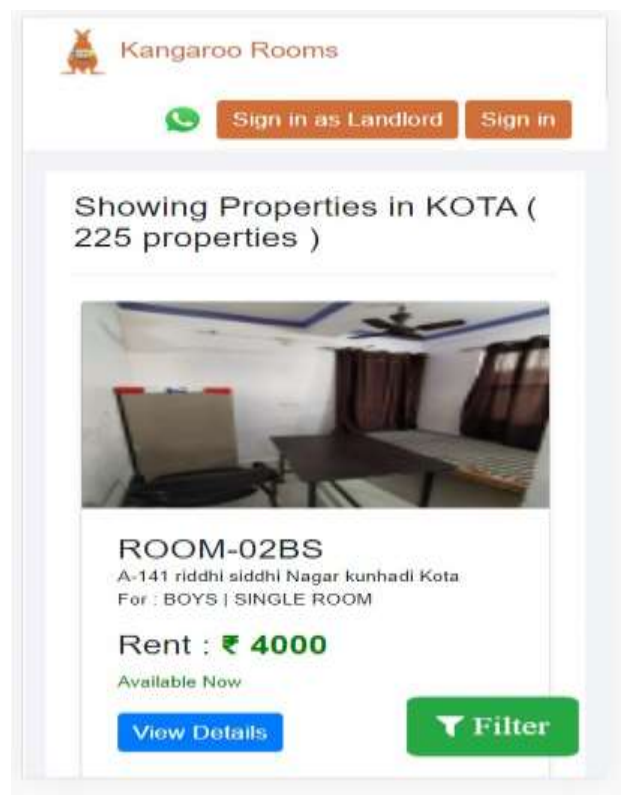
- Literature survey/patent search-company formation complete
- Development work done so far, including involvement of agencies, consultation with expert-technical project complete done live in market now developing new features
- Patenting of the innovation-NA
- Tie-up for design, fabrication etc with any external agencies-NA



- Techno-economic/market feasibility studies/reports-in the market we are now in 4 cities Kota, Jaipur, Udaipur and Bangalore these cities have already done Surveys and our services satisfied the customer.
- Consumers / users feedback-customer feedback is good for us we focusing on both factor landlord side and user side

3. Brief write-up giving broad detail of the original idea/ invention/ IPR/ Know how available with the individual, highlighting its originality/ Novelty and the scientific principle involved therein. Following information to be furnished by innovators.

(i) **Description of working of the innovation (use sketch/drawing, patent, photographs, video to explain the working):**



(ii) Description of science behind the innovation:

Web development is the work involved in developing a Web site for the Internet (World Wide Web) or an intranet (a private network). Web development can range from developing a simple single static page of plain text to complex web applications, electronic businesses, and social network services.

A more comprehensive list of tasks to which Web development commonly refers, may include Web engineering, Web design, Web content development, client liaison, client-side/server-side scripting, Web server and network security configuration, and e-commerce development.

We have used Angular which is a Type Script-based open-source web application framework led by the Angular Team at Google and by a community of individuals and corporations. Angular is a complete rewrite from the same team that built Angular JS.

(iii) Technology trends from the literature survey and patent search:

N/A

(iv) Technological challenges in design and proto type manufacture based on innovator's skill:

Web application development challenges during planning

1. Clearly defining goals.
2. Choosing the right tech stack
3. UX
4. UI & simplistic design
5. Performance and speed
6. Scalability
7. Web security threats

a. Proposed costs for the project

Sr. No.	Items	Estimated cost (Rs.)	Justification
i.	User Application development fees	9300.00	Development of complete user side application to manage the platform and make it usable for common users
ii.	Admin Panel Development fees	8900.00	Admin panel to manage property listings on our website to show users

Sr. No.	Items	Estimated cost (Rs.)	Justification
iii.	Hosting Service for Kangaroo Platform (1year)	9322.00	Hosting to keep data at server and accessible by users to use our services
iv.	Maintenance & Security of Server for Kangaroo Platform (1year)	8378.00	Server Maintenance and security to ensure the safety from un authoritative malwares on website
v.	Out-door advertising boards	9600.00	To increase the popularity of the brand, put up boards in every area where the potential customer exist
vi.	Advertising pamphlet	8456.00	Distribute pamphlets in every area where there are colleges, schools and coaching
vii.	Labour cost	8000.00	Worker hired to distribute pamphlets and put up boards
viii.	Visiting card	6700.00	Print visiting cards to build brand trust when meeting new customers
ix.	To-Let Sign Board	9650.00	when property associated with the company then we put our To-let sign board in front of the house for company branding and loyalty
x.	Marketing agent cost	9000.00	Hired a marketing agent to associate the property with the company to explain the entire process to each landlord and upload the property
xi.	Digital marketing	9750	Used digital marketing to spread brand popularity to people in the digital world, focusing on Facebook marketing and Instagram marketing
	Total Cost	97,056	

b. Activity details/work plan

Sr. No.	Activity	Monitor-able milestones	Duration (weeks)
1	Design engineering (for product innovation) Research and Development / consultancy (for processes innovation)		
2	Working model/ prototype development (for product innovation) or Lab/ bench scale process development (for process innovation)		
3	Product testing or Process demonstration		
4	Any others (please specify)		



(a) End product / process / output-resulting from the idea/invention/innovation/final Deliverables. (Including targeted specification, performance requirements/standards)


- i. Whenever a customer searches and books a room through our technology, he easily gets a good room according to his budget. Some of the unique features of our technology make the whole effort very easy

(b) Innovation's benefit to the society:

- Whenever a person moves from one city to another, he first arranges his stay and for this he has to face a lot of difficulties, keeping an eye on this, we will provide him a good room according to his budget in the same area.

Activities and Events Organized During Period

Sr. No	Date	Activity / Event	Remarks	Photos
1	08/09/2020	Entrepreneurship Drive	Online seminar "sequcity" organized by team genesis under guidance of newgen IEDC	
2	18/08/2020	Entrepreneurship Drive	Online seminar "sequcity" organized by team genesis under guidance of newgen IEDC	

3	28/08/20	Entrepreneurship Drive	<p>Online seminar “sequcity” organized by team genesis under guidance of NewGen IEDC</p> <p>CS Surendra sir deliver the speech and motivate.</p>	
4	05/03/2021	Advisory Board Meeting of NewGen IEDC	<p>Prof Naveen Vasistha from NSTEDB New Delhi and Prof. S.B. Sareen of EDII Ahmedabad attended the meeting</p>	

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	Dr. M. G. R. Educational and Research Institute	
Year of starting NewGen IEDC	2017	
Name of the Head/Principal of the Institution/College	Dr. C.B. Palanivelu Registrar	
Name of NewGen IEDC Coordinator	Dr. Rama Vaidyanathan, Director (R & D)	
Contact Details of NewGen IEDC Coordinator • Mobile Number • E-Mail ID	Director Dr. APJ Abdul kalam Center of Excellence in Innovation and Entrepreneurship Mob: 9841002846 Email: ramavaidyanathan@drmgrdu.ac.in	
Financial Details	Sanction Order No./ Date	Amount Sanctioned
Previous Sanction Order Details	1 EDII/DST-NewGen IEDC/17-18/RLS-1/09	Rs: 60,00,000/-

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1	Orientation to Data Analysis with R Programming	Incubatees were given a training to R Programming and they were able to interpret data for an effective market analysis
2	Innovation Ambassador Training for Faculty Mentors and Core Team	Four of our faculty were trained by MoE for Design thinking, Entrepreneurship, IPR, Preincubation and Incubation. They are now mentoring both internally and externally for NIC (National Innovation Contest)
3	SIH Internal Hackathon Pitching and Presentation Training for students	15 teams from MGR ERI participated and pitched their idea to internal Juries. 6 teams selected for next level in Hardware edition. 1 team progressed upto level 2 – Students were exposed how to pitch their idea through presentation and solution demos
4	Start-up Shakthi 2020 (To motivate Woman Entrepreneurs)	Business simulation to women in campus created a entrepreneurial buzz in the campus and more students showed interest towards e cell activities post event.
5	National Science Day – NewGen project display to School Children with Q & A Sessions	A Knowledge sharing experience to NewGen IEDC incubatees to school students and got different insights and Q & A sessions.
6	SIH Internal Hackathon Pitching and Presentation Training	Selected students trained for an effective pitching session and solution demo training

Sr. No.	Activities	Outcome/Achievements
7	Meet an entrepreneur	Students and Incubatees got insights about the business by the interview session (Shepreneur Ms. Jayasree Srinivasan - Matrix) by COWE and AKC
8	Institute Innovation Council – lecture series	From NISP – Students interaction (17 Sessions) Faculty and Incubatees got insights about Incubation process, venture capital, ethical steps in startups, Market research, Product innovation Rubric, B Plan, Frugal innovation etc.

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	Business Model Presentation by NewGen 2019 students (Experimentation)	B Plan one on one session about the 9 segments with Newgen IEDC incubatees. As a result of the session our incubatees were the winners in National level B Plan competition
2	MGR Online Hackathon 2020	Students first time exposed to online hackathon. They were trained slowly from Chat bot, App development and Technology through online mode.
3	Innovation to Incubation Marathon	NewGen IEDC third batch selection process – Initial Screening by internal and external experts
4	IPR Workshop	Awareness to students, Incubatees and faculties about the patentability, Non patentable Inventions and claim drafting

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Participation in Global Bio India, New Delhi - 21st - 24th Nov., 2019	Incubatees and Mentors networked with the appropriate industry for the technology transfer
2	Mentor for Change Meet (With Industry and Academia)	Networking, New registration and explanation about the roles and responsibilities of mentors.
3	NewGen IEDC Review Meeting (Triangular opinion from Industry, External and Internal experts on Feasibility Study and Norms)	Product validation, testing, calibration and certification rated by the expert panel
4	DEMO Day (New Gen IEDC batch 2018 – 2019) to Industrial experts	Industry expert one on one session and solution demo. Suggestions given for sustainability and scaleup for the prototypes.
5	Visit to Ambattur Industrial Estate Manufacturers' Association: AIEMA	Real time exposure to incubatees and further industry connect for scaleup
6	Follow up visit and showcasing project from IEDC	Ergonomic wheel chair made a follow up visit and progressed towards technology transfer

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:
Nil

3. Other important highlights (new initiatives), if any:

3.3. Focused all the following sessions through online

3.3.1. Workshops

3.3.2. Seminars

3.3.3. Hackathons

3.4. Initiated customer validation process to improve the commercialization ratio of MGR DST NewGen IEDC Incubatees

3.4.1. Problem Validation

3.4.2. Value proposition fit

3.4.3. Business canvas

3.4.4. Market analysis

3.4.5. Solution

4. Student Projects

Sr. No	Team	Project status at beginning of the Year	Interventions made	Current status
1	Impetus	Idea Stage	Customer Discovery, Patenting the Product	PoC Build, in process of making prototype
2	The PT Cruisers	Idea Stage	Customer Discovery, Patenting the Product	Preparing BoM, Designing
3	Reformists	Idea Stage	Customer Discovery, Patenting the Product	Working on formulation
4	PHYSIO TRIGGERS	Idea Stage	Customer Discovery, Patenting the Product	Building Prototype
5	CREATIVE TECH GIANTS	Idea Stage	Customer Discovery, Patenting the Product	Patenting
6	Tech Ergo	Idea Stage	Customer Discovery, Patenting the Product	Designing 3D Model
7	Pharma brigade	Idea Stage	Customer Discovery, Patenting the Product	Designing 3D Model
8	Aspiring Amigos	Idea Stage	Customer Discovery, Patenting the Product	Simulation
9	Dynamic drillers	Idea Stage	Customer Discovery, Patenting the Product	Designing, Preparing BoM
10	Lead Tech	Idea Stage	Customer Discovery, Patenting the Product	Building Prototype
11	Being Something	Idea Stage	Customer Discovery, Patenting the Product	Preparing BoM, Designing
12	Dentistry Toothpaste	Idea Stage	Customer Discovery, Patenting the Product	Working on formulation
13	Hope 11	Idea Stage	Customer Discovery, Patenting the Product	Simulating the Project
14	Reinflex	Idea Stage	Customer Discovery	Beta Product
15	M&M	Idea Stage	Customer Discovery, Patenting the Product	3D Designing
16	Terrific trio	Idea Stage	Customer Discovery, Patenting the Product	Preparing BoM, Designing
17	Makers - Thermal Alarm for Cooking Space	Idea Stage	Customer Discovery, Patenting the Product	Simulating the Project
18	Tooth cleaning Gum	Idea Stage	Customer Discovery, Patenting the Product	Working on formulation
19	Mosquito Trap	Idea Stage	Customer Discovery, Patenting the Product	Building Prototype
20	NESEM	Idea Stage	Customer Discovery, Patenting the Product	Simulating the Project

T1 – Impetus

Title of the invention - Diabetes wear N Cure

Sr. No	Name (Mentor & Incubatees)	Faculty	E Mail ID	Mobile Number
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Prepared By: Team Impetus, T1

Problem Statement:

- Diabetic Foot Ulcer (DFU) is the main complication of diabetes, which if not properly treated, may lead to amputation. The impaired or loss of sensation among the diabetics is considered as a risk factor for the development of foot ulcers.
- The burden of diabetic foot disease is ranked in the top- 10 of all medical conditions, and up to 34% of all people with diabetes are estimated to have a foot ulcer somewhere during their life. <https://doi.org/10.1002/dmrr.3234>
- Foot ulceration is estimated to affect 0.5-3% of the global population of people with diabetes. Diabetes peripheral neuropathy (DPN) is a major risk factor for foot ulceration. The prevalence of DPN varies widely, ranging from 8% to 70% of global population.

Solution:

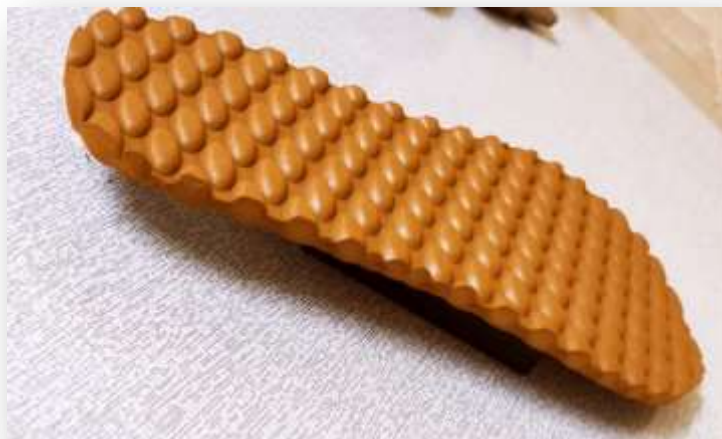
The solution is a diabetic footwear to improve the sensation in the foot by providing vibration and pressure in the foot wear and preventing the risk of ulcer formation by improving the blood circulation because the impaired or loss of sensation among the diabetics is not only considered as a risk factor for the development of foot ulcers but also leads to the difficulty in performing the daily task by affecting the gait parameter. This footwear concentrates on the common pressure points of the foot like the ball of the great toe, the metatarsal bars and the heel and provides vibratory sensation and offloading the plantar pressure over the metatarsal bars with a raise in the insole and improving the perception of vibration and pressure among the diabetic peripheral neuropathy patients.

Progress:

1. Ideation is completed and basic research activities on concept and application were formulated. Initially online search regarding the other footwear that are available in the market were listed. The materials used in such products were also analyzed. The technology and the product development are initially at the basic level.
2. Milestone 1 - accomplished which was trial and error method and it was a testing period with 10 subjects. Milestone 2 is in progress which includes the clinical trials with 100 subjects.
3. Meanwhile the patency process was started and prior art search was done.
4. Foot ulcers are the leading causes of hospitalization, amputation, reduced mobility, loss of social participation and lower quality of life in people with diabetes.

Current status:

1. The TRL – 4 is a preliminary prototype. We have achieved milestone 1 using the preliminary prototype on 10 subjects that was accomplished in a span of 2 months. Our next milestone is to carry out clinical trials on 100 subjects using the prototype with few improvements that would be accomplished in next 5 months.
2. We are at present finding out the similarities and monitoring the differences and uniqueness of the product.
3. Based on the prior art search, the next level of patent process such as novelty, utility of the product will be discussed.
4. In preliminary prototype we used coin vibrator. Currently we are in search of an effective vibratory as a replacement and necessary changes in design will be done accordingly.
5. We are also looking for waterproof materials that provide resistance to UV radiation and stress cracking.
6. The work on customer discovery is in progress.
7. We are in contact with wholesale dealers on regular bases for raw material procurement.



T2 – PT Cruisers

Title of the invention – Spasticity Grader

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Problem Statement:

1. The limitation of manual muscle testing arise from subjective nature of the testing. Because the tester must provide the external resistance, this force may be variable between testers. Measuring spasticity scales such as modified Ashworth scale and Modified Tardieu scale (it may differ from person to person depending upon their experience) were available, but we don't have any mechanical equipment which measures spasticity.
2. Many methods for spasticity measurement have been developed; they can be separated into two groups as the clinical evaluation methods and quantitative evaluation methods. The clinical evaluation of spasticity begins with the detailed history and physical examination. In this phase, the duration, frequency and severity of spasticity, the quality of sleep, the drugs taken, additional diseases, which muscle groups are affected, if the spasticity is useful or harmful for the patient, facilitating factors and whether there is a pain or not are investigated. Afterwards, physical examination begins. In this phase, the existence and frequency of flexor or extensor spasms are investigated and recorded, the posture analysis is made. The quantitative evaluation method of spasticity are significant both for the treatment plan and for the measurement of response to treatment. However, this method is quite difficult and it has a tendency to depend on the person making the measurement. Besides, the fact that spasticity may differ from day to day, and even within the same day, makes the measurement harder.
3. Although spasticity is a well-known disorder, the measurement and evaluation processes are still problematic. We don't have a particular objective tool for measuring the spasticity because objective standards that do not vary from observer to observer for example thermometer is a device that measures and gives accurate temperature gradient , conversely, a subjective point of view is one that depends on something innate and unique to the observer, not verifiable by any outside standard
4. Spasticity should be identified accurately and treat properly because it can be worsen the symptoms like , pain, muscle tightness/ increased muscle tone, contractures, abnormal posture, difficulty in care and hygiene .
We are working on the Prototype and trying to conclude all or nearly all of the functionality of the final product and planning to develop new features so we can hit the ground running

Solution Provided:

- We are here to introduce a mechanical instrument to measure spastic group of muscles because; Manual muscle testing is used in rehabilitation and recovery to evaluate contractile units, including muscles and tendons, and their ability to generate forces. When used as part of rehabilitation, muscle testing is an important evaluative tool to assess impairments and deficits in muscle performance. We're trying to reduce effort of the therapist giving accurate grades by using this mechanical device and we have come out with an idea for solving this issue which is universally accepted.

Progress:

- We did prior art search, in this case we don't find any similar patents. So we are working to build the project furthermore

T3 – Reformist: Title – Anadyne Knee Brace

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Problem Statement:

- The use of tablets, syrup undergoes first pass metabolism where the desired effect has been reduced and the it takes time to attain the drugs purpose and the allopathy drugs available in the market also many has side effect says the studies.
- The oil for arthritis could cause discomfort and stickiness where some report as very short duration of effect.

Solution: We have designed the brace with skin friendly material and size adjustable which will decrease the skin irritation and feels light over the skin. Since the patch is skin friendly and easy usable you can wear it anywhere at any time due to its water resistant feature The most important and novel feature of our brace is attaching a innovation formulated drug delivery system in patch form which comes in direct contact with skin and produces the pain relieving effect directly on the affected area. The two combinations of patch and brace is that the potency of drugs over the cause can be adjusted with the brace. The formulated drugs are herbal product which has minimal side effect and long term curable result. We have also designed our product in such way that the duration of effect will be maintained for certain period of time where you can escape from continues use of medications.

Progress: We have made few survey over the market available product and customer review who use knee brace. Based on the statistical review people are expecting a complete product with comfort, easy use and medicated brace for immediate relief.

We have also worked on custom discovery by collecting their contact details and forming a healthy growing community. Our trial and error of our process has lead us to many innovation over our product such delivery system of our drugs and design pattern of our brace which gives more benefit and minimizes the problems.

Current status:

- We have been working on the design of our patch to include more novelty. As a result we have included more features on the delivery system of our patch.
- We are also working on many trails for prolong sustainability of our patch and skin friendly Brace. We have also come up with new ideas and experimenting on it.
- Simultaneously we are also working on customer discovery by building our community through social media and we have reached 100 followers on Instagram



T4 – Physio Triggers

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Problem Statement:

Tremor is the most common movement disorder. There are so many causes for tremor (Parkinson, multiple sclerosis, stroke etc). Parkinson is the main cause which is not curable, therefore treatment is focused to relieve the symptoms to increase the quality of life. Shaky hands affects functional activities, because of that non functional hands people facing mental issues like low self esteem, insecurity and dependency. There is limited treatment and one half of the patient treatments fails to produce response. Medications consumed for tremor having side effects and duration of drug lasts for few hours. Other than drug, surgical option is very expensive.

Solution:

A-tremor is a non invasive and which does not lead to any side effect. It's a manual, textile based, passive orthosis with an integrated , task adjustable , air filled structure which can be easily inflated and deflated on demand for a certain daily activity. It has an automated technology so need for manual assistance is needed. The orthosis is a light weight and unobtrusive assistive technology, which suppresses involuntary movements and shows high wearability properties with the potential to be comfortable. Skin friendly textile and easy donning and doffing and user adjustability for specific tasks. Sensor in the orthosis detect the tremor and the glove works in pneumatic technology which inflates automatically and suppress the tremor.

Progress:

A-Tremor started from an idea to control tremor. We completed the customer discovery, market research, niched down the ideal clients, found direct and indirect competitors and target customer segments. Found better places for marketing and worked on the various mechanism to suppress tremor. Now we are working on making the prototype to validate the A-tremor.

Current status:

Working on the prototype: finding the better combination of textile to provide ultimate skin friendly to users and also light weight battery.



T5 – Creative Tech Gaints

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Problem Statement:

Fall risk is one of the most social issue in geriatric population due to lack of balance. Patient above 60years of age tend to fall and acquire disabilities when physical fitness levels are low.

Pain points which needs to be solved

- Fall Risk Prevention.
- Balance Training.
- Posture and Gait

Proposed Solution

- To determine the level of balance system, functional strength and mental focus.
- To help the customer for regular monitoring and assessment of patients balance system.
- To assess fall risk of geriatric population
- To collect the input on balance functions at regular intervals.
- To monitor and assess the balance system.
- To suggest rehab protocol and diagnose the patient as per the assessment report.
- To assess the patient as risk of fall.
- To create awareness on the fall prevention exercises.
- Wide range of safety measures are included. Balance maintenance along with posture rehabilitation.

Progress: We had a idea of creating new history in our field by gods grace to create something new in our field and we got an idea to create a new instrument called balance assessor, which is used mainly to focus on improving people balance and provide a new life . By June end we were clear in developing a new instrument using wobble board ,which is a key thing used in our field to improve balance. We searched for a good platform to prove our knowledge then we got in this good platform in the month of September and October. We wholesomely different our direct and indirect competitor, by November we created complete procedure and brand new features which can provide a new life and help people to be on there own without others. In the end of January we started customer discovery program ,user engagement process ,created our own webpage and logos .Now we are at the stage of getting prototype ready.

Current status: The Patent process we started was mainly focused on wobble board (used instruments to check balance)and other things used in improving balance. Also searched for patent related with our features so that our product get approved in a more efficient way. Now we modified some things in patent.

T6 – Tech Ergo

Title - MULTIPURPOSE CLEANING ROBOT

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Problem Statement: Despite having toilet cleaners to clean public toilets (e.g. food centres, coffee shops, bus terminals etc.) the level of cleanliness is often impaired by improper toilet usage by users (e.g. urinating on floor). Presently, toilet cleaners are being deployed and toilets are being cleaned according to a deployment plan and cleaning programme respectively. Instead of deploying manpower and cleaning toilets based on fixed plan and programme, a proposed solution is required to facilitate a self-toilet cleaning system that can be activated upon reaching a number of uses and/ or scheduled basis.

Solution Provided: Proposed solution is required to alert the facilities maintenance contractor immediately when breakdowns are detected and, thus, reduce toilet downtime. The autonomous self-cleaning system that is provided should have the following characteristics (not exhaustive):- (a) facilitate ease of washing, cleaning and drying toilets (b) remove odour (c) water-saving (d) reduce manpower required for toilet cleaning (e) ease of system maintenance and parts replacement (if faulty) End users of the proposed solution include public toilet owners, managing agents, cleaning contractors.

There were some limitations to the system as listed below: -

- The smell sensor triggered an SMS to alert the cleaner whenever someone just passed motion, i.e. when the toilet was the smelliest. It resulted in the alarm being triggered and activated the cleaner for that instance instead of overall toilet smell which lingers after the foul air has cleared.
- The smell sensors did not work effectively in toilets where there were oscillating fans or exhaust fans in operation.
- The manual call points were easily abused by users.
- There were miscounts of visitor count.
- The system could not generate analytical report (with findings) and did not allow users to export the data for analysis.

Progress:

- Completed the Custom discovery lab
- Received search report for patterned apply
- Updated our product by adding extra features for saveing water

Current status: Working towards raw material and Research and development



T7 – Pharma Brigade: Title - MULTIPURPOSE CLEANING ROBOT

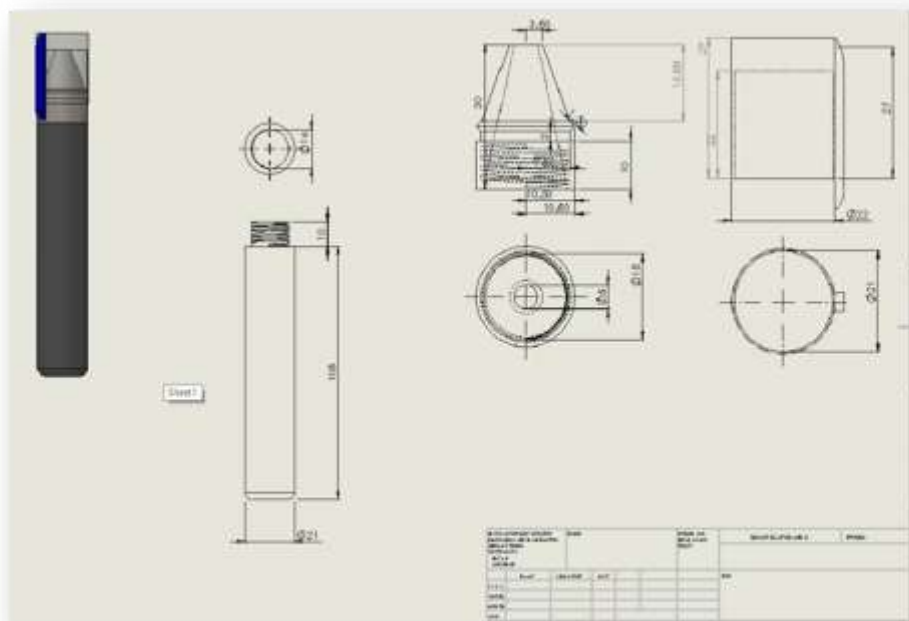
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Problem Statement: Liquid dosage forms are a convenient and palatable means of administering medication to patient, especially, children and elderly. The convenience of being easily swallowed, tailorable dose and pleasing flavor makes them a preferred choice of medication for the physicians to advocate for the children and toddlers. Despite its advantages, measurement errors and missing the doses are often common with liquid medications. Patients and their caregivers do not prefer to carry the bottle of medication when they go out, leading to non-adherence to clinical advice and patient noncompliance. More often than not, prescriptions for toddlers comprise of multiple liquid medications. Hence the mothers of toddlers have no other choice than carrying these liquid medications in their bottles, even during their short travel or visits. Moreover, liquid dosage forms are a choice of the patients when it comes to few ailments such as cough and dyspepsia due to their effective and rapid action over tablets. Working adults and grownups preferably miss a dose of these cough medications or antacids than carrying a bottle of medication to their work place.

Solution Provided: The proposed solution for the identified problem is to design a container that compatible with all liquid dosage forms that can be easily carried by the patient and the mothers of toddlers during travel without any difficulty. The container enables the patient to carry 2 doses at a time. The doses are perfectly packed in a container that ensures no leakage of liquid medication or entry of foreign particles. The container shall be made of material that is compatible with all liquid dosage medications. The container is designed in the form of a unit dose cartridge, which comprise of four parts. Cartridge, mouthpiece, cap and a detachable compartment to hold tablets. The cartridge can hold liquid medication up to 15ml with the graduated measurement on the outer surface. The cap that covers the mouth piece ensures perfect fit preventing leakage of the medications. It also contains a pen clip to hold on to the pocket conveniently. The dimension and shape of the container are designed in the way that it is comfortable to place the cartridge in pockets or hand purse during travel. The cartridge is washable and reusable multiple times. This unit dose liquid cartridge could be a potential solution to carry the medication conventionally and prevent missing the doses in the workplace or outings.

Progress: In prior to designing the product, the customer discovery process was undertaken to find the initial targeted customer of the product. 50 such leads were identified using lead magnets through social media. Pain point validation and product research was undertaken to identify the customer needs and expectation in relation to the problem identified. The design of the Medon – Go was perceived and an AUTOCAD blue print of the same is made and more improvisations are in progress to adequately serve a better quality product.

Current status: The current work on the project is focused on three aspects comprising of preparation of the preliminary Commercialization Analysis Report and relevance mapping of our product. The main purpose of this step work is to differentiate the design of the product from the other marketed products. The second aspect being value addition or improvisation on the design of the product with the inclusion of mote technicalities. The third aspect of work is to develop a prototype using bioresins by 3D printing technology.



T8 – Aspiring Amigos: Title - DIGITALIZED HOLTER WATCH

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Problem Statement: Normal holter devices are wired connection machines which makes the users slightly uncomfortable.it cannot be weared more than 48hours as the data of the recordings can be saved only for 48hours.ecg recordings cannot be assessed immediately.patients should stay away from electrical blankets, metal detectors, magnets,large power lines, em radiations,skin irritation around thr electrodes.the monitors shouldn't get wet

Solution Provided: Wireless connection helps in proper ecg recording

- ECG recording can be extended more than 8days.
- ECG recording can be assessed immediately.
- It can be user friendly to wear it.
- One time investment

Progress: We started our project at the mid of September. The next month we registered for the project, we gave a pitch presentation on our ideas about the project and got selected for that. We marched ahead to the next level where we gained knowledge about many things like Entrepreneurship, Customer discovery, Lean Canvas and Lead Magnets through CUSTOMER DISCOVERY LAB. For lead magnets we started collecting Datas and surveys of Hospitals, working doctors and equipment used for diagnosing and treatment of disorders and we did prior search for our patenting.

Current status: We are currently working on making the prototype of our product and also, we are working on developing the software through which our product runs. We are also focusing on improving the design of our product and we are trying to make our product more unique

T9 – Dynamic Drillers: Title - Menstrual Waste Management

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Problem Statement: A woman menstruates between puberty and menopause for an estimated 459 cycles during her lifetime. Women have specific sanitation needs, preferences, access requirements, and utilization patterns and experiences. With rapid urbanization, rising incomes, expanded product availability and distribution, and increased mobility, the use of disposable sanitary napkins is increasing rapidly.

Appropriate disposal of used menstrual material is still lacking in many countries of the world. Women and girls face constraints during menstruation that determines how and where they dispose of menstrual absorbents. Women do not like to keep it in a washroom waste-bin as it leads to embarrassing visuals and bad odour. Sometimes used napkins are packed in a plastic bag and dropped in dustbins. The most common way is to flush it into the drain. Both the above way of disposing sanitary napkins creates problems. When these are flushed into the drains, it results in clogging of the drains, and by throwing them in dustbins we create health related problems due to hazardous contents in the used sanitary napkin. Nowadays incinerators are used in various places but the cost is high and it is not portable.

Hence we need a product for disposing the sanitary product that should be portable form with affordable cost.

Solution Provided: Disposing the sanitary product is a stressful thing to most of the women. Used sanitary pads, that are thrown to the environment causes health issues to the people who are handling the garbage cleaning and also pollute the environment. Hence we planned to make a product that could disinfect the used sanitary product before disposing to environment.

It is a Biodegradable disinfectant bag coated with disinfectant materials, it can be used to dispose sanitary product. By this way we can reduce the toxicity of the menstrual absorbent before it reaching the environment. Thereby we can prevent the pollution. Disinfectant disposable sanitary bags are best for hygienic disposal of menstrual waste materials. The disinfectant disposal bag has been designed to fit conveniently in purse for quick & easy handling.

Progress: The first step we created online feedback from different age group women about their requirement for the menstrual waste management. Based on that, we presented in the project and got selected.

Before starting the work we learned much information from expert people, to know customer demand and their requirement before formulating the product. So we

spent more time to learn about Entrepreneurship, Customer discovery and Lean Canvas. It helped as to find out the actual customers.

We learned the importance of patent and how one can protect his invention. Now we got a clear idea our prototype.

Current status:

- We are currently working on making the prototype of our product.
- Working on patent filing and designing the product
- Working on time plan and Budget plan
- Preparing chemicals & instrument quotation



T10 – Lead Tech: Title - Dock Station (Multi-Functional Docking Station)

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Problem Statement: Imagine you are a travelling person used to travel a lot you have to make sure of your gadgets power so we have to make sure of chargers. You're travelling in Metropolitan city to urban zoned using public transport. In that way mode of transport, you have the DC current supply far from your seat in this scenario you need to be near to DC supply board to avoiding thefting to. These days we are carrying many electronic gadgets with us. So, a junction box is the must carry product in the list. It differs in size the biggest disadvantage of the junction box is they aren't as durable and it is made for solving single purpose. For travelers it would be difficult to charge multiple devices at same time in small sized area. They need to carry a junction which occupies more space which is not compactable one. The wire of the existing junction box will be long at occupies the total space from Plug to box place and disturbs the whole path.

Solution Provided : While traveling we have to charge multiple devices at a single time and to avoid standing near the DC supply board the thin quality wire is designed. So that we can carry a junction box which is durable. For hostellers it would be very easy to charge the multiple devices at a same time. The Dock Station has designed such way so the wire of next charging devices won't be interrupted. We are building a product which can be an upgradation of the traditional junction box. There will be a specially designed circuit inside the compact junction box, it can store some energy within it and it can be used even the product is not connected to the power source gives power supply for couple of devices till sustaining level without the power and has its own USB ports to avoid the spacing of the adapter. The size of this Dock Station is Very compactable and less in weight. The product also has a 3528 SMD LED chip at bottom of the Junction box which act as Emergency lamp.

Progress: We have started from customer identification via CUSTOMER DISCOVER LAB from the month of January 2021. We are building our landing page and creating accounts in various social media platforms. We did the Customer and Product Validation, we attracted leads for our product in possible channels. as a result, we can identify the potential customer for our Product. We are in process of patenting our product did the prior search. Currently we are checking the available the products which competitive to our product and validating the specifications of the existing product to learn real time problem solving

Current status: Currently we are designing 3D & 2D representation of our product and in process of building the Minimum Viable product for testing

T11 – Being Something: Title - ALL IN ONE MEDICINE MAKER

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Problem Statement: Honey is one of the Major Ingredient in Most Ayurvedic Products, Making it Difficult to Mix with Other Ingredients. Thermal composition on honey leads to an increase in HMF (hydroxymethylfurfural) toxic chemical. This problem statement is initiated by MHRD in SIH 2020. Instantaneous medicine is not possible where many ayurvedic medicines are fit only for immediate consumption. There are conditions where multiple people are to be addressed where the conventional techniques are not possible for bulk quantity.

Solution Provided: An automated machine to prepare the ayurvedic medicine using a pressurized chamber in a vacuum condition where the viscosity of the ingredients is depleted and the proper mixing is achieved. A customized solution with a retrofit for all ayurvedic medicines. It follows none thermal operation a solution without any contribution to increasing in HMF and its adjustable quantity based on requirements.

Progress: We were brainstorming and we have finalized the idea and we talked with potential customers we have created the design now and we are verifying the design. We gone through the cycle upto this and we have completed these three and the rest is we are yet to go with product development then testing and reaching the potential customers.

Current status: The initial development process is started from the microcontroller development. Product development based on the design made over the cad.



T12 – Dentistry Toothpaste: Title - TOOTHPASTE ASSISTING TOBACCO USERS

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Problem Statement: According to WHO and GATS 2017 , the total amount of adult tobacco consumers in India is nearly 267 million (29% of all adults). Usage of tobacco products, in both smoking and chewable forms leads to number of harmful effects on overall health, especially in the oral cavity. The oral harmful effects of tobacco include 50% more risk of gum problems, tooth discoloration and stains, painful ulcers, bad breathe, inflammation- In worst case can also lead to oral cancers. Regular toothpastes available in the market does not provide overall action against the specific set of oral problems faced by tobacco users. Some of them even cause oral irritation due to excessive foaming agent. Even the feeble alternatives aimed towards tobacco users does not claim overall action against oral effects of tobacco and concentrate only on teeth whitening. There isn't an effective toothpaste available for tobacco users that assist with all their oral problems.

Solution Provided: Our project is to formulate an everyday toothpaste that counteract the oral manifestations of tobacco, suitable for common usage. This toothpaste provides natural stains removal, protection against gum problems, anti inflammatory and anti microbial action, chemo preventive and breathe freshening. It will contain non-irritating foaming formulation. It contain Indian indigenous components- therefore can be manufactured at low cost. And can be available for the consumers at same or lower price than regular versatile toothpaste, unlike other only teeth whitening toothpastes costing approximately five times the regular

toothpaste. It is also a highly affordable solution for costly in office dental teeth whitening. The group of ingredients used are especially effective against oral problems specifically faced by tobacco users.

Progress: We worked through Customer Discovery lab from the month of January 2021 for the process of customer identification. We validated the customer pain point and the solution provided by our product. We started working on landing page for our product website, attracted leads for the product by working on lead magnets. We have created and currently managing social media handles regarding tobacco awareness. Conducted in depth search regarding necessary screening test and machinery requirement for the toothpaste production. We are in the process of acquiring patent for our product and did the prior on search for the same.

Current status: Currently researching on procuring raw materials for the production of toothpaste. Working on patent filing process. Also ideating various marketing ways.

T13 – Hope 11: Title - Honeybee – The Savior

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Problem Statement: According to the statistics of 2016-2018, India records nearly 9 lakhs missing cases, with majority of missing women. Our society and environment lost its sense of security and pry on the weaker ones. People often end up with accidents which causes unintentional injuries, long term disabilities and sometimes fatal as well. Mostly women are vulnerable to various brutality of the society, which can be caused at any event or place. They fail to protect themselves and immediate helps are rare. All the securities provided in our society are not sufficient to protect every citizen in every aspect of their lives. The insufficient securities and lack of timely help, leads to unbearable consequences.

The freedom, safety and security of every individual are at the stake of their lives.

Solution Provided: Honeybee is the bug-like device, developed to ensure the safety of the women and common people, in case of emergencies. In case of poor signal reception or no signal scenario, the bee flies in the programmed pattern until it gets the signal reception and send the SOS signal.

The bee activates only when the switch is pressed and has solar cell for backup power in addition to the primary battery. It works on certain values, such as:

- To ensure the safety of women.
- To uplift the security of our arena.
- To bestow the freedom in the hands of our female society.
- To enable the remote area interactions.
- To elevate the utilization of technologies.

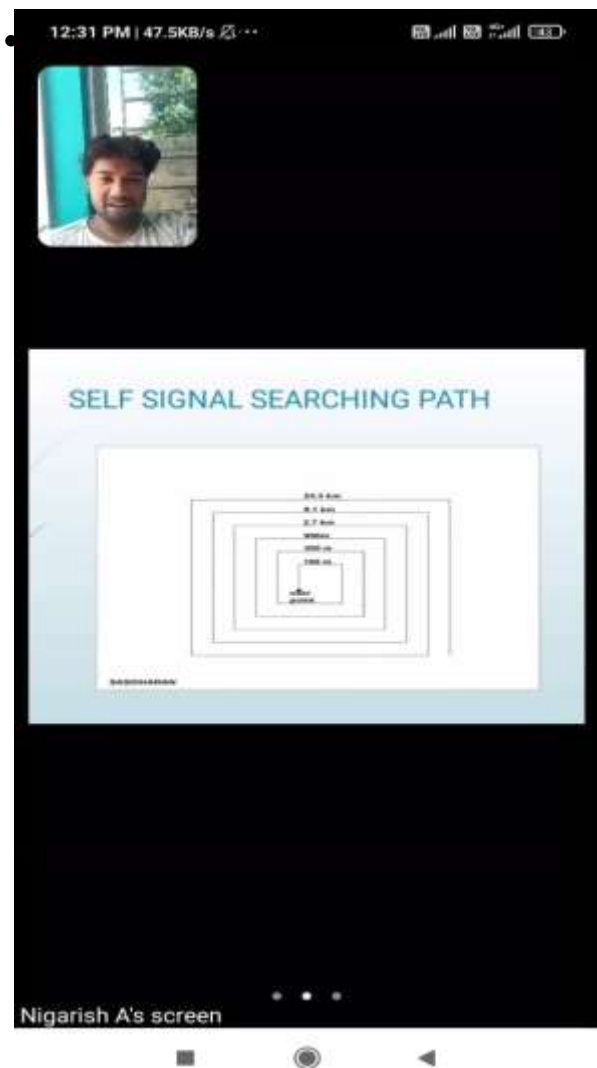
- To utilize the significance of women.
- To provide promptly help.
- To make the women feel safe & secure.
- To notify the responsibilities of the man and provide them a way to secure their women (mother, sister, lover, wife, daughter, friend).

Progress: The progress of the development of the Honeybee device involves:

- Reading and Research
- Entrepreneurial journal basics
- Research on objectives and implementation
- Business model canvas creation
- User Management objectives
- Articulate value proposition
- Canva Pitch Presentation

Current status: The exact status of the project development involves:

- Completed Refining Ideas.
- Planned and Designed the Blue Print.
- Prototyping is in progress.
- Researching on efficient usage of electronic components for real time implementations.



T14 – Reinflex: Title - Decentralized Desktop as a Service

Sr. No	Name	Faculty	E Mail ID	Mobile Number
	Mentor	ROBOTICS		
1	Mr. Mohamed Rizwan		hmdrizwan46@gmail.com	7418274974
	Incubatees			
2	Syed Suhel M		syedsuhel2624@gmail.com	9941397323
3	Vikas S		vikas9952285560@gmail.com	9952285560
4	Vishnu E		3.14zenito@gmail.com	9787005879

Problem Statement: Computing has become an essential basic need like food, education, healthcare. We acquire them as property or an asset with a huge investment(Avg cost of 61,031₹) since the specification of a computer is directly proportional to its price. However, avg lifespan of a computer is 3 - 5 years to get outdated, where the user spends his money on high capacity hardware even though it is not about to run on its full capacity during the whole lifespan and along with numerous downtimes. Users can increase the power & capacity of a computer only by replacing existing hardware through spending additional money. The operating system locks users which no choices in the application, where they can use only os specific applications and couldn't run other OS's exclusive applications. The current assets-based model of computing requires large investment which is causing severe pain to the user-base like Students -designers, developers, engineers & a similar set of people with little income.

Solution Provided The idea is to convert personal computing from an asset-based model to a utility. Utility computing is a consumption-based pricing model in which the customer pays according to the resources used.

It is achieved by an application that allows users' (lower-spec)local computers / thin-client / zero-client computers to vertically scale & increase computation power like cloud instance. The user's system is connected to a decentralized network of distributed computer nodes that backs up the users' system for computing power. These nodes share the workload & parallel process it in a decentralized.

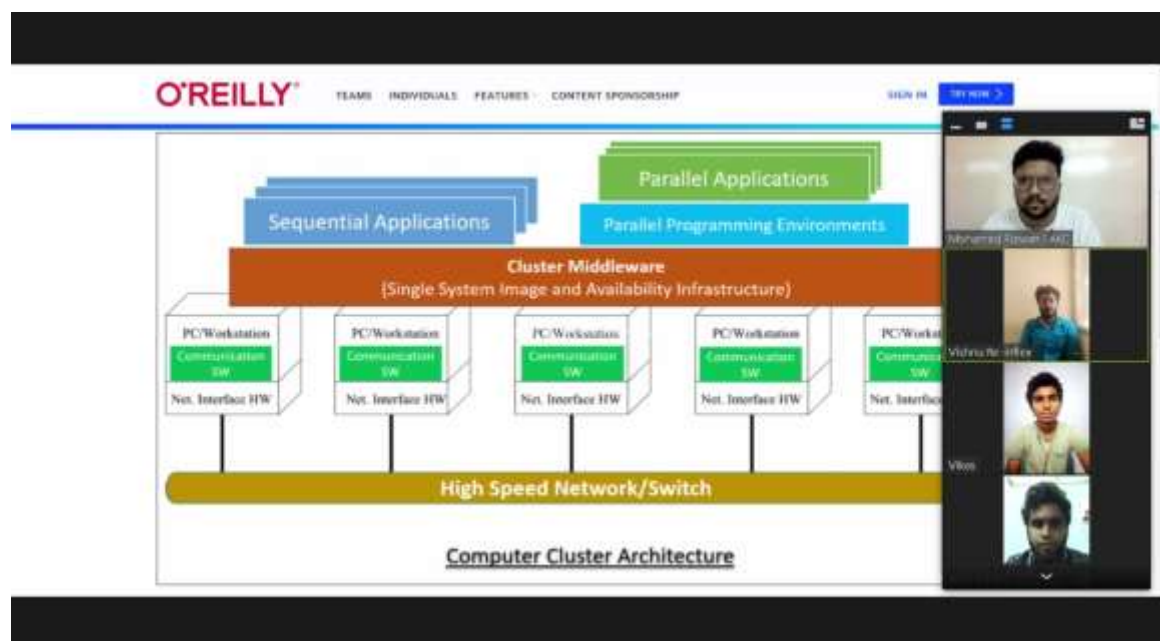
This allows the users to increase the computing capacity on-demand & very flexibly without changing local hardware. Instead of a lifetime subscribed high power computer, users get a pay-per-use computer and pays for only what they use.

The nodes do the parallel processing in dynamic virtual machines, where the operating system is initialized based on the end-user's demand(Linux/macOS/Windows). This breaks the constrain of OS-specific limitations (.deb/.app/.exe) & allows users to use any kind of exclusive apps on their computer.

Progress Phase 1: We have worked on a healthcare-based B2B customer segment with different problem statements We have created a lean canvas. we did market research & pain point validation. Through the process, we defined our market size & needs. As a result, we found this product is too early for this market & we are unable to proceed further with this customer segment.

Phase 2: we started with a new targeted customer segment (B2C). We did market research to identify a pain point. After validating the problem, we did a survey for understanding user needs & behavior.

Current status: We are collecting data through a survey to narrow down users' needs & initial requirements & figure out our minimum viable product. We are building a site & social media presence along with the survey. We are working on basic modules & functionalities which are the core components for the prototype.



T15 – DexIt Lab: Title – Foot Water Curtain

S. No	Name	Faculty	E Mail ID	Mobile Number
	Mentor	Biotechnology		
1	Dr. J. Arun Kumar		arunkumar.j@drmgrdu.ac.in	6379554847
	Incubatees			
2	Booja. C. S		boojacs@gmail.com	9080911868

Problem Statement: We Indians have a custom of washing legs before getting into home, till date witnessed this commonly in our country. Not just as a tradition it also helps in maintaining the hygiene standards. Nowadays, we cannot be able to follow the above practice due to lack of space and facility in our modern homes, instead we have fancy Jute door mats to welcome our guests to our house. These dry mats do not remove dirt and microbes mostly. Our recommendation is to wash feet before entering the house itself, but for those for whom this isn't an option, we enter our bathroom as soon as entering home, During the above process we also contaminating the house with microbes. Washing Feet Is Equally Important before entering the premises to Keep COVID-19 At Bay in the current pandemic situation. The importance of creating awareness of hand washing is not given for leg washing. From this problem statement I believe our solution and prototype can bring back our old tradition and hygiene practices.

Solution Provided: Wet Water Mat is an automatic leg washing prototype with cut off sensor. This water mat drastically reduces the water when compare to regular water curtain used in temples and also saves electricity bill. We can provide customized solutions for religious places, Research facilities, Gated Communities and Individual houses. Water mat circulation system with disinfectant and purifier. For less power consumption or electricity bill, solar panels can be included based on customer needs. Our proposed solution consists of silent motors for indoor usage.

Progress: The following progress was carried out.

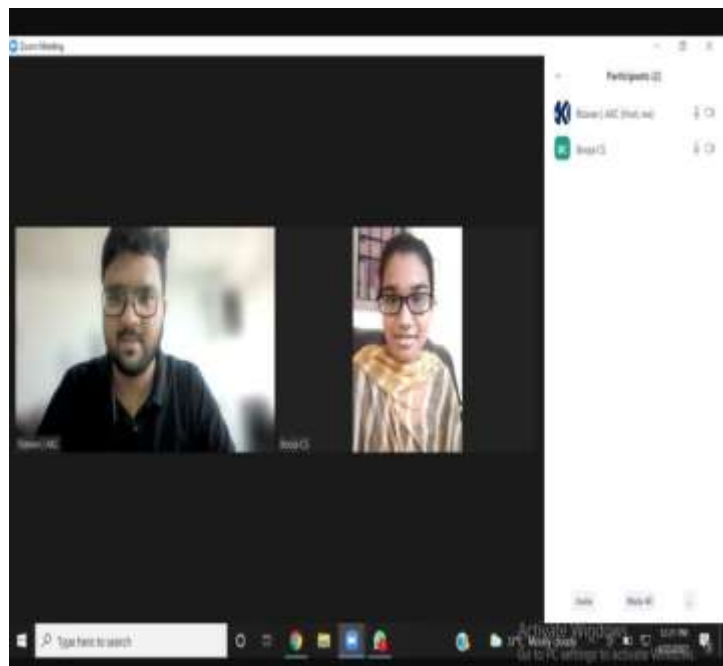
- Customer validation is done for our product through
 - Surveys
 - Value Proposition
 - Business Plan for customer segments
 - Validated the assumption and hypothesis of the problem of the customer
 - Prior art search carried out and made appropriate changes
 - Initial bill of materials needed were analyzed.

Current status: The current status of our Foot Water Mat is designing and choosing appropriate materials for fabrication.

Sensors selected

- Proximity Sensors
- Motors
- Filters
- Role – Fabric

CAD design of our water mat is in process.



T16 – Terrific Trio: Title – Bed for Bedsore

Sr. No	Name of Mentor & Incubatees	Faculty	E Mail ID	Mobile Number
1	Dr. C. Ishwarya vardhini		ishphysio@gmail.com	6385083888
2	Jaya bharathi. C		jayabharathicphysio@gmail.com	9791970079
3	Keerthiga		Keerthigaphysio@gmail.com	9444187630
4	Thiruvarangan		bptthiruvarangan@gmail.com	8072803440

Problem Statement: Pressure sores or bed sores are one of the major complications following prolonged immobilization Need of ICU trained nurses by patient's side Increases ICU nurse- patient ratio leading to patients dropout from hospitals Increases workload for ICU nurses resulting in absenteeism

Solution: The ICU nurses need not to be present beside the patient for positioning. The ICU nurses – patient ratio enhanced leading to quality in health care. Workload on ICU nurses will be reduced. Rechargeable battery, Senses abnormal pressure, Inbuilt battery – pressure and position change.

Patients being bed ridden for prolonged time will cause bed sores and other complications to prevent them the care takers should always stay beside the patient in order to change their positions frequently. Sometimes they might forget to change the position of the patient frequently and even if there is a tilting bed they works under remote control so still care takers have to maintain the time and change the position of the patient but in our product the bed will sense the abnormal pressure & temperature over any part of the body while they are lying. following this the bed will be tilted to the right or left & their by the occurrence of the pressure sores is prevented. The position will maintain for some time & bed will retain back to its original position. The bed will have an inbuilt monitor which will show the area prone for pressure & numbers of times the position has been changed in the bed another advantage of this bed is that it can function even when there is no power & it also has rechargeable battery mode which makes it efficient during times of shut down.

Process: Customer discovery process and early adopters survey was conducted to validate the problem statement. Prior art search done.

Current status: Currently we are working on designing aspect and networking with hospitals and medtech companies



T17 – Makers: Title – Thermal alarm for cooking space

S. No	Name	Faculty	E Mail ID	Mobile Number
	Mentor	Hotel Management		
1	Kasthurirangan. B		kasthurirangan.hmct@drmgrdu.ac.in	913360382397
	Incubatees			
2	Rewti Ranjan		rewtiranjanhmct2020@gmail.com	09135543421
3	Sanaya sinha		sanayasinha8227@gmail.com	8227972782

Problem Statement: We have addressed the problem of updating records and accuracy of data in day to day practical usage of thermometer, although data can be Manually captured our new invention would help chefs to improve efficiency as the data capturing procedures is digital.

Solution: We are trying to replace an analog probe thermometer with a Bluetooth enabled wireless data capturing cooking thermometer. We are basically converting a digital thermometer into a Bluetooth accessible device with a data capturing ability. If scaled up, there is a great demand for this type of product in Catering units such as Airline catering, Cruise ships, Processing Industries of small scales.

Progress: Customer discovery process and initial survey done. Sensor identified for the usage.

Current work: Working on design and testing parameters. Scale up possibilities were also analyzed

T18 – Cleaning Gum: Title – Tooth Cleaning Gum

Sr. No	Name	Faculty	E Mail	Mobile Number
	Mentor			
1	Dr. Ranjani . T		ranjinit@gmail.com	9150857877
	Incubatees			
2	R. Kanishka		kanishkaramesh29@gmail.com	7550251028
3	S. S. Afrah Sadiqa		sadiqaafrah@gmail.com	9150857877

Problem Statement: No proper cleaning methodologies for travelers. Unhygienic cleaning process using water collected from distant places

Solution: This isn't a replacement of brushing but it surely is an alternative or an emergency method of cleaning. For travelers, a tooth wiping tissue and a gum is all enough for the recommended time period.

Individuals with medical history can use these gums but people with allergic reactions must check the ingredients list before consuming. As these gel filled gums are made of edible toothpaste, it causes no harm to the mother and the fetus. The gel is made up of no harsh chemicals which affects the body.

Progress: Customer discovery labs – Problem validation, B plan, Value proposition canvas fit and back of the envelope calculation.

Current work: Working on formulation of cleaning gum and approvals

T19 – Mosquito Trap: Title – Mosquito Trap machine

Sr. No	Name	Faculty	E Mail ID	Mobile Number
	Mentor	AKC		
1	Er Mohamed Rizwan		Rizwan.akc@drmgrdu.ac.in	7418274974
	Incubatees			
2	Ms M Priyadharshini		priyadbiotech@gmail.com	9840720440

Problem Statement: At worst, mosquitoes transmit a range potentially fatal diseases. In India, the most prominent diseases spread by mosquitoes are malaria, dengue and Chikungunya as well as Japanese B encephalitis. The risk of mosquito-borne diseases is especially high in humid areas.

The risk of mosquito-borne diseases is especially high in humid areas. In the more arid regions of India, mosquito infestation commonly peaks during and after the annual monsoon rainfalls. In the more tropic and humid regions, the peak of mosquito activity normally falls into the summers when high temperatures fasten the reproductive cycle of mosquitoes.

Solution: Bioagents is a mosquito trap used by mosquito professionals worldwide. Mimics convection currents created by a human body employs attractive visual cues releases artificial skin emanations through a large surface area can be used without CO₂ to specifically capture selected mosquito species is an excellent general mosquito trap when used with CO₂ Used in combination with the Lure, a dispenser which releases a combination of non-toxic substances that are also found on human skin (ammonia, lactic acid, and caproic acid), our prototype is especially attractive for the yellow fever (or dengue) mosquito, *Aedes (Stegomyia) aegypti*, the Asian tiger mosquito, *Aedes (Stegomyia) albopictus*, the southern house mosquito, *Culex quinquefasciatus*, and selected other species.

The trap is essentially a collapsible, fabric container with a white lid with holes covering its opening. In the middle of the gauze cover, air is sucked into the trap through a black catch pipe by an electrical fan, drawing approaching mosquitoes into a catch bag (yellow arrows). The air then exits the trap through the white gauze, generating ascending currents (red arrows). These are similar to convection currents produced by a human host, both in its direction, its geometrical structure, and, due to the addition of the Lure, also in its chemical composition. Interesting for professional researchers and mosquito specialists: the prototype is large enough to incorporate additional attractants such as fragrant substances, small living animals, worn clothing, animal hairs, light and heat sources, etc. This makes the trap a very versatile tool for both monitoring and research.

T20 – NESEM: Title – Network Enabled Smart Energy Meters

Sr. No	Name	Faculty	E Mail ID	Mobile Number
	Mentor	ECE		
1	Dr. L. Ramesh		deanevents@drmgrdu.ac.in	9940202763
	Incubatees			
2	Ezhilarasi. P		ezhilavarasihg@gmail.com	9442118098
	Devi		Deviannadurai.drmgr@gmail.com	9941993474

Problem Statement: Smart meter (SM) plays a vital role in successful establishment of smart grid because, it transfers energy-relevant data between the utility provider and end-users through bidirectional communication at frequent time intervals. All developed countries rapidly replace the existing digital meter with a smart energy meter in the ratio of 1:1 end-user and SM ratio. But for overpopulated countries like India, it is tough to change all end-users towards SEM because of its cost and India's different economic strata. Compared to other countries, India is still in the early stage of smart meter deployment, and many problems will arise from end-user while accepting such costly meters. To achieve effective real-time tracking of residential consumption we need to connect all consumer's meters to the grid without blind area. So Real-time monitoring of Residential energy consumption by smart meter with lower deployment cost is consider as problem statement.

Solution Provided This proposed model of NESEM collects data from a group of houses having existing digital meters and processing it for smart metering purposes. It will also perform local data processing to reduce the data traffic in the communication network. This NESEM will have all existing smart energy meters functionalities like remote monitoring, controlling, and alerting consumers regarding consumption.

The additional component added to the household can upgrade the present digital energy meter to a smart meter and it can be connected to the proposed NESEM technique resulting in cost reduction. NESEM incorporates Artificial Intelligent algorithms to implement the decentralized data processing.

In that cost for installing an SEM covering 1000 feeders with 1 million consumers is INR 4 billion (for a single SEM INR 4,000). Employing Proposed NESEM technology, the cost can be reduced in the range of INR 1.5 to 2 billion (which is 40 to 50 % of existing SM cost) for 1000 feeders with 1 million consumers when compared with the existing SM technology.

5. Provide a minimum two page case-let each on the two best student projects) from the above list.

Startup - Lead Tech LLP
Title - Dock Station (Multi-Functional Docking Station)

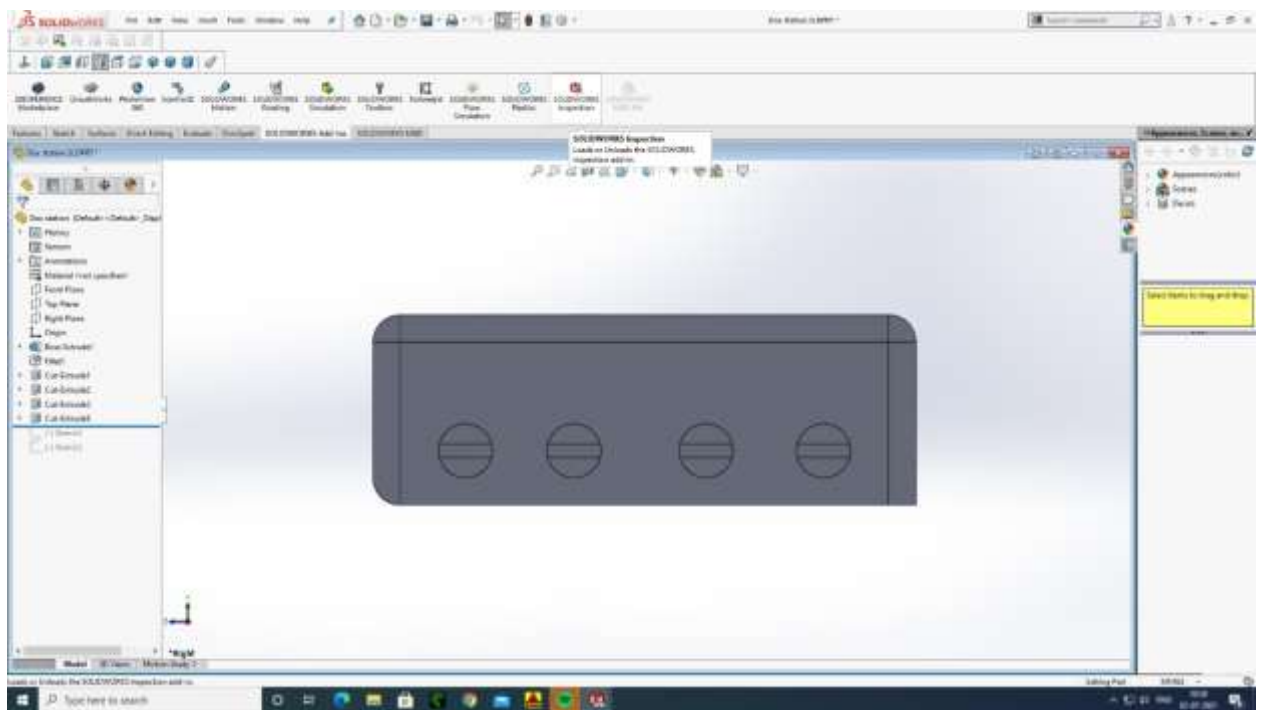
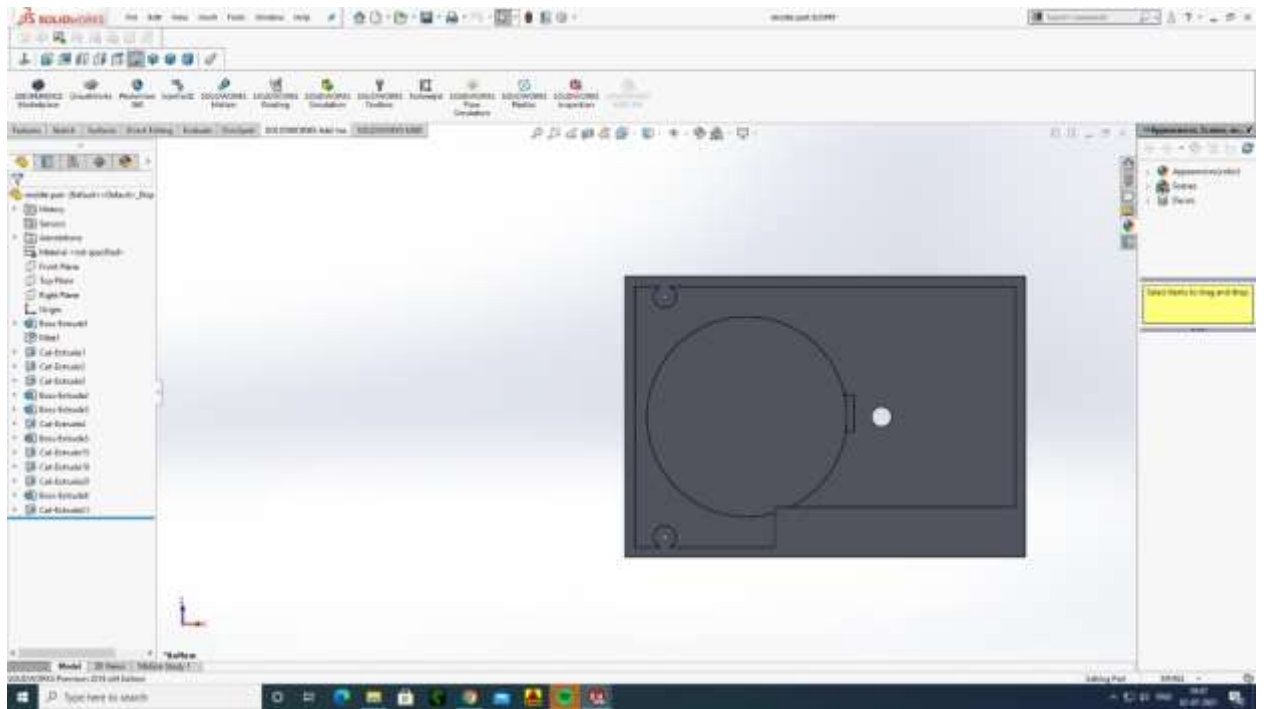
S. No	Name	E Mail ID	Mobile Number
	Mentor		
1	Mr. H. Mohamed Rizwan	hmdrizwan46@gmail.com	7418274974
	Incubatee		
2	Venkatesh V	ervenkatesh2508@gmail.com	9176803565

Problem Statement: Imagine you are a travelling person used to travel a lot you have to make sure of your gadgets power so we have to make sure of chargers. You're travelling in Metropolitan city to urban zoned using public transport. In that way mode of transport, you have the DC current supply far from your seat in this scenario you need to be near to DC supply board to avoiding thefting to. These days we are carrying many electronic gadgets with us. So, a junction box is the must carry product in the list. It differs in size the biggest disadvantage of the junction box is they aren't as durable and it is made for solving single purpose. For travelers it would be difficult to charge multiple devices at same time in small sized area. They need to carry a junction which occupies more space which is not compactable one. The wire of the existing junction box will be long at occupies the total space from Plug to box place and disturbs the whole path.

Solution Provided: While traveling we have to charge multiple devices at a single time and to avoid standing near the DC supply board the thin quality wire is designed. So that we can carry a junction box which is durable. For hostellers it would be very easy to charge the multiple devices at a same time. The Dock Station has designed such way so the wire of next charging devices won't be interrupted. We are building a product which can be an upgradation of the traditional junction box. There will be a specially designed circuit inside the compact junction box, it can store some energy within it and it can be used even the product is not connected to the power source gives power supply for couple of devices till sustaining level without the power and has its own USB ports to avoid the spacing of the adapter. The size of this Dock Station is Very compactable and less in weight. The product also has a 3528 SMD LED chip at bottom of the Junction box which act as Emergency lamp.

Progress: We have started from customer identification via CUSTOMER DISCOVER LAB from the month of January 2021. We are building our landing page and creating accounts in various social media platforms. We did the Customer and Product Validation, we attracted leads for our product in possible channels. as a result, we can identify the potential customer for our Product. We are in process of patenting our product did the prior search. Currently we are checking the available the products which competitive to our product and validating the specifications of the existing product to learn real time problem solving

Status: Currently we are designing 3D & 2D representation of our product and in process of building the Minimum Viable product for testing



Startup - Reinflex IT Solutions LLP
Title - Decentralized Desktop as a Service

S. No	Name	E Mail ID	Mobile Number
	Mentor	hmdrizwan46@gmail.com	7418274974
1	Mr. Mohamed Rizwan		
	Incubatees		
2	Syed Suhel M	syedsuhel2624@gmail.com	99413 97323
3	Vikas S	vikas9952285560@gmail.com	99522 85560
4	Vishnu E	3.14zenito@gmail.com	9787005879

Problem Statement: Computing has become an essential basic need like food, education, healthcare. We acquire them as property or an asset with a huge investment (Avg cost of 61,031₹) since the specification of a computer is directly proportional to its price. However, avg lifespan of a computer is 3 - 5 years to get outdated, where the user spends his money on high-capacity hardware even though it is not about to run on its full capacity during the whole lifespan and along with numerous downtimes. Users can increase the power & capacity of a computer only by replacing existing hardware through spending additional money. The operating system locks users which no choices in the application, where they can use only os specific applications and couldn't run other OS's exclusive applications. The current assets-based model of computing requires large investment which is causing severe pain to the user-base like Students -designers, developers, engineers & a similar set of people with little income.

Solution Provided The idea is to convert personal computing from an asset-based model to a utility. Utility computing is a consumption-based pricing model in which the customer pays according to the resources used.

It is achieved by an application that allows users' (lower-spec) local computers / thin-client / zero-client computers to vertically scale & increase computation power like cloud instance. The user's system is connected to a decentralized network of distributed computer nodes that backs up the users' system for computing power. These nodes share the workload & parallel process it in a decentralized.

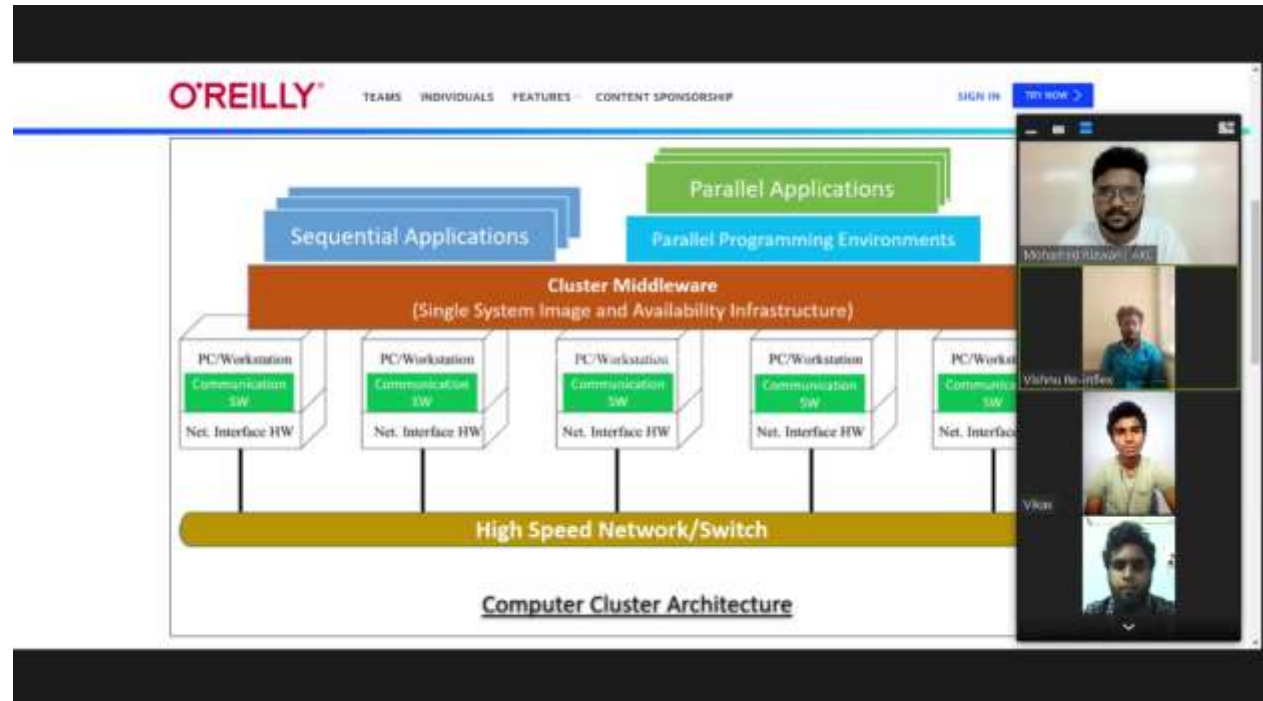
This allows the users to increase the computing capacity on-demand & very flexibly without changing local hardware. Instead of a lifetime subscribed high power computer, users get a pay-per-use computer and pays for only what they use.

The nodes do the parallel processing in dynamic virtual machines, where the operating system is initialized based on the end-user's demand(Linux/macOS/Windows). This breaks the constrain of OS-specific limitations (.deb/.app/.exe) & allows users to use any kind of exclusive apps on their computer.

Progress: Phase 1: We have worked on a healthcare-based B2B customer segment with different problem statements We have created a lean canvas. we did market research & pain point validation. Through the process, we defined our market size & needs. As a result, we found this product is too early for this market & we are unable to proceed further with this customer segment.

Phase 2: we started with a new targeted customer segment (B2C). We did market research to identify a pain point. After validating the problem, we did a survey for understanding user needs & behavior.

Status: We are collecting data through a survey to narrow down users' needs & initial requirements & figure out our minimum viable product. We are building a site & social media presence along with the survey. We are working on basic modules & functionalities which are the core components for the prototype.



NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	National Engineering College, Kovilpatti	
Year of starting NewGen IEDC	2017-18	
Name of the Head/Principal of the Institution/College	Dr.K.Kalidasa Murugavel	
Name of NewGen IEDC Coordinator	Dr.I.Sankar	
Contact Details of NewGen IEDC Coordinator	Mobile: +91 9894697322, +91 9443257441 E-Mail ID: edcell@nec.edu.in	
	<ul style="list-style-type: none"> • Mobile Number • E-Mail ID 	
Financial Details	Sanction Order No./ Date	Amount Sanctioned
Previous Sanction Order Details	1 EDII / DST-NewGen IEDC/17-18/RLS-I/10 dated 31.07.2017	₹60,00,000/-
	2 EDII / DST-NewGen IEDC/17-18/RLS-II/10 dated 28.02.2019	₹47,50,000/-
	3 EDII / DST-NewGen IEDC/17-18/10 dated 02.11.2020	₹60,00,000/-

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1	<i>Orientation Programme on new product development and entrepreneurship - 3rd year students</i> 17 th March 2021- CSE 18 th March 2021- ECE 19 th March 2021- EEE & EIE 20 th March 2021- IT & Civil NewGen IEDC Coordinators handled the sessions.	✓ All the 3 rd year students (494 Nos.) participated in the orientation programme, and now they will be able to understand and describe the following. ✓ Activities of ED cell, start-up policy. Role of NSTEDB-DST, Govt. of India, New Delhi and EDII, Ahmedabad, in initiating the Entrepreneurial activities among science and technology background students to establish a start-up/technology-driven business in near future and in providing the financial support for the same.
2	<i>“Shoppers Corner”</i>	03 shops have been made ready, and students are encouraged to utilize the facility to feel the taste of being an entrepreneur.

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	Third Advisory Board meeting - Approval of Projects and action plan of NewGen IEDC - 2019-20 22 nd February 2021	<p>✓ RESOLVED TO APPROVE the activities of NewGen IEDC for the year 2018-19</p> <p>✓ RESOLVED TO APPROVE the students' project of NewGen IEDC to be implemented for the year 2019–20.</p> <p>Salient points were discussed, and suggestions were given by the members regarding the action plan and students' projects of NewGen IEDC</p>
2	Put your Idea Get our Approval (PIGA) - selecting the right projects – 2019-2020	Project proposals were invited from the students for the next sanction year.
3	<p>Periodical review meetings - to monitor the progress of the 2019-20 batch projects</p> <p>1st review: 31st May 2021</p> <p>2nd review: 1st June 2021</p> <p>3rd review: 2nd June 2021</p> <p>4th review: 3rd June 2021</p> <p>5th review: 4th June 2021</p>	<p>✓ Quality and status of the projects were improved after fruitful discussions made in the meetings.</p> <p>✓ The students' teams were appropriately given suggestions to complete the prototype model for commercialization.</p> <p>The students' teams were educated to procure the components/devices of different specifications/configurations for necessities related to the development of different versions of products.</p>
4	<p>A review on patentability of the 2018-19 batch products</p> <p>5th June 2021, Mr.P.Ramesh Kannan, Intellectual Property Consultant, Vidarzana, Chennai, was invited as a review member to analyse the patentability of the 2019-20 batch products under development</p>	The students and mentors of the various project batches are got many useful suggestions to enhance the patentability of the products under developments
5	Patent application filling – the students' teams of 2019-2020 were educated through their respective mentors about IPR (Need, Significance and "How to?") on different occasions.	<p>✓ The mentors and the students were able to</p> <ul style="list-style-type: none"> • Know the significance of being an inventor of the product. • Draft the patent application form for their inventions.
6	Ideation Camp (15 th December 2020) Event organized in association with Anna University Regional Centre Tirunelveli-IEDP Hub & EDII, Chennai	<p>✓ Nearly 40 students from various colleges are expected to participate in this event batchwise.</p> <p>✓ Students presented their innovative and marketable ideas among the experts and received suggestion and comments</p>

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	<i>Start-up Pitching Programme</i> 8th-10th December 2020 (5:00 p.m. to 7:30 p.m.) “Illuminate (Pre-Eureka!) online Workshop on Entrepreneurship” in association with E-Cell, IIT Bombay	<ul style="list-style-type: none"> ✓ 33 students participated and got certificates. ✓ The participants will be able to <ul style="list-style-type: none"> ✓ generate new ideas and validate the same to check its feasibility. ✓ start making own business model using lean start-up canvas. ✓ effectively pitch product/idea in front of investors
2	<i>Mentoring session</i> 24 th December 2020 NewGen IEDC coordinators handled the session	<ul style="list-style-type: none"> ✓ IIC members (both staffs and students) of AAA College of Engineering and Technology, Sivakasi attended the program. ✓ The purpose of the session is to disseminate and educate about the pre-incubation activities of our college NewGen IEDC to the said members. ✓ The attendees gained the knowledge on promoting techno entrepreneurship culture among the S&T students in their institution.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

Due to the COVID-19 pandemic situation impacts, many of the planned events were could not be conducted as per the action plan and scheduled to conduct in forthcoming days.

3. Other important highlights (new initiatives), if any:

Nil

4. Student Projects (Please provide the following details for each student project)

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
1	<p>Project title: Permeable Geopolymer Concrete Paver Blocks</p> <p>Team: Mentor Name (s) : Mr.M.Franchis David., AP/Civil , Mr. S.Sebastin., AP/Civil</p> <p>Student Member (s) : Ms.Bamini.K.K, Ms.Hema Priyadharshini.M, Mr.Jaya Prakash.G, Mr.Muhammed Suhail.M</p> <p>Project Description: In the present scenario, Paver Block is the most used pavement material all over the world. In the global market scale, different types of paver blocks are available. Among this, 90 % of the paver blocks are made by the concrete. Most of the urban pavements are being done with this concrete paver blocks only. But there are many problems associated with this concrete paver blocks. The main problem associated with this paver block is their impermeable nature,</p>	<ul style="list-style-type: none"> • In the beginning of this year, Samples of our product were casted and tested for their strength behavior. • In continuation with that, we have to casted some more samples to check the attainment of required level of strength behavior. 	<ul style="list-style-type: none"> • Permeability (Allows water from precipitation and other sources to pass through the pores and thereby reducing the runoff on the pavements and recharges ground water table) • Product can be manufactured within 3 days with the required quality at a reasonable cost. • Reduces the considerable amount of CO2 emission, sand exploitation and dumping of waste tyres. 	<ul style="list-style-type: none"> • Prepared the trail mix design and 36 numbers of trail specimen (paver blocks) has been casted (9 batches – 4 specimens per batch) with slight change in mix design for finding the compressive strength. • At last, Finalized the mix design (1:3.43) and casted 16 numbers of paver blocks (4 batches) to check the consistency performance (Compressive Strength) of the final mix design. • Upto now, the strength behavior of our product has been found out with finalized mix design. (Required compressive strength has been achieved.)

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	<p>which prevents the percolation of running water in to the ground and leads to abundant runoff generation. The runoff is further contaminated by the surroundings and will be rendered useless. The second problem is that its major ingredients cement and sand have environmental degradation issues like CO₂ emission and sand exploitation. The third problem is the manufacturing time of this paver blocks takes minimum of 28 days. The objective of this proposal is to manufacture a Permeable Geopolymer Concrete Paver Blocks without cement and sand to rectify the above-mentioned problems. The Permeable Geopolymer Concrete paver blocks acts as a suitable remedial measure that allows water from precipitation to percolate through the ground and thereby reducing the runoff on the pavements and recharges ground water table. It also reduces the considerable amount of CO₂ emission and sand exploitation. The main advantage of this paver block is the duration of the manufacturing process is minimal when compared to the conventional paver blocks. Within 3 days, product can be sold with the required quality at a reasonable cost.</p>			

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2	<p>Project title: DEVELOPMENT OF MICROBES BASED WASTEWATER TREATMENT DEVICE</p> <p>Team: Mentor Name (s) : B.Anitha, AP/Civil B.Gowtham, AP/Civil Student Member (s) : P.Lakshmanavel J.Mohammed Sameer R.Paul Clinton Unk.Ragavan Project Description: This project involves the decolorization of textile effluent by using microbes which is cost efficient and energy efficient while compared to the existing technology of treatment. The end product will be in the form of encapsulation.</p>	<ul style="list-style-type: none"> The microbes which are capable of decolorizing the dye effluent is identified. They are cultured and various trial and error treatment was done in the laboratory and the most optimum microbes are identified 	<ul style="list-style-type: none"> 7 Microbes that are highly efficient are in decolorizing the dye effluent with highest efficiency is optimized. 	<ul style="list-style-type: none"> Encapsulation and formation of prototype is to be carried out. Identified microbes will be made in the form of capsule. A device like arrangement will be designed and manufactured to execute decolorization of dye effluent.
3	<p>Project title: Team: WI-LOCK (Wireless Accessible Door Lock) Mentor Name (s) : Mr.S.Rajeshkumar</p>	<ul style="list-style-type: none"> Have planned for User Interface design and its standards. Based on that we have identified the appropriate UI development technology. 	<ul style="list-style-type: none"> Have developed the User interface application using Android Studio and Build and Export the application as .apk file. Ensured the components in Application are working 	<ul style="list-style-type: none"> We have completed the Level 1 Prototype which is working fine as planned. We are Planned and doing the necessary actions to implement the live

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	<p>Mr.D.Vijayakumar</p> <p>Student Member (s) :</p> <p>V.Yogessh</p> <p>M.Sakthibalaji</p> <p>Manickavasagam</p> <p>Project Description:</p> <p>This Product named WI-Lock based on Internet integrates security with automation to the next level. This Product provides advanced security of today's standard for various purposes including home and other applications like locker in office and so on. Since the product is based on Wireless network, it is a cheap, flexible and easy to deploy. It is not limited to homes but also applicable for various industry purposes. This kind of lock provides unique features but at the same time two predominant things are required for the EM lock to function seamlessly without any interruption are power supply and Internet connection. These two things must be stable throughout. To make this happen, an Uninterrupted Power Supply (UPS) is required. UPS has become common everywhere. So, this won't affect the product feasibility in the market in any way.</p>	<ul style="list-style-type: none"> Backend design plays a vital role for this product. We have done the enriched backend application design using Cloud Freeware. Configuring the Backend according to the UI Needs. Have identified the essential components which are more appropriate to the product and prepared the essentials to purchase those components. After Purchase we had ensured the quality and appropriateness. 	<p>Fine.</p> <ul style="list-style-type: none"> Using Cloud Fire base a date store have developed. Integration of the Application with the Data store have done perfectly. Assembled the hardware parts of Electromagnetic Lock as we are planned in design and verified the working status. Integrating the Hardware and Application part successfully and verified the working status of Level 1 Prototype. 	<p>product in our campus.</p> <ul style="list-style-type: none"> For Up gradation we are started to working in Application up gradation to support multi-platform.

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4	<p>Project title: SEED INJECTING MACHINE</p> <p>Team:</p> <p>Mentor Name (s) : Mr.C.Balamurugan Dr.P.Hariharasakthisudhan</p> <p>Student Member (s) : Mr.G.Prakash Mr.E.Dinesh Jefferson Mr.S.R.Sivaramakrishnan Mr.N.Nissan Prabhu Mr.S.Mohamed Meeran</p> <p>Project Description: The utmost importance is being given for agriculture sector due to increasing trend of food demand. Farmers need to use effective forming techniques and equipment to improve their efficiency in order to meet our global demand. The techniques and equipment employed by the farmers should not affect the quality and characteristics of the soil. An important phase of agriculture activities is seeding operation, which is time consuming, and labor intense activity. The feed rate of seeding operation needs special attention as it directly influences the</p>	<ul style="list-style-type: none"> • At the beginning of the year, we visited various agriculture places nearby district and our Tuticorin district related to dev eloping seed injecting machine for small scale farmers. • We conducted intensive literature and patent survey related to our product. • Based on the survey, we identified the following design requirements of our product, • To design an equipment for effectively carrying out seeding operation in dry and wet soil. (Corn, Cotton) • To accommodate different size of seeds and adjustable seeding distance in the equipment. • To sow the seeds in two rows simultaneously. • To integrate the sensors like seed level indicator, soil moisture indicator and control the feed 	<ul style="list-style-type: none"> • After successful completion of theoretical design and CAD modeling, required components for fabricating seed injecting machine were purchased. • Prototype development initiated. • During fabrication process, wheel and disc portion work is first completed. • Seed feeding portion from the seed box is designed . <p>After the completion of the above work, speed rotator and driver unit of the product development work is initiated.</p>	First version of the product fabrication about to complete.

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	<p>total time required for the operation. Availability of labor and labor cost are considered as other elements to be taken care in order to carry out seeding operation economically. Hence, it is the need of the hour to design an equipment to reduce the seeding time and to improve efficiency of seeding process. The equipment should also address the issue of labor requirement. The problem is focused on small-scale farm equipment, which can be used to sow the seeds like corn, peanut, cotton etc. This will reduce the effort, labor cost and time of the farmer. The existing machineries are being used in dry soil seeding process. These machines cannot effectively carry out the operation in the wet soil (high moisture) agriculture (for Eg: corn, chickpeas, cotton) soil for seeding operation. The equipment can be used for the range of sizes of seeds with adjustable seeding distances. This equipment is intended also to sow the seeds in two rows at a time. The intended benefit of the proposed equipment will be small-scale farmers.</p>	<p>rate of the seeds.</p> <ul style="list-style-type: none"> • To reduce the effort of small-scale farmers and make the equipment available in affordable price. <p>Theoretical design for above listed requirements is completed. CAD modeling of our product is completed.</p>		
5	<p>Project title: Foreign Object Detection And Tracking In Human Body During Surgical Operation.</p> <p>Team:</p>	<ul style="list-style-type: none"> • Team consulted with doctors about our idea and made literature survey by reading the research paper for this idea. 	<ul style="list-style-type: none"> • Identified the processor for building the product. • Components to build the product were identified. 	<ul style="list-style-type: none"> • Concept checking was 100% made through software simulations. • Have to build the hardware

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	<p>Mentor Name (s) : Dr.V. Vijayarangan (Prof/ECE) Mr.T. Vijayananth (AP(SG)/ECE) Dr.K.J. Prasanna Venkatesan (AP(SG)/ECE)</p> <p>Student Member (s) : T . Deepika (Pre-final year) A. Aameena Shaheen (Pre-final year) P. Ganga devi K.Rinikeerthana R.Ramalakshmi S.K.Padma Parvathi</p> <p>Project Description: Medical surgery is undergone to treat the patients suffering from illness. Surgery involves complicated procedures, human labor, critical decision making and proper medication for the patients. Surgical operation requires handling numerous medical equipment like scissors, sponges and needles. It was found that at times objects not retained from human body during surgical action which further led to pain for the patients and require unnecessary medications/ surgery for them disturbing their physical health. To avert this Diagnosis and management of foreign object in human body becomes necessary.</p>	<ul style="list-style-type: none"> Identified active and passive components for building the prototype. 	<ul style="list-style-type: none"> Concept checking was 100% made through software. 	<p>prototype model.</p>

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6	<p>Project title: TABLE-TOP POUNDER FOR BROWN RICE MAKING</p> <p>Mentor Name (s) : Dr.S.TamilSelvi Mr.K.Thoufiq Mohammed</p> <p>Student Member (s) : Ganesh Aravind B Vijaya Krishnan S Muthu Nitish M Muthu Krishnan M</p> <p>Project Description: The field of invention is mechatronics. Market analysis was done with farmers and public. It is a household product with low power consumption design alongside less complex operating unit, The model consists of Hopper, Guard, Roller, Electrical Drives ,flow control valve Spur gear drive, Blower fan, Filter ,Rice outlet, Husk Outlet, Outer stainless-steel case.</p>	<ul style="list-style-type: none"> Electronic Control unit was tested at the processor level and the Mechanical Construction of machine was at Concept generation stage. 	<ul style="list-style-type: none"> The conceptual modelling of the machine and identification of mechanisms involved were completed. The electronical control for the primary motor source was completed using sensors. 	<ul style="list-style-type: none"> The Fabrication work is in progress. The fabrication of frame works, and blower setup were completed.
7	<p>Project title: SMART CONTROLLER FOR CEILING FAN</p>	<ul style="list-style-type: none"> The conventional fan regulator circuit was analyzed. The variation of fan speed at different levels by using various 	<ul style="list-style-type: none"> During the design of the AC voltage controller for varying the ceiling FAN, many design changes have been faced, 	<ul style="list-style-type: none"> Completed the Mobile application for Automatic and Manual mode with described features.

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	<p>Team Mentor Name (s) : Dr.L.Kalaivani, Mr.B.Venkatasamy, Mr.F.Antony Jeffrey Vaz,</p> <p>Student Member (s) : Pandeewari. B Selvadevi. H Mani Mekala. G Deepika. A Latha Nivetha. P</p> <p>Project Description: This project automatically controls the speed of the fan based on the factors such as temperature and humidity. The speed control can be automatic or semi-automatic. According to the need of the user, the speed of the fan can vary periodically. The mode of operation of the fan can be controlled using Smartphone. PIR sensor is incorporated. It makes the fan to run only when the peoples are present inside the room. This project also includes a digital clock and wakeup alarm system. By using this device, the user can also conserve a large amount of energy.</p>	<p>switching circuits using an AC voltage controller was performed.</p> <ul style="list-style-type: none"> The hardware design of the AC voltage controller suitable to control using a microcontroller is completed 	<p>like problems due to surge and device ratings.</p> <ul style="list-style-type: none"> The Selection is devices, ratings; protection circuits are carryout with the required modification during testing. A dedicated mobile APP has been developed for the required Product Features 	<ul style="list-style-type: none"> Completed the coding part of the product to interface sensors, Bluetooth/Wi-Fi, LCD with the controller. Preliminary design of AC voltage controller for adjusting the fan's speed is completed.

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8	<p>Project title: ELECTROCARDIOGRAM BASED HUMAN AUTHENTICATION (ECG-HA)</p> <p>Team: Mentor Name (s) : Dr.N.B.Prakash Dr.M.Willijoice Iruthayarajan Dr.B.Vigneshwaran</p> <p>Student Member (s) : Mr.A.Gomathi Arasu Mr.M.Ganesh Kumar Mr.P.Naveen Kumar Mr.A.Selva Kumar</p> <p>Project Description: Now a days the world is changing to digital technologies. Each and every person have a mobile phone, laptop and many electronic gadgets etc. Everybody stores their all data in their gadgets or any other electronic devices. In this project, we are going to use the above devices. By using these devices, first we get the data which means that the ECG signals from the user and it should be stored it into the system. The data are getting in the format of image, and it will be converted into the form of graph</p>	<ul style="list-style-type: none"> • Studied the research paper and also get information from the doctor. • Get the detailed information about the project and know about the features of the ECG signals. 	<ul style="list-style-type: none"> • In order to make prototype we have to take signals from the user. So, we have bought the device to get the data set. • Once after getting the data set, we have to analyze the data set. • Here the device will give the graph in the image format. Using the Get Data Graph Digitizer, converting the graph into values and imported into matlab. 	<ul style="list-style-type: none"> • The status of the project is in the matlab, we are analysing the graph using the data points at regular intervals and the maxima, minima concept. • And then once we completed, we get uniqueness of the user. After that we have change into the model.

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	so that only we can digitalize the graph values so as to process. And then the data is going to be processed using program in that it will analyse the data with the previous dataset which is the signals are imported while training the machine and also the user signals used in a various format. In the program contains some features to have variations in the signals to train the machine. And finally, it will be analysed / compared with those, and it will send the result as the person is an authenticated or not by our model.			
9	<p>Project title: SMART LIGHT BEAM CONTROL</p> <p>Team: Mentor Name (s) : Mr.R.Raghul</p> <p>Student Member (s) : Arumugasivagnanam M Harihara Subramanyam A Sundar S</p> <p>Project Description: The idea is to provide a solution that could be implicated in any automobile. A product which has</p>	<ul style="list-style-type: none"> Purchasing was done for completing the preliminary test prototype. (Senors, GPS, Controllers and Raspberry PI) Second stage of purchasing has been done with make as finished product (Cases, Digital Display to view GPS Tracking position) 	<p>Hardware Part: (Completed)</p> <ul style="list-style-type: none"> Preliminary test of Sensors and GPS and fixing antennas has been done to receive satellite signals over 80km/hr (because our product is on a moving vehicle) <p>Software Part: (Completed)</p> <ul style="list-style-type: none"> Integrating the GPS coordinates with google 	<ul style="list-style-type: none"> 40% of work is pending to Interface the controller with the Open Street Map Application & make them finished. Minimum Purchase of accessories in order to make our product independently (Like Battery source, Controller's purchase)

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	the feature of an automatic light switching mechanism ease the drive during night hours. It has been come up to make the headlight to glow in the low beam on urban and rural roads and high beam on national highway roads automatically whenever required. Another solution is that by sensing the light beam intensity of the opposite vehicle based on that we varied our vehicle light intensity(diverge and converge) by the use of lens in front of the light beam and motorized arrangement.		<p>maps and locates the current position in Display.</p> <p>Work has to be Done:</p> <ul style="list-style-type: none"> • Automatic interaction of hardware along with software to make the headlamp dazzling based on the roads. • Interfacing the controller with the Open Street Map Application & make them a finished product 	
10	<p>Project title: SMART QUALITY WATER DISPENSER</p> <p>Team:</p> <p>Mentor Name (s) : Dr. R. V. Maheswari Professor/EEE</p> <p>Student Member (s) : M. Kirthik Roson Kural Amuthan M. S. J Mohamad Hanifa Rashik.K Syed Mohammed Althaff.S.M</p> <p>Project Description:</p>	<ul style="list-style-type: none"> • Turbidity sensor program was developed and executed. • Automatic water controller system was developed. • Ultraviolet water treatment system was fabricated. 	<ul style="list-style-type: none"> • Turbidity sensor program was developed and executed. 	<ul style="list-style-type: none"> • Ph sensor program was developed and executed. • Water level indicator system was fabricated and tested. • Ultraviolet water treatment system was fabricated. • Automatic water controller system was developed.

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	This project is used to minimize the mismanagement of water usage in the public places / apartments / hostels / houses to reduce the Water scarcity by distributing equal amount of water for all consumers for daily purpose. It checks the water quality such as turbidity, TDS, PH level and supply water to all with a proposed limit. Here bacteria are killed by using ultraviolet light. And finally filter solid particles using activated carbon and sand filter if turbidity exceeds safe level.			<ul style="list-style-type: none"> • PCB for the system is designed.
11	<p>Project title: SMART I GATE</p> <p>Team:</p> <p>Mentor Name (s) : Dr. L. Jerart Julus,AP(SG)/IT Mr.K. Sudalaiyandi,AP/MECH Dr.V. Jackins,AP(SG)/IT</p> <p>Student Member (s) : Poneeswari J Sabu Verma</p> <p>Project Description: The design of the intelligent gate control system is based on the ideas of Internet of Things (IoT) and the services provided by the cloud computing model,</p>	<ul style="list-style-type: none"> • The App development has been completed. The database framework has been finished. 	<ul style="list-style-type: none"> • To connect the gate slider with the developed application. • IP cam configuration to be made with the database. • Hardware interconnection of microphone, HD Camera and speaker with the Gate module. 	<ul style="list-style-type: none"> • Interface of Slider with mobile application is under process. • Making of physical gate is under process.

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	enabling users to remotely control the gate through the Internet. The system provides an enhanced security to the ordinary existing gates. To design a Smart I gate which can be controlled automatically through smartphone, which allows you to open , close ,see, hear, and speak to the visitor at your Gate.			
12	<p>Project title: REAL TIME BUS SEAT DETECTION SYSTEM</p> <p>Team:</p> <p>Mentor Name (s) : N.Gowthami, AP/IT V.Anitha,AP/IT</p> <p>Student Member (s) : B.Saravanan B.Dharangan S.Arun Sundar</p> <p>Project Description: In today's world reaching the appropriate destination for travelers is expected to be faster than light. Hence to keep up in the fast-paced world and to travel along in comfort zone checking the seat availability and failure status is of at most importance. In order to fulfil this, demand Our project focuses</p>	<ul style="list-style-type: none"> • Problem statement was identified. • The technology related to this field was studied. 	<ul style="list-style-type: none"> • Front end (User interface) is designed. • Survey among the stakeholders (Bus drivers, conductors and passengers) is investigated. • Nature and use of different components is studied and identified. • Based on the recognized requirements the components are purchased. • Variance in pressure is 	<ul style="list-style-type: none"> • Presence of either child, adult or luggage on the bus seat is identified. • GPS interface module completed.

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	on designing a system which detects the real time location of a bus along with the seat availability so that the user can check the current seat status through a mobile application. User can also sense the failure of the bus and can change over to any other bus in the specified route if needed.		measured using the purchased sensors and are recorded.	
13	<p>Project title: SMART MEDICAL DEVICE FOR PATIENTS AND ELDERLY PEOPLE</p> <p>Team: Mentor Name (s) : Dr.R.Muthukkumar, Associate Professor/IT</p> <p>Student Member (s) : Mr.Anand, Mr.Bharathi , Mr.Manikandan, Mr.Sugirtha raj, Mr.Praveen,</p> <p>Project Description: The expenses for health care and medicine especially for elderly people is increasing in recent times. We could not know whether they take their medicines on time. Also, we could not know whether</p>	<ul style="list-style-type: none"> • Some materials were purchased and tested. • Not Assembled • Some materials were not received due to Covid-19 pandemic situation. • Mobile App was designed and developed for alert the guardians 	<ul style="list-style-type: none"> • We studied some technologies to provide the solution for analyzing the depression rate of the elderly people/patients. • We need to understand the creation of data sets in 3 different languages with help of some websites. 	<ul style="list-style-type: none"> • Online survey was taken to analyze the medicines consumed by patients in different time. • Sensors and other products were bought and tested. • Different datasets (in English) for Google Home voice recognition system were installed successfully. • Prototype of the smart medical box was designed and programmed. • Mobile App was designed and checking for the data.

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	<p>they still feel depressed and lonely. A smart medical device is designed especially for patients and elderly people to solve the above problem. Initially, the device reminds the patient/elderly people that it is time to take the medication. The proposed device will function with the following aspects. Voice-based system is used to alert the elderly people as well as the patients to take medicines on time. If they do not take medicines on time, alert message is sent to their guardians. Detects and displays (e.g., visually or through sound) how much dosage of medicine is present in the inhaler. Measures the body temperature and pulse rate and also sends the status of their body conditions to their guardians. Identifies the depression of elderly people and patients through the voice-based recognition system. The proposed device uses the machine learning approach for analyzing the voice-based data and easily identifies the depression rate of the people.</p> <p>Through this proposed device, we can make the patients and elderly people to live happily as much as possible. To demonstrate the robustness and practicality of this solution to real-time prediction, we evaluated the performance of the smart medical</p>			

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	device and a Mobile App. This work demonstrates the capability of machine learning in real-time data of patients, which can be further improved with a more extensive data set.			
14	<p>Project title: DESIGN AND FABRICATION OF SALT HARVESTER.</p> <p>Team: Mentor Name (s) : D.Vignesh Kumar, Asst.Prof (S/G), Student Member (s) : Gowtham Srikumar. V Karthikeyan. L</p> <p>Project Description: The present work entitled as “Salt harvester” is a design and fabrication project. We intend to fabricate a simple harvester attachment in order to minimize the labor work as well as to minimize the material handling time in harvesting and process of the salt. It is simple in construction and can be easily attached with the existing hydraulic mechanism at the rear side of any tractor. Further, need for a new mechanism does not arise for attaching the harvester with the tractor.</p>	<ul style="list-style-type: none"> • Problem Identification. • Literature and Patent survey were made. • Drawbacks in existing system were identified. • Consultation with Industry partner SSV Salts, Tuticorin. • Design Consideration based on literature and patent survey. • Design of product using Solid Works modelling Software. • Purchase of Various raw material for fabrication. • Fabrication of prototype model. • Testing of the product was carried out. 	<ul style="list-style-type: none"> • Fabrication was completed on the proposed model and testing was carried agricultural field initially. • The tractor rear loader is tested in the field and its performance meets the expected values. • The loading and unloading of salt are carried out in the field and successfully completed. • It has lifted a load of 250 kg, so that it can be used to harvest salt. 	<ul style="list-style-type: none"> • Prototype Completed

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	This attachment is developed to overcome the limitations in the existing products such as high cost , large scale size and large lifting capacity requiring more powerful tractor. In the present study salt harvester is designed with components which are easily available in the market, so maintenance and replacement of components is not a problem.			
15	<p>Project Title: SEMI-AUTOMATIC SOLID WASTE COLLECTING SYSTEM FOR OPEN SEWAGE.</p> <p>Team: Mentor Name (s) : Mr.R.Vijayakumar,AP(S.G)/Mech Mr.R.Vignesh Kumar, AP/Mech</p> <p>Student Member (s) : Guru Vasanth.S Guru Esakkiraj.M Hariharasudan.V</p> <p>Project Description: The proposed product is aimed to remove the solid particles settled over the open sewages and ensure human safety during cleaning process. The automated product is designed to suit open sewages in Kovilpatti area.</p>	<ul style="list-style-type: none"> • In this year starting, we conducted a field study in Kovilpatti and other nearby cities. • We measured the dimensions of open sewages. By using that dimension, we started our design process for the product. 	<ul style="list-style-type: none"> • It reduces human efforts in collecting wastes. • We can adjust collecting depth by using the sliding mechanisms provided in the system. • We can also adjust the width of the system based on the open sewage size. • It dumps the waste into the tray placed at the top and we can easily remove the tray. • Less cost and quick fabrication. 	<ul style="list-style-type: none"> • Fabrication of the system was completed for open sewage having two sides platform. • Testing of the system is currently going on. • Second Version Prototype fabrication initiated for open sewage having single side platforms. • Based on the testing results some modifications will be incorporated if it is required.

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16	<p>Project title: PALM JAGGERY PRODUCTION MACHINE</p> <p>Team:</p> <p>Mentor Name (s) : Mr.K.Sudalaiyandi, AP/Mech Mr.R.Jaya Venkatesh, AP/Mech</p> <p>Student Member (s) : Aakash Edwin.A (1910001) Sanjay.R Venkatesh.B Vignesh.D</p> <p>Project Description: The Proposed product is aimed to produce the pure form of palm jaggery using a machine. Normally, the palm jaggery is done with the help of Palm Neera and they heat the Palm Neera, the process is of fully manual. Our fabrication machine will do this process automatically. The Palm Neera is taken from the palm tree. Our fabricated machine consists of a boiler. The boiler is used to heat the Palm Neera, and this boiler is heated with the help of heating coil. The Palm Neera is heated for certain temperature and maintained for certain concentration. Then it is</p>	<ul style="list-style-type: none"> • Problem statement was identified. • The technology related to this field was studied. • Initial field survey is completed. 	<ul style="list-style-type: none"> • Survey among the Farmers is investigated. • Based on the recognized requirements to test the samples are purchased. • Testing of Samples is completed for different samples collected from six places. 	<ul style="list-style-type: none"> • Design work is going and parallely theoretical calculation work for production capacity based on the test results is also going on.

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	changed to a chocolate color liquid, and it is automatically poured into a wooden tray. The temperature and the concentration are measured with respective instruments. For a period, it remains for solidification. After solidification, the pure form of palm jaggery is taken out from the wooden tray.			
17	<p>Project title: DEVELOPMENT OF A DEGRADING MACHINE TO DISPOSE THE NON-DEGRADABLE PLASTIC WASTE</p> <p>Team: Mentor Name (s) : Dr. K.Manisekar, Dr. B.Annaraj</p> <p>Student Member (s) : Mr. M.Pravin, Mr. A.Sakthi, Mr.M.Subramani</p> <p>Project Description: Non degradable plastics are not reduced by natural degrading process. For which we're providing a state of art "Degrading Machine" which is capable of destroying the plastic waste without releasing any gases to the atmosphere. By this it can ensures that</p>	<ul style="list-style-type: none"> • Modelling and Design Calculations for the machine was done. 	<ul style="list-style-type: none"> • Manufactured and developed the Rotary Kiln, Exhaust System, Steam Generator System, Burner System and Feeding System. 	<ul style="list-style-type: none"> • Machine Fabrication was successfully completed and need to test the machine in open environment as per industrial standards.

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	there will be sustainable environment.			
18	<p>Project title: MECHANIZED KNIFE FOR FILLETING LARGE TUNA AND OTHER FISHES</p> <p>Team: Mentor Name (s) : Mr.M.Vivekanandan, Mr.N.Muthusaravanan Student Member (s) : Mr. Sam Joebin, Mr. Subhash V, Mr. Subhash G, Mr. Shahul Hameed</p> <p>Project Description: The field of invention of the project is Marine food processing equipment. The Problem Definition found is Fatigue of labor is high due to repeated works in large fish cutting. The Commercial Viability of the Product is export and Retail Fish meat processing industries. The essential Features of the Product is Mechanically operated with optimal serrations in the knife.</p>	<ul style="list-style-type: none"> • Patent Survey • Product Survey and field study is done. <p>Preparation of Prototype</p>	<ul style="list-style-type: none"> • Prototype manufacturing • Either battery operated or mechanically operated <p>Solving initial teething problems</p>	Testing it in real time scenario and update the prototype to create a final product
19	<p>Project title: IoT BASED DRIP BOTTLE LEVEL INDICATION SYSTEM</p>	<ul style="list-style-type: none"> • In the beginning of the year number research paper and patent related to IOT based 	<ul style="list-style-type: none"> • Required components were purchased to carry out the product development work. 	<ul style="list-style-type: none"> • After successful completion of the work in breadboard level, PCB portion of the work is

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	<p>Team:</p> <p>Mentor Name (s) : Dr. F. Michael Thomas Rex,M.E., Ph.D. Mr.C.Balamurugan</p> <p>Student Member (s) : Melchisedec Samuel P Stephen S Billigraham Aasif Mohammed M.B Sudhakar. J</p> <p>Project Description: A drip is known as a cannula, intravenous fluids or IV that is used to restore and maintain fluid and salt levels in patients who are unable to take fluids and nutrients by mouth. The nurses have to regularly check the drip to verify if there is enough fluid in the drip and it has to be changed as soon as the fluid level reaches the critical level, otherwise the blood may discharge into the drip and make serious consequences. Further, the drips can block, leak or become infected. So, it is inevitable to constantly monitor the drip status of patients and it becomes complicated if the number of patients those who are treated is high. Hence, a device that can monitor the status of flow and level of fluid in the drip is needed</p>	<p>saline level monitoring system is collected. We formulated problem based on the conducted survey.</p> <ul style="list-style-type: none"> • We listed different number of sensors for our product. Listed sensors were studied for implementation and simulation work also carried out for testing the suitability for our product. • Literature and patent survey completed. 	<p>Breadboard level circuit construction work is completed and verified. Circuit is analyzed by giving continuous input to the sensor unit and reliability of the circuit is tested.</p> <ul style="list-style-type: none"> • Based on the above completed study some modification also done in the breadboard level work. • Prototype development initiated. 	<p>completed. Mechanical work is modeled, and modeled structure is fabricated.</p> <ul style="list-style-type: none"> • Power unit and voltage variation based on sensor output portion completed.

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	for hospitals to ensure better treatment. The device must enable the user to view the progress of drip of patients and it should alert the nurse based on priority.			
20	<p>Project title: PORTABLE AUTOMATIC MULTI-SNACK MAKER</p> <p>Team:</p> <p>Mentor Name (s) : Dr . P Ramanan, Ap(Sg)/Mech Mr. R. Vijay Kumar, Ap(Sg)/Mech</p> <p>Student Member (s) : Udhayakumar.B Venkatesh S Sree Kumaran V E Hirthik Joel Saravanan S C Vignesh.R</p> <p>Project Description: The field of invention of this project is Food processing equipment. The problem definition identified is during oil fried snacks making, more amount of time, energy is wasted, and excess emissions found in local small scale snack stalls. The</p>	<ul style="list-style-type: none"> Literature and patent survey made and the related technology to the field was studied. 	<ul style="list-style-type: none"> The 3-D Design of the product which include the component description with proper measurement is completed. The stability of the design is verified. Survey among the stakeholders (Snack's corner) was investigated. Nature and use of different equipment in market was studied and compared. Based on the recognized requirements of the components, the design has been refined. 	<ul style="list-style-type: none"> Mechanical components - Under fabrication. Automation components – Under purchase

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	commercial viability of the product is local small scale snack stall vendors requires this kind of products. The essential features of the product are portable, automatic, safe, food products will be prepared with customer attractive shapes and traditional taste through intelligent control systems.			

PICTURES OF THE PROTOTYPE/PRODUCT

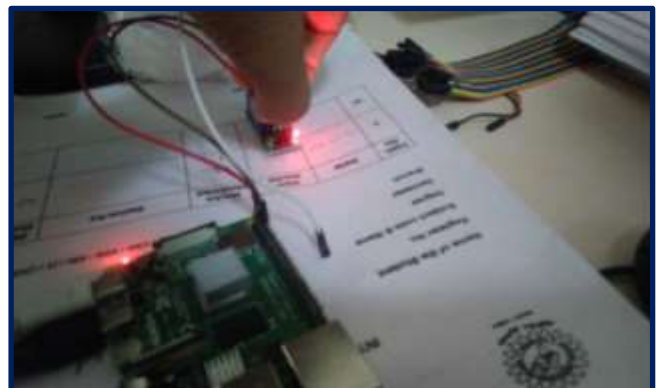
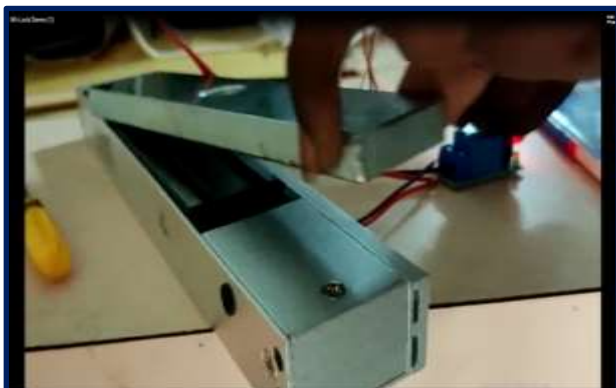
1. PERMEABLE GEOPOLYMER CONCRETE PAVER BLOCKS



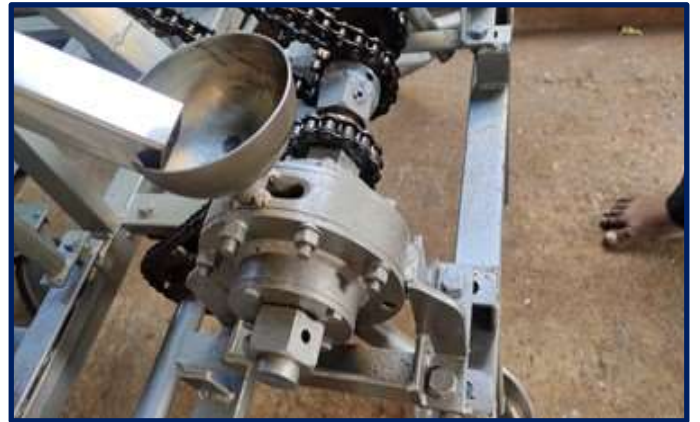
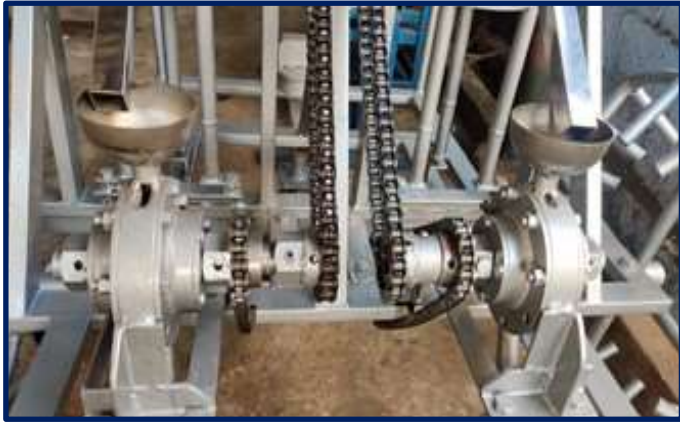
2. DEVELOPMENT OF MICROBES BASED WASTEWATER TREATMENT DEVICE



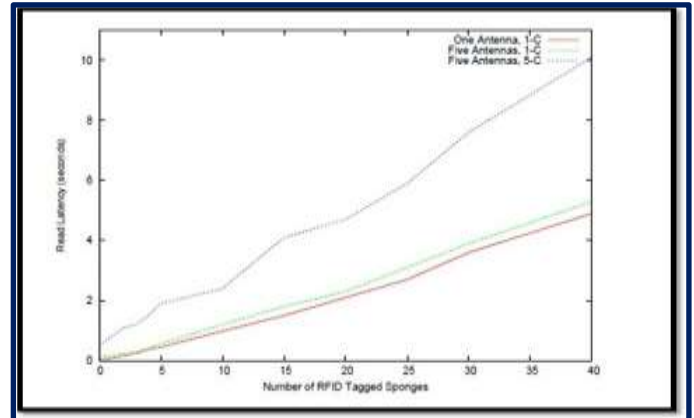
3. WI-LOCK (Wireless Accessible Door Lock)



4. SEED INJECTING MACHINE



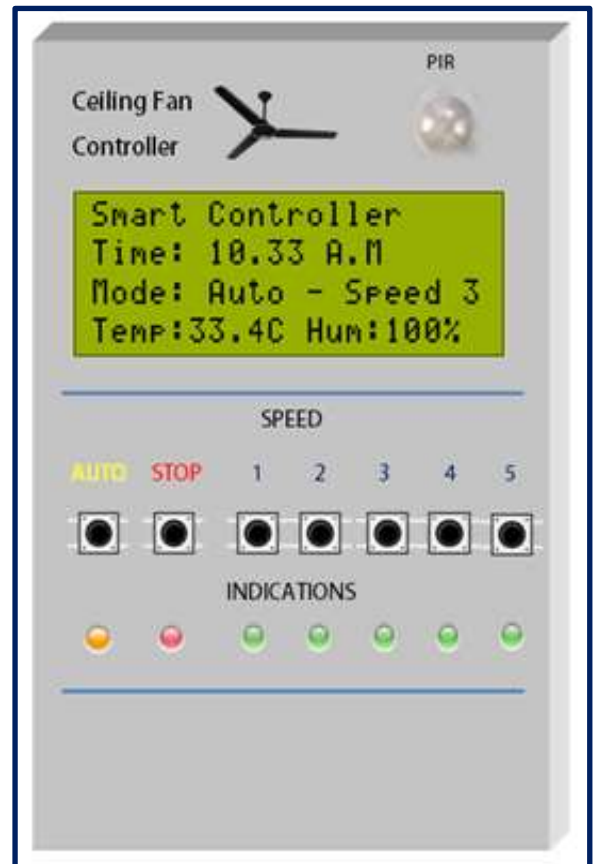
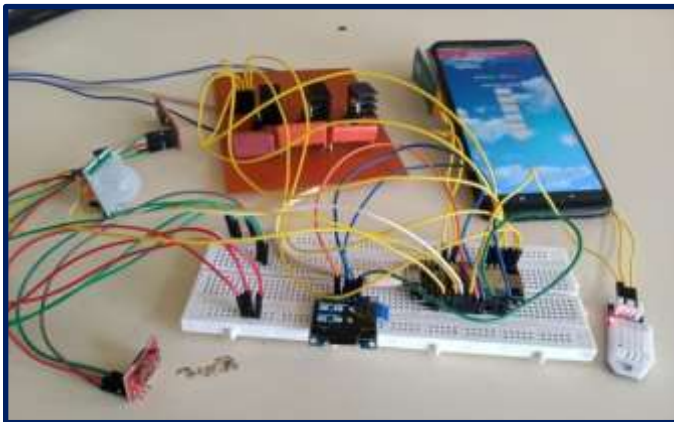
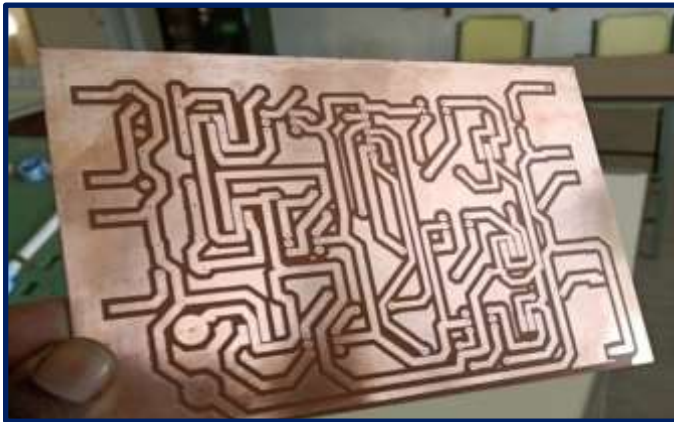
5. FOREIGN OBJECT DETECTION AND TRACKING IN HUMAN BODY DURING SURGICAL OPERATION



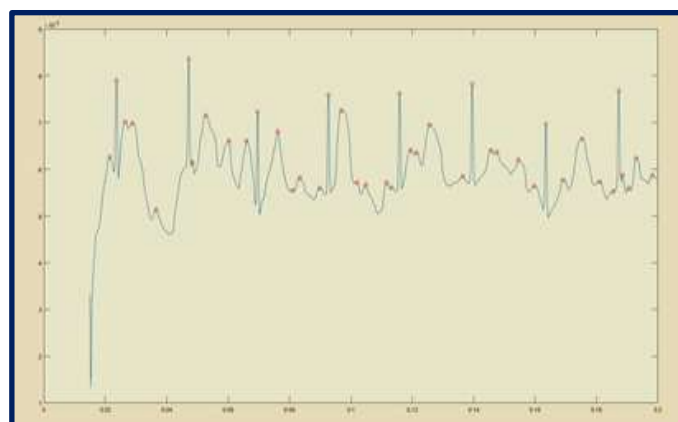
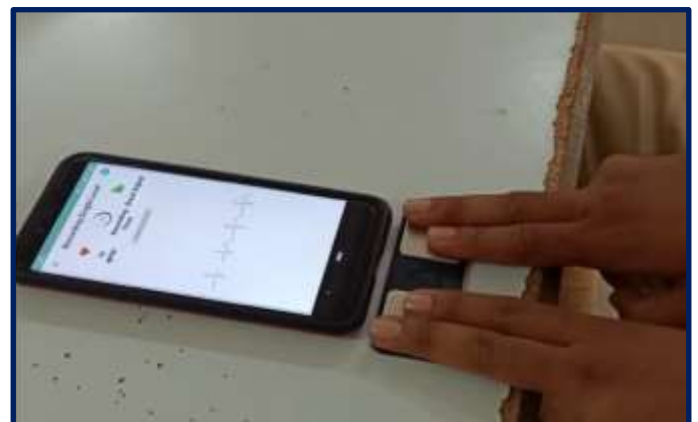
6. TABLE-TOP POUNDER FOR BROWN RICE MAKING



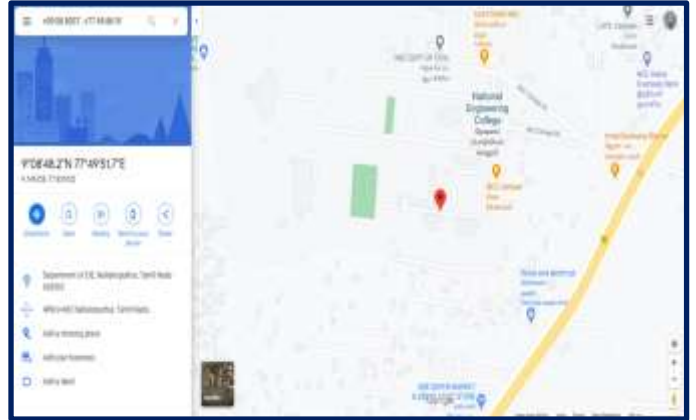
7. SMART CONTROLLER FOR CEILING FAN



8. ELECTROCARDIOGRAM BASED HUMAN AUTHENTICATION (ECG-HA)



9. SMART LIGHT BEAM CONTROL

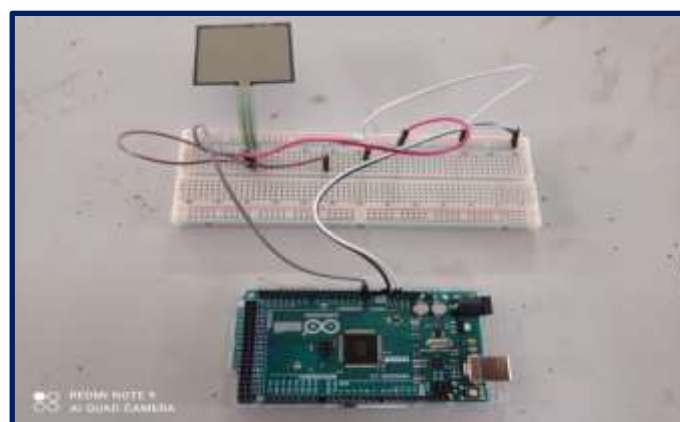


10. SMART QUALITY WATER DISPENSER





12. REAL TIME BUS SEAT DETECTION SYSTEM



13.SMART MEDICAL DEVICE FOR PATIENTS AND ELDERLY PEOPLE



14.SALT HARVESTER



15.SEMI-AUTOMATIC SOLID WASTE COLLECTING SYSTEM FOR OPEN SEWAGE



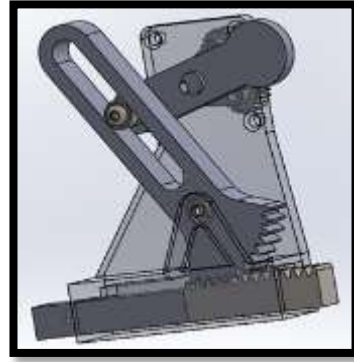
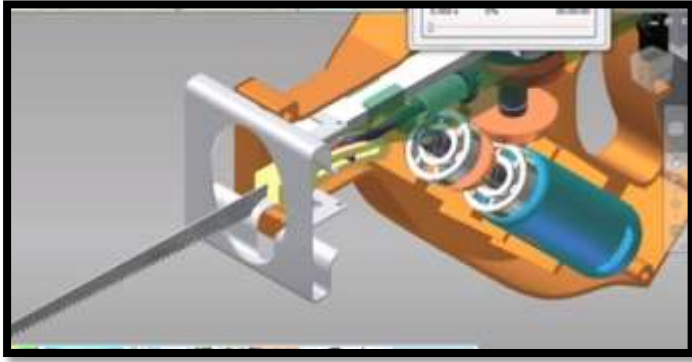
16. PALM JAGGERY PRODUCTION MACHINE



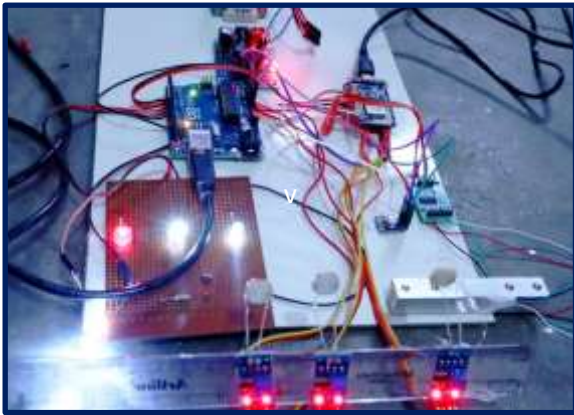
17. DEVELOPMENT OF A DEGRADING MACHINE TO DISPOSE THE NON-DEGRADABLE PLASTIC WASTE



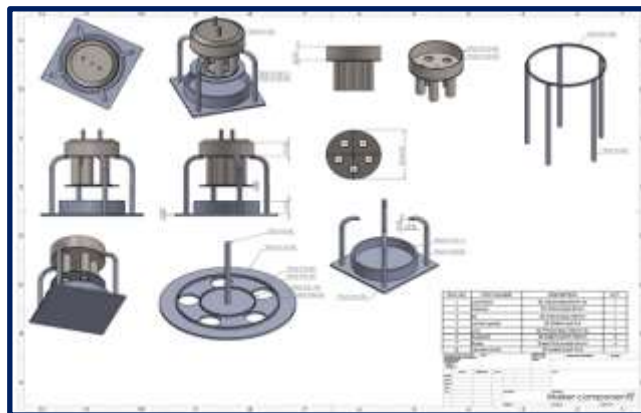
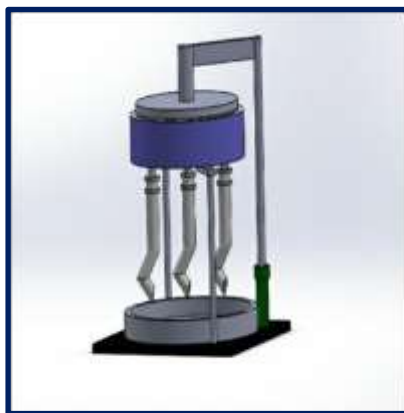
18. MECHANIZED KNIFE FOR FILLETING LARGE TUNA AND OTHER FISHES



19. IoT BASED DRIP BOTTLE LEVEL INDICATION SYSTEM



20. PORTABLE AUTOMATIC MULTI-SNACK MAKER



Under the Aegis of NSTEDB, DST, Govt. of India,
Newdelhi

SUBMISSION OF PROGRESS REPORT

Name of the College / Institution hosting NewGen IEDC	Velammal Engineering College		
Year of starting NewGen IEDC	2017-2018		
Name of the Head/Principal of the Institution/College	Dr. S. Satish Kumar		
Name of NewGen IEDC Coordinator	Dr. Jeevaa Katiravan		
Contact Details of NewGen IEDC Coordinator <ul style="list-style-type: none"> • MobileNumber • E-MailID 	Dr. Jeevaa Katiravan 9840659486 hodit@velammal.edu.in		
Financial Details	Sanction Order No./ Date		Amount Sanctioned
Previous Sanction Order Details	1	EDII/DST-NEWGEN IEDC17-18/RLS-1/11.dt 19/7/17	Rs. 60,00,000
	2	EDII/DST-NEWGEN IEDC17-18/RLS-II/11.dt28/2/19	Rs. 47,50,000
	3	EDII/DST-NEWGEN IEDC17-18/RLS-II/11.dt04/11/20	Rs. 60,00,000

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No	Activities	Outcome/Achievements
1	Workshop on Intellectual Property Rights on 10 th April 2019 & 14-15 November 2019	Importance of filing Intellectual properties
2	Workshop on Art of Writing Research Project Proposal on 24th April 2019 & 21-22 November 2019	Research Scholar, Faculty taught to draft research proposal & Idea generation
3	Workshop on Patent Drafting on 29-30 April 2019	Drafting procedures
4	Unleash 2.0 on 30.08. 2019	Report attached- Annexure V
5	Guest Lecture on Digital Marketing on 18.09.2019	50 students- Digital marketing opportunities learned
6	Varthaga 2.0 on 19.07.2019	Activities attached- Annexure VI
7	Webinar on Start-ups and Investments on 13 th Jun 2020	75 Students participated
8	Webinar on "Engineering the Future"	102 Students Participated

[B] To identify, develop & commercialize students' innovative ideas

Sr. No	Activities	Outcome/Achievements
1	Unleash 2.0 on 30.08. 2019	Report attached- Annexure V
2	Varthaga 2.0 on 19.07.2019	Activities attached- Annexure VI
3	Hidden Dreams on 31.01.2020	Various ideas from the future entrepreneur
4	Pitch War on 17.02.2020	Best pitch is rewarded
5	IIT Incubation Center – Visit on 20.02.2020	Understood incubation centre activities

[C] To enhance Industry-Academia interaction


Sr. No	Activities	Outcome/Achievements
1	Preethi Entreprises Visit	MoU signed



2. Deviation (shortfall) from the proposed action plan (with reasons), if any: Nil


3. Other important highlights (new initiatives), if any:

i. Startup Cubicles – Inaugurated in IEDC

4. Student Projects (Please provide the following details for each student project)


Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
1	<p>Project Name: BRAILLE Tablet (Automobile)</p> <p>Team Name:</p> <ol style="list-style-type: none"> 1. N. Pradeep Kumar 2. M. Muralikrishnan 3. S. Praveen Kumar <p>Mentor Name: Mr. M. Yuvaraj (Assistant Professor/Auto)</p> <p>Description of the invention: A technical description - This device uses the Majority of the Special Tactile Display Module, Multimedia Modules, Computing cum Processing Modules, Power Distribution cum Charging Modules, Cellular Modules, and Sensor Modules.</p> <p>The advantages and improvements over the existing methods, devices, or materials: The Highest Advantage is its Form Factor, Ergonomics and the Special Tactile Display Which makes the Device Unique with its users Handling Characteristics like Touch, Feel and Usage of the Device itself Which Has More Efficiency than a Conventional Heavy (solenoid, fluid, piezoelectric crystal enabled) Device that has to be fed with continuous Power from DC Adapter While using it on the go; We had Enabled this Tactile Display Concept with Flat Coil Windings in the Hard PCB and a Magnet attached to the Flexible PCB on the User end well Insulated from Electric/Electrostatic Discharges from any components used. As it is a Completely Portable Device the User can Carry it at their Convenience with ease. The Special Characteristics that device has been enabled with are Special Visual Apparatus consisting of a Camera and a Scanner Module which allows us</p>		<ul style="list-style-type: none"> • CAD Drawings for 3d Printing was Developed • Phase 1 Components Ordered and Funds for Phase 1 of Product Development Received • Phase 2 Components Ordered and Funds for Phase 2 Received for Product Optimization and Testing 	<ul style="list-style-type: none"> • Mechanical Components of The Display got 3d Printed • Thermal Efficiency of the Display , While operation got tested • Mechanical Efficiency Tested based on a Comparison different Pallet Models were Tested. • Electronics Circuit Development 	<ul style="list-style-type: none"> • Provisional Patent Applied (Patent Application Number: 20214103486)(TE MP/E- 1/39150/2021-CHE) • Pallet Actuation Achieved • Display Assembly on Progress • Display Synchronisation Code under Development • Electronic Circuit Design under Design Stage • Vision System Codes Is getting De • Start-up Process going on.


Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
	to Feed the Data to the Compute Module to Enable Computer Vision Technology to Guide Blind People in their Simplest and also Toughest Situations and Other Sensors (accelerometer, gyroscope, proximity, fingerprint) Calibrated to Give a Spatial awareness to the user.				
2	<p>Project Name: Design of New Ventilation Helmet</p> <p>Team Name:</p> <ol style="list-style-type: none"> 1. Ananth Sai 2. Shankar V 3. Sathiyar.A.R <p>Mentor Name: Mr. M. Yuvaraj (Assistant Professor/Auto)</p> <p>Technical description: The voice activated visor helps with hands free helmet control while driving, it will reduce the accidents. Designed for optimal airflow this helmet comes with inbuilt humidity and temperature sensor. On attaining a certain temperature activates the fans to remove the heat inside the helmet, and manual on/off can also be achieved by voice control.</p> <p>The helmet comes with a fixed rear and front camera that will be able to capture or record video of our surrounding activities. Integrated Goggle assistant allows you to access the internet through voice control. All the functions are controlled by a microcontroller. Solar panels were fixed in the top of the helmet, it will give the power supply to the controller through battery. The rear camera is connected to your phone to give you the backside view</p>	 	<ul style="list-style-type: none"> • Literature Review Completed • Design process done. • Patent search carried out. • Project Items started bought. 	<p>We have developed a smart helmet that provides a solution to the following problems by being hands free and voice controlled visor. So the driver no need to adjust the helmet visor while driving. It has a voice controlled active cooling system to give a pleasant riding experience to the riders.</p>	<ul style="list-style-type: none"> • 95% of the project was completed • Patent applied (Patent Application Number: 202141034855) • Start-up Process going on.

Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
3	<p>Project Name: Self Sustainable E-Boat</p> <p>Team Name: 1. A. Adithyan 2. A. R. Maheshwar 3. B. Jagan 4. B. Hariganesh 5. J. Viswa 6. S. Pugalendhi</p> <p>Mentor Name: Dr. V. Chandran</p> <p>Description of the invention The general purpose: The main aim of the project is to "Design and Fabricate a Nozzle Pipe Water Turbine Assembly" for charging the battery in E-boat for self sustainable purposes.</p> <p>A technical description: The project is to conceptualize, design and fabricate a fully stainless steel nozzle pipe which has three segments in different length and diameter. Portable water turbine having twenty four bucket. Both Nozzle pipe and water turbine make as a assembly system. It produces the mechanical rotation of turbine wheel by means of high velocity fluid through nozzle pipe.</p> <p>The NPWT coupled with the DC generator, so that it produces the electricity. It will help to recharge the battery. Hence self sustainable E-boat is possible.</p>		<ul style="list-style-type: none"> • Design Calculation and Power Calculation Completed for Boat. • Boat skeleton / Outline diagram was made • Components or Parts were Identified. 	<ul style="list-style-type: none"> • Nozzle Pipe and Water Turbine (NPWT) Assembly was designed. • NPWT assembly analysis was made • Parts/Components of the boat were purchased. • Erection processes were identified for the fabrication of complete E-boat. • Patent draft writing for Complete Patent 	<ul style="list-style-type: none"> • Fabrication In progress • NPWT assembly and Boat

Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
4	<p>Project Name: Self-Locking Fibre Reinforced Building Blocks and Panels</p> <p>Team Name: 1. B. Deepak Kumar 2. K. Ameenur Rahman 3. V. Mohammed Thoufeeque 4. P. Saravanakumar 5. S. Sam Daniel 6. N. Sanjai Tamilvanan</p> <p>Mentor Name: Dr. R. Sudharsanan</p> <p>Project Description: The project deals with the manufacturing of Self-locking fibre reinforced blocks for buildings at a low cost. The main purpose of this is to consume the waste generated from the construction industry thereby reducing the pressure on naturally available raw materials. Additionally, by using the waste generated from the construction industry the solid waste management problem can be addressed. It will also reduce the environmental threats generated by those wastes. Both building blocks and panels are prepared according to the strength requirement from the structural point of view. Since both are manufactured from the waste, the cost of the building unit will be reduced considerably.</p> <p>The interlocking facility provided in the block facilitates both lateral and vertical stability to the structural member. This self-locking feature eliminates the additional material required for the bonding of the building units. Hence the cost of construction reduces further. Additionally, the non-usage of bonding materials in between layers reduces / eliminates the surface finishing.</p>		<ul style="list-style-type: none"> • Identification of materials done. • Basic test for materials carried. • Tentative mix proportions identified. 	<ul style="list-style-type: none"> • Based on the properties of materials identified, various tentative mix are physically tested. From the result, three mix proportions are selected for further testing. Out of them, one mix proportion is used for casting of specimen and further testing. The strength and other characteristic tests are done for the cube specimens prepared. The dimension of the building block is finalized from the various models prepared using CADD software. After testing of cubes the real specimen is prepared and tested. • For commercialization of the product, talks are initiated with two construction companies. Out of them, one company was satisfied with the product and orally agreed for the orders. Next month, the purchase order will be expected from that company. Since it has to 	<ul style="list-style-type: none"> • Block dimensions finalized. • Trial test completed. • Trial specification fabricated and tested. • Optimum proportion finalized. • A talk for commercialization of the product is initiated. • Preparations of Battery mould and semi automation of fabrication are started. • Improvement in terms of use of new materials and strength enhancement are under progress.


Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
				<p>be supplied in a short time, preparation of battery mould and semiautomation process is initiated.</p> <ul style="list-style-type: none"> For further improvement purposes, addition of new materials and modified mix proportions are also started. 	
5	<p>Project Name: Natural Coagulant For Sedimentation Tank in Water Treatment Plant</p> <p>Team Name:</p> <ol style="list-style-type: none"> B. Shrinath N. Zafar Khan A. Kalanithi <p>Mentor Name: M. Thillai Backiam</p> <p>Project Description: The project deals with prepare an efficient and eco-friendly coagulant, instead of using chemical Coagulant and to find the optimum dosage of the banana pseudostem bio- coagulant powder for water quality treatment. The pseudostem is the part of the banana plant that looks like a trunk. It is formed by the tightly packed overlapping leaf sheaths. Even though the pseudostem is very fleshy and consists mostly of water, it is quite sturdy and can support a bunch that weighs 50 kg or more. The pseudostem continues to grow in height as the leaves emerge one after the other and reaches its maximum height when the inflorescence emerges at the top of the plant. The pseudostem is grinded to powder form. To determine the optimum coagulant dosage for clarifying the given sample of water by using pseudostem</p>		<ul style="list-style-type: none"> Identification of method to prepare banana stem powder done Trial run completed to identify to coagulation nature of banana stem 	<ul style="list-style-type: none"> A simple cheap organic material which is easily available is used here for the coagulant sedimentation instead of usage of heavy chemicals that has various disadvantages. Eco-friendly coagulant. Non –pollutant and easily degradable. Can be used as fertilizers based on the type of water to be treated. Provides both natural flocculation and effective sedimentation 	<ul style="list-style-type: none"> Methodology to prepare banana stem powder at low cost is finalized Particle characteristics of banana stem powder to be used is identified Performance characteristics of banana stem powder and currently available coagulant are tested for various trial water samples Design methodology for effective mixing of coagulant is completed Various


Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
	<p>powder as the coagulant and performing the jar test experiment.</p> <p>After knowing the optimum dosage of the psuedostem coagulant, the required dosage is now can be used for the practical application of sedimentation process. In the application of sedimentation process with usage of bio-coagulant psuedostem powder the resultant sludge will be settled at the bottom of the tank. Sludge is collected and processed for the application of fertilizer.</p>				<p>concentrations to be used For optimum Dosage of organic coagulant is finalized</p> <ul style="list-style-type: none"> • Preparation of readymade organic coagulant in tablet form is initiated. • Testing of a new coagulant (natural) is also started.
6	<p>Project Name: Assistive Goggle</p> <p>Team Name:</p> <ol style="list-style-type: none"> 1. Atshaya Kumar R 2. John Solomon A 3. Saairaam Prasad K V <p>Mentor Name: Arockia Abins</p> <p>Project Description: To build a system that converts visual inputs into audio signals through the speaker, it is like a assistant for the blind people which lead us to design a product to help the blind(visually impaired) people to identify person and to navigate in the environment or in the society</p>		<ul style="list-style-type: none"> • Collected insights about face recognition techniques using google teachable, tensor flow and open cv based face detections. • Contacted specs making person for the feasibility study of goggle that could hold a camera battery and processor. • Headgear kind a approach was proposed and dropped in the 	<ul style="list-style-type: none"> • Usage of open source tech stacks and brings out the voice based communication in existing face detection recognition technology. • A simple wearable device of light weight and is so easily portable. • Text recognition will read the texts in front of the blind people. In addition to these once map integration is done it is possible for blind people to navigate from one place to another. 	<ul style="list-style-type: none"> • Done with face recognition part with a avg of 65% (working to get them at 90's) button based triggering also tested so the need for camera to be 24x7 is not necessary.

Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
			group study due to some fallbacks	<ul style="list-style-type: none"> Also With the help of indoor positioning systems they may able to move or understand their position all through the voice outputs from the goggle. 	
7	<p>Project Name: SHE DRONE</p> <p>Team Name: 01. Ashwik M. Acharya 02. Sriram A. 03. Naveen Kumar L. 04. Gomathi Shankar P. S. 05. Lakshmi Narayanan R. 06. Rakhul K. R. 07. Subareesh Krishnan R. 08. Jeran Joel B. 09. Ananth Sai 10. Sathiyar A. R.</p> <p>Mentor Name: Dr. S. Gunasundari</p> <p>Project Description: Development of a Gesture Controlled Drone which implements collision sensors and Machine Learning algorithms to track the user and detect any sign of aggression directed towards the user.</p> <p>Update: Implementation of Hive System and Master slave system to extend capabilities of the system.</p>		<ul style="list-style-type: none"> Design and specifications of the drone finalised. Structure of the logical framework setup. Part requirements defined and applied for funding. Cheque Received. Items required are purchased to do the project. 	<ul style="list-style-type: none"> Parts acquired and drone construction completed. Logical framework further developed based on further study of openCV and autopilot systems' capabilities and feasibility. Updated sensors and parts list developed and applied for further funding. 	Drone undergoing testing and callibration. Autopilot system being setup. Theoretical applicability of openCV algorithms as well as stereoscopic camera for depth calculation being studied, will implement practically once respective sensors are acquired. Development of Android app underway as per new requirements of direct camera feed and manual drone control.


Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
8	<p>Project Name: 2 IN 1 Water Purifier</p> <p>Team Name:</p> <ol style="list-style-type: none"> 1. Pirthiv S 2. Bharathi S 3. Roshika M P 4. Ashwath S 5. Mohammed Niyaz H 6. Arulmozhi I K <p>Mentor Name: Dr. K. Suresh Kumar</p> <p>Project Description: A 2 IN 1 WATER PURIFIER runs with and without electricity and it aids in achieving zero wastage of water through RO water purifiers.</p> <p>Unit1 (which runs without electricity): Maximum usage of first unit for domestic purposes like cooking, etc., Safe for drinking purpose also(during emergency)</p> <p>Unit2 (Only for drinking): RO wastage water FROM UNIT 2 is filtered by a specially designed filter (carbon and lime) which is designed outside the unit. So that the wastage water from the RO filter can be diverted to the first unit and gets diluted with normal water and again filtered and utilized for domestic use such as cooking , drinking , etc. Thus achieving zero wastage</p> <p>There is <i>no existing model</i> of such 2 in 1 water purifier(go green technology) available in the market.</p>		<ol style="list-style-type: none"> 1. Design is ready; Literature completed 2. A reverse osmosis system wastes about 4 gallons of water per gallon made. If you use 3 gallons a day for drinking, cooking and internal consumption, that means you will waste about 12 gallons, making a reverse osmosis system about 25% efficient!. 3. Though there are Zero Wastage and Zero Liquid Discharge technologies, they do not give the desired output and there is at least a little wastage or discharge in consumer products for use in households. 	<ol style="list-style-type: none"> 1. Patent filing 2. Stylish design with UV LED Sterilization and Detachable Dual faucet for room temperature drinking water. 3. The 7-stage filtration with 5 filters (sediment, pre-carbon, natural and cuckoo's ro filter and uf filter. 4. These are being more helpful and achieve zero wastage of water through ro water purifiers. 	Prototype preparation


Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
9	<p>Project Name: Electronic Watchdog Based Home Safe System (EEE)</p> <p>Team Name:</p> <ol style="list-style-type: none"> 1. Sai Suresh M. V. 2. Vignesh P. 3. Hari Kumaran V. K. J. 4. Narain D. <p>Mentor Name: Mr. V. Rengarajan</p> <p>Project Description: The General purpose of the invention is to ensure client and possession safety from burglars and prevent burglary by raising alarm to the concerned authorities if any abnormal activities are happening around.</p> <p>On October 2, 2019, Lalitha Jewellery, a three-storeyed building near Chathiram bus stand in Tiruchirappalli district, was burgled by masked men who gained entry by drilling a hole in its wall. The shop was robbed irrespective of the high security mechanisms such as security personals, and CCTV cameras.</p> <p>To prevent such situations Electronic Watchdog Based Home Safe System is invented to detect various sounds in the vicinity and relay an alert in case of burglary to the owner of the building. The working mechanism is as follows:</p> <p>Various environmental sounds around the monitoring region are captured using an embedded system device, with the help of a machine learning algorithm and Artificial Intelligence sound recognition tool, the environmental sounds are compared with pre existing sound models and when the required conditions are met, an alert is sent to the client with the help of LoRa communication technology. The current</p>		•	•	•


Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
	<p>existing technology doesn't have a security system which uses sound recognition to detect abnormal activity, and since artificial intelligence is a booming topic, with future improvements in the subject and rate of burglary in mind this technology has a lot of potential in the future. The advantages of the invention are:</p> <ol style="list-style-type: none"> Quick processing to detect the type of activity, in contrast to the cloud based decision making system. Suitability of the embedded device to implement surveillance in remote areas. 				
10	<p>Project Name: Pesticide Spraying Agro Drone</p> <p>Team Name:</p> <ol style="list-style-type: none"> Shivendra G. Srinath S. Praveen Kumar S. Magesh V. Ramakrishnan T. <p>Mentor Name: Dr. M. Arockia Jaswin</p> <p>Project Description: Growing fruits to meet international standards demand residue-free product, and hence there is a need to strengthen good agricultural practices. Insect pests are a major limiting factor in achieving full yield potential of fruit varieties. The main objective of this project is to design and develop a cost effective multipurpose drone for pesticide spraying on tall trees such as mango tree, apple tree, coconut tree, etc. Controlling pests in mango farm is a great challenge for the farmers. Most of the liquid pesticides are sprayed by the manual sprayers, which causes high wastage, respiratory issues on the workers and also couldn't reach all the required places. The development of this project will reduce the manual work, time consumption for spraying over large areas and will prevent farmers (spraying pesticides by climbing the tall trees)</p>		<ul style="list-style-type: none"> • Designs made for the pay load to select the structure and motors/ battery. • Required components are ordered and purchased. • Motors, blades and battery are fixed with the frame to prepare the structure. • Fixing of control system for the drone is in progress 	<ul style="list-style-type: none"> • Developed a pesticide and/or fertilizer spraying drone, especially suitable for tall trees orchard, in real-time. • To prevent the farmers manually climbing the trees to spray chemicals and protected them from respiratory diseases, skin allergies and occurrence of accidents. • A camera to capture leaf color, leaf size and like identify the occurrence of plant diseases and/or pests in real-time. • A. I. based algorithm to recognize the kind of diseases and/or pests occurred in the trees considering image data set acquired in real-time. • Deliver or suggest the 	<ul style="list-style-type: none"> • Drone assembled • Flight controller programming completed • Spraying system assembled • AI data processing in progress • Patent provisional registration completed (Application Number- 202141034869)

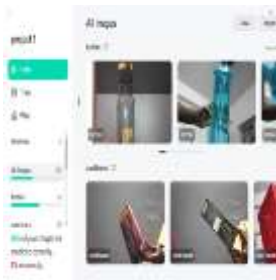

Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
	from respiratory problems, skin diseases and accidents. The major innovation focused in this project is collecting dataset of the images of diseases affected trees and training the AI using DATA set to recognize the diseases and find out solutions for these diseases. The design of multipurpose unmanned aerial vehicle comes with a camera and a container to reach the correct place and spray correct amount of pesticide preventing over dosage. The drone can reach an optimum height so that it can spray pesticides even on top of the trees which are affected by pests.			<p>appropriate chemical related to the specific disease detected using the embodied artificial algorithm.</p> <ul style="list-style-type: none"> The present invention is to spray an appropriate chemical accurately in a specific place where a disease is identified. 	
11	<p>Project Name: Green Waves</p> <p>Team Name:</p> <ol style="list-style-type: none"> 1. Ragavendiran E. 2. Sathyanarayanan S. 3. Sathyanarayanan P. 4. Mohanraj R. <p>Mentor Name: Mr. M. Deepak Kumar (AP / Mechanical)</p> <p>Project Description: The present invention herein relates to an autonomous water surface cleaning movable machine, more particularly the autonomous floatable solid waste cleaning machine provisioned as a battery operated, wirelessly monitored, and controlled using a mobile phone, autonomous navigation enabled, and assembled with appropriate sensory interfaces to identify the obstacles in the navigation path along with water depth measurement. The real-time floatable solid waste cleaning machine made as an efficient alternative to the existing conveyer-belt assembly system, known for huge weight, higher energy consumption and immobility. the said autonomous water surface cleaning machine configured with appropriate microcontroller with intelligent algorithms for the</p>		<ul style="list-style-type: none"> Design and specifications finalised. Materials identified Applied for funding. 	<ul style="list-style-type: none"> Funding Received for the purchase of components and for the fabrication work Funding received for applying patent 	Project is near completion. Have to collaborate with an industry for technology transfer or proceed for a start up.


Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
	navigation in the predefined way path and functioned using ardupilot mission planner considered the data from sensors, including gyroscope, accelerometer, magnetometer, barometer, and global positioning system.				
12	<p>Project Name: Arduino Based Emergency Ventilator for COVID – 19 Patients</p> <p>Team Name:</p> <ol style="list-style-type: none"> 1. Ashwin Kumar S. 2. Badhri Narayanan 3. Deva Darshayini S. 4. Arun Prasath <p>Mentor Name: Mr. Dinesh Babu (Mech.)</p> <p>Project Description: The existing Ventilators require medical personnel to press the diaphragm. Some of the new projects on Ventilator use Slider Crank Mechanism to press the diaphragm on either one of its sides or both of its sides. This Ventilator uses Arduino board which in turn actuates the soft iron core or the electromagnet which is fixed to a horizontal plate through a high-tension spring. In the normal uncompressed state, the diaphragm compresses the spring. The ECG of the patient is provided as the input to the Arduino board and the Arduino board is programmed so as to provide the required amount of air based on the pulse rate of the patient.</p> <p>As the ECG of the patient is provided as the input, the Arduino calculates the amount of air required for the patient, and accordingly expands and contracts the spring thereby providing adequate amount of oxygen rich air to the patient. This doesn't require a human to control or regulate the process thereby preventing the contamination of contagious diseases.</p>		<ul style="list-style-type: none"> • Fabrication process to be started 	<ul style="list-style-type: none"> • Development of automatic BVM ventilator control through (Lab view/ Fluid sim software) 	<ul style="list-style-type: none"> • Basic model Set up ready • Writing program for interfacing the electro magnet with the sensors

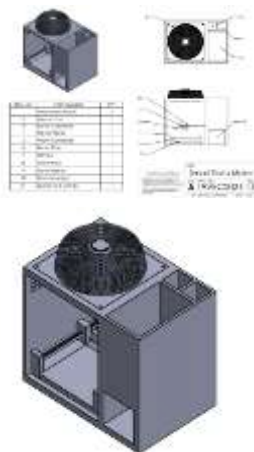
Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
13	<p>Project Name: Evaluation of Teaching Effectiveness and Students Attentiveness in Class Using Machine Learning</p> <p>Team Name:</p> <ol style="list-style-type: none"> 1. C. Pavithra 2. Tharika Jayaraj 3. A. Pepin persia 4. V. Krithika <p>Mentor Name: Dr. J. Sathya Priya</p> <p>Project Description: Online classes are smart, but they aren't as effective as classroom teaching. Hence, we designed a project to make classes more interactive. A drowsiness detection system is implemented which uses the concept of Mouth Aspect Ratio and Eye Aspect Ratio.</p> <p>This project focuses on the overall attentiveness and drowsiness ratio of the students in the class using the device's front camera and eye and mouth tracking technology. In short, the results obtained are encouraging and these systems may continue to be developed if extended and updated in the future.</p>		<ul style="list-style-type: none"> • Project requirement gathering. • Analysis of project components. • Listed project components. • Ordered phase-1 project components. • Gathering of components done. • Design process done. 	<ul style="list-style-type: none"> • Measuring students attentiveness in terms of eye and mouth aspect ratio. • To differentiate normal drowsiness from sickness. • A real time algorithm is proposed for eye blink detection in a video Facial landmark points are used to extract eye aspect ratio (EAR) and mouth aspect ratio (MAR) using an open source library called openCV. 	<ul style="list-style-type: none"> • 80% project completed. • Detects drowsiness from sickness. • Each one hour deviation sends students attentiveness in terms of percentage. • Can predict student attentiveness both for online and physical classes. • Need to deploy: • To send students attentiveness to staff and third party through GSM.
14	<p>Project Name: 3D Obstacle Avoidance and Automatic Maneuvering</p> <p>Team Name:</p> <ol style="list-style-type: none"> 1. Vancheeswaran Vaidyanathan 2. Saravanan A. 3. Suriyanarayanan A. 4. Vijay Logesh T. S. <p>Mentor Name: P.Vinayagam, E.Gangadurai</p> <p>Project Description: Over the past few years, there has been</p>		<ul style="list-style-type: none"> • Budgeting and design process was started. We got the first cheque on 19/02/2021. Placed the order for components and received it by end of March. 	<ul style="list-style-type: none"> • Built the drone using the components and started devising plan for obstacle avoidance. • Implementation of obstacle avoidance was done. • Started the process towards implementing indoor exploration. • Implemented exploration strategies. 	<ul style="list-style-type: none"> • Currently working on return to takeoff point process and overall system integration

Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
	<p>tremendous development in applications related to drones (Flying Robots). They are being extensively used in various areas like agriculture, disaster recovery, and reconnaissance etcetera. A lot of these applications which include the drone depend on on-location services like GPS to provide the necessary functionalities. However, GPS is not accurate and thus it is not reliable for autonomous drones.</p> <p>The ultimate aim is to build a drone that automatically navigates and collects its position and navigation data for exploring in GPS-deprived regions. The drone is very helpful in indoor regions like malls, inventory areas, etcetera, which it autonomously navigates. The structure of the drone is small (nano-drone) that it can be also used in uncertain times like fire accidents or any other disasters. In a nutshell, the aim is to develop a system that can help drones function autonomously and ascertain information regarding its position and navigation for exploration in GPS deprived regions (primarily indoor region)</p>				
15	<p>Project Name: Minter Bike Assistant</p> <p>Team Name: 1. Gurusaran 2. Kaviyaran 3. Vishakh 4. Ramji</p> <p>Mentor Name: R Shankari</p> <p>Project Description: The IOT design and network topology has been made ready with budget for the components and their specs have been reported</p>		<ul style="list-style-type: none"> Budgeting and design process was started. Received the order for components started with individual module design. 	<ul style="list-style-type: none"> IOT based bike assistant system which infuses a bit of Business Intelligence tool that processes a wide range of sensor data and provides the rider the required info. PCB design and 3d printing is in progress, one for helmet and other for raspberry pi hat (a layer of chip over raspberry pi to customize the pins) 	<ul style="list-style-type: none"> All individual modules with sensor integrated with esp32 Mqtt has been configured and the data communication between raspberry pi and other esp32 has been established

Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
16	<p>Project Name: Life and Vehicle Safety Enhancement System</p> <p>Team Name: 1. Gokul J. 2. Aravindhan S. 3. Naveen R. P. 4. Abhishek R. 5. Shubam Prasad 6. Mahesh Sarathi</p> <p>Mentor Name: Dr. K. Thilagam</p> <p>Project Description: In the current scenario, there is no proper method of accident information system is available in our society. Due to delayed information the arrival of paramedic forces is delayed and many lives are lost. This project mainly works on immediate alert of accident occurrence. Once the accident is detected by other modules. Information with location is passed to a remote server which transfers the info to nearby paramedical forces Location is tracked whenever required and is also useful in combination with other modules. Load Sensors are used to ensure whether all the passengers are wearing seatbelts and intimates them too wear if they are found not. By use of Location tracking module and a pair of RF Tx and Rx, we may implement theft detection at any cost. Working module is Once the accident is detected the safety verification will be happened It will display safe or not safe if the person choose safe there will be no further action if the person choose not safe or dose not respond within 15s it will automatically assume the person is not safe after that it will find the nearby paramedical forces through our server and with the help of database it will also sent the live location to that</p>		<ul style="list-style-type: none"> • Quoted the budget Plan. • Started the design process. • Purchased the components. • Started the individual design module. 	<ul style="list-style-type: none"> • The occurrence of an accident and its severity is detected with the help of a three-axis accelerometer. The accident is detected by the other modules in the system and the information with location is passed to a remote server which transfers the information to nearby paramedical forces. • Location tracking module and a pair of RF Transmitter and Receiver, the theft Detection module has been implemented. • In the database analysis module all the locations will be saved in cloud server and if any accident is detected then this database will find the nearby paramedical firms. This location will be shared to corresponding paramedical firms with an alert message. This part is also completed. 	<ul style="list-style-type: none"> • Patent Registration completed • Advanced innovative work in theft detection module is on process. • Requested amount has to be received. • Technology transfer is on process

Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
	paramedical forces if the nearby hospital accepts the accident the ambulance will be sent to that place if not the information will be sent to the next nearby hospital so that the person will be safe soon.				
17	<p>Project Name: Machine Vision Based Waste Classifier</p> <p>Team Name: 1. Somasundaram.S 2. Karthik.G 3. Deepak.J.K</p> <p>Mentor Name: B. Raj Narain</p> <p>Project Description: The system concentrates on identification, classification and segregation of non-biodegradable waste from the trash sent for recycling process. It can be castoff in large scale industries for waste management purpose.The proposed system aims to recognize and categorize the recyclable waste from public places like mall, theatres, bus terminals, railway junctions, etc. It can operate autonomously as we implement Image Processing and Convolutional Neural Network (CNN), which require minimal human intervention.</p>		<ul style="list-style-type: none"> Schematic, BOM and budget prepared. Components purchased and machine learning system trained Image sample database collected for more than 10 number of waste materials 	<ul style="list-style-type: none"> Trained the System with all the image samples and created model Image recognition model deployed in Raspberry Pi Images of waste materials are recognized by Camera and Raspberry Pi system and coordinated with Robotic Arm to pick the object. 	<ul style="list-style-type: none"> Testing the robot in real time with a conveyor belt. Adjusting the speed of conveyor as per the waste materials quantity
18	<p>Project Name: Effective Delivery System using Quadrotor Fixed Wing Hybrid UAV for Health Care</p> <p>Team Name: 1.Praveen Kumar.S 2.Akash.R 3.JayGanesh.S 4.Rajagopal.H</p> <p>Mentor Name: Dr. A. Lakshmi Sangeetha</p>		<ol style="list-style-type: none"> Design Calculation and Weight Calculati on Completed for drone VTOL drone design was finalised. Required Components or 	<ol style="list-style-type: none"> Design of the drone was finalised. The various components required for building the drone were purchased. The desired structure was built with the components purchased. The project awaits the inclusion of a GPS 	<ul style="list-style-type: none"> Patent Filed Design part are completed Testing and Validation to be done

Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
	Project Description: The main objective of the proposed model is to provide medical care and resolve the problems based on healthcare emergency aid. The Unmanned Aerial Vehicle designed drone operated autonomously. The drone's GPS is calibrated and linked with "GOOGLE MAPS" and it has an approximate destination land zone of 1m-2m about the set location. The main feature of the UAV is "Vertical Take-Off and Landing" (VTOL). This feature enables the operator to efficiently use a small space launching space and landing spaces. This drone is designed with a fixed wing hence its hybrid nature decreases power consumption. Alarm systems runs in backup power source and not the main power source it will always be available in case of emergency		Parts are Identified. 4. Cheque released in the month of March then purchase process was started.	tracking module to be installed.	
19	Project Name: Instant Idli Maker Team Name: 1. Mr. Saran Raj.G. 2. Mr.Siddharth. P 3. Mr. Vimal Raj. A T Mentor Name: Dr. S. Baskara Sethupathy (Professor & HoD / Automobile) Project Description: The modern world runs with all facilities and methods that can change work much more easily. All fields of work have developed and introduced various methods to improvise and make work easier except cooking. Cooking is a art, but now in this busy world of life it must also be transformed into smarter and easier way. Our product is one step in this deep concept. Our Automated Idly maker will solve the traditional cooking of idly using manpower into automated one.We use full automation for control and process, which is more easier for the working women and men. Instead of using gas it uses electricity with is less pollutant and also kind of safe		1. Designing of Idly maker. 2. Preparation of Bill of Material 3. Submission of Budget and for material purchase.	1. Our new product is compact and consist of an heating coil placed inside the cylindrical space.It is made of stainless steel and covered with the thermosetting plastic outside in order to prevent the heat flow outside. The trays of idly is fixable and removable for cleaning purposes. 2. The batter is filled by the jet nozzles which are connected to the batter storage space. The quantity of batter to be used is controlled by IOT. 3. There is a sprayer to sprinkle oil on the tray in order to prevent the	1. Fabrication in progress.Material purchase in pipeline. Patent drafting ready. provisional patent to be filed. 2. Assembling and testing to be done.

Sr. No.	Team/Project Description	Photos	Project status at beginning of the Year	Interventions made	Current Status
	to cook. Simple words “Our product will make cooking easier and smarter.”			sticking of idlis. Once the space per idly is filled it automatically revolves to fill the other space of tray. It is more efficient and less consumption of fuel and also it makes cooking easier.	
20	<p>Project Name: Smart Dosa Maker</p> <p>Team Name:</p> <ol style="list-style-type: none"> 1. Sathiyar. A. R 2. Ananth Sai Shankar V. 3. Yokesh J 4. Vishnuprasad S. <p>Mentor Name: Dr. S. Baskara Sethupathy (Professor & HoD /Automobile)</p> <p>Project Description: Dosa is a staple food in Indian households. With the number of working Indian women increasing exponentially. Therefore there is a need to develop new ways to make food in order to reduce time spent in the kitchens. The project is to conceptualize, design and fabricate a fully functional smart automated portable Dosa making machine. It makes dosa automatically at the press of a button without need for human intervention. The batter for the dosa and other consumables are stored in a container attached to the machine. The batter is transported to the pan through a system of pipes and motors. The dosa maker has been integrated with sensors and microprocessors which allows the dosa maker to be controlled via an app. The dosa maker has been designed in such a way that all the process from pouring the batter to removing the dosa from the pan has been automated.</p>		<ol style="list-style-type: none"> 1. Designing of Smart dosa maker. 2. Preparation of Bill of Material 3. Submission of Budget and material purchase. 	<ol style="list-style-type: none"> 1. Method for easy cooking dosas. 2. Dosa Batter consistency and uniform flow for each dosa. 	<ol style="list-style-type: none"> 1. Provisional Patent filed:1/23210/2021-CHE 2. Fabrication in Progress. 3. Material purchase in progress.

Submit three/four high resolution (at least 300 dpi) pictures in jpeg format showing the prototype/product along with the students and their mentor.

5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. – Please refer

IEDC & E-Cell Activity

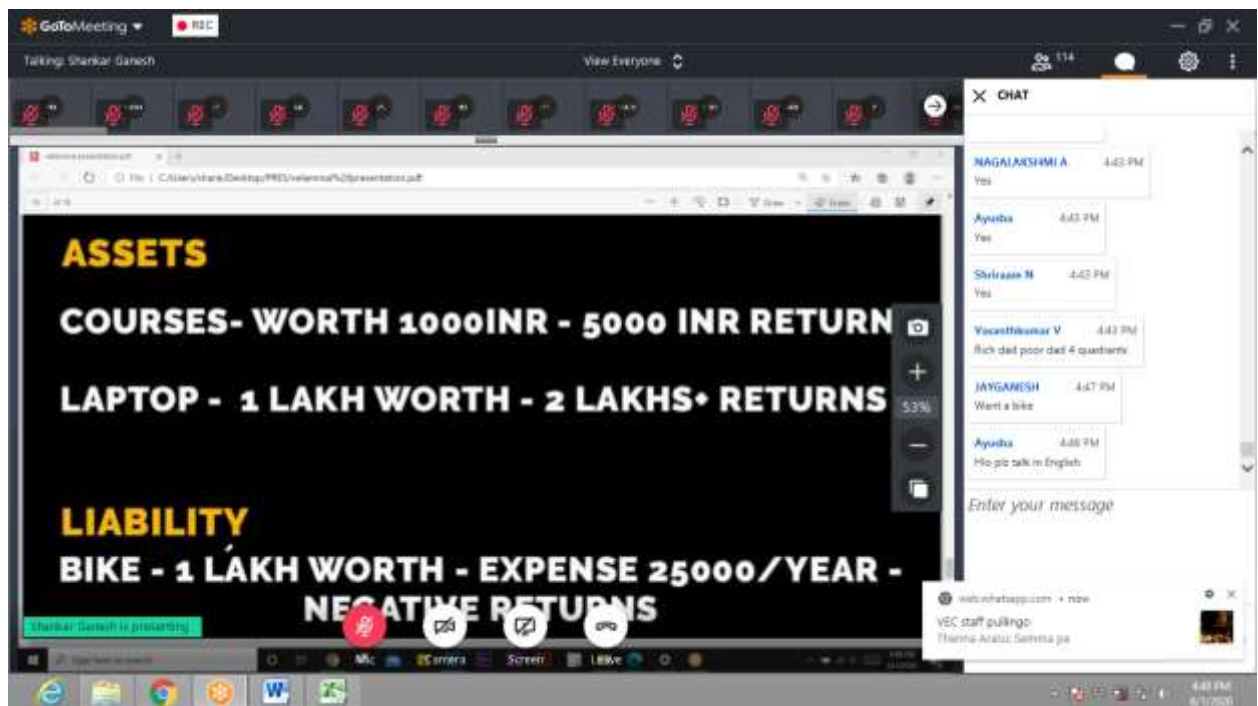
2020-2021

Sr. No.	Name of the Event	Date	Sponsored by	Number of Beneficiaries	Invitation
1	Online webinar on "5 absolutely doable steps to kickstart career and become rich"	01.06.2020	IEDC & E-Cell	148	
2	Online webinar on "Overcoming challenges in Business Life, Insights on Startups & Investment"	13.06.2020	IEDC & E-Cell	75	
3	Online webinar on "Engineering the Future"	20.06.2020	IEDC & E-Cell	102	
4	Online webinar on "10 steps to become an Entrepreneur"	21.06.2020	IEDC & E-Cell	154	

Sr. No.	Name of the Event	Date	Sponsored by	Number of Beneficiaries	Invitation
5	Online webinar on "Entrepreneurship and Family Business"	27.06.2020	IEDC & E-Cell	97	
6	Online webinar on EFFECTUATION – An Entrepreneurial approach for the post-COVID world	06.07.2020	IEDC & E-Cell	110	
7	Online webinar on "Financial Awareness Programme"	09.07.2020	IEDC & E-Cell	146	
8	Online webinar on "New Entrepreneur cum Enterprise Development Scheme (Needs) – A Entrepreneurial approach government schemes"	16.08.2020	IEDC & E-Cell	84	



IIT Incubation Center – Visit



Online webinar on "5 absolutely doable steps to kickstart career and become rich"

A. SUMMARY SHEET

1. TITLE OF THE PROJECT:

SELF-CONFIGURED AND INTERNET OF THINGS SUPPORTED CALORIES AND WORKOUT BALANCING SYSTEM.

2. Student Team & Staff Coordinator Details:

- a. Name of the student: Ms. Y. Haritha
Year & Semester: IV Year& VIII Sem
Course: B.E. Electronics and Communication Engineering
- b. Name of the student: Ms. K. Sindhu priya
Year & Semester: IV Year & VIII Sem
Course: B.E. Electronics and Communication Engineering
- c. Name of the student: Ms. V. Harini priya
Year & Semester: IV Year & VIII Sem
Course: B.E. Electronics and Communication Engineering
- d. Name of the student: Ms. P. Pavithra
Year & Semester: IV Year & VIII Sem
Course: B.E. Electronics and Communication Engineering
- e. Name of the student: Ms. S. Mythili
Year & Semester: IV Year & VIII Sem
Course: B.E. Electronics and Communication Engineering
- f. Name of the Staff Coordinator: Mr. P. Vinayagam
Designation: Assistant Professor
Name of the Department: Electronics and Communication Engineering

SUMMARY OF PROGRESS MADE:

This project aims to measure the calorie values present in the food and the burnt calorie. The summary of the progress made related with our objective are as follows:

1. Dataset has been collected for the Indian food items and the corresponding calorie dataset has been prepared.
2. Usage of Raspberry pi 3 B+ model for preprocessing of the food image.
3. The feature extraction for the food image using deep learning was processed.
4. Python code using deep learning was prepared and executed to display the name of the food.

B. DETAILED REPORT

SELF-CONFIGURED AND INTERNET OF THINGS SUPPORTED CALORIES AND WORKOUT BALANCING SYSTEM

Mentor Mr. P. Vinayagam Asst prof ECE	Student Team Y. Haritha K. Sindhu priya V. Harini priya P. Pavithra S. Mythili
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INTRODUCTION:

Need Identification: This system proposes a effective way to measure and manage daily food intake of patients and dietitians. The system will take the images of food and using deep learning, segmentation and classification it calculates the nutrition and calorie content in the food. The proposed system will certainly improve and facilitate the current calorie measurement techniques. Food portion recognition system used for measuring the calorie values. We are performing segmentation, food portion recognition using deep learning to display the food name.

S&T Needs in Proposed Area of Intervention:

- **Raspberry pi 3 B+ Model** is used for preprocessing and feature extraction of the food items using deep learning which identifies and displays the food name.
- **Camera** will give the live video of the food. The full HD five element glass lens captures sharp and clear image while the premium autofocus adjusts smoothly and precisely to provide consistent high definition. It can record clear videos even in dim light.
- **Pedometer sensor** is a small device that counts the number of steps you take. It is also called as a step count. It offers the features like calculating the calories burnt.

OBJECTIVES: (AS APPROVED IN THE PROEJCT)

The fundamental objectives of Self-configured and internet of things supported calories and workout balancing system are stated below:

- By using deep learning, the system will be able to recognize accurately the food items on the plate.
- In this method it enables the user to capture the photo of target food item in order for the system to determine the calorie content.
- With regard to multiple food items the system will be able to segment them when they are placed separately on the plate.

METHODOLOGY FOLLOWED:

First, we have collected various data about the Indian food items.

- Then we have conducted market survey to know about various types of food calorie measuring devices, cost, customer category, customer satisfaction and strength & weakness of the products.
- We have identified that in our base paper they have discussed about the weight of the food as well as calorie per byte whereas we have found calorie value for the whole food by connecting the camera that takes video of the food item in the plate.
- Here we compare the real time calorie information with the outcome of the machine learning algorithm for better accuracy.

- In our present invention the system could be made as an individual device or it can be integrated with an existing machine.
- We have identified following technologies to design an efficient machine for detecting the calorie in the food.
 - a. **Raspberry pi 3 B+ Model** is used for preprocessing and feature extraction of the food items using deep learning which identifies and displays the food name.
 - b. **Camera** will give the live video of the food. The full HD five element glass lens captures sharp and clear image while the premium autofocus adjusts smoothly and precisely to provide consistent high definition. It can record clear videos even in dim light.
 - c. **Pedometer sensor** is a small device that counts the number of steps you take. It is also called as a step count. It offers the features like calculating the calories burnt.
- Various testing had been carried out and required corrections are incorporated.

SCIENCE & TECHNOLOGY COMPONENT:

Functionality:

The various functionalities of the self-configured and internet of things supported calories and workout balance alert system are

- Efficient mechanism for the detection of the calorie in the food.
- Monitor live food item in the plate using camera
- All operations are controlled with the help of raspberry pi board and camera for the detection of the calorie in the food item

Improvisation:

Our product is distinctive from any other products that are commercially utilized due to the following aspects.

- This is simple and easy to use.
- User friendly when interfaced with raspberry pi.
- Reliable
- Our results indicated reasonable accuracy of our method.
- This system is very important in the field of biomedical, the actual program is clear and easy to understand.
- Camera is used to predict the accurate features of the food items.

State of the art: VGG is a convolution neural network that is trained on more than million images from the image net database. As a result, the network has a learned rich feature representation for a wide range of images divide the data into training and validation datasets. Use 70% of the images for training and 30% for validation. We have used raspberry pi 3 B+ model board for interface. Raspberry pi 3 B+ is the final revision in the raspberry pi 3 range, Broadcom BCM2837BO, 1GB SDRAM. Extended 40 pin GPIO header, full size HDMI and 4 USB 2.0 ports, the input has been taken from camera as a video. The camera used here is Logitech. Camera will give the live video of the food. The full HD five element glass lens captures sharp and clear image while the premium autofocus adjusts smoothly and precisely to provide consistent high definition. It can record clear videos even in dim light. Micro SD port for loading operating system and storing data. 5volt/2.5 amps DC power input and DSI display port for connecting a raspberry pi touch screen display.

SPECIAL FEATURES: Self-configured and IOT supported calorie measurement system which can be used to measure the calorie value in the food item with the help of the raspberry pi. The system is useful for calculating the calorie value in the food item in the real time using high revolution camera and identifying its name by comparing it with the already trained objects to identify its name. The people will see the food name on the display and it is compared with the trained dataset of the calorie value to display its calorie value. The system will display the food name and its corresponding calorie value.

PATENT STATUS: The Patent for self-configured and internet of things supported calories and workoutbalancing system was filed on 8th,Nov 2019. Because of the various features, our system improves the overall calorie determination. Because of the easy operation by device, demand in users does not affect the calorie determination. The cost of the system and operating cost is lower when compared to other devices. Since our unique proposed idea uses smart processor with built-in configurations and camera to operate the system effectively for finding the calorie of the food.

This device will have following advantages:

- No need of manual interactions.
- It gives accurate results.

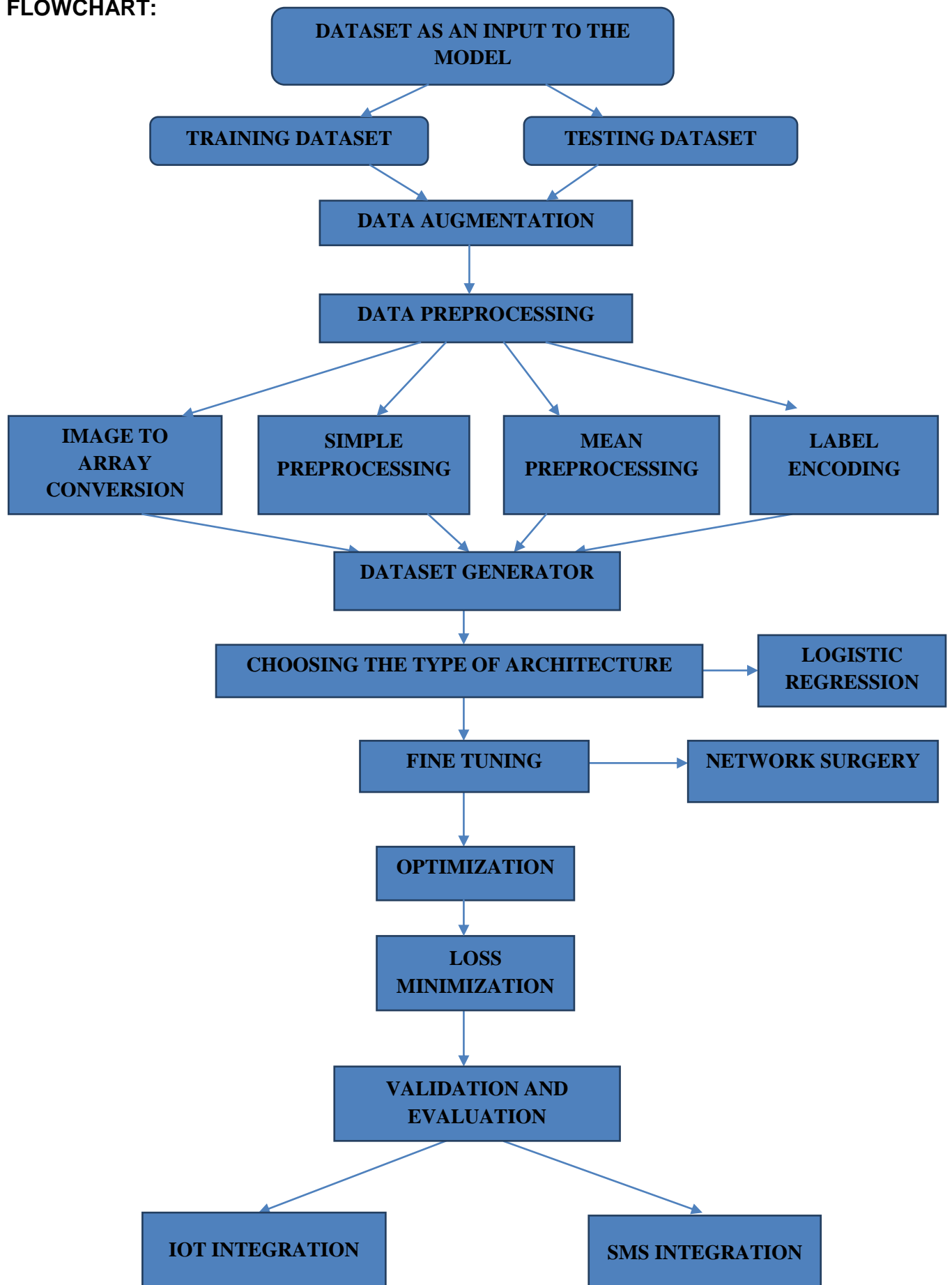
Overall features that has been stated above makes our product stand-alone and efficient compared to existing systems. Since there are no contemporary products which satisfies consumer needs, our proposal becomes first of its kind and we strongly believe that it fulfils the conditions to make it patentable.

COMMERCIALIZATION PLAN: One of the team member Ms. P. Pavithra is interested to start Startup in Chennai. She has discussed about our project in nearby hospitals and labs. Once, our project has been finalized by the hospital,she will start the Startup in an office space provided by NewGen IEDC,Velammal Engineering College, Chennai.

BRIEF DESCRIPTION ABOUT THE STUDENT STARTUPS:

- Self-configured and IOT supported calorie measurement system which can be used to measure the calorie value in the food item with the help of the raspberry pi. The system is useful for calculating the calorie value in the food item in the real time using high revolution camera and identifying its name by comparing it with the already trained objects to identify its name.
- The people will see the food name on the display and it is compared with the trained dataset of the calorie value to display its calorie value. The system will display the food name and its corresponding calorie value.
- This device is very useful for predicting the accurate value of calorie present in the food.
- The dietitian can operate this device using raspberry pi interfaced with Logitech camera. The camera used in this device will give the live picture of the food. The person sees the camera image on the display from the plate.
- Extended 40 pin GPIO header, full size HDMI and 4 USB 20 ports, the input has been taken from camera as a video.
- The full HD five element glass lens captures sharp and clear image while the premium autofocus adjusts smoothly and precisely to provide consistent high definition. It can record clear videos even in dim light.
- This device is very much reliable in our routine life.
- The camera unit and display are fixed on an assembly unit of the board which can capture the image on the plate.
- Pedometer sensor is a small device that counts the number of steps you take. It is also called a step count. It offers the features like calculating the calorie burnt.

FLOWCHART:



FINAL RESULT OBTAINED:

The images that are trained for the model can be seen in the below given figure.



After data augmentation we get the numerous images as shown in the figure



After the model is been trained we predict the output which recognizes the output that can be seen in the below figure.



The calorie for particular food is also displayed that can be seen in the below given figure



From this project we have effectively found the type of food as well as its calories which will help in less calorie consumption for a healthy diet.

CONTRIBUTION OF NEWGEN IEDC IN THE SAME:

- Provided required fund to develop the prototype.
- Technical committee conducted reviews periodically and provided many suggestions to speedup / improve the operation of prototype.
- Provided space for the team to develop the prototype.
- Provided computers, testing instruments (Multimeter, Oscilloscope etc.) and power supply units

FUTURE PLAN:

One of the team member Ms. P. Pavithra is interested to start Startup in Chennai. For the startup purpose,

- She has discussed about our project in nearby hospitals and labs.
- Once, our project has been finalized by the hospital, she will start the Startup in an office space provided by New Gen IEDC, Velammal Engineering College, Chennai.

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	Sphoorthy Engineering College		
Year of starting NewGen IEDC	2017		
Name of the Head/Principal of the Institution/College	Dr. MVS RAM PRASAD		
Name of NewGen IEDC Coordinator	R. ASHOK KUMAR		
Contact Details of NewGen IEDC Coordinator <ul style="list-style-type: none">• Mobile Number• E-Mail ID	R. ASHOK KUMAR 9392118884 rashokacse@gmail.com		
Financial Details	Sanction Order No./ Date		Amount Sanctioned
Previous Sanction Order Details	1	EDII/DST- NewGen IEDC/17-18/12	60,00,000/-
	2	EDII/DST- NewGen IEDC/17-18/12	47,50,000/-
	3	EDII/DST- NewGen IEDC/17-18/12	60,00,000/-

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcomes/ Achievements
1.	Innovation Awareness Camp	
2	a) Entrepreneurship Awareness Camp(EAC) b) Entrepreneurship Awareness Program by Sphoorthy NewGen IEDC	<p>The students are able to</p> <ol style="list-style-type: none"> 1. Have the ability to discern distinct entrepreneurial traits. 2. Know the parameters to assess opportunities and constraints for new business ideas. 3. Understand the systematic process to select and screen a business idea. 4. Design strategies for successful implementation of ideas 5. write a business plan.
3	Entrepreneurship Development Program	<p>Entrepreneurship and Innovation minors will be able to sell themselves and their ideas. Students master oral and visual presentation skills and establish a foundation of confidence in the skills necessary to cause others to act.</p> <p>Entrepreneurship and Innovation minors will be able to find problems worth solving. Students advance their skills in customer development, customer validation, competitive analysis, and iteration while utilizing design thinking and process tools to evaluate in real-world problems and projects.</p> <p>Entrepreneurship and Innovation minors will be able to mobilize people and resources. Students identify and secure customers, stakeholders, and team members through networks, primary customer research, and competitive and industry analyses in order to prioritize and pursue an initial target market in real-world projects.</p>

Sr. No.	Activities	Outcomes/ Achievements
		<p>Entrepreneurship and Innovation minors will be able to create value. Students are able to create presentations and business plans that articulate and apply financial, operational, organizational, market, and sales knowledge to identify paths to value creation through 1) company formation (for-profit); 2) social innovation (nonprofit); or 3) intellectual property licensing.</p> <p>Entrepreneurship and Innovation minors will develop and cultivate endurance. Students increase their awareness and deliberately practice the skills and disciplines necessary to increase confidence and agency; foster self-efficacy and self-advocacy; improve communication and problem-solving skills, manage strong impulses and feelings; and identify personal purpose.</p>
4	Faculty Development Program on Entrepreneurship	<p>The Faculty are able to</p> <ol style="list-style-type: none"> 1. Demonstrate a fundamental comprehension of business opportunity evaluation, from the perspective of a prospective investor. 2. Identify the most recognized sources of potential funding and financing for business start-ups and/or expansion. 3. Demonstrate basic computer proficiency, including the use of word processing, presentation, and spreadsheet software packages, as well as a basic facility with the internet and other research tools. 4. Demonstrate extemporaneous speaking skills developed through in-class discussion of text materials, case study analyses, and current entrepreneurship-related issues. <p>Assess their own personal work product(s) - and critique those of their colleagues - with regard to thoroughness, creativity and how those could apply to their own real life, future business ventures.</p>

Sr. No.	Activities	Outcomes/ Achievements
5	IDEATHON- Innovative Idea competition	<ul style="list-style-type: none"> • Creates a platform to share new ideas created by youth for their communities; • Provides an opportunity for those most affected by social issues to be a part of the solution; • Presents a competitive model to boost creative thinking and uncover innovative solutions; • Offers a fun and exciting way for youth to get involved in their communities; • Links governance into workforce development programming
6	12 students participated in Chinna Shodana Yatra in Association with Palle Srujana	COMPLETED
7	Awareness program by NEN Mentors to the Students.	COMPLETED
8	Project Expo By Sphoorthy Engineering College Students	<ul style="list-style-type: none"> • Develop professionals having good skills, self-learning ability and confidence to support and contribute to the growth of relevant industries. • This provides opportunity for the students to demonstrate their learning experience.
9	Summer training programs on Advanced technologies (IOT, DRONES, ROBOTICS , ANDROID ,3D PRINTING	<ul style="list-style-type: none"> • Develop professionals having good skills, self-learning ability and confidence to support and contribute to the growth of relevant industries. • This provides opportunity for the students to demonstrate their learning experience.
10	Innovation Expo organized by Sphoorthy NewGen IEDC in association with Palle Srujana	<ul style="list-style-type: none"> • Develop professionals having good skills, self-learning ability and confidence to support and contribute to the growth of relevant industries. • This provides opportunity for the students to demonstrate their learning experience.

Sr. No.	Activities	Outcomes/ Achievements
11	4 students participated in “Entrepreneurship Development Program for Student Entrepreneurs” by NAARM	<ol style="list-style-type: none"> 1. Entrepreneurship and Innovation minors will be able to mobilize people and resources. Students identify and secure customers, stakeholders, and team members through networks, primary customer research, and competitive and industry analyses in order to prioritize and pursue an initial target market in real-world projects. 2. Entrepreneurship and Innovation minors will be able to create value. Students are able to create presentations and business plans that articulate and apply financial, operational, organizational, market, and sales knowledge to identify paths to value creation through 1) company formation (for-profit); 2) social innovation (nonprofit); or 3) intellectual property licensing.

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcomes/ Achievements
1	9 students Participated in EXCITE JNTU PRODUCT ENGINEERING WORK SHOP	Completed
2	Students for DISHA program in IIIT Hyderabad	Completed
3	21 Students are participated in TEP–ISB(Indian school of Business Hyderabad) Program.	Completed
4	Invited the industry and successful startup representatives to Project Expos and arranged Mentor Talk	Completed
5	Participation in Startup Nidhi Contest for 2019	Completed
6	Sending sent for Internships to work in Startups & facilitating students for DST /DSIR/Innovation challenges innovations prototype funding.	Completed
7	National Level Hackathon on Health Tech & Agri Tech in Association with JNTUH-JHUB.	Completed

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcomes/ Achievements
1	JCELL Activates organized by JHUB JNTU Hyderabad	Workshop conducted
2	Appointed Mr. Pankaj Diwan from Uptech Idea Labs for establishing Industry connects.	Workshop conducted
3	Through the support of Sphoorthy Training & Placement cell, EDC Cell, Center for excellence	Workshop conducted
4	Support of ORACLE Academy, CISCO Academy	Workshop conducted
5	Support of TASK- Telangana Academy of Skill and Knowledge	Workshop conducted
6	MOU with NiMSME	Workshop conducted

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

Nil, but Prototype development was delayed due to pandemic.

3. Other important highlights (new initiatives), if any:

- One of the student project going to convert as startup

4. Student Projects:

Sr. No	Project Description	Project Status at Beginning of the year	Interventions made	Current Status
1	Praan-Rakshak	Ideation Stage completed	Idea validation, Business plan preparation and prototype development.	Prototype Completed
2	Mechanical energy power storage	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
3	Ubiquitous wireless power transfer	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
4	Deep Brain	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
5	Intelligent Proctor	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
6	AI Drone	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
7	Women Safety Device with GPS	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed

Sr. No	Project Description	Project Status at Beginning of the year	Interventions made	Current Status
8	SPREADING AND BAGGING OF GRAINS	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
9	VIROSAFE	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
10	Face Mask Barrier Detector	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
11	Auto Challan System	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
12	Hi-Tech Forming	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
13	Density based Traffic Control using Machine Learning	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
14	Turbo Clean	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
15	Fertilizer Sprayer(Urea)	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed

Sr. No	Project Description	Project Status at Beginning of the year	Interventions made	Current Status
16	Automatic Power cut during Disaster	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
17	RFID based smart cart for shopping malls	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
18	Howering Drone	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
19	Smart Comb	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed
20	Smart Farming Through IOT	Ideation Stage completed	Idea validation, Business plan preparation and prototype development	Prototype Completed

5. Provide a minimum two-page case-let each on the two best projects (either prototype development or commercialized) from the above list.

5.1 Project Name: UBIQUITOUS WIRELESS POWER TRANSFER

5.1.1 STUDENT TEAM DETAILS (WITH CONTACT INFO)

- 1.CHAPPALA NISSI VIJAY (7993125126)
- 2.SUJITH REDDY (6302927034)
- 3.ASHRITHA (9573987763)
- 4.SAI NAGA LAXMI SUNKARA (7993620584)

5.1.2 Brief description about the student start-up.

In this age of Technology, we use many iot Devices and electronic devices which requires power. But there is nothing changed the way we power these devices and the way we use. There is a lot of improvements had in the smartphone industry but there is no change in the way we power them. Many products tried to solve this problem like inductive pads but they didn't inductive pads are powerful but not portable to power everyday devices.

5.1.3 Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs.

Technical Field of the invention: Our product uses advanced technologies like optimal Beamforming , thermoelectric cooling and phased array antennas. We use ISM (Industrial scientific medical) band for Beamforming and communication purposes. We use accelerometer and gyroscope with communication units like Bluetooth 5.1 for best accuracy in Beamforming and power delivery.

Background of the invention: The inspiration for this robust wireless power transfer is scientist Nikola tesla. In the highly advanced world of Technology power demands and the way we power things can dramatically changes the things. The leap in processing powers of smartphones and laptops draws power faster rather than making high capacity batteries we can transfer power wirelessly to where we want on demand. We started looking into the inductive charging pads and by making the changes in them we introduced 3-D induction charging but this is not so efficient and not effective with parameters like distance.

Resonant inductive charging is a form of wireless power transfer that maintains high system efficiency across midrange distances due to the Q or quality factor of the antennas. The transmitter (TX).

Brief summary of the invention: wireless charging product generates a safe electromagnetic field that is captured by a receiver (RX) which is a small accessory that plugs into a device's power port. The antenna quality is the parameter for the antennas intrinsic efficiency or its inductive reactance divided by its resistance. The

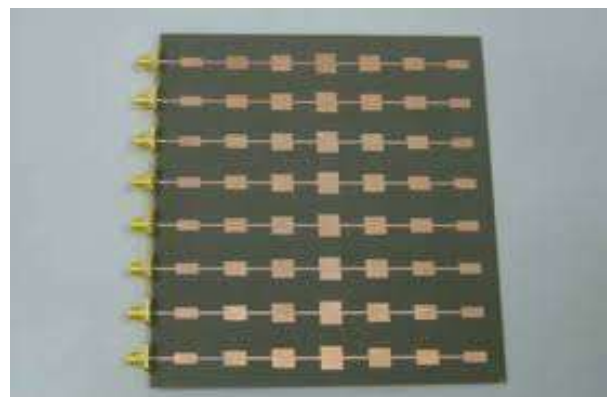
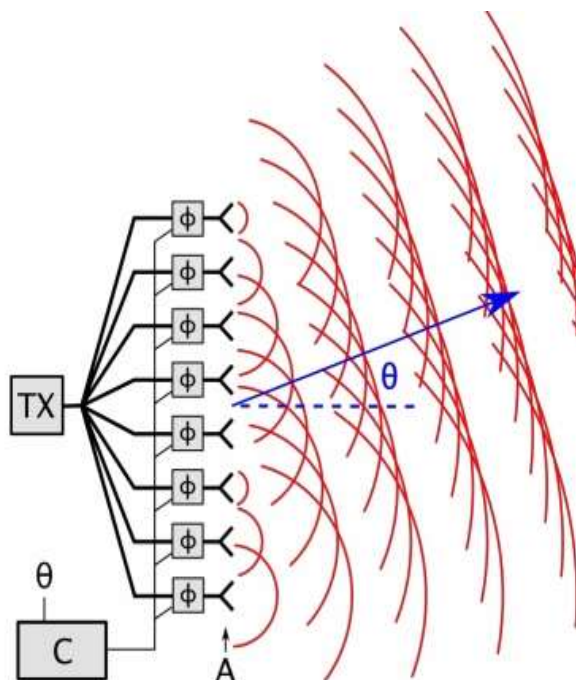
higher the intrinsic Q, the more potential coupling between TX and RX, which in turn leads to more power being delivered to the device at a further distance.



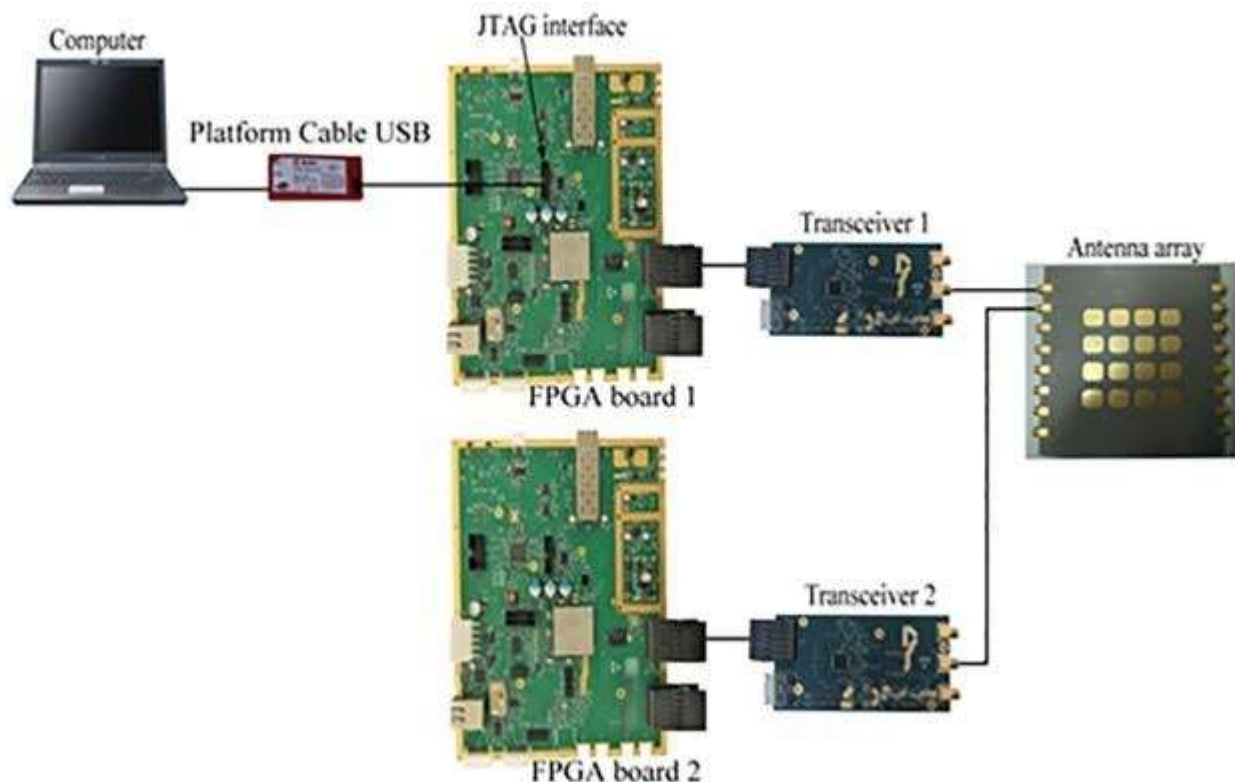
But this following innovation does not achieve our aim we started to look at bringing up different improvements in power delivery by optimal Beamforming Technology.

Advancements in radar and advanced materials Technology have made energy transmission over long ranges possible. We have developed unique Technology that makes long distance energy transmission safe & commercial purposes.

Energy is transmitted through electromagnetic waves over long distances using optimal Beamforming, metamaterials and receiver computing.



Beam steering Technology makes the power transfer for only to demanded device.
Final product photographs



5.1.4 contribution of NewGen IEDC: NewGen IEDC provided funding for the development of the project and provided me to attend hack thons and entrepreneur development programs to strengthen the minds of young people like me IEDC provided necessary mentoring in the development of prototype. Good guidance is provided to develop business plan. Especially feasibility analysis and research study training helped the team to understand the practical and financial feasibility of the product in the organization. Those validation helped students to revisit their design and refine the prototype as per the customer feedback. NewGen IEDC has significantly motivated the student to take the complete prototyping on a serious note.

5.1.5 future plan: Access to reliable electricity is a key to economic progress and prosperity. Islands, farms, remote communities, as well as offshore windfarms, often rely on underwater cables and single lines through challenging terrain requiring expensive installation and maintenance. In many cases, this is cost prohibitive leaving many without a reliable electricity source. Replacing costly infrastructure over challenging terrain, improving supply continuity, and supporting remote communities to solve last mile challenges for utility and line companies.

Mobile truck-mounted units, and compact permanent systems, for addressing planned and unplanned outages by bridging the “gap” in the network caused by downed lines.

Outages are significant cost-drivers for both electricity distribution companies and power-critical companies such as Telcos and hospitals. Generators are expensive to run, polluting, noisy and in case of an outage require some time to deploy or activate.

Providing an easy and cost-effective solution for transmitting power across difficult terrain by removing the need for traditional poles and lines.

Cellular base stations require power, which is normally sourced from utility supplies. Making the connection from the utility point of supply to the cellular base station can be expensive. It can also take excessive amounts of time when compared to the time taken to install a cellular base station itself.

5.2 Project Name: NANYATHA

5.2.1 STUDENT TEAM DETAILS (WITH CONTACT INFO)

- 1.AKKALA VENKATA SAI PRANAV (9391772869)
- 2.TANGALLA DINESH KUMAR (8247712439)
- 3.GOLI SAI KAUSHIK (8688279689)
- 4.SAI KUMAR KONDURU (7075001264)

5.2.2 Brief description about the student start-up.

Scarcity of drinking water is something which we can't escape. In rural areas, drinking water is mis lead and used for domestic purposes. If we ignore this, we may fall short of drinking water to supply to the vast population residing in our country. To avoid this, we came up with a device called NANYATHA. This is used to test whether the water is used for domestic or drinking purposes

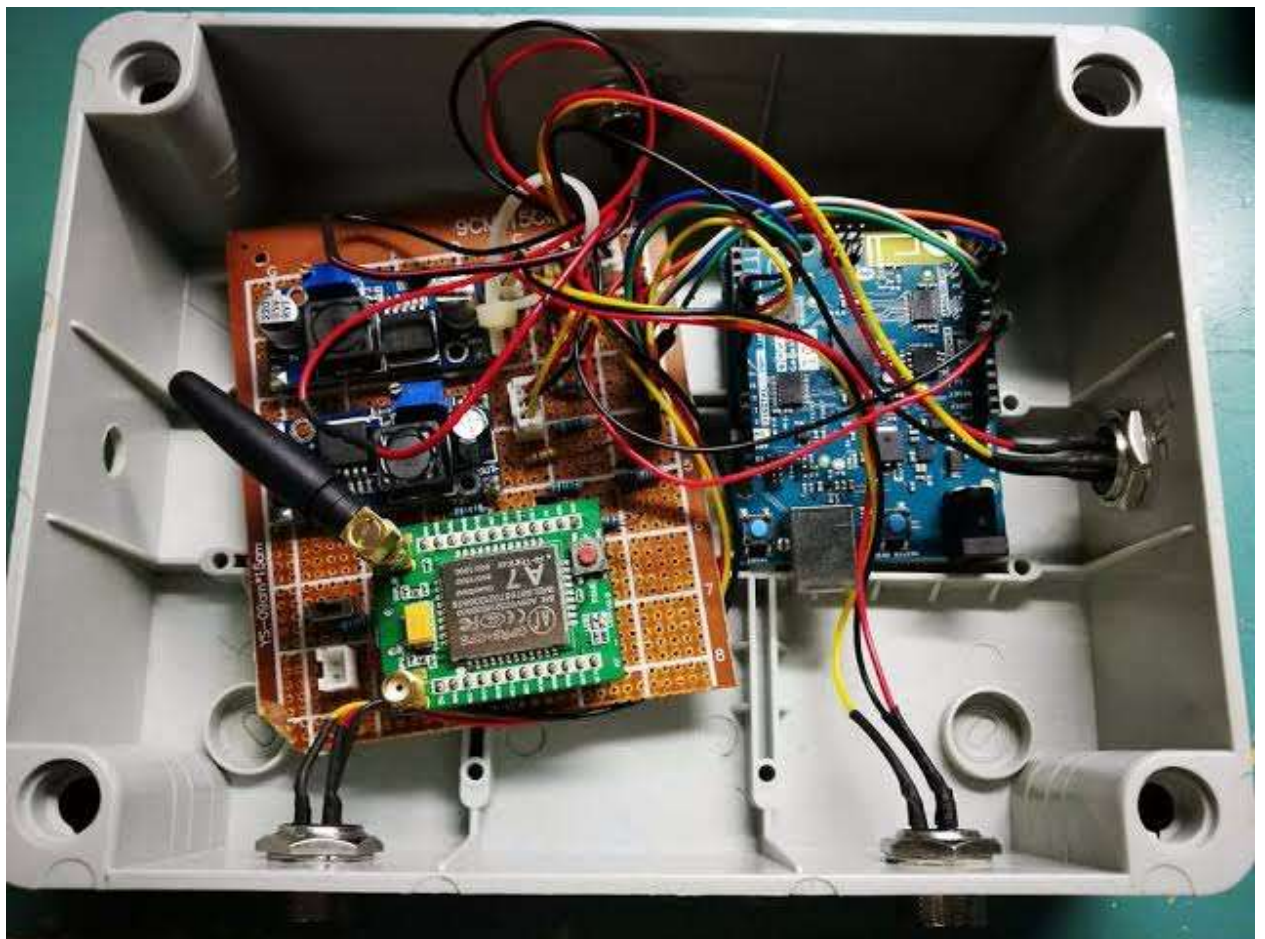
5.2.3 Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs.

Technical Field of the invention:

We found that there is a requirement for measuring water purity levels so that the village people can take required actions regarding water purity. This device is connected to the main stream supplying the whole village, city or town. An ultra-sonic sensor is used to determine the movement of water entering into the device and it instantly activates the device and thus some amount of water is pumped into the device from the main stream with the help of pumping motors. The collected sample is further gone through multiple testing levels. With the help of WQ730 turbidity sensor, if the turbidity of the water is more than 5NTU then the water is not considered as drinking water.Using Phe-45p pH sensor is used to measure whether the sample lies between 6.5-8.5 ph. Temperature of the water is also checked with STS-T-0100-03.Hardness is determined by conductivity of water. If the test results match the standard values of drinking water, then a text message is sent to the local official heads.

Background of the invention

As per the survey conducted by our college under "Unatha bharath abyan 2.0" scheme,we visited the villages lying near the banks of musu river.



Final product photographs

5.2.4 Contribution of NewGen IEDC

NewGen IEDC provided funding for the development of the project and provided me to attend hack thons and entrepreneur development programs to strengthen the minds of young people like me IEDC provided necessary mentoring in the development of prototype. Good guidance is provided to develop business plan. Especially feasibility analysis and research study training helped the team to understand the practical and financial feasibility of the product in the organization. Those validation helped students to revisit their design and refine the prototype as per the customer feedback. NewGen IEDC has significantly motivated the student to take the complete prototyping on a serious note.

5.2.5 Future plan

We want to develop a small form factor device that can give the purity levels accurately by using advanced sensors like 45p pH, WQ730 turbidity sensors, STS-T-0100-03 sensor and by using advanced machine learning algorithms including data sets from WHO to meet the accuracy needs. We want to make a device which fits to a water tap and an water bottle cap so that we can measure the purity levels.



NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	GLA University, Mathura	
Year of starting NewGen IEDC	2017	
Name of the Head/Principal of the Institution/College	Prof D. S. Chauhan	
Name of NewGen IEDC Coordinator	Prof. Manoj Kumar	
Contact Details of NewGen IEDC Coordinator <ul style="list-style-type: none"> Mobile Number E-Mail ID 	Mob: 8171624769 manoj.kumar@gla.ac.in	
Financial Details	Sanction Order No./Date	Amount Sanctioned
Previous Sanction Order Details	1 EDII/DST-NewGen IEDC/17-18/13 – Dated : 15/06/2017	60,00,000.00.

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Duration	Period
01	Deep Learning	1 Day	10-Apr-20
02	Online Guest Lecture on Neural Networks	1 Day	10-Apr-20
03	Real Life Project with Analytics & Data Science	1 Day	14-Apr-20
04	Implementation of AI in Big Data	1 Day	20-Apr-20
05	Angular and C#	1 Day	23-Apr-20
06	Internet of Things	1 Day	25-Apr-20
07	Oops Concepts in Java & Exception Handling	1 Day	27-Apr-20

Sr. No.	Activities	Duration	Period
08	Progress Project	1 Day	3-May-20
09	A Competition on Solving Case Studies	1 Day	14-May-20
10	A Competition on Solving Case Studies	1 Day	25-May-20
11	Impact of Reliance Jio- Facebook deal on the E-Commerce Industry	1 Day	17-Jun-20
12	Future of Advertisement Industry	1 Day	17-Jun-20
13	Covid-19 Challenges Competition	1 Day	5-Jul-20
14	Workshop on Innovation Practices	1 Day	22-Aug-20
15	Workshop on Idea to Reality	1 Day	29-Aug-20
16	Training Program on Laser Printing and Engraving	1 Day	19-Sep-20
17	Webinar on Opportunity Identification of Product Selection	1 Day	8-Oct-20
18	Webinar on Conduct Market Survey and Tools of Market Survey	1 Day	14-Oct-20
19	How to convert your idea into Startup	1 Day	23-Jan-21
20	Learn & Pitch	2 Day	6,7 Feb, 21
21	E-Conclave	3 Days	9,10,11 April-2021
22	TEDxGLAU	1 Day	17-Apr,21
23	Entrepreneurship as a Career Choice	1 Day	27-Apr-21
24	Design Thinking	1 Day	22-May-21
25	The journey of an Entrepreneur- Turning Ideas into Reality.	1 Day	19 –June-21

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Duration	Period
01	Idea Progress Review for Ideas of Session 2020	01 Day	September 18, 2020
02	Fifth Advisory Board Meeting	01 Day	February 23, 2021
03	Review Idea Progress Meeting of Session 2020	01 Day	March 9, 2021
04	Pitch Perfect (B-Plan Competition)	01 Day	March 17, 2021

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Duration	Period
01	Startup- Meet	2 Days	5,6 May- 21
02	Webinar on Innovative Intelligence	1 Day	10-May-21
03	Webinar on Innovative Intellectual Property	1 Day	15-May-21
04	Investor Pitch Webinar	1 Day	26-May-21
05	Startup Boot Camp	1 Day	29-May-21



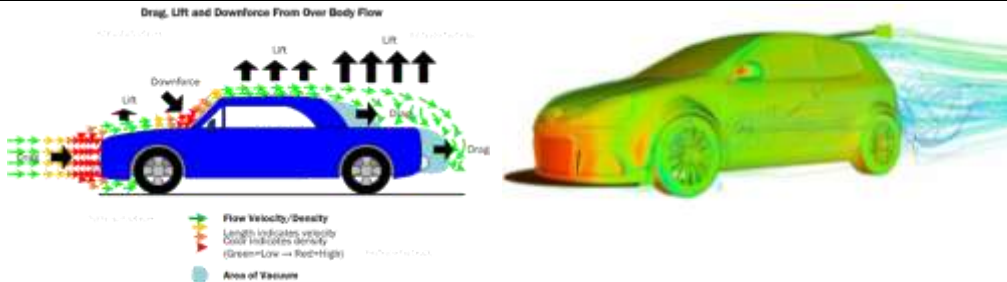
2. Deviation (shortfall) from the proposed action plan (with reasons), if any:



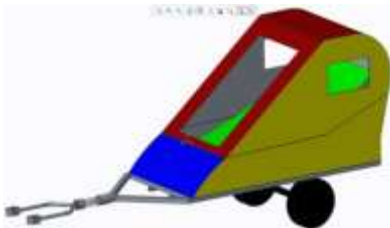

The Project Commercialization as we were planning was not executed in that way. The reason of this shortfall is limitation in the getting various accreditations from different bodies due to Covid-19 Pandemic.


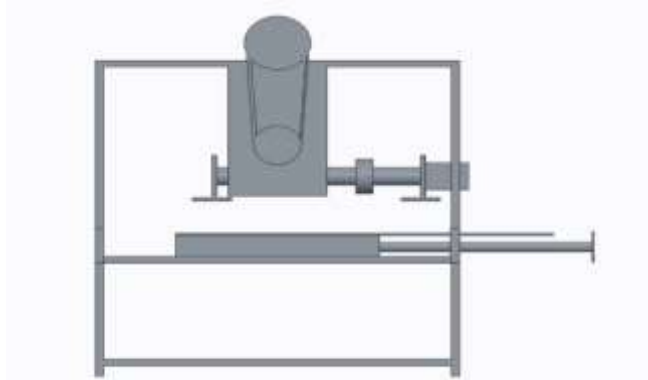
3. Other important highlights (new initiatives), if any:



1. "Startup Launchpad" in campus itself and where we have registered 04 companies successfully.
2. Successfully conducted various "Guest Lectures" Online on Zoom Teaching Application during the Covid –19 Pandemic situation.
3. Conducted 03 "Online Completions" during the Covid –19 Pandemic situation.
4. Successfully filed "20– Patents" in the name of NewGen IEDC in Indian Patent Office.
5. Successfully granted "07" Patents in the name of NewGen IEDC in Indian Patent Office

4. Student Projects (Please provide the following details for each student project)

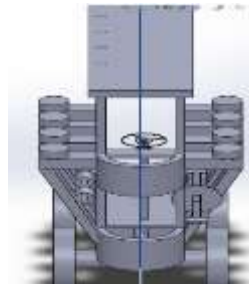
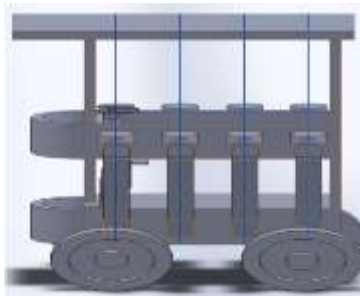
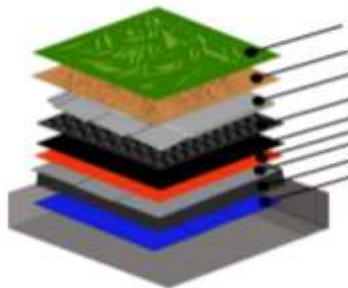
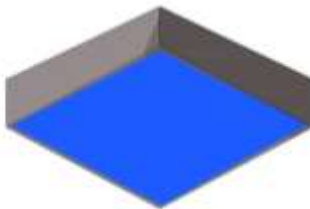
Sr. No	Project Name	Name of the Students	Current Status	Aadhar Number	Interventions to be made for next stage/commercialization
1	Medicopter	Abhinav Kumar Dhusia	Checked with different users and changed the proposed invention accordingly.	994722143903	Developing a new variant of UAV for Medical Uses.
		Kunal Maheshwari		665197118734	Developing the App for this Drone.
		Vaibhav Goyal		814437152958	Collaboration with online pharmacies.
					
2	Self – Charging Electric – Car	Yash Chaudhary	3-D Modeling and Literature Study has been done.	875135016681	Eco friendly
		Jai Kumar		838851894157	Cheaper fuel
		Arjun Singh		842653495623	Lesser weight
		Shivam Verma		901272953138	Cheaper in maintenance.
		Mayank Rawat		836632347349	
					



Sr. No	Project Name	Name of the Students	Current Status	Aadhar Number	Interventions to be made for next stage/commercialization
3	Flying Unmanned Robotic Arm	HimashuSenger	3-D Modeling and Literature Study has been done. & Purchased all the necessary equipment's.	676178300907	The idea is to integrate a drone system with a robotic arm which could be used to detect different types of failuresuch as structural deficiency, construction. The main strength of this drone is to identify failure at premature level which eventually lead in human life
		Himanshu Maheshwari		246956327699	
		Himanshu		352824792109	
		Prakhar Singh		515040434359	
		Prateek Dwivedi		232460157743	
		TrivendraSengar		357659855045	
	<div></div> <div></div>				
4	Mobile Ambulance	Abhinav Mishra	Completed market survey and purchased all necessary equipment's.	246210154055	Checked with different users and changed the proposed invention accordingly.
		Gaurang Khanna		760821396458	
		Suryansh Patel		835429331082	
		Soham Tyagi		363731366546	
		Rajeev Umesh Chandra		308777763615	
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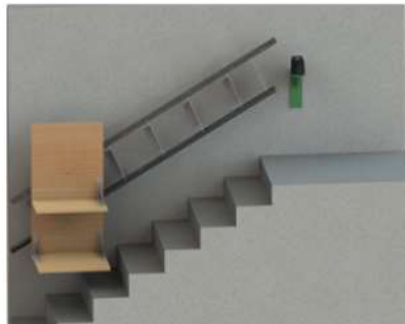

Sr. No	Project Name	Name of the Students	Current Status	Aadhar Number	Interventions to be made for next stage/commercialization
5	Efi-Cycle	Himanshu Upadhyay	Completed market survey.	268646541537	Comparing with existing models.
		Anand Saraswat		920083224362	
					
6	Automatic Indexing Machine	Aman Singh	Literature Study has been done	856257282427	Checked with different users and changed the proposed invention accordingly.
		Abhishek Dhawan		586032121289	
					

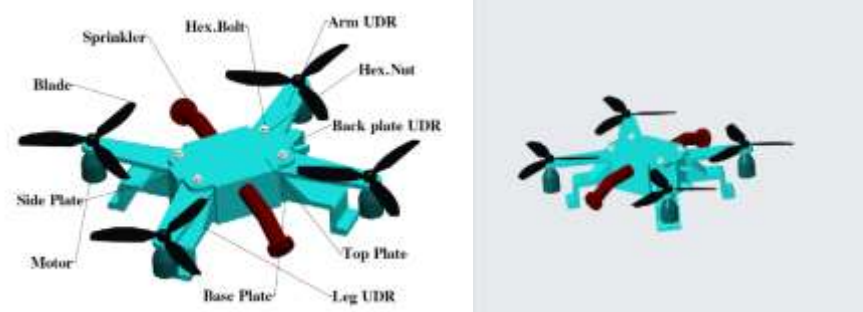

Sr. No	Project Name	Name of the Students	Current Status	Aadhar Number	Interventions to be made for next stage/commercialization
7	Fog Detectiong Radar System	Tarun Chaudhary	3-D Modeling and Literature Study has been done.	870519469556	Purchased all the necessary equipment's.
		Trivendra Singh		870519469556	
		Chirag Varshney		663988480092	
					
8	E-Writer	Dev Jain	Literature Study has been done	216115658542	Purchased all the necessary equipment's.
		Prakhar Sukhlal		800600688114	
					





Sr. No	Project Name	Name of the Students	Current Status	Aadhar Number	Interventions to be made for next stage/commercialization
9	Simmer Buttter - Ghee Separator	Manisha Sharma	Literature Study has been done	827349722498	Checked with different users and changed the proposed invention accordingly.
		Sudhanshu Dubey		701338221471	
					
10	Modified Fitness Band	Kartik Kathuria	3-D Modeling and Literature Study has been done.	486090167673	Purchased all the necessary equipment's.
		Ayushman Agrahari		636517737353	
					




Sr. No	Project Name	Name of the Students	Current Status	Aadhar Number	Interventions to be made for next stage/commercialization
11	Multi Pedal Driving Vehicle (MPDV)	Abhishek Dhawan	Literature Study has been done	586032121289	Comparing with existing models.
<div></div>					
12	Grass Roof Plantation Hub	Sparsh Shukla	3-D Modeling and Literature Study has been done.	813883015803	Checked with different users and changed the proposed invention accordingly.
		ShivamBardhan		999832753008	
		Sarang Vishnoi		337194972904	
		Tejaswini Tiwari		202506043800	
		<div><div><p>Water-Proof Paint</p></div></div>			





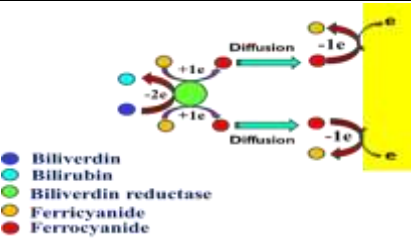
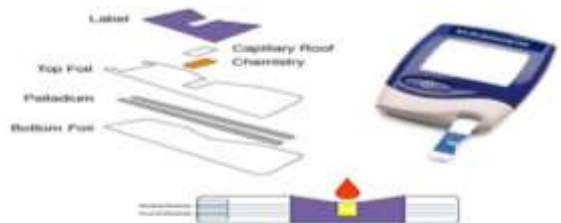
Sr. No	Project Name	Name of the Students	Current Status	Aadhar Number	Interventions to be made for next stage/commercialization
13	Smart Urine Bag	Avinash Dubey	Completed market survey and purchased all necessary equipment's.	660393237904	Purchased all the necessary equipment's.
		Yash Srivastava		833406967171	
		Kapil Chaudhary		915821345665	
		<div></div>			
14	Kavach (कवच) Anti Covid-19 Pendant	Ayan Chowdhary	Literature Study has been done	598480284133	Checked with different users and changed the proposed invention accordingly.
		Deepanshu Bhalla		247695054775	
		Tushar Agarwal		656884674722	
		<div></div>			



Sr. No	Project Name	Name of the Students	Current Status	Aadhar Number	Interventions to be made for next stage/commercialization
15	Solar Energy Assisted Stair Chair (SEA-SC)	Akash Gupta	3-D Modeling and Literature Study has been done.	653963591404	Purchased all the necessary equipment's.
					
16	Suryoday	Pushpendra Sharma	Literature Study has been done	735837572510	Comparing with existing models.
		Raghav Rohatgi		318558329191	
					



Sr. No	Project Name	Name of the Students	Current Status	Aadhar Number	Interventions to be made for next stage/commercialization
17	UDR – (Unmanned Dredging Robot)	Pranay Pushp	Completed market survey and purchased all necessary equipment's.	216492156539	Checked with different users and changed the proposed invention accordingly.
		Tarun Grover		311958945547	
		Harsh Paliwal		748466933563	
					
18	Vehicle Maintenance Alerting System	RidamLohani	3-D Modeling and Literature Study has been done.	890284953060	Purchased all the necessary equipment's.
		Tushar Kumar Upadhayay		582289074229	
					

Sr. No	Project Name	Name of the Students	Current Status	Aadhar Number	Interventions to be made for next stage/commercialization
19	Hand Tools Device	Gaurav Saraswat	Literature Study has been done	844651371551	Comparing with existing models.
		Krishna Pachauri		948760262391	
		<div></div> <div></div>			
20	CD Face Cursor	Vivek Sharma	Literature Study has been done	496828269183	Checked with different users and changed the proposed invention accordingly.
		Akarsh Singh Gangwar		843244621534	
		<div></div> <div></div>			

Sr. No	Project Name	Name of the Students	Current Status	Aadhar Number	Interventions to be made for next stage/commercialization
21	Digital pen	Aman Thapak	3-D Modeling and Literature Study has been	919658200318	Purchased all the necessary equipment's.
		Ashish Agarwal		663554554493	
		<div></div>			
22	Formulation of Herbal powder	Ayushi sharma	Literature Study has been done	708353090856	Comparing with existing models.
		<div></div>			

Sr. No	Project Name	Name of the Students	Current Status	Aadhar Number	Interventions to be made for next stage/commercialization
23	Medint	Jai Narayan Jain	3-D Modeling has been done.	335299429365	Checked with different users and changed the proposed invention accordingly.
		Ubhay Pratap Singh		828782369812	
<div></div>					
24	VR WORLD: Escape The Reality	Ashutosh Singh	Completed market survey.	608442495780	Purchased all the necessary equipment's.
		Rahul Dev Garg		765130950456	
<div></div>					
25	Bilirubiometer	Sandeep Sharma	Literature Study has been done	784619460260	Comparing with existing models.
		Aman Jain		288496512901	
		Aman Jha		899180568331	
<div><div><ul style="list-style-type: none">BiliverdinBilirubinBiliverdin reductaseFerrocyanideFerrocyanide</div><div></div></div>					

Sr. No	Project Name	Name of the Students	Current Status	Aadhar Number	Interventions to be made for next stage/commercialization
26	Paintcopter	Archit	3-D Modeling and Literature Study has been done.	446688359543	Checked with different users and changed the proposed invention accordingly.
		Gaurav		844651371551	
					
27	Field Crop Monitoring by UAV	Anant Gupta	Literature Study has been done	485357267669	Comparing with existing models.
		Animesh Gupta		956809939786	
					

Sr. No	Project Name	Name of the Students	Current Status	Aadhar Number	Interventions to be made for next stage/commercialization
28	Menuocure	Sunanda Kulshrestha	Literature Study has been done	857479140526	Purchased all the necessary equipment's.
					
29	Smart E-Cycle	SakshatLakhiani	Literature Study has been done	945596463062	Purchased all the necessary equipment's.
					

5. Provide a minimum two-page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

- The Project commercialization of above listed 29 projects as we were planning was not executed in thatway.
- The reason of this shortfall is limitation in the getting various accreditations from different bodies due to Covid-19 Pandemic. But we are highlighting the best two commercialized projects of last session.

**Commercialized Product – Eco Gap Filler
Company Name: Eco Gap Filler, Agra.**

1. Team details (with mail I'd)

Name – Raghav Rohatgi

Mail I'd – raghavrohatgi717@gmail.com

Phone no.- 7060363889

2. Description about Eco Gap filler

A novel adhesive prepared by recycling of non-biodegradable styrofoam for sticking various surfaces.

3. Entrepreneurial Journey

There are many ups and downs in my Entrepreneurial journey .but my will power over comes all the downs of my journey which help me in converting my dream project into a successful project.

I started my entrepreneurial journey when I was in 2 semester I work hard on my project for 2 years and when I came in my 6 semester I got patent granted for my project and now I am proud CEO of my startup ECO GAP FILLER.

4. Contribution of NGIDC

NCIDC encourage me a lot in my whole journey doesn't matter the problem is small or big they help me a lot in my project.

5. Future Plan

My future plan is to take my start up at international level and also invent some more new idea which help the central government to reduce pollution from our motherland INDIA

Second Commercialized Product:AASAWAN WATER PURIFIER PROJECT

Company Name: LIFEEZY Products Pvt. Ltd.

Team Description:

- Dr. Naveen Kumar Gupta, naveen.gupta@gla.ac.in Contact No: 9557705108
- Kaustubh Srivastava, srivastavayash1308@gmail.com Contact No: 9639463093

DESCRIPTION ABOUT ASSWAN WATER PURIFIER: Asswan water purifier is an advance distillation-based water purification system which can pure nearly all sort of impure water into pure form. The major advantage Asswan upholds is that it can eliminates all sorts of notified problems associated with existing purifiers when dealing with high TDS values, water wastage (constraints in nearly all the metropolitan cities in the world).

Despite of the distillation process involved in our system we have managed to purify water using low energy consumption which has made it possible to withstand on solar power making it the most economical way of water purification.

Key innovative Characteristics of Asswan Water Purifier

- Capable of purifying nearly all sorts of impure water (i.e., river/lake/pond water, sewage water).
- Capable of working as a desalinator with minor modifications.
- Working characteristics adhere to minimize water wastage.
- Capable of purifying moderate to high chemically clung water containing Arsenic, lead, etc.
- Reusability, reliability, efficiency, and low maintenance cost enable its predominance as a substitute in the water purification industry.
- It can also work on Solar Energy.

Entrepreneurial Journey: Up till now we have successfully developed the working prototype of proposed water purification system. Moreover, as per the different parameters assigned by government we have started testing our product and we are pleased with the initial results.

We have also forwarded our application for proper recognition and registration of our proposed company and with this we have also floated application in DPIIT, UPIT and different other benchmark programs of the government for funding's and supports.

Contribution of NewGen IEDC : It's because of the NewGen IEDC help and support that have motivated us to build such an iconic machine that is capable of solving water problems around the globe.

Without the help of IEDC, it would have been very difficult for us to develop for us to develop the prototype of our project as they gave us the platform beneath DST, Govt. of India to present our vision and obtain regular funds for development of our project.

The good deeds of IEDC aren't end here. They also helped us to achieve patent publish and grant for the same which made us stand alone in front of the world.

Future Plans

- Our primary objective is to showcase our idea with working prototype beneath several government bodies for tests and certifications. meanwhile we also plan to present public demos in order to arise awareness amongst users regarding our product.
 - Soon after appropriate certificates our plan is to commercialize ASSWAN water purifier via two stages into the market:
 - Installations in public areas (e.g. railway stations, bus stations, community places, institutions etc).
- For personal usage/private usage.

Moreover, we are ambitious towards modifying ASSWAN purifier to work on solar energy/panels which will ultimately negotiate water cost to zero with all benefits

Glimpse of Event Poster



GLA UNIVERSITY
GATEWAY TO KNOWLEDGE

NewGen IEDC GLAU
Innovation, Entrepreneurship, Growth

Department of Computer Engineering & Applications
in collaboration with **NewGen IEDC GLA University, Mathura** organizing

One Day Workshop through zoom on topic Innovation Practices

For B. Tech CS III & IV Year Students

Date : 22-Aug-2020
Time : 10 AM to 12 PM & 2 PM to 4 PM

Speaker

Mr Pradeep Dhage
Incubation Manager
MIT TBI, PUNE

NewGen IEDC GLAU
Innovation, Entrepreneurship, Growth

STARTUP
Launchpad

e-Cell
Entrepreneurship Cell

GLA UNIVERSITY
GATEWAY TO KNOWLEDGE

NewGen IEDC Presents #SOLVE SOMETHING
A Competition on Solving Case Study

Solve one of the mentioned Case studies:

- Impact of Reliance Jio-Facebook deal on the E-Commerce industry.
- Future of technology & digital automation in India post corona crisis.
- Job vs Entrepreneurship, which opportunity will be better for the class of 2020 & 21.

Mail us the solution at: newgeniedc@gla.ac.in
by 25th May, 2020

Top three winners will get an exciting cash prize worth: ₹5000

GLA UNIVERSITY
GATEWAY TO KNOWLEDGE

NewGen IEDC GLAU
Innovation, Entrepreneurship, Growth

STARTUP
Launchpad

e-Cell
Entrepreneurship Cell

07 JULY 2021
FRIDAY
4:00 PM

GAURI SINGH
Equalize Health | Ex-J&J Medical | Ex-Novartis | ISB

WEBINAR ON HEALTHCARE STRATEGY

recallgla

GLA UNIVERSITY
GATEWAY TO KNOWLEDGE

NewGen IEDC GLAU
Innovation, Entrepreneurship, Growth

STARTUP
Launchpad

e-Cell
Entrepreneurship Cell

Startup Launchpad presents webinar on How to convert your idea into STARTUP

Guest Speaker: Gaurav Malik
Founder & CEO - Leaderspace

23rd January
12 PM onwards

Zoom ID: 816 1736 1595 | Passcode: 346387
Registration Link: <https://forms.gle/1A1n8h@humECvpc4A>

GLA UNIVERSITY
GATEWAY TO KNOWLEDGE

NewGen IEDC GLAU
Innovation, Entrepreneurship, Growth

STARTUP
Launchpad

e-Cell
Entrepreneurship Cell

E-CONCLAVE '21
MEET IT PERSONALLY, MEET IT VIRTUALLY

SPEAKER

RAINA KHATRI TANDON
CEO and founder of Right2Rise Entrepreneur

#OPENING EVE

recallgla

GLA UNIVERSITY
GATEWAY TO KNOWLEDGE

NewGen IEDC GLAU
Innovation, Entrepreneurship, Growth

STARTUP
Launchpad

e-Cell
Entrepreneurship Cell

E-CONCLAVE '21
MEET IT PERSONALLY, MEET IT VIRTUALLY

SPEAKER

SAIMAN SHETTY
Entrepreneur and Speaker

#OPENING EVE

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GLA UNIVERSITY
GATEWAY TO KNOWLEDGE

NewGen IEDC GLAU
Innovation, Entrepreneurship, Growth

STARTUP
Launchpad

e-Cell
Entrepreneurship Cell

E-CONCLAVE '21
MEET IT PERSONALLY, MEET IT VIRTUALLY

SPEAKER

DAKSH SETHI
Founder of Guby Rogers and Educator

#OPENING EVE

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GLA UNIVERSITY
GATEWAY TO KNOWLEDGE

NewGen IEDC GLAU
Innovation, Entrepreneurship, Growth

STARTUP
Launchpad

e-Cell
Entrepreneurship Cell

E-CONCLAVE '21
MEET IT PERSONALLY, MEET IT VIRTUALLY

SPEAKER

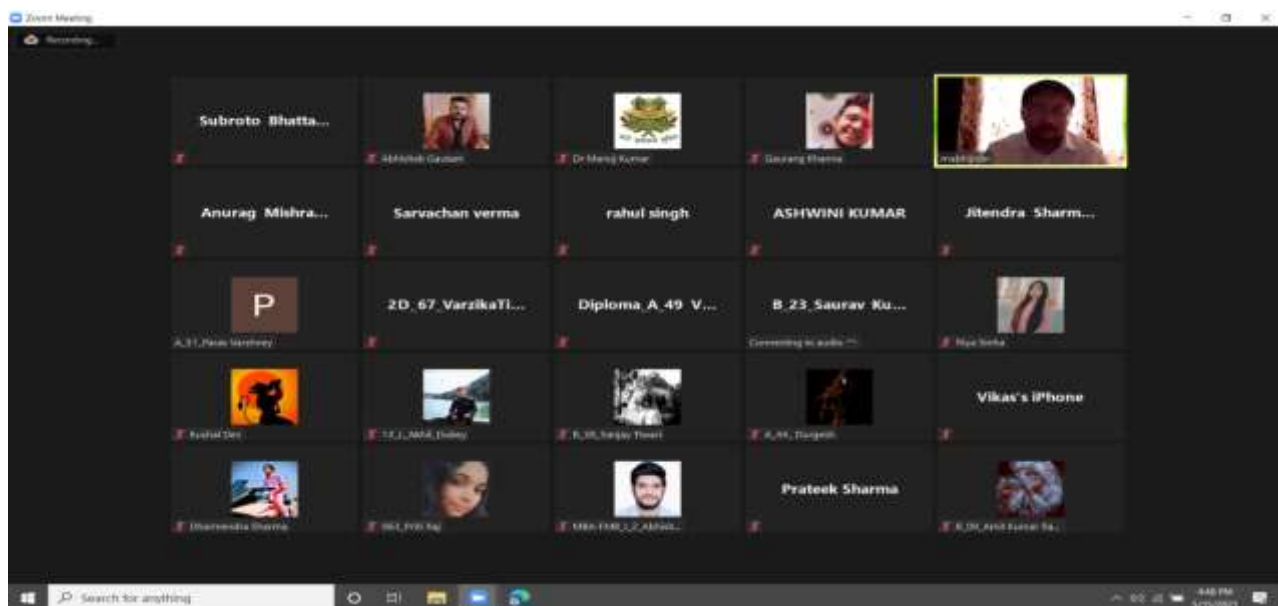
RAVI JAKHAR
Chief Strategy Officer at Allcargo Logistics Ltd

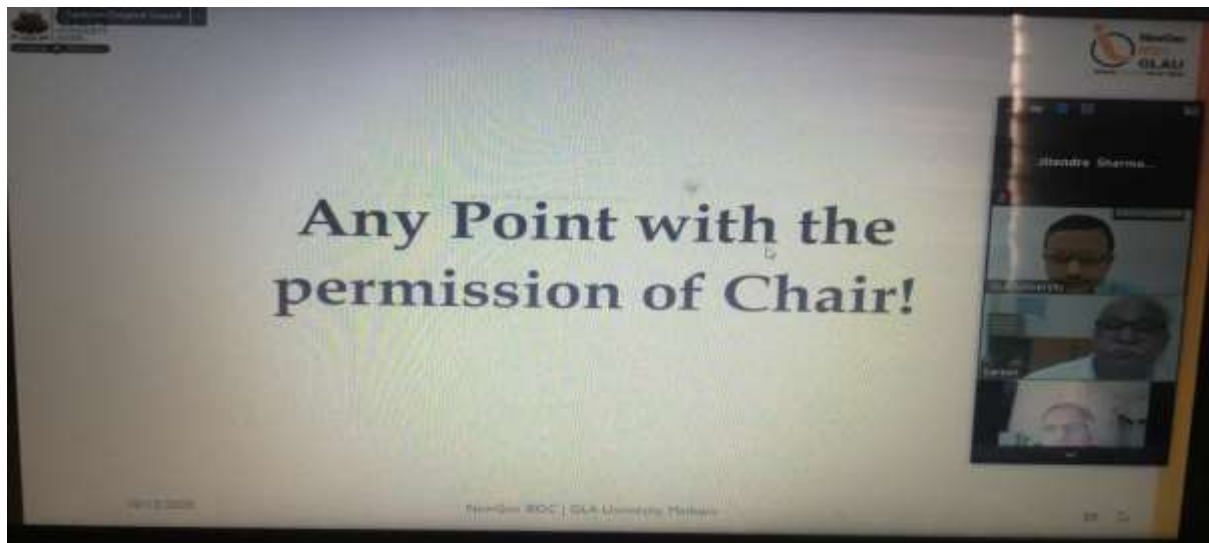
#OPENING EVE

recallgla



Glimpse of Event (Online/Off-line)





NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	Indian Institute of Technology (IIT), Guwahati	
Year of starting NewGen IEDC	2018	
Name of the Head/Principal of the Institution/College	Prof. G. Krishnaoorthy, Dean (II&SI)	
Name of NewGen IEDC Coordinator	Prof. R. Ganesh Narayanan, Prof. S.K. Dwivedy	
Contact Details of NewGen IEDC Coordinator	Prof. R. Ganesh Narayanan; email: ganu@iitg.ac.in; Phone: 99546 04304 Prof. S.K. Dwivedy; email: dwivedy@iitg.ac.in; Phone: 94353 02598	
Financial Details	Sanction Order No./ Date	Amount Sanctioned
Previous Sanction Order Details	1	EDII/NewGen-IEDC/2018-19/01
	2	EDII/NewGen-IEDC/01

1. **Initiatives/Activities Undertaken as per the Action Plan Submitted:**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1	Entrepreneurship Development Program February 1, 2021 - March 31, 2021	A training cum interaction event was organized in collaboration with Assam Nest. Several students were benefitted from wide topics and experts.
2	Workshop on Innovation and Entrepreneurship in rural technology March 19, 2021	Interacted with experts in rural technology. Created networking among experts and participants.
3	Impact of innovation and opportunities for agritech startups in NE region, June 14, 2021	Interacted with Assam agriculture university incubation centre and Assam Nest

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	Workshop on Innovation and Entrepreneurship in rural technology March 19, 2021	Interacted with experts in rural technology. Created networking among experts and participants. Participants got ideas on commercialization activities in rural technology.
2	Impact of innovation and opportunities for agritech startups in NE region, June 14, 2021	Interacted with Assam agriculture university incubation centre and Assam Nest. A commercialization activity in mechanization of agro products was highlighted.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Online software skill development program (Introduction to CAD package SOLIDWORKS); June to December 2020	Several students are benefitted from the online skill development program. Lectures are uploaded as permanent repository.
2	Online software skill development program (Computer Aided Process Planning or 3D Printing & CNC Machining) December 10-11, 2020	Several students are benefitted from the online skill development program. Lectures are uploaded as permanent repository.
3	Market Intelligence, June 14, 2021	Expert talk from YNOS venture engine CC

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

Yet to conduct some of the proposed workshops. These will be conducted in June to November 2021.

3. Other important highlights (new initiatives), if any:

NEWGEN IEDC will involve in Industry conclave 1.0 that is planned in December 2021 at IIT Guwahati

4. Student Projects (Please provide the following details for each student project)

Sr. No.	Project Name	Project status at beginning of the Year	Current status	Interventions made
1	The Labs – A unified coding and automatic evaluation platform	All the projects were started in Nov 2020. Projects contributions started from scratch.	As per recent discussion with mentors, several contributions are in progress. Different projects are in different levels of design and fabrication. Status will be clear in next few months.	Some of the projects have collaborators with industries and hospitals. The discussions are going on in right direction.
2	Affordable Electronic Smart Bandage for Accelerated Wound Healing			
3	Design and construction of a customizable model for evaporation and recovery of organic solvents using simple labwares			
4	Multifunctional bio-sorbent beads based filter for the decontamination of sewage wastewater			
5	Mental health monitoring using human speech			
6	Lab on a chip device for diagnosis of vitamin-D			
7	A Wire Feeding Device for TIG/Plasma/Laser Cladding			

Sr. No.	Project Name	Project status at beginning of the Year	Current status	Interventions made
8	Development of a constrained viscoelastic composite damping tape			
9	Design and development of bone graft harvest device for the treatment of non-union and acute bone fracture with bone gap			
10	Development of extrusion based ceramic 3D printer			
11	The design and fabrication of compliant pipe crawler to navigate pipe bends			
12	Development of handheld apparatus for pouch and sachet cutting for re-work in Fast Moving Consumer Goods (FMCG) industries			
13	Software development in Cryptocurrency and High Frequency Trading			
14	Prototype development for scale-up and commercialization of Ortho-NosylOXY: The recyclable coupling reagent for reducing cost and waste generation in the pharmaceutical industry			
15	Development of a lab-scale catalytic pyrolysis unit for in-situ upgradation and selectivity of pyrolytic oil and gases			

- **Please Submit three/four high resolution (at least 300 dpi) pictures in jpeg format showing the prototype/product along with the students and their mentor for each project.**

This is unavailable now as all the projects are under development. We will get better idea after few months.

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	Marwadi University	
Year of starting NewGen IEDC	2018	
Name of the Head/Principal of the Institution/College	Dr. Sandeep Sancheti, Provost, Marwadi University	
Name of NewGen IEDC Coordinator	Mr. Pratik Munjani	
Contact Details of NewGen IEDC Coordinator	Mo – 7573042213 Email: Pratik.munjani@marwadieducation.edu.in	
Financial Details	Sanction Order No./ Date	Amount Sanctioned
Previous Sanction Order Details	1. EDII/DST-NewGen IEDC/18-19/RLS-I/02 Dt. 20-02-2019	INR 60 lakh (25+35)
	2. ---	INR 47.50 lakh (10+37.5)

1. **Initiatives/Activities Undertaken as per the Action Plan Submitted:**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1	IPR: Journey towards saraswati to Lakshmi	Students learn about various ways to protect their idea through IPR
2	Energy Swaraj Ashram	Students learn to save Energy and how the little conservation of Energy create a huge change in Environment
3	New Avenues in Legal Profession Post Covid-19	Students found the different ways of Legal Profession Post Covid-19
4	Being Logical Being Spiritual	Students learn from the nature that how they can be the spiritual as well as Logical
5	Startup Pitch	42 Startups made a great Pitch to the Industry Commissionerate
6	Prototype Building Workshop (Herbal Cosmetic Workshop)	Students Learn to make their own Herbal Product using home Ingredients
7	Financial Awareness	Students learn about the Financial Management
8	Entrepreneurship: A Career Option	Students learn about various pros of Entrepreneurship choosing as a career option
9	Prototype Building Workshop (Origami Art)	Students learn various origami concepts and knows the use of origami in various aspects

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	Idea Screening	To Identify Innovative Idea Screening process held at institute level
2	Awareness Program for NewGen IEDC at Institute	For the awareness of NewGen IEDC scheme – workshop held at Institute
3	Entrepreneurship Development	Students learn about the scenario of Entrepreneurship around the nation and scope of it.
4	Campus to corporate" Mentor Mentee Camp	Students understood the importance of Mentor and learn how they can utilize mentor efforts in their career
5	Roadmap to Building Startup and Embracing Entrepreneurship	Students understood the roadmap of Entrepreneurship and how they can build successful career through it.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Industrial Designing and its Applications	Students Learn about the concepts of Industrial Designing through various techniques and find some useful applications of it
2	Basics of Material Science and Metallurgical Characterization	Students learn about the different characteristics of the Material and actual Science Behind it.
3	A scope of Energy Business in Saurashtra Region	Students interacted with industrialists and understood the potential of Energy Business in Saurashtra.
4	Robotics and Industry 4.0.	Students learn the practical way that how Robotics is implementing in Industry 4.0
5	IOT - Industry Perspective	Students learn the Internet of Things (IoT) from the view of Industry Perspective.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

Due to Covid-19 Pandemic it is difficult to go into the market for purchasing of raw material, prototype testing and product development. Hence, some of the projects are taking too much time for the completion. Even some of the events organization also required

3. Other important highlights (new initiatives), if any:

Marwadi University has developed a new Centre for the Renewable Sector promoting green Energy called **MURERIC-** Marwadi University Renewable Energy Research and Incubation Centre where students will learn the energy conservation and will become entrepreneur in the field of renewable energy sector.

4. Student Projects (Please provide the following details for each student project)

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
1	Product-Manufacturing (Smart Lab)	Proof of Concept	Prototype Testing	Prototype Testing
2	Product -Topical Spray for fast Relief from Menstrual Pain	Proof of Concept	Prototype Development	Prototype Under Development
3	Solar Cell Development	Proof of Concept	Prototype Development	Prototype Under Development
4	Intelligent Inspection Device for Metal casting	Proof of Concept	Prototype Development	Prototype Under Development
5	IoT Enabled Jewellery Casting Setup	Proof of Concept	Prototype Development	Prototype Under Development
6	Smart Blind stick	Proof of Concept	Prototype Development	Prototyping Testing
7	Zeolite Synthesis	Proof of Concept	Prototype Development	Prototype Under Development
8	Prototype of Smart concrete using nano materials	Proof of Concept	Prototype Development	Prototype Under Development
9	sustainable cement products	Proof of Concept	Prototype Development	Prototype Under Development
10	Sustainable Geocell from Waste PET bottles	Proof of Concept	Prototype Development	Prototype Under Development
11	Solar Powered Electric Vehicle	Proof of Concept	Prototype Development	Prototype Under Development
12	Development of Hydrophobic and antibacterial nano coated sanitary wares	Proof of Concept	Prototype Development	Prototype Under Development
13	Development of Hybrid Composite Material using Industrial Waste by Additive Manufacturing	Proof of Concept	Prototype Development	Prototype Under Development
14	Placement Prediction System with Machine Learning	Proof of Concept	Prototype Development	Prototype Under Development
15	Extending application of AR/VR to Engineering Education	Proof of Concept	Prototype Development	Prototype Under Development

- **Please Submit three/four high resolution (at least 300 dpi) pictures in jpeg format showing the prototype/product along with the students and their mentor for each project.**

Enclosure – 1

5. Provide a minimum two-page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include: Enclosure – 2

- Student team details (with contact information)
- Brief description about the student start-up
- Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs
- Contribution of NewGen IEDC in the same
- Future plan

Enclosure – 1

- Product-Manufacturing (Smart Lab)



Figure 1 Intelligent Ceramic Shell Permeability Measurement Device



Figure 2 Intelligent Ceramic Slurry Properties Measurement Device

- Intelligent Inspection Device for Metal casting



Figure 3 Rendered Model of Intelligent inspection Device 2.0



Figure 4 Structure of Intelligent inspection Device 2.0

- Smart Blind stick



Figure 1 Demonstration of Smart Blind Stick at Blind Association, Ahmedabad

- Prototype of Smart concrete using nano materials



Figure 2 Experimental Setup of Smart Concrete using Nano Materials

- Solar Powered Electric Vehicle



Figure 3 Proposed Solar Powered Electric Vehicle

Enclosure – 2

➤ IoT Enabled Testing Lab

- **Innovator Names** : Mr. Mahek Rathod (Mo-9726314612)
: Mr. Kevin Virapariya (Mo-8780822247)
- **Guide Name** : Dr. Amit sata (Mo-9825217702)
- **Brief About Startup:**

“IoT Enabled Testing Lab” is a brainchild of Dr. Amit Sata and intelligent innovation of the team. The Startup is Very Thank full to the DST (Department of Science & Technology) for providing NewGen IEDC Grant. They Utilized 196802 INR from NewGen IEDC Grant. The Start-up is focused on testing and validation of the industrial raw materials. Initially the focus is on the investment casting industry with an eye on other industries as well. Ceramics and wax are two essential raw materials used in the investment casting. They are following standards for the testing of raw materials from the Investment Casting Institute, USA. We identified number of tests that are crucial to the quality of castings. They have decided to develop 4 equipment that perform those tests. Names of equipment are mentioned:

1. Intelligent Ceramic Shell Permeability Measurement Device
2. Intelligent Ceramic Slurry Properties Measurement Device
3. Intelligent Wax Softening Point Measurement Device
4. Intelligent Wax Needle Penetration Testing Device

The proposed setup will have provision of sensors and data acquisition system, data management as well as data analytics system. The idea is to establish a system that can fetch the data, store the data, analyses the data and modify the process based on results.

During the market survey it came to notice that the permeability test of ceramic shell is majorly laboratory specific and only few industries have in house facility that too with the legacy technologies. They have innovated the machine entirely from point zero while following all the standards. It also included the standardization of sample, optimum time of chemical reaction time of Methyl Ethyl Ketone with the ping pong ball.

Some flaws were found in present day testing methodologies and we are trying to address those flaws. Generally, when the test is being carried out, they are tested on different samples that breaks the uniformity and we have to presume they all were uniformly same samples. So, we have developed an equipment that can measure parameters such as Viscosity, Specific Gravity, pH and temperature of Slurry from one equipment. Furthermore, the sample will be sent to manufacture the shell for the permeability test.

Needle penetration test checks the uniformity of waxes and Softening point measures the semi-solidus point of wax. Altogether, 4 equipment will bring uniformity and stan while increasing energy and resource utilization efficiency. The quality of castings can be predicted based on these results rather than arbitrary trial and error method.

The aim is to create a lab that is according to the international standards based on Industry 4.0 concept. A lab operator will be able to conduct test without the physical presence. We will like to provide the product as well services.

- **Photos**



Figure 4. Rendered image of Intelligent Ceramic Shell Permeability Measurement Device



Figure 5. Rendered image of Intelligent Ceramic Slurry Properties Measurement Device



Figure 3. Intelligent Ceramic Shell Permeability Measurement Device



Figure 4. Intelligent Ceramic Slurry Properties Measurement Device



Figure 5. Web Page of Intelligent Ceramic Shell Permeability Measurement Device



Figure 6. Web Page of Intelligent Ceramic Slurry Properties Measurement Device

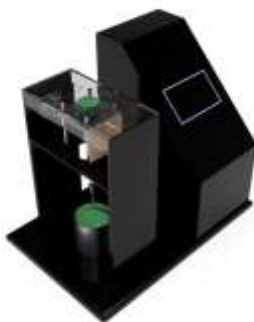


Figure 7. Concept Model of Intelligent Wax Needle Penetration Testing Device



Figure 8. Concept Model of Intelligent Wax Softening Point Measurement Device

They have filed the patent for the “Intelligent Ceramic Shell Permeability Measurement Device”. Also, the paperwork to file the patent for the “Intelligent Ceramic Slurry Properties Measurement Device” is in progress. They will file design patent for both of these equipment

- **Future Plan**

They will establish a company as soon as the project is completed. Rajkot is surrounded with approximately 200 investment casting foundries. Their plan is to sell the product as package or individual equipment. Also, if any industry is willing to send their samples for the test, we will provide services to them.

➤ **Smart Blind Stick**

- **Innovator Names** : Mr. Krupal Jivarajani (Mo-9726314612)
: Mr. Bhavik Kalpesh (Mo-8780822247)
- **Guide Name** : Mr. Chandrasinh Parmar (Mo-9825217702)
- **Brief About Startup:**

Blindness is a lack of vision. Eyes are one of the sense organs of human body and it is difficult to survive with blindness. So, with the help of DST (Department of Science and Technology), we have implemented a Multitudinous Blind stick which is funded by NewGen IEDC Grant. The artificial intelligence and deep learning will help to proposed the solution to design internet on things (IOT) devices for the visually impaired person. We propose a multitudinous stick which overcomes most of the problems of the blind. Thus, the stick helps to detect the obstacle and water splash in their surroundings. The blind can also recognize objects and currency with the help of deep learning algorithm applied on images captured by the camera. The blind can even know the timings of transportation. The pulse sensor monitors the health of the blind. The smart stick is embedded with Raspberry pi, emergency alerts, and global positioning system (GPS). We have also kept some basic features like light, horn and clock which mostly use during the transportation. Sensors are used for different functions and the communication of the stick is through Bluetooth module. Parents and Friends can monitor the blind using Android application. The proposed system is cheap, cost- effective and easily operated by the user. The main goal of this system is to ensure the safety of blinds and to provide a better life.

- **Photos**



Figure 1 Demonstration of Smart Blind Stick



Figure 2 At Blind Association, Ahmedabad



Figure 6 Blind People Using Smart Blind Stick

- **Future Plan**

They already registered Company with Name “**Technogic**” and received their first order form Blind Association, Ahmedabad

They will launch another model of Smart Blind stick Soon with some other useful feature to end user

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	Jawaharlal Nehru New College of Engineering	
Year of starting NewGen IEDC	2018	
Name of the Head/Principal of the Institution/College	Dr. Manjunath P	
Name of NewGen IEDC Coordinator	Dr. K.M. Basappaji	
Contact Details of NewGen IEDC Coordinator • Mobile Number • E-Mail ID	9886139971 bas_km@innce.ac.in	
Financial Details	Sanction Order No./ Date	Amount Sanctioned
Previous Sanction Order Details	1. EDII/DST–NewGen IEDC/18-19/03 Dated 13.11.2018	Rs. 60,00,000/-
	2.	Rs. 47,00,000/-

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
01	SPARK-2020 on 25-11-2020	Batch-2 team members known about importance of fund utilization, opportunities in innovation, accounting standard maintenance while procurement. Team members and guides interacted about steps to be followed while procurement of components in JNNCE-NewGen IEDC.
02	'EMPOWER' through Innovation – Entrepreneurship – Technology on 06-02-2021	Here students motivated about the how innovative thinking and entrepreneurial mind set required to empower our life with a modern technology.
03	'Think Out of the Box' Innovation – Entrepreneurship from 09-02-2021 to 10-02-2021	Students trained about Self-awareness, goal setting emotional & Time management, also learned about creative problem solving technique, required qualities for successful entrepreneurs.

Sr. No.	Activities	Outcome/Achievements
04	Entrepreneurship Gamification from 15-02-2021 to 16-02-2021	Students trained through games that work on understanding the various pillars of entrepreneurship, market segmentation, lateral thinking and emotional quotient, regular savings and wise investment.
05	'Innovation through IOT' on 22nd,24th,-02-2021	Here students trained about innovative solutions in the identified problem having creative terminologies.
06	'ARISE' Innovation-Entrepreneurship Development Programme on 23-02-2021	Students gets trained about Understanding Creativity and innovations Overcoming barriers in creativity like emotional block, perceptual block and habitual block., Creative Problem Solving, Managing your Knowledge, Skills and attitude for success, Understanding emotions: HERO out of hurt, Leadership skills for Entrepreneur.

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
01	Entrepreneurship Boot camp from 12-02-2021 to 14-02-2021	Students trained about the aspects of entrepreneurship such as principles of design thinking, idea generation process, business model canvas, team building, and creative thinking.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
01	Interaction with Women Entrepreneurs by the students 'UTHKARSHAN' Celebrating Naari Shakthi in their working area on 17-02-2021	Platform for Industry - Academia interaction, this programme has immense learning environment, invaluable motivated the upcoming innovators to take their ideas into a reality. With this event, turbulent flow of knowledge and waves to build strong start-up ecosystem and entrepreneurship spirit in Tier-2 cities and may generate employment and accelerate the economic growth of Tier-2 cities. Successful entrepreneurs, industrialist, faculties, students from various colleges.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

Due to Pandemic situation we are unable to organize many more events and activities.

3. Other Important Highlights (New initiatives) if any:

NIL

4. Student Projects (Please provide the following details for each student project)

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
1	<p>Development of a Readymade pothole mix for distressed pavements</p> <p>Team Members: Madhumurthy B S (3rd Sem-MTech, Civil Dept) Sricharan R (1st Sem-MTech, Civil Dept)</p> <p>Guide: Mr. Arun V (Asst.Prof, Civil Eng Dept) Mr. Anirudh N Asst.Prof, Civil Dept</p> <p>Project Description: Cold mix asphalt is often used due to unavailability of the hot mix asphalt in the vicinity of the project and also used for temporary patches. The poor performance of the materials associated with expensive cold mixes results in greater overall cost of patching due to increased cost of labor, equipment and traffic control. Many highway agencies including NHAI are more concerned about evaluation of the effectiveness of these patching materials and techniques that can lead to more economical and long-lasting solutions. This literature review will be focusing on the existing information regarding International and national status of cold asphalt patching mix</p>	<p>Market pothole mix has been procured. Literature survey has been done. Aggregate gradation has been fixed</p>	<p>Sustainability in nature. The results obtained from the study will be useful to all Government agencies of Shimoga district like NHAI, PWD, SH, and PMGSY etc.</p>	<p>Prototype implemented in the National Highways with the support of NHAI, Govt of India.</p>
2	<p>Kerb side parking management using smart mats</p> <p>Team Members: Muraliraja H R (7th Sem Civil Dept) Umm E Hani (5th Sem ECE Dept) Twinkle Srusti J K (5th Sem ECE Dept) Chandhanraj N G (5th Sem Civil Dept) Sampada H K (5th Sem IS Dept)</p> <p>Guide:</p>	<p>Literature survey is in progress. Study area has been selected. Methodology to carry out this project has been finalized</p>	<p>Reduction in vehicle parking in non-parking areas. Effective use of parking lots, available within the campus Decreases the number of accidents in adopted areas. Decreases the traffic congestion and travel time. After successful installation and testing of Smart Mats, the Test tracks can be used to give Technical assistance to those who are willing to install in different areas as</p>	<p>Preparing a prototype</p>

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	Akshatha M (Asst.Prof, Civil Eng Dept) Bindiya K (Asst.Prof, Civil Eng Dept) Project Description: Here by developing smart mats having combination of layers of different materials which are placed together along with the sensors and cameras and caution lights and nails which would act in one direction flow, at the kerb side which will help monitoring parking of vehicles at the installed areas. This mats includes a soft material which act as cushion and a rigid material which could take the load of the vehicles and sensors provided will sense the vehicle parked in the area and caution lights will give information to the person who is parking the vehicle at the installed area. So any violation of the parking rules can be monitored with the help of one directional movement of the nails provided with the mats on the side of the kerb line of the road.		Parking System.	
3	Barn House Hygienic Management Robo Team Members: Pavan Kumar G L (5 th Sem MCA Dept) Sujan Poojari (5 th Sem MCA Dept) Gayathri K (5 th Sem MCA Dept) Guide: Mr. Arun Kumar K L (Asst.Prof, M.C.A Dept) Project Description: A smart and intelligent robot is required to maintain the barn house cleanliness and maintenance.	All required sensors working principles are understood Gaining knowledge on microcontrollers. Literature survey is going to make it more efficient with advanced electronic components	Robot that operate semi- or fully autonomously to perform services useful to the well-being of humans and equipment. A cheaper and user-friendly Barn House Cleaner robot can be developed with two different mode of controlling (Manual and Autonomous mode) using an Arduino Board with more electronics functionality.	Prototype preparation
4	Smart Vaccine Alert System using IoT and QRCode technologies Team Members: Zaheer Abbas (5 th Sem CSE Dept)	Made a research on current status of vaccination allotment process to public and preparation for pilot implementation	QR Code scanning and recognition of vaccines Storage of vaccines in Fire store cloud database Interfacing QR Code with Raspberry PI	Prototype developed having web application and android system and preparing for implementation.

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	<p>Mohammad Moin (5th Sem CSE Dept) Kavana M Gowda (5th Sem CSE Dept) Nandini S Bhat (5th Sem CSE Dept) Shambhavi M S (5th Sem CSE Dept)</p> <p>Guide: Dr. Chethan K R (Assoc.Prof, Computer Science Dept)</p> <p>Project Description: Ensuring vaccine availability and proper dosage: Vaccines must be made available at any time with proper stock. And they must be given with proper dosages. Automatic checking and reporting of expiry date of vaccines: Sensor does automatic checking of expiry date and gives alert. Minimize health issues and even death due to non-availability of vaccines/use of expired vaccines/over dosage of vaccines. Monitor temperature of vaccine: Vaccine temperature are measured and then used. Make life of operators easy and hassle free: Helps operators to work easily and reduce burden.</p>		<p>RFID Scanner to identify staff operating vaccine with Raspberry PI Integrating Temperature Sensor with RPI to find operating temperature of Vaccine Connecting GSM module with Raspberry PI for SMS notifications. Building Android App to find abnormalities of vaccine dosage, operating temperature issues.</p>	
5	<p>Design and Fabrication of Vacuum assisted waste collector for campus roads cleaning</p> <p>Team Members: Vignesh S (7th Sem ME Dept) Sammed S Muppane (7th Sem ME Dept) Rishi Sagar B K (7th Sem ME Dept) Nahush K M (7th Sem ME Dept)</p> <p>Guide: Dr. K.Sabeel Ahmed (Prof, Mechanical Eng Dept) Dr. Manjunatha Chary G.H (Asst.Prof, Mech. Eng Dept)</p> <p>Project Description: The device for cleaning the tar roads by sucking the waste garbage materials like dry leaves,</p>	Preparation of innovative design in schematic way.	Developing a vacuum assisted waste collector for cleaning the tar roads in the campus and cleaning the unwanted wastes like dry leaves, papers, plastic bottles, fine dust etc.	Preparation of Prototype is on-going.

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	papers, covers, food beverages, minute dust and unwanted wastes noticed on the roads and road side open drains and surfaces. The proposed equipment works using the engine power for operating the vacuum assisted pump to suck the waste materials from the roads and road sides.			
6	Development of microbial consortia for composting the biomass residue Team Members: Srivathsa N T (5 th Sem, Civil Dept) Shashank P (5 th Sem Civil Dept) Sumukh T S (5 th Sem Civil Dept) Namratha (5 th Sem Civil Dept) Sindhu (5 th Sem Civil Dept) Guide: Dr. Sughosh P (Assoc.Prof, Civil Eng Dept) Mr. Chethan S G (Asst.Prof, Chemistry Dept) About Project: To develop a microbial consortium (bio-culture) capable of effectively composting the yard waste. Laboratory scale studies shall be carried out to evaluate the performance of bio-cultures from different sources. An attempt to implement the scaling up of the composting process to the actual field scale shall also be carried out.	Laboratory scale studies to evaluate the performance the composting system in terms of pH, Moisture content, temperature, CHN values, C/N ratio and organic content.	For optimal composting of yard waste	Prototype reactors placed
7	DRONE Blight Team Members: Abhishek M N (4 th Sem ME Dept) Harsha K L (4 th Sem CS Dept) Abhiram B (4 th Sem ME Dept) Guide: Dr. K.M. Basapaji (Prof, Mechanical Eng Dept) About Project: Counter measures Against a ROGUE AUTONOMOUS. DRONE Including Swarm of Drones	Design phase with a few designs ready to be implemented with all the suitable tools required. (like controllers, motors, sensors, etc.,)	DRONE BLIGHT is to be able to autonomously detect, aim, and fire at an enemy target(especially Drones).	Preparing the prototype

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
8	<p>Smart Medicine Reminder</p> <p>Team Members: Shreyas Hebbar (7th Sem ISE Dept) Sindhu H S (7th Sem ISE Dept) Srusti Mirajkar (7th Sem ISE Dept) Pratheeksha S D (7th Sem ISE Dept)</p> <p>Guide: Mr.Gireesh Mantha (Asst Prof, IS Dept) Mr. Pradeep H K (Assoc Prof, IS Dept)</p> <p>As pills have taken such an important role in everyday life, in past few years there has been an increase in the number of medical neglect cases. Hence there is a need of automation in pills disbursement. This project will solve above mentioned problem by design and implementing a automatic pill reminder and dispenser setup using IOT that can remind the medicine to consume at right time, which help the people to cope up with their busy life as well as makes the people to stay fit and safe.</p>	<p>The prototype is been built with the components available to test for the working Same can be made a ready product with advanced components keeping in mind ease of use and cost.</p>	<p>Can be a life savior at times, as it reminds patient to take medicines. Helps blind and partial Deaf persons to take medicines without any assistance. It is specially designed for old age patients who suffer from diseases like Alzheimer's, Diabetes etc.. This project would help to decrease the number of deaths due to human error</p>	<p>Prototype prepared</p>
9	<p>Spectroscopic approach to soil analysis</p> <p>Team Members: Shripada Adiga (5th Sem ECE Dept) Shashank G S (5th Sem ECE Dept) Yashas Vinay (5th Sem ECE Dept)</p> <p>Guide: Dr. Manjunath P (Dean Academic,JNNCE)</p> <p>Two-tiered solution for farmers at different ends of the land owning and income spectrum. We propose a soil analysing app using image processing with a smart phone camera for</p>	<p>Prepared literature review showed the methodology we are using is workable and has been utilised in different ways to get results on separate tests. Further, it has shown us that it is possible to integrate the whole system into one app ecosystem and evolve from there onwards. There has been substantial open source work conducted on</p>	<p>Farmers will have a low cost open-source tool capable of soil analysis. Farmers will no longer have to spend money on sending soil samples to government labs, and gain timely accurate data about their land. Raise farmer awareness and confidence in new technologies to invest and experiment. Educate farmers on better land use practices, to make them aware of how their resources particularly regarding soil are utilised and help them increase productivity. With the help of drones fitted</p>	<p>Prototype Preparing</p>

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	the lower income category with future development prospects and a visible to Near Infrared Imaging Spectroscopy-capable of being mounted to vehicles or drones, with the ability to analyse soil composition in-situ and feed that data into database through which the most optimized cropping solution can be suggested to farmers as the product for high income farmers and large land owners.	Raspberry Pi based spectroscopy modules thus boosting our impression of the technology's capabilities.	with our spectroscopy module, farming that takes place on commercial scale can monitor resource usage and micromanage crop growth.Commercialization potential is large due to the prevalent use of smartphones.App can be downloaded either paid or free of cost and revenue can be generated through ads. As features are added, in-app purchases can be made available for the smartphone market.	
10	NULL CEMENT CONCRETE Team Members: Kafeel Ahmed (7 th Sem Civil Dept) Yashawanth Kumar (7 th Sem Civil Dept) Spoorthi C (7 th Sem Civil Dept) Suma M R (7 th Sem Civil Dept) Guide: Mr. Bhuvan Kumar V S (Asst.Prof, Civil Eng Dept) <p>To improve the sustainability of concrete, cement is totally replaced by by-products or natural pozzolanic materials, producing Null-cement concrete (NCC). The NCC is synthesized by reacting a material rich in silica and alumina such as Fly Ash with alkali solutions such as sodium silicate and/or sodium hydroxide that induce the formation of strong binding phases. The binder in NCC consists of an alumina-silicate rich material such as Fly Ash and alkali activators. The NCC will also potentially reduce 40 % CO2 emissions as compared with convectional concrete.</p>	Market survey regarding the availability of materials like fly ash, GGBS, alkali activators, cement, fine and coarse aggregates has been done. Source of all the raw materials has been finalized along with vendors. Literature survey has been done.	<p>Use of NCC made of 100% FA reduces global CO2 emissions, saves energy, and decreases raw material consumption during the production process of ordinary Portland cement. As concrete is the second most consumed material in the world, and it causes a lot of carbon foot prints during the manufacturing of cement, imagine a concrete with zero carbon footprint and also as good as conventional concrete.</p> <p>By products like Fly ash and GGBS are being used 100 percent in the manufacturing of concrete which are having a huge disposal problem.Overall with this type of concrete, we will be a step near towards achieving sustainability in construction industry.</p>	Prototype preparing

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
11	<p>Dentocure</p> <p>Team Members: Abhishek J M (5th Sem ISE Dept) Shishira S Jois (5th Sem ISE Dept) Subramanya K S (5th Sem ISE Dept) Sanath N (5th Sem ECE Dept)</p> <p>Guide: Dr. Shruthi D K (Subbaiah Institute of Dental Science) Dr. Mahesh Kumar Reddy (Subbaiah Inst. of Dental Sci.) Mr. Mallesh Kumar K S (Project Manager, CIE)</p> <p>Dentocure is an automated toothbrush to be designed for physically handicapped children in order to help them in maintained a good oral health without the need of other physical assistance.</p>	Studying the articles and pre invented electronic tooth brush designs. Compiling all of our ideas, bring it up together to arrive at an incredible design.	<p>Our toothbrush is definitely going to help many of these differently abled children by reducing the risk of caries, decreasing the occurrence of periodontal diseases by helping to get rid of plaque and give them a beautiful smile.</p> <p>By decreasing the occurrence of periodontal diseases the complication of gum abscesses also is reduced. As mentioned earlier healthy mouth and a healthy body go hand in hand, the problems associated with bacterial infestations in mouth which leads to further gastrointestinal complications can be overcome. Due to improper brushing techniques, the bacteria which are present in the mouth as commensals may cause opportunistic infections further leading to septicaemia.</p>	Prototype prepared, experiment on going.
12	<p>Spray Dry Nutriener</p> <p>Team Members: Manoj J (7th Sem ME Dept) Shashank A (7th Sem CE Dept) Nikhil S T (7th Sem ME Dept)</p> <p>Guide: Mr. Mallesh Kumar KS (Project Manager, CIE)</p> <p>This project involves execute the production process the moringa based drink. Here the New to make moringa based drink we need water soluble moringa extract from the leaves. We have short listed Hot Air Spray drying process to generate the product the water soluble Moringa extract.</p>	Completed the preplanning for this project and currently we are at the pre-design stage and In pre-design stage we make the drawing layout of spray drying machine unit.	<p>Highly nutritious cheap food would be made available for the public through this project. The high temperature blown air will remove potentially harmful viruses and thus yielding a safe and reliable product. Shelf life is increased due to removal of moisture. Farmer's income would increase the as the moringa is grown in dry area now, where the farmers have low income</p> <p>As the device we are developing makes a instant soluble powder which leaves no coffee ground, there is no need to have a separate section for the coffee ground management & disposal of the same in the coffee vending machine. Advantages of this device include speed of Datta</p>	Prototype preparation on-going

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
			preparation, lower shipping weight and volume than beans or ground coffee long shelf life—though instant coffee can spoil if not kept dry.	
13	Natural bio-adsorbents and coagulants for removal of heavy metals from contaminated water Team Members: Faisal Izhar (7 th Sem Civil Dept) Adnan Abdullah Hezman (7 th Sem Civil Dept) Sathwik C R (5 th Sem Civil Dept) Manoj P (5 th Sem Civil Dept) Zulfiqhar Ali (5 th Sem Civil Dept) Guide: Dr. Sughosh P (Assoc.Prof, Civil Eng Dept) Mr. Shashikumar M (Asst.Prof, Civil Eng Dept) Removal of bio adsorbents such as areca husk, rice straw from contaminated water	Design Phase completed	Removal of heavy metals using natural bio absorbents by areca husk and rice straw	Procedure for analysis of heavy metals established
14	Face shields for Personal Protective Equipment Team Members: Priyanaka S (5 th Sem ECE Dept) Tanuja V (5 th Sem ECE Dept) Thejaswini D (5 th Sem ECE Dept) Vidharani S H (5 th Sem ECE Dept) Guide: Dr. Pramod Kumar (Assoc.Prof, E&C Dept) Project Description: The purpose of this proposal is to manufacture face shields for infection control purposes in order to assist to the front-line warriors of Covid-19.	Started to developing a WHO network of 15 COVID-19 reference laboratories with demonstrated expertise in the molecular detection of coronaviruses. These international laboratories can support national labs to confirm the COVID-19 virus and troubleshoot their molecular assays. Strengthening national capacity for detection of the COVID-19 virus so that diagnostic testing can be performed rapidly without the	Innovative wiser are tried	Prepared the prototype having wiser protect a larger portion of the face more comfortable wearers do not need to be clean shaven less retained dermal facial heat less claustrophobic no impact on breathing resistance

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
		need for overseas shipping. Existing global networks for detection of respiratory pathogens are being utilized including, notably, the National Influenza Centers that support the Global Influenza Surveillance and Response System.		
15	<p>Investigation on the co-pyrolysis of maize corn cob and areca nut husk</p> <p>Team Members: Vittal Amarnath Kathare (5th Sem ME Dept) K B Abhishek (5th Sem ME Dept) Ganesh K Prabhu (5th Sem ME Dept) Pavan H (3rd Sem ME Dept)</p> <p>Guide: Mr. Santhosh U (Asst.Prof, Mechanical Eng Dept)</p> <p>Among renewable energy sources, biomass is a promising and emerging energy source, as it is abundant, cheap, CO₂ neutral and has the potential to contribute to more secure energy supply. With an annual production of 220 billion dry tons, agricultural biomass is considered as a potential sustainable energy source worldwide to supplement declining fossil fuel resources. Pyrolysis oil, e.g. increase the oil yield, reduce the water content, and increase the caloric value of oil.</p>	Preparation of design phase	<p>Production of good quality bio-oil to replace existing fossil based liquid fuels</p> <p>Production of high quality bio-char which can be used in many heating applications</p> <p>The outcome of this work may help to start the activity of setting up a business in energy sector which helps to create new jobs in this field method to utilize agro wastes in an efficient manner</p> <p>Solving the problem of fuel shortage</p> <p>Improvement in rural economy</p>	Prototype preparing

5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

1. Project Title: Development of a Ready-made pothole mix for distressed pavements

Name	Email Id	Contact Number
Madhumurthy B S 3rd Sem-MTech, Civil Dept	madhumurthybs1998@gmail.com	7353349646
Sricharan R 1rd Sem-MTech, Civil Dept	sricharansamrat@gmail.com	7348959161

Brief description about the student start-up

Development of potholes on roads and streets of India after the onset of monsoons is a common phenomenon. Quite often, potholes are repaired with antiquated techniques such as placing soil or bare aggregate in the pothole because no hot mix asphalt is available during monsoons.

An economical, generic, readymade stockpile cold patching mix has been developed, which can be manufactured in lab or batch type hot mix plant using local aggregates. This generic mix can be placed without preparing the pothole such as drying, squaring the edges, cleaning, and tack coating. This patching mix developed by the team was evaluated both in field and laboratory conditions under the help of Newgen IEDC project. Since that study was conducted under different climatic conditions (including hot and wet), it is believed this patching mix will be equally successful in India. Recent field trials of this mix in Shimoga district, Karnataka state during monsoons have been highly successful. The mix can be stockpiled and remains workable for at least 6 months and, therefore, it can be used throughout the year including the rainy season. A detailed specification ready to be used by any highway agencies in India.

Now the team has finished the laboratory results and observing the field results. Once the project is finished. The student team will be able to prepare the readymade pothole mix in 50kg bags. Once the product is ready, it can be applied for IP and then it can be commercialized.

- Figure 1 2 & 3 Shows the journey from ideation to prototype



Fig. 1: Preparation of Ready-made pothole mix in Laboratory





Fig. 2: Placement of Readymade pothole mix on NH206 Road



Fig 3: A Readymade 50kg pothole patching mix prototype

Contribution of NewGen IEDC in the same

- Funding for all materials and equipment's for this prototype
- Constant support for startup
- Encouraging students and motivate for statup and commercialization
- To accelerate the journey of idea to prototype by providing initial funding assistance.
- Finally converting students idea into commercialization.

Future Plan

- Once the field studies are over, Final product will be finalized.
- Cost analysis of the prototype
- Applying for patent
- Commercialization of the prototype for government agencies like NHAI, PWD, Panchayatraj, and PMGSY roads
- Already we have made MOU with NHAI

2. Project Title: DENTOCURE

Name	Email ID	Contact Number
Abhishek J M 5 th Sem ISE Dept	karunadu4@gmail.com	7019120854
Shishira S Jois 5 th Sem ISE Dept	shishirasjois7@gmail.com	7019196836
Subramanya K S 5 th Sem ISE Dept	subramanyaks2205@gmail.com	9535290710
Sanath N 5 th Sem ECE Dept	sanathkumarsandy@gmail.com	8277506517

Brief description about the student start-up:

Dentocure is an automated toothbrush to be designed for physically handicapped children in order to help them in maintained a good oral health without the need of other physical assistance. Our toothbrush is definitely going to help many of these differently abled children by reducing the risk of caries, decreasing the occurrence of periodontal diseases by helping to get rid of plaque and give them a beautiful smile.

By decreasing the occurrence of periodontal diseases the complication of gum abscesses also is reduced. As mentioned earlier healthy mouth and a healthy body go hand in hand, the problems associated with bacterial infestations in mouth which leads to further gastrointestinal complications can be overcome. Due to improper brushing techniques, the bacteria which are present in the mouth as commensals may cause opportunistic infections further leading to septicemia. Now the team members are in the process of research by developing the prototype and testing the toothbrush by making regular experiments.

Startups entrepreneurial journey from ideation to prototype :

The main aim of this project is to build tooth brush electrically powered. It will have rapid automatic bristle motions which will cover labial, buccal, lingual and occlusal surfaces. Motions will be back and forth and rotatory motion.

Brush is designed to be driven with a motor. Brush which will be designed will have replaceable bristles instead of replacing the whole set. We are going to develop toothbrush using design thinking. Design Thinking is a creative and flexible problem solving approach which aims at customized solution based on continuous data input. It is a human centered process involving the end user in every stage of the design process. The prototype is under clinical trials.

Contribution of NewGen IEDC :

- NewGen IEDC provided required seed capital
- Through NewGen IEDC team members formed a great team when pitching of ideas was announced.
- It acts as an institutional mechanism for providing information on all aspects of start-up.
- NewGen IEDC helped in catalyzing and promoting development of this idea and providing us opportunity to work on it.

Future Plan :

- Plans for doing further research in product development
- Plans for commercializing automated tooth brush with the support of Indian Medical Association.

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	Datta Meghe Institute of Medical Sciences	
Year of starting NewGen IEDC	2018	
Name of the Director	Dr. S. Z. Quazi, Director, R&D, DMIMS(DU)	
Name of NewGen IEDC Coordinator	Dr Abhay Gaidhane, Director, SEPH, DMIMS(DU)	
Contact Details of NewGen IEDC Coordinator	9765404075 abhaygaidhane@gmail.com	
Financial Details	Sanction Order No./ Date	Amount Sanctioned
Previous Sanction Order Details	1 EDII/DST-NewGen IEDC/18-19/RLS-I/04	6000000/-
	2 4-11-2020 & 4-01-2021	4750000/-

1. **Initiatives/Activities Undertaken as per the Action Plan Submitted:**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements Number of beneficiaries
1	Sets of Workshop 1. Introduction & Basics of Entrepreneurship 2. Stages of technology development and commercialization 3. Cognitive Skills, Design and Critical thinking Funding schemes /opportunities for start ups	Six workshops held Total 239 beneficiaries
2	Workshop on rapid prototyping	One workshop held total 51 beneficiaries
3	Field trips to Incubation center	YCCE TBI, CIVN VNIT
4	Workshop on IPR for Students and Faculty Members. Technology related IP issues & Legal services	Five workshops held total 46 beneficiaries
5	Online Workshop on IPR, Innovation for Students and Faculty Members <ul style="list-style-type: none"> • Health science colleges – Six events • Engineering colleges – Two events 	Eight events and 684 participants/ delegates
6	Seminar for Social entrepreneurship and Innovation	One event and 79 beneficiaries
7	Dissemination event for NEWGEN IEDC and entrepreneurship <ul style="list-style-type: none"> • Health science colleges – Five events • Engineering colleges – Two events 	Seven events nearly 1175 participants/ delegates

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	Idea Competition	76 ideas received and screened 25 ideas were shortlisted
2	Workshop on Business plan Development - Scale up and commercialization	One workshop held 100 innovators participated
3	Business Plan Competitions	One Competitions 27 beneficiaries
4	Design/ Proof of Concept development Competition	20 ideas shortlisted
5	Innovation camp	One innovation camp. 27 beneficiaries

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Industry linkage Formation of Advisory Board	Memorandum of Understanding for industrial linkage Signed With <ul style="list-style-type: none"> •Anatomiz3D Medtech Private Limited, Mumbai •SIIC, IIT Kanpur •Venture center Pune •GNG - GENEXT GENOMICS PVT LTD, Nagpur •Atmen Technovention Private Limited Pune •Ceinsys Tech Ltd, Nagpur •iHealTH-AID Consortium (AIIMS Jodhpur- IIPH Gandhinagar- DMIMS) •Indian Institute of Technology Kharagpur •Indian Institute of Science, Bangalore
2	Interactive sessions with entrepreneurs/ bankers/ investors/ potential customers. Interaction with Angels investors and Venture Capitalists	<ul style="list-style-type: none"> • Abhijeet Bhagat, CEO, Atmen technovention Pvt. Ltd. • Mayur Sanas, CEO, MediAsha technology Pvt. Ltd, Pune
3	Guest lectures from industry partners	<ul style="list-style-type: none"> • Abhijeet Bhagat, CEO, Atmen technovention Pvt. Ltd.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

NIL. No significant deviation from the proposed action plan.

3. Other important highlights (new initiatives), if any:

- MoU with Techex.in - TECHEX.IN is a Technology Transfer Hub operated by Venture Center, Pune, India and supported by the National Biopharma Mission (Govt of India). Techex.in is supporting in entrepreneurial journey.
- BETiC Innovation cell - Biomedical Engineering and Technology Innovation Centre (BETIC) is building the necessary eco-system by connecting stakeholders – government, academia, medical community, industry, investors and facilitators.
- iHealTH-AID Consortium (AIIMS Jodhpur- IIPH Gandhinagar- DMIMS)

4. Student Projects (Please provide the following details for each student project)

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
1.	Magic Wash Box for disinfecting mops in healthcare facilities Student name: Achillu Kalpana Mentor Name : Prof (Dr) Deepak Saxena Dr Abhay Gaidhane	Ideation	Prototype development	POC and prototype developed. Minimum viable product (MVP) is in development stage.
2.	Air purifier and disinfectant device for highly infectious air borne pathogens Student Name: Mr. Pravin Vaidya Mentor Name : Prof. Santanu Dhara Dr Punit Fulzele	Ideation	Prototype development	POC, virtual prototype and prototype developed. CAD design has been done and is under fabrication stage for validation.
3.	3D printed Silicone cosmetic implant Student Name: Miss. Asmita Biswas Mentor Name : Prof. Santanu Dhara Dr Punit Fulzele	Ideation	POC development	Prototype fabrication utilizing silicone as printing ink with 3D printing machine completed. Prototype validation is in process.
4.	Smart Radiant warmer Student Name: Siddharth Kumar, Ashutosh Vichore Mentor Name : Dr Punit Fulzele	Ideation	Prototype development	POC and virtual prototype developed. CAD design has been done. The prototype has been developed and under is under validation stage. Minimum viable product (MVP) is in development stage.

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
5.	Diabetic foot rehabilitation Student Name: Dr Garikapati Amrutha Dr Abhishek Chande Mentor Name : Dr Shilpa Gaidhane	Ideation	POC development	Process standardization for obtaining actual pressure point profile of patients has been completed. foot rehabilitation based on this profile is under development.
6.	Automatic Spine Dhara Yantra Student name: Dr Prajakta Hagone Mentor Name : Dr Kuchewar	Ideation	Prototype development	Conceptual CAD design is ready and prototype development is completed & is under testing. Patent filled
7.	Steam based,non-toxic,non-carcinogenic cigarettes with health benefits Student name: Jerin Varghese Mentor Name : Dr Quazi Syed Zahiruddin	Ideation	Prototype development	Prototype is ready. In Vitro validation under process. Minimum viable product (MVP) is in development stage.
8.	Therapeutic antibodies for treatment of oral cancer Student Name: Parul Loya Vinus Shivilani Akhilesh Agrawal Mentor Name: Mrs. Supriya Kashikar Dr Punit Fulzele Dr Alka Hande Dr Zahir Quazi	Ideation	POC development	Resection of specimen from oral cancer patient. In Vitro neutralization and chemical treatment of specimen to form solution. Two doses of solution administered in Balb mice. Third dose will be administered after two month, followed by extraction and characterization of antibody.

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
9.	Therapeutic ultrasonographic myofascial release tool (TUMRT) Student name: Dr. Laukik Vaidya Shivani Dhok, Laasya Prasad Dhage Mentor Name : Dr. Waqar Naqvi Dr. Kiran Kumar Dr. Ankit Bhurane Dr. Mayur Parate	Ideation	Prototype development	POC and virtual prototype developed . CAD design has been done. The prototype has been developed and under is under validation stage. Patent filed.
10.	Title: NanoBio-Gen: A Nanocomposite Allograft for Bone Regeneration in Bone Defects Student Name: Dr Yash Goenka, Ruchita Patil, Sakshi Salve Mentor Name: Dr Raj Kumar Dutta Dr Zahir Quazi, Dr Pavan Bajaj	Ideation	Prototype development	Bio-ink development to promote endogenous regeneration and characterization of the same Completed. Pre-clinical validation is in process. Clinical validation is planned.
11.	Device for early detection of Keratoconus Student name: Dr Krishna Shah Dr Aneri Shah Dr Smeet Desai Mentor Name : Prof (Dr) Deepika Singhal Prof Bharti Joshi Dr Abhay Gaidhane	Ideation	Prototype development	POC and virtual prototype developed. The prototype has been developed and under is under validation stage. The mobile app is under development for screening of keratoconus.

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
12.	Retinopathy of pre-maturity testing device Student name: Preana Ghuge Devashish Thakre Aniket Safalkar Soniya Mandal Mentor Name : MS Priti Bhagat Ashutosh Bagde Dr Quazi Syed Zahiruddin	Ideation	Prototype development	The algorithm for ROP screening and diagnosis was developed. The sample of 120 baby retina image was collected and a ML algorithm is developed. Based on the developed algorithm the hardware integration is also done. The device first prototype is under process. The virtual design is ready.
13.	3D- Scaffolds for Prosthetic rehabilitation of maxillofacial defects Student Name: Yash Goenka, Kaivalya Deo Simran Nathani Mentor Name: Dr. Akhilesh Gaharwar Dr Zahir Quazi Dr Punit Fulzele Dr Shweta Pisulkar	Ideation	Prototype development	Standardized Process for 3D prosthetic rehabilitation has been completed. Workflow for the same has been standardized. Pilot testing of the process on one case for maxilla-facial prosthesis has been successful. Further trial is under process.
14.	Nano-Bio Vehicle: An Efficient and Cost-Effective Local Drug Delivery of Nano-Particle Based Doxycycline for Non-Surgical Periodontal Therapy Student Name: Akhilesh Agrawal, Kaivalya Deo, Ajinkya Ingle	Ideation	POC development	Nano particle based local drug delivery system has been developed. In Vitro validation has been completed. Pilot trial is underway.

Sr. No.	Team/Project Description	Project status at beginning of the Year	Interventions Made	Current Status
	Mentor name: Dr. Priyanka Jaiswal Dr. Akhilesh Gaharwar Dr. Abhay Gaidhane			
15.	Device for food quality monitoring Student Name: Shilpa Raut Ajinkya Ingle Mentor name: Dr Abhay Gaidhane	Ideation	POC development	POC has been developed and under validation and testing.

5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

Project tile: Design and development of device for screening retinopathy of prematurity (RoP).

Student name:

Mentor Name :

- Preana Ghuge
- Devashish Thakre
- Aniket Safalkar
- Soniya Mandal

- MS Priti Bhagat
- Dr Ashutosh Bagde
- Dr Quazi Syed Zahiruddin

• Brief description about the student start-up/ project:

Retinopathy of prematurity is a disease of the eye affecting prematurely born babies generally having received neonatal intensive care, in which oxygen therapy is used due to the premature development of their lungs. It is thought to be caused by disorganized growth of retinal blood vessels which may result in scarring and retinal detachment. ROP can be mild and may resolve spontaneously, but it may lead to blindness in serious cases. Thus, all preterm babies are at risk for ROP, and very low birth-weight is an additional risk factor. Both oxygen toxicity and relative hypoxia can contribute to the development of ROP. Globally, ROP is estimated to affect more than 50,000 infants annually. In India, every year, 500 children are estimated to become blind from ROP.

ROP occurs when abnormal blood vessels grow and spread throughout the retina, the tissue that lines the back of the eye. These abnormal blood vessels are fragile and can leak, scarring the retina and pulling it out of position. This causes a retinal detachment. Retinal detachment is the main cause of visual impairment and blindness in ROP.

Most babies with ROP see normally for their age. It is only when ROP progresses to the most severe stages that vision is threatened. Even with treatment, some babies with ROP may have vision loss. And even if treatment works, babies with ROP are more likely than other babies to have some eye problems later in life including: Nearsightedness (also called myopia) Crossed eyes (also called strabismus). The only way to determine if babies have ROP is to examine the inside of their eyes for abnormalities in the retina. Ophthalmologists trained in the diagnosis and treatment of ROP will examine your baby's eyes. During this exam, your baby's pupils will be dilated with eye drops so the retina can be studied. The lack of

specialized care, delay in screening, poor image quality, and high cost are some of the reasons that detection of RoP is difficult. The proposed project was about to develop a portable RoP screening device for diagnosis and enhancing quality of neonate in rural India.

- **Current status of the project:** The algorithm for ROP screening and diagnosis was developed. The sample of 120 baby retina image was collected and a ML algorithm is developed. Based on the developed algorithm the hardware integration is also done. The device first prototype is under process. However, the virtual design is ready.
- **Startups entrepreneurial journey from ideation to prototype or**

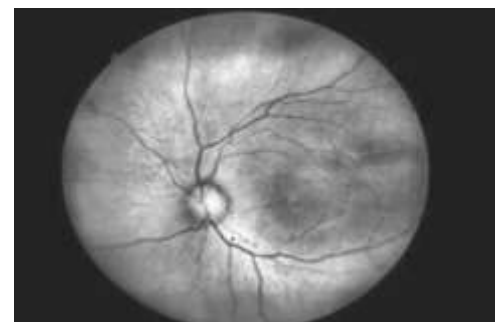
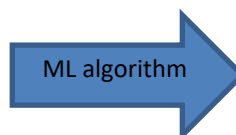


commercialization along-with 2-3 high resolution photographs.

CAD Model of proposed device.



Input Image



Output Image

Contribution of NewGen IEDC in the same :-

New-Gen IEDC helps us in order to conceptualization, POC fabrication, initial discussion with mentors and creating a validated problem definition. The funding support provided by New Gen helps for concept creations and validation. The IEDC support during the start-up journey starting from company registration to taking the things together for higher scale.

Future plan:

This instrument has the potential for scalability. The device is tested on 120 images however with the IEC approval some more patient image will be collected to build the accurate algorithm. Once it is done we can apply for the start-up grant for further process.

Project Title: NanoBio-Gen: A Nanocomposite Allograft For Bone Regeneration

In Bone Defects

Student name:

- Dr Yash Goenka
- Ruchita Patil,
- Sakshi Salve

Mentor Name :

- Dr Raj Kumar Dutta
- Dr Zahir Quazi
- Dr Pavan Bajaj

The product: A nanocomposite bone allograft for regeneration in osseous defects.

Description:

Bone defects and disorders, in addition with the associated diseases, have engaged considerable public health concerns due to an upsurge in the aging trauma population, bone tumor, injuries from sports activities and road traffic accidents. Bone defects are in many cases sequelae of high energy impacts, underlying tumor, infection, degenerative diseases or trauma. The fundamental intrinsic mechanism is disturbed which results up to 50% chances of nonunion of bone fragments leading to tissue and vascular insult. A sustained increase of hospitalization period, associated risks of complications and high-cost treatment on patient's health and quality of life. In some instances, it can even lead to long-term morbidity and death. Bone defect reconstruction is a complex biological process that involves proper biomaterials, a supply of precursor cells, growth factors, angiogenesis, and osteogenesis. Currently, therapeutic modalities that are based on bone graft like autograft, allograft exhibit their limited use due to disadvantages. Autograft presents before the surgeon with possibilities like bleeding, infection, chronic pain, damage to the donor site and morbidity, deformity and scarring etc. Allografts also have some limitations, such as the lack of donors, immune reaction or rejection and their high cost also cannot be neglected. Further, clinical reconstruction of large bone defects remains a dilemma for orthopedic surgeons. These limitations associated with grafts directs the focus to search for a new therapeutic strategy aimed at natural and mechanically sound bone replacement. All the research lines in this area have focused on the keyword of bone synthesis. However, even though the outcomes of such new treatments are constantly believed to be "promising", they still cannot be managed or combined appropriately with osteosynthesis fixation. Bone grafts loaded with growth factors (GFs) have emerged to be an optimistic approach in bone regeneration. The number of GFs has shown good results in clinical trials and some of these have been approved for biomedical applications. However, the only a small number has achieved commercial success due to its limitations and high costs. They have a short half-life in-vivo, are unstable in proteins and cause many side effects. Bone

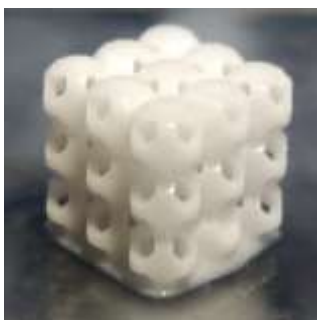


Fig 3: 3D- printed nanocomposite scaffold

Contribution of NewGen IEDC:

The funds required to complete the proof of concept was given by NewGen IEDC. Also, the incubation centre at DMIMS had the necessary resources and equipment that were required to complete some crucial steps in the project.

Future Plan:

Currently we are in process of filling patent for our developed product. Concomitantly we are now heading with preclinical animal study.

Project tile: Smart Radiant warmer

- **Student team details (with contact information)**

Student name:

Mentor Name:

- Siddharth Kumar

- Dr Punit Fulzele

Brief description about the student start-up/ project:

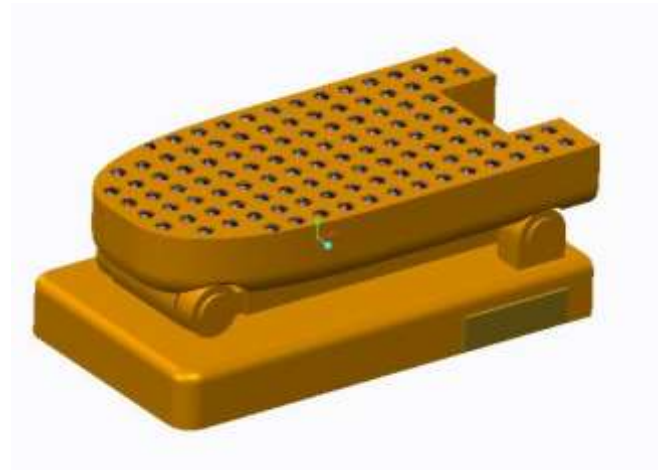
The World Health Organization published that roughly 38% of all under-5-year-old deaths occurred in the neonatal period, accounting for 4 million annual deaths worldwide. Once outside the womb, one of the first and biggest problems these neonates face is hypothermia. WHO estimates that 18% to 42% of worldwide annual infant deaths are caused by hypothermia. Hypothermia is common in infants born at hospitals (prevalence range, 32% to 85%) and homes (prevalence range, 11% to 92%), even in tropical environments. Half of the world's newborns die at home, and more than 99% of all deaths occur in developing countries, where the average neonatal mortality rate is 33 per 1,000, compared with 4 per 1,000 in high-income countries. Recent studies showed that every 1 °c decrement of body temperature increases mortality by 80%.

Cost of Radiant Warmer In India 50000 - 1 Lac INR (2000-5000 \$) and it is not affordable by Small Health Care Providers hence availability is a huge problem in low resource settings. The large size of the conventional model limits its use to 'NICU' Setup in Large Hospitals

- **Current status of the project:**

POC and virtual prototype developed. CAD design has been done. The prototype has been developed and under is under validation stage. Minimum viable product (MVP) is in development stage. The advantages of the device are

- Compact
 - Easy to use
 - Portable Affordable
 - Uniform heating
 - IOT support
 - Remote monitoring possible
 - Smart Temperature control
 - Humidifier
- **Start-ups entrepreneurial journey from ideation to prototype or**



commercialization along-with 2-3 high resolution photographs

Fig.1 :- Conceptual CAD model of Smart radiant warmer



Fig 2:- Prototype of Smart radiant warmer

Contribution of NewGen IEDC in the same:-

The NewGen IEDC at DMIMS served as a key factor to bring the project to its current stage. The facilities and the mentorship under the incubation center facilitated the smooth and consistent development of the project. The student team was given guidance under the clinician and technical expert. Also, various webinars were hosted highlighting the importance of strong dedication to transfer our idea from bed to lab and to market. The team would like to extend our sincere gratitude to DMIMS incubation centre for providing us all the necessary support.

Future plan:

Warmer may be readily available in remote areas lacking access to healthcare

1)-radiant warmer in every rural health centre, PHC's, tribal health camps , war zone health camps, small clinics and even homes.

2)-radiant warmer that can be carried to health camps, in ambulance

3)-productive clinics and higher preterm baby survival rate

SOCIAL CO-BENEFITS- Happier parents' harmony and bliss in family, less fear and social stigma about premature babies. This instrument has the potential for scalability. The device capable of effective manage hypothermia may have a greater impact in the Community especially in rural areas with low resource settings.

Project tile: Air purifier and disinfectant device for highly infectious air borne pathogens

Student team details

Student name:

- Pravin Vaidya

Mentor Name :

- Prof. Santanu Dhara
- Dr Punit Fulzele

Brief description about the student start-up/ project:

Recent global events such as, biological waste leakage from pharma labs (brucellosis outbreak in Lanzhou, China),, influenza, H1N1, Covid-19 pandemic etc. have put the world in a grave danger. Progression of these biohazards might happen through water (colera), thorough air (influenza), through human contacts(ebola) etc. However, advancement is more prone in case of air because not only air is important for breathing but also difficult to control its flow. In addition, the virus mutates over the time which might be fatal. As a result, breathing under such contaminated atmosphere might be life threatening. The global socio-economic status varies from place to place. Although, the progression of virus not only depend on the environmental factor but also in population density. With higher population density, the viral transmission is high and most of time it is very difficult to trace the virus carrier and stop/slowdown the spreading. The closely dense areas such as Dharavi (Mumbai, India) have witnessed the situation. However, US researchers at the Johns Hopkins Bloomberg School of Public Health, London School of Economics

and IZA Institute of Labore have denied the link between poluation density with virus spread. The recent studies on air born diseases states that an asytmomatic patient may also transmit the diseese. These reported studies have cause panic around the globe and put the world into strict lockdown as well as compel to use personal protective equipments such as msak, faceshield etc, maintain hand hygiene and keeping safe distance etc. In addition, studies also suggests that spreading rate is found to be higher in closed and air conditioned atmosphere, this leads to closing/operating at minium workfore at all govt and private establishmenst to curb the spread. Besides, to curb virus spread harshly imposed lockdown caused economic and psycological damage that is beyond imagination.

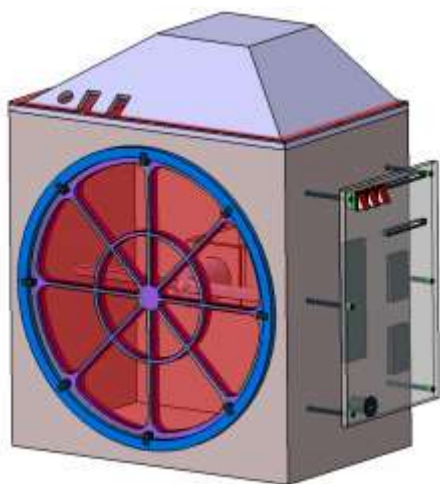
To ensure suitable environs and safety of personal, it is essential to have clean virus free environment around the home/work place. The objective can be achieve by provideing compatible room air purifier which can not only purify air but also can eliminate virus. With proper field studies, the proposed air purifier in this research might address the dilemma. The projected design has three stages of filtering and devise airflow rate of 125-300 litres per second. The purifier can utilize by connecting it to line power or can be battery powered if needed

Current status of the project:

- POC, virtual prototype and prototype developed.
- CAD design has been done and is under fabrication stage for validation.
- Testing setup design and building

Final design may be modified after getting the testing results.

Start-ups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs



Design of Prototype 1



Fabricated Prototype

The Newgen IEDC help us to build the concept, define the problem, and construct the prototype. The funding and mentorship support make us to have a representable format of project from the scratch. The connection build with the help of newgen will make it possible to represent the project to various forum.

- Lab Testing for filter efficacy
- Integration of system with existing Air conditioning systems.

NewGen IEDC


Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi




SUBMISSION OF PROGRESS REPORT



Name of the College/Institution hosting NewGen IEDC	Chitkara University, Punjab Chandigarh-Patiala National Highway (NH- 64), Village, Jansla, Rajpura, Punjab 140401		
Year of starting NewGen IEDC	2019		
Name of the Head/Principal of the Institution/College	Dr. Archana Mantri Vice Chancellor, Chitkara University, Punjab		
Name of NewGen IEDC Coordinator	Sagar Juneja		
Contact Details of NewGen IEDC Coordinator	<ul style="list-style-type: none"> Mobile Number 9625441043 E-Mail ID sagar.juneja@chitkarauniversity.edu.in 		
Financial Details	Sanction Order No./ Date	Amount Sanctioned	
Previous Sanction Order Details	1	EDII/DST-NewGen-IEDC/18-19/05 dated 13/11/2018	6,000,000 (First Year)
	2	EDII/DST-NewGen-IEDC/18-19/05 dated 13/11/2018	4,750,000 (Second Year)


1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students


Sr. No.	Activities	Outcome/Achievements
1	Ideation 2020	<p>Chitkara ACM Student Chapter (Department of Computer Science and Engineering) in collaboration with Chitkara University Centre for Entrepreneurship Education & Development and Chitkara University NewGen IEDC organized the Ideation 2020 hackathon from 15 Oct – 19 Nov 2020. A total 186 teams participated in the event. It aimed at increasing disruptive thinking among the young generation and was held exclusively for the first-year Engineering students of Chitkara University. The 20 teams were selected for the third round which was held on 7th Nov, 2020 and 5 teams were shortlisted out of them which further moved to Start-up Conclave 2020. The top three winners were encouraged with a certificate as well as cash prizes of Rs 5000/-, Rs 3000/- and Rs 2000/- respectively. The participants were also given certificates as a token of encouragement.</p> 


Sr. No.	Activities	Outcome/Achievements
2	BAJA SAE INDIA	<p>Chitkara University in association with BAJA SAE India and Mahindra Group hosted the second leg of the 13th iteration of Mahindra BAJA SAE India 2020 under the theme 'Breaking Conventions' in the month of March 2020. The event witnessed 31 out of 77 BAJA teams complete the endurance round in the mud track. The event received a great response from all zones (Western, Northern, Eastern & Southern zones) in India.</p>  <p>BAJA SAE INDIA 2021 organised its preliminary round where young engineers from all over India showcased their designs of All-Terrain Vehicles to a panel of judges from the renowned automotive industries over 2 day events held on December 12th and 13th, 2020. A total of 200 teams participated in the event from all over institutes in India.</p>
3	Workshop on Grant Writing Process for Innovative & Entrepreneurial Ideas	<p>A two-day workshop on Grant Writing Process for Innovative & Entrepreneurial Ideas was conducted in the month of July 2020 in collaboration with Indira Gandhi Delhi Technical University for Women, New Delhi. A special lecture was delivered on Intellectual property rights (IPR) and Patents. The hands-on was done on "How to prepare business plan template for market entry idea".</p> 
4	3D designing and 3D printing workshop	<p>A five-day workshop on 3D Designing using a free and easy to use CAD tool with demonstration of 3D printing was organized in the month of August 2020. The workshop was a hands-on program in which 5 useful products were designed and 3D printed. The workshop was organized by Mr. Sagar Juneja, Mr. Chanpreet Singh and Ms. Aaishwarika Sharma. The main aim of workshop was convert wonderful creative ideas into 3D reality. The entrepreneurs, industrialists, academicians and students participated from all over India in the workshop.</p> 




Sr. No.	Activities	Outcome/Achievements
5	FDP on PCB Designing	<p>"0 to Gerber in Ten Hours", a 5 day FDP on PCB Designing was conducted from 1st to 5th September 2020. The course was designed for enthusiastic learners in the domain of electronics circuit designing. It covered the key essentials of PCB designing skills. Learners got to learn the technical details of PCB design from scratch to Gerber generation. The course was designed on the top-most industrial-grade circuit design tool i.e. Altium.</p>
6	Robo Mania	<p>The IETE SOCIETY (Institution of Electronics and Telecommunication Engineers) conducted an event named "Robo Mania" for 1st, 2nd and 3rd year on 21st January, 2021. In this event, students were given one week's time to make a robot by using a board and after making of robot they had to upload the video of working robot in the google classroom as it was an online event. In the video, they had to make the robot move for 3 seconds straight and then the robot had to take a right turn and move for 3 seconds further and then it had to take a left turn and move for 3 seconds again and then in the end it has to turn 180 degrees. The objectives of the event "Robo Mania" was to make students aware with the working of robots and how to use the board accordingly to make robot move according to the given criterion. The main objective of this event was to make students explore different boards and make working robots on their own.</p> 
7	'TECHNOVANZA'	<p>A technical event named "Technovanza" was conducted on 24th Feb, 2021 for 1st and 2nd year students. In this event, students had to make circuits on TinkerCad (online software) given by the organizing team. Firstly, they were given a puzzle to solve, related to the components of the circuit and then they were taught TinkerCad software by the organising team then they had to make the circuit and stimulate it afterwards on TinkerCad itself. In this way, students made a lot of circuits according to which were given to them. The Objective of the event was to make students aware about different circuits as well as TinkerCad software. Some students from 1st year were new to this software, so they gained a lot of knowledge of how to make a circuit and stimulate it and find errors if any.</p> 
8	IPR Course for PG students	<p>A course on Intellectual Property Rights (IPR) was designed for the post graduate students from Dec 2020 to Jan 2021. The aim of course was to create awareness among students regarding innovation and how to protect their innovation by filing patents. The outcome of the course was collection of some good patentable ideas for which patents were filed.</p>
9	Grant Writing Process for Innovative & Entrepreneurial Ideas	<p>A two-day workshop on Grant Writing Process for Innovative & Entrepreneurial Ideas was organized by Chitkara University in collaboration with Indira Gandhi Delhi Technical University for Women, New Delhi on 30th - 31st July 2020. A special lecture on Intellectual Property Rights (IPR) and Patents was also delivered.</p>
10	Workshop on Internet of Things: Virtual environment	<p>Computer Society of India (CSI) Student Chapter, under the aegis of the Department of Computer Applications, Chitkara University, Punjab organized 2-Days workshop on "Internet of Things: Virtual environment" on 5th - 6th Jan 2021. A total 122 Students from CA department</p>



Sr. No.	Activities	Outcome/Achievements
		<p>participated in the workshop. Students learnt about the interfacing of sensor with Arduino board. Students Learned IoT implementation and its applications in various real-life scenarios.</p> 

[B] To identify, develop & commercialize students' innovative ideas




Sr. No.	Activities	Outcome/Achievements
1	NOVATE 2020	<p>Chitkara University Organized its 4th Annual Problem Solving Challenge NOVATE 2020 on 25th June 2020. This time NOVATE 2020 focused on set of challenges brought by COVID-19. A webinar-cum-boot camp was organized on May 1, 2020 in order to give prospective participants right direction for the competition, and at the same time motivate them to find solutions to COVID-19 challenges. Theme of NOVATE+ 2020 was derived from three step process followed for Prayer as described in Norman Vincent Peale's book entitled The Power of Positive Thinking. This three-step process include – Prayerise, Picturise and Actualise. A total of 109 submissions were made in the Prayerise segment of the competition. A total of 167 submissions were made in Picturise segment and that way a total of 276 submissions were made to NOVATE+ 2020. In the Actualise round, shortlisted teams from both Prayerise and Picturise rounds were given an opportunity to develop their proof-of-concepts and submit the same in the form of 5 minutes' video for evaluation. 63 video submissions were received in the Actualise round that were evaluated by the panel and Top 30 ideas were selected for the Jury round that was held as a live online session on June 25, 2020. Four teams won prototyping funding of INR 250,000 each from Chitkara University NewGen IEDC.</p> 




2	SIH 2020	<p>Chitkara University, Punjab was selected as one of the nodal centers to facilitate the SIH software edition operations and to host the problem statements from the Department of IT & Cyber Security, DRDO. The hackathon was held in Chitkara University from 1st – 3rd August 2020. This year in SIH2020 a total of 25 teams having 150 participants competed against 5 problem statements given by the Department of IT & Cyber Security, DRDO. Each Problem statement had a winning amount of Rs 100,000. The SIH2020 has been supported by NewGen IEDC.</p>  <p>The poster for the Smart India Hackathon 2020 (SIH 2020) features the Chitkara University logo at the top. It invites participants to the inaugural function of the Grand Finale - Software Edition. The event is scheduled for 1st August 2020 from 08:00 AM to 08:50 AM. The Chief Guest is Mr. RAMA IYER, Chief Information Officer, High Intelligence, and the Mentor & Evaluator is Mr. CP KULKARNI, Associate Director (Cyber Security) at DRDO HQ Delhi. The poster also lists sponsors like DEWNET, KPIIT, and others.</p>
3	Startup Himachal Hackathon 2020	<p>The Startup Himachal Hackathon 2020 was organized by Chitkara University on 27th Oct 2020. The top three winners were awarded by cash prizes and grant upto 3 Lakh per year. The incubation space was also provided to the winners. The selected entries got a chance to set up their own company and apply for incubation under Startup Himachal. The selected teams won a monthly sustenance allowance of Rs 25000/- per month (Twenty-five thousand) from Government of Himachal Pradesh for a period of 1 year amounting to 3 lakhs p.a. There were cash rewards to the top three winners offered by the Govt of HP. This competition was open for faculty, innovators, patent holders and research scholars.</p>  <p>The poster for the Startup Himachal Hackathon 2020 features the Chitkara University logo and the text 'STARTUP HIMACHAL HACKATHON'. It mentions 'A Special Edition for FACULTY Under Startup Himachal Scheme'. The poster also lists the jury members: Dr. Karishma Kataria (Vice-Chancellor, Chitkara University), Dr. Arshdeep Kaur (Associate Professor, Chitkara University), Dr. Sanjay Kumar (Former Director of Education, Haryana), and Mr. Sumant Wadia (Secretary, Council for Entrepreneurship, Innovation and Development, Chitkara University).</p>
4	Start-up Conclave 2020	<p>Organized with a strong focus on promoting entrepreneurship in India & to inspire, nurture & handhold budding entrepreneurs from the Indian Startup</p>

		
5	Octahacks3.0	<p>Octahack, an annual flagship event was organized during 20th – 22nd Nov 2020 on virtual mode. More than 1000+ students in 400+ teams participated in the event. To give this virtual mode an offline feel we collaborated with Airmeet that made this event ‘one of the best’ virtual hackathons of India. This hackathon was a unique opportunity to merge creative ideas with technical skills to build something exemplar. The winners were awarded with cash prizes and goodies worth Rs 1 lakh. In addition to this, the teams were awarded with goodies from Google and DevFolio as well.</p> 
6	Build Startup with Limited Resources	<p>We organized an online session on "Build Startup with Limited Resources" on 16th May 2020. The session was attended by over 40 young entrepreneurs mainly students, which included 26 bright ideas. Mr. Rajeev Aggarwal our keynote speaker very well integrated the current status with future expectations. He also added that it's not important to raise capital but to have cash flow with which you can easily manage your resources and create capital as well. The objective of session was to inculcate the spirit of entrepreneurship among all students.</p> 
7	Promotional event	<p>A promotional event was organized by Chitkara University NewGen IEDC on 23rd January 2021. The main objective of the event to create an awareness about the funding and facilities at Chitkara University NewGen IEDC center. Over 40 people were gathered in the ceremony and were motivated to apply for projects under NewGen IEDC. The event was hosted by NewGen IEDC and all guests were facilitated by Dr. Archana Mantri – Chief Coordinator, Chitkara University, NewGen IEDC.</p>

8	Progress Presentations of NewGen IEDC projects	<p>Progress presentation sessions of NewGen IEDC funded projects were held during March 5- March 7, 2020 to evaluate the progress of projects that were sanctioned in 2019. 21 active projects of NewGen IEDC made their presentations in which they showcased technical progress on their prototypes as well as status of their budget expenditure. Dr. Archana Mantri – Chief Coordinator, Chitkara University, NewGen IEDC was the chairperson of the committee that reviewed the progress presentations. Other members of the committee included Dr. Rupesh Gupta (Department of Mechanical Engineering), Mr. Amit Pandey (Department of Electronics Engineering), Dr. Varinder Singh (Department of Civil Engineering), Mr. Gurpreet Singh (Department of Mechatronics Engineering), Ms. Nishu Bali (Department of Bachelor of Computer Applications), Mr. Sumit (Department of CCAE) and Mr. Sagar Juneja (Coordinator, Chitkara University, NewGen IEDC). The committee made crucial observations about projects and gave important pointers that would lead to the successful completion of these projects in the near future. The sessions were coordinated by the entire team of Chitkara University NewGen IEDC – Mr. Sagar Juneja, Mr. Chanpreet Singh, Ms. Aaishwarika Sharma, and Mr. Nikhil Sharma.</p>  <p>The second annual progress presentation session of NewGen IEDC funded projects were held during Jan 27- Jan 29, 2021 to evaluate the progress of projects that were sanctioned in 2020. 18 active projects of NewGen IEDC made their presentations in which they showcased technical progress on their prototypes as well as status of their budget expenditure. Dr. Archana Mantri – Chief Coordinator, Chitkara University, NewGen IEDC was the chairperson of the committee that reviewed the progress presentations. Other members of the committee included Dr. Rupesh Gupta (Department of Mechanical Engineering), Mr. Amit Pandey (Department of Electronics Engineering), Mr. Jaspreet Singh (Department of Civil Engineering), Mr. Gurpreet Singh (Department of Mechatronics Engineering), Ms. Nishu Bali (Department of Bachelor of Computer Applications), Mr. Sumit (Department of CCAE) and Mr. Sagar Juneja (Coordinator, Chitkara University, NewGen IEDC). The committee made crucial observations about projects and gave important pointers that would lead to the successful completion of these projects in the near future. The sessions were coordinated by the entire team of Chitkara University NewGen IEDC – Mr. Sagar Juneja, Mr. Chanpreet Singh, Ms. Aaishwarika Sharma, and Mr. Lovit Kumar.</p> 
9	India Innovation Championship (IIC) 2021	<p>Chitkara University is organizing India Innovation Championship (IIC) 2021. The call for application has started from 25th Dec 2020. The Championship is open to innovators, entrepreneurs, designers, thinkers, students, engineers, scientists, coders, trainers, academicians from any background. The event is being promoted so to create awareness. The winners will get awarded by prizes and grants worth Rs 1 Crore.</p>

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Flagship Conferences Organized	<p>National Conference on Advances in Applied Sciences and Mathematics (NCASM-20) was held on September 24-25, 2020 at Chitkara University Punjab with the aims to broadly focus on recent advancements in R&D in the field of Applied Sciences, Mathematics and sharing the information with participating researchers, developers, engineers, students, and practitioners across the globe. Over 200 delegates attended the conference that featured paper presentations, keynote talks, tutorials and a panel discussion.</p>  <p>1st Online International Conference on 'Cutting Edge Research in Chemistry and Sustainable Environmental Solutions' (CERCHE-2021) was organized by Chitkara University from February 20-21, 2021. The purpose of the conference is to bring researchers of different areas of Chemistry, Environment, and Engineering from world over to discuss on common virtual platform.</p> 
2	NOVATE 2021	<p>Chitkara University in collaboration with Chitkara University NewGen IEDC has launched Industry- Academia confluence and hackathon - NOVATE+ to encourage academia and take up real life problems of MSMEs, Start-ups and propose a solution. The Hackathon is open to researchers, students, academicians, entrepreneurs, start-ups and MSMEs and will serve as rewarding ground for their collaborative efforts. Total prizes and funding support to be won are worth INR 30Lac. In context to this hackathon various webinars have been organized by Chitkara University NewGen IEDC with an aim to understand the different problems faced by MSME.</p> 

Sr. No.	Activities	Outcome/Achievements
3	Design and Development of Injector Driver Circuit for Diesel engine to reduce air pollution	<p>A webinar was organized to connect academia and MSMEs. The webinar on Design and Development of Injector Driver Circuit for Diesel engine to reduce air pollution: Problem Definition and Technical Specifications were organized by Chitkara University NewGen IEDC on 21st Jan 2021. A total 20-25 participants attended the webinar in an aim to find solutions to MSMEs problem. The webinar was delivered by Mr. Yogesh Kalia, Founder, Medhaavi Center for Automobile Research, Punjab. The event was attended by faculty, scholars and students.</p> 
4	Generating Fuel Free Electricity using force from moving vehicles	<p>The webinar on Generating Fuel Free Electricity using force from moving vehicles was delivered by Mr. Pawan Bansal, Inventor, Bansal Paper Board Mills, Muksar, Punjab on 27th January 2021. The aim of webinar was to introduce the problem and find a solution by academicians, scholars and students. Over 40 participants attended the webinar.</p> 
5	Design and Development of Fire alarm system for commercial and residential Buildings	<p>The webinar on Design and Development of Fire alarm system for commercial and residential Buildings was delivered by Mr. Sumit Grover, Founder, Genesis Control, Ludhiana, Punjab on 23rd January 2021. Over 25 participants attended the event. The objective of webinar was to find a solution for the problem of MSME.</p> 
6	Expert Talks	<ul style="list-style-type: none"> An expert session on topic "From Bootstrap to IPO The Journey" was delivered by Mr. Rajdip Gupta, MD, Group CEO Route Mobile Limited on 13 October 2020 from 2:00pm to 3:00pm. The session was streamed live and also on ZOOM platform. Mr. Rajdip Gupta talks about the leadership qualities and revolutionary changes during the transition of IPO industries in his journey for young graduates. More than 100 attendees attended the session. An expert talk on India Innovation Championship (IIC), a one-of-a-kind fest launched by Chitkara University to promote an entrepreneurial mindset in teaching, research and training, was organized on February 10, 2021. The aim of the talk was to drive entrepreneurship and accelerate promising Research, Innovation, Demonstration, and Development (RID&D) in the field of technology. Highlighting how Chitkara University strives to promote the spirit of responsible and innovative enterprises, Dr. Adarsh Aggarwal,

Sr. No.	Activities	Outcome/Achievements
		<p>conducted an interactive session with the participants where he touched almost every aspect of innovation.</p>  <ul style="list-style-type: none"> Chitkara ACM Student Chapter in association with department of Computer Science and Engineering and IIC organized a panel discussion on Women in Technology 2021 on 6th March 2021. The event aimed at bringing an amazing line up of speakers, inspiration and actionable insight for empowering women. When one woman helps another, amazing things can happen. Women in Technology aims at empowering girls and women to excel in science, technology, engineering and arts. The panel discussion was conducted online at Zoom platform from 10:30 to 11:30 am and was open for all. " Innovation and Branding Strategy" an expert session was organized by on Friday 26 February 2021. The session began with a welcome and inspiring address by Prof. K.D.S Bedi who honored the guest Mr. Ratish Dixit, Senior Manager (L&D) Biocon Biologics Ltd. Mr. Ratish delivered a talk on "Innovation and Branding Strategy". He highlighted the importance of the topic which carries utmost importance in the current times post covid. Mr. Ratish, a seasoned brand manager with vast and abundant experience enlightened the audience with the need to shift focus on innovation in Marketing and Branding Strategy. Students eagerly participated in the interactive session and enjoyed it thoroughly.  <ul style="list-style-type: none"> Translating your Research to Commercial product requires a systematic approach. An expert talk by Mr. Narayan Lal Gurjar, COE of EF Polymers Pvt. Ltd. was delivered on 23rd July 2020. The talk included the motivational story of an Engineer who started his journey at age of 16 and achieved a milestone with his approach. Narayan offered a collaboration in the different areas from Engineering, Physics, Arts and Sales. 

Sr. No.	Activities	Outcome/Achievements
7	Smart Nanomaterials workshop by Oak Ridge National Laboratory, USA	A workshop was organized in association with the University of Calgary, Canada, and Oak Ridge National Laboratory, USA on the topic Contribution of Smart Nanomaterials Towards Scientific Community. 26 participants from all over the country attended this workshop that was held during 21-25 September. The resource persons in the workshop were Dr. Jiadeng Zhu (Oak Ridge National Laboratory, USA), Dr. Poliraju (University of Calgary, Canada), Dr. Jyotsna Kaushal, Dr. Pankaj Kumar, Dr. Partha Khanra, and Dr. Mohit Kapoor from Chitkara University India. This workshop shed light on hot topics of sustainable energy materials and nanotools for cancer diagnostics, water treatment, drug delivery, and optical applications.
8	Workshop on Demystifying the Art of Writing Effective Research Funding Project	Chitkara University organized a workshop on Demystifying the Art of Writing Effective Research Funding Project on 22nd September 2020. The workshop started with ways to search for an open call for funding and keyword alignment of the project proposal with the funding call by taking participants through mock exercise. The participants explored the flavour of writing good research projects and understanding the do's and don'ts of effective proposal writing. It was a combination of exercises and discussions on a sample funding project, participants gained first-hand experience in the grant writing and grant making process.



2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

None

3. Other important highlights (new initiatives), if any:

1. We made a very conscious and significant attempt to showcase the impact of Chitkara University NewGen IEDC to both internal stakeholders (university faculty and students) and external stakeholders (industries, MSMEs, start-ups).
2. On January 23, 2021, a sensitization session was organized with different departments of the university. The objective was to acknowledge NewGen IEDC supporters from Chitkara University and to sensitize them about our various activities (all for more active participation from departments).



3. Reached out to many MSMEs in the region to explore commercialization potential of NewGen IEDC projects and also to identify industry problems that can be tackled by our students through NewGen IEDC projects funding. Following are some of the MSMEs with whom we have tie-ups –



4. Second year witnessed several projects for solving different COVID-19 related problems. These projects have been successfully completed. Below is a snapshot of some of these projects.



4. Student Projects (Please provide the following details for each student project)

15 projects were supported by Chitkara University NewGen IEDC in the second year. The list of projects is given below. Detailed information about each project in the prescribed format along with photographs are given in Annexure A toward the end of this document.

Sr. No	Team/Project Description
1	Pepper Spray Pen
2	Driverless Car
3	Edu Geo
4	Mano - Aid
5	Ethanol Fuel Cell
6	Portable Virus Sniffing Device
7	UV-C Robot/ Rakshak
8	PregAura
9	Self-Healing Orthopedic Metallic Implants
10	Solar Powered Umbrella Type Canopy
11	Active Cap
12	Formulation development of Freeze Dried Inhalable microparticles of Hydroxychloroquine and Surfactants for pulmonary delivery for management of ARDS in COVID & SARS Diseases
13	Development of energy efficient bistable liquid crystal light shutter
14	Nanocoating for Virus Free Surfaces
15	Energy efficient and fast process of silica separation from rice stubble

- Please Submit three/four high resolution (at least 300 dpi) pictures in jpeg format showing the prototype/product along with the students and their mentor for each project.

Please see Annexure A

5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

- Student team details (with contact information)
- Brief description about the student start-up
- Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs
- Contribution of NewGen IEDC in the same
- Future plan

Case Studies of two projects have been added as Annexure B toward the end of this report.

ANNEXURE A

Student projects carried out in second year, with details in prescribed format –

1. Team / Project Description: Pepper spray pen

Project status at beginning of the Year: it was a theoretical idea, inspired from another similar product.

Interventions made:

- Provided support in making full-fledged product.
- Provided grant from NewGen IEDC.
- Supported in 3D designing and 3D printing of the prototype

Current status:

The project has been completed. Prototype has been submitted to NewGen IEDC. We are encouraging and supporting the team for commercializing the product.

Video and Photographs:

Video Link - <https://youtu.be/9wHXTS-17os>



2. Team / Project Description: Driverless car

Project status at beginning of the Year: Basic level prototype was available

Interventions made:

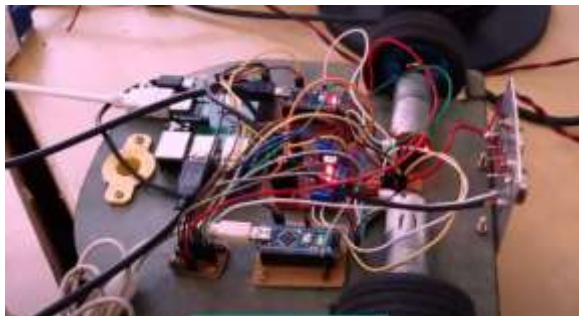
- Provided support in making full-fledged product.
- Provided grant from NewGen IEDC.
- Helped in identifying important sensors for advance level prototype, also supported in identifying a vendor for procurement of these sensors.

Current status:

Prototype building and testing is going on. They hope to complete the project within next three months.

Video and Photographs:

Video Link - https://youtu.be/PNd33_N2NJQ



3. Team / Project Description: Edu geo

Project status at beginning of the Year: AR application was available, they needed support in building a hardware

Interventions made:

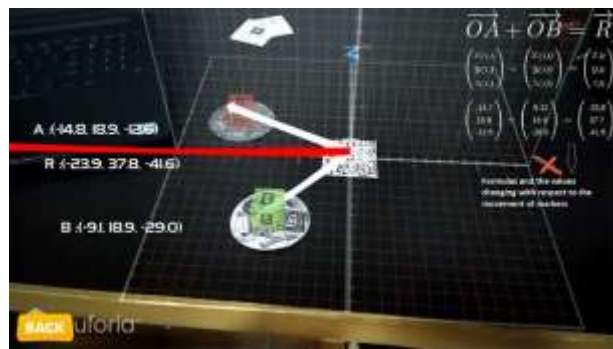
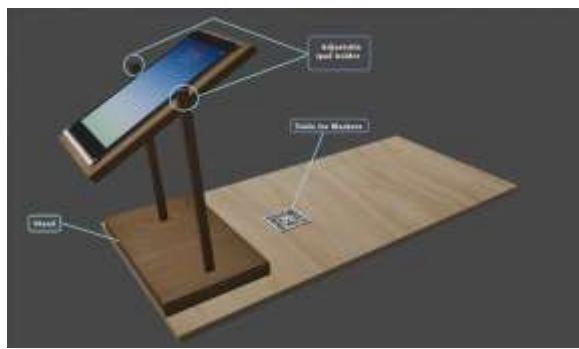
- Provided support in making full-fledged product.
- Provided grant from NewGen IEDC.
- Supporting in designing of the hardware and 3D markers
- Helping them with identifying various vendors.

Current status:

Hardware development is going on. Patent has been filed.

Video and Photographs:

Video Link - <https://youtu.be/ZK493RMJFbY>



4. Team / Project Description: Mano aid

Project status at beginning of the Year: It was a theoretical idea inspired by one of the COVID-19 related issues

Interventions made:

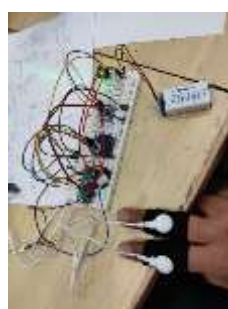
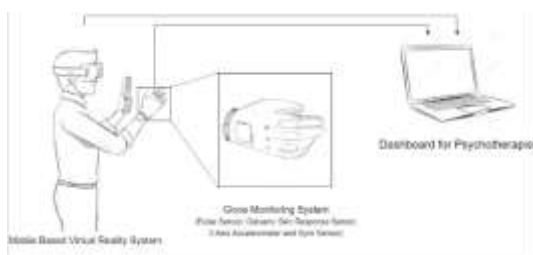
- Provided support in making full-fledged product.
- Provided grant from NewGen IEDC.
- Supporting them with electronic design and PCB manufacturing.

Current status:

Hardware part is almost complete, team is working on software application development

Video and Photographs:

Video Link - <https://youtu.be/0JI8A6Xqijs>



5. Team / Project Description: Ethanol fuel cell

Project status at beginning of the Year: It was a well-researched topic by the team, they have published a paper as well.

Interventions made:

- Provided support in making full-fledged product.
- Provided grant from NewGen IEDC.
- Supported in procurement of components.

Current status:

Lab testing of different stages of prototype is currently going on.

Video and Photographs:

Video Link - https://youtu.be/5lc6BLIZ_k0



6. Team / Project Description: Portable virus sniffing device

Project status at beginning of the Year: It was a theoretical idea inspired by COVID-19 related problems

Interventions made:

- Provided support in making full-fledged product.
- Provided grant from NewGen IEDC.
- Supported in identifying vendors

Current status:

- Quantum dots have been made
- Purification of membrane filtration done
- Antibacterial studies of quantum dots pending.

Video and Photographs:

Video Link - <https://youtu.be/etEsPAEfZKc>



7. Team / Project Description: UV-C Robot/ Rakshak

Project status at beginning of the Year: It was a theoretical idea inspired by one of COVID-19 related problems

Interventions made:

- Provided support in making full-fledged product.
- Provided grant from NewGen IEDC.
- Support in making mechanical structure of the design

Current status:

Prototype has been completed and has been demonstrated in the lab environment.

Video and Photographs:

Video Link - <https://youtu.be/wiGPTqQHHxc>



8. Team / Project Description: PregAura

Project status at beginning of the Year: It was a well-researched idea and team had a basic prototype ready.

Interventions made:

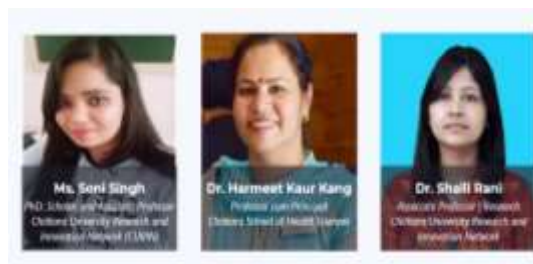
- Provided support in making full-fledged product.
- Provided grant from NewGen IEDC.
- Support in electronic product design and identification of various components and sensors.

Current status:

Prototype has been completed and tested in the lab environment. Team is looking for industry tie-up for on-field testing and deployment.

Video and Photographs:

Video Link - https://youtu.be/cLC_VZowBds



9. Team / Project Description: Self-healing orthopedic metallic implants

Project status at beginning of the Year: It was a well-researched idea and team had all the theoretical background needed for implementation.

Interventions made:

- Provided support in making full-fledged product.
- Provided grant from NewGen IEDC.
- Support in 3D designing and identification of 3D manufacturer

Current status: 3D printed prototypes have been made and testing is going on.

Video and Photographs: Video Link - <https://youtu.be/kpgdMb-43LM>



10. Team / Project Description: Solar powered umbrella type canopy

Project status at beginning of the Year: It was a basic idea with well thought of application.

Interventions made:

- Provided support in making full-fledged product.
- Provided grant from NewGen IEDC.
- Support in 3D designing, 3D printing, laser cutting, fabrication of metal frame etc.

Current status: One prototype has been made and deployed in field. 10 more prototypes have been made for pilot study.

Video and Photographs: Video Link - <https://youtu.be/9Kjj8nUoBPk>



11. Team / Project Description: Active cap

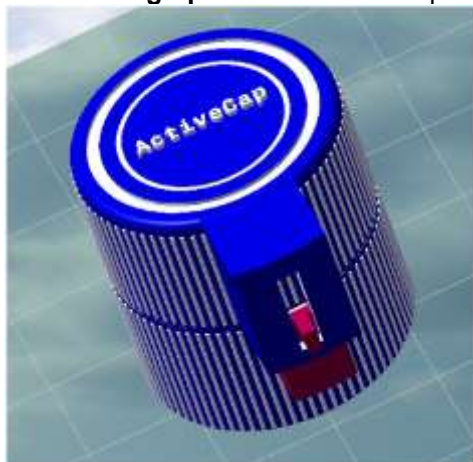
Project status at beginning of the Year: It was a theoretical idea to begin with.

Interventions made:

- Provided support in making full-fledged product.
- Provided grant from NewGen IEDC.
- Complete 3D designing and 3D printing

Current status: Several 3D printed prototypes have been made and functional testing has been done. 3D animation is being made for showcasing to potential customers.

Video and Photographs: Video Link - <https://youtu.be/XLOQgXcu2Jc>



12. Team / Project Description: Formulation development of freeze dried inhalable microparticles of Hydroxychloroquine and surfactants for pulmonary delivery for management of ARDS in COVID & SARS diseases

Project status at beginning of the Year: It was a well-researched idea and it was inspired by one of the COVID-19 related issues.

Interventions made: Provided support in making full-fledged product.

- Provided grant from NewGen IEDC.

Current status: Team has carried out various studies in the lab and they are yet to showcase some concrete results/outcomes.

Video and Photographs: Video Link - <https://youtu.be/inKynoNDbSE>



13. Team / Project Description: Development of energy efficient bistable liquid crystal light shutter

Project status at beginning of the Year: It was a well-researched idea supported by complete theoretical background.

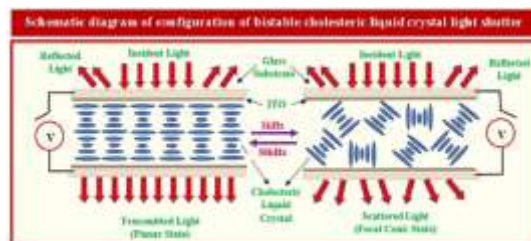
Interventions made:

- Provided grant from NewGen IEDC.
- Supported in procurement of all the components.

Current status:

Procurement of all the components has been done and work has just started.

Photographs:



14. Team / Project Description: Nanocoating for virus free surfaces

Project status at beginning of the Year: It was a theoretical idea to begin with and it was inspired by one of the COVID-19 related issues

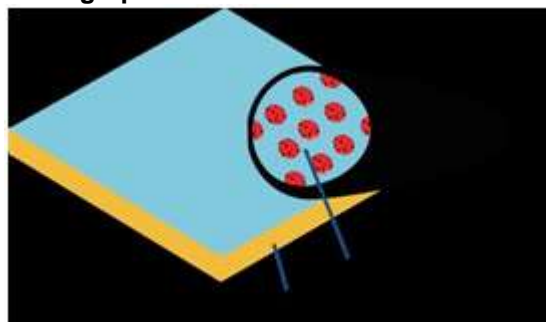
Interventions made:

- Provided grant from NewGen IEDC.
- Supported in procurement of all the components.

Current status:

Procurement of components has been done and work has just started.

Photographs:



15. Team / Project Description: Energy efficient and fast process of silica separation from rice stubble

Project status at beginning of the Year: It was a well-researched idea with all theoretical details.

Interventions made:

- Provided grant from NewGen IEDC.
- Supported in procurement of all the components.

Current status:

Procurement of components has been done, and work has just started.

Photographs:



ANNEXURE B

Case study of two projects

Project Title - Pepper Pen Spray (PEPS)

- **Student team details (with contact information)**

Name	Email ID	Contact Number
Suryamani	suryamanikhanna@gmail.com	7206086224
Dr. Inderbir Singh	inderbir.singh@chitkara.edu.in	9855024140
Dr. Rakesh k Sindhu	rakesh.sindhu@chitkara.edu.in	8360583599

- **Brief description about the student start-up**

As by seeing today scenario of increasing cases of women harassment at work or public places, this team came up with the idea of designing something novel which can be useful in such cases. The team collectively formulated this idea, formed a team and started working on this. Now that the project has been successfully completed, the team is thinking about commercializing the idea.

This product labelled as PEPS is a high-quality ball point pen with the power of pepper spray in sleek and compact design. It is mainly designed for self-defense especially for women as by seeing today scenario of women harassment at work or public places. It can also be used by women for their safety and in emergency situations like theft and animal attack.

Pepper spray pen (PEPS) looks like a normal ball point pen and can also be used for writing in order to hide identity.

It contains solution of naturally derived compounds such as Piperine, which cause intense burning sensation to the skin and extreme discomfort in the eyes. It also contains UV dye for later identification of the subject. This can be easily operated by single hand as by pressing down the actuator with thumb. It doesn't cause severe or permanent damage to the subject and used for safety purposes only.

Salient Features: - Pen design for Personal carry
Used for safety and in theft and attack situations
Naturally derived formula
Leak proof
Stable at wider range of environmental conditions
Non-toxic, Non-flammable
UV component for easy identification of the subject
Cap closure to prevent accidental discharge
Easily refillable
Covers longer distance
Unpressurized (free from propellants)

- **Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs**

Following is the description of journey of the team in their own words -

We have decided to fabricate a special novel pen which not only be used for writing but can also be used in emergency cases such as theft or harassment at work or public places. Primary step includes literature collection about various similar products available in market. Secondly, analysis was done and found that similar products were having several disadvantages such as ozone depletion, highly flammable, expensive, toxic to human health. We solve the problem and design the prototype without such disadvantages additionally, having certain more advantages than those as naturally derived formula and contains special UV component for later identification of victim. Various obstacles were faced during the development as to determine minimum effective concentration of piperine in order to make prototype effective, safe and economical. The obstacle was crossed by conducting out different small trial batches with different concentrations of piperine and other ingredients.



Video Demonstration - <https://youtu.be/9wHXTS-17os>

- **Contribution of NewGen IEDC in the same**

The team feels that NewGen IEDC contributed in the following manner -

- Project could not be completed without the motivation, guidance and mentoring of NewGen IEDC.
- Newgen IEDC continuously assisted us on various aspects.
- Provided us with all the facilities and resources used in developing the prototype.
- Timely Funds and Bills Clearance

- **Future plan**

The team is going to patent the formulation (herbal spray solution) of the prototype. Further, they are also planning to commercialize the prototype in the market at a very economical price.

Project Title – PregAura - IoT Enabled Autonomous Diagnostic Tool for Monitoring the Health Conditions of Pregnant Women in Rural Areas

Student team details (with contact information)

Name	Email ID	Contact Number
Soni Singh	Soni.singh@chitkara.edu.in	9984540176
K. R Ramkumar	k.ramkumar@chitkara.edu.in	8289006584
Shalli Rani	shalli.rani@chitkara.edu.in	9914080394
Harmeet Kaur	harmeet.kaur@chitkara.edu.in	9815143237

• **Brief description about the student start-up**

In the present project proposal, an automatic diagnostic machine is proposed, which will help the rural/remote areas' pregnant women to be monitored automatically and their data will be stored on the cloud for future remedial steps by the government. Data of the particular pregnant women and reports of the doctors' will be exchanged automatically and there will be no human intervention. Thus, it will help the rural areas' women to get the proper care and to get the timely treatment. It will serve the purpose of the automatic data collection of the pregnant women of remote areas and will serve as the best method for data analytics for the particular region. This proposal ensures the timely monitoring of the pregnant women by authenticated doctors. As per WHO's reports released on 16th Feb. 2018, Out of total maternal casualties per day in South Asia, more than 70% occur in India, and 99% casualties in are rural areas of India. This machine will help in reducing these numbers.

The team has built a basic level prototype with NewGen IEDC funding. Using this prototype, team is looking for collaboration and more funding support in order to do clinical trials and pilot study. Once this is done, they hope to register a start-up.

• **Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs**

Following is the description of journey of the team in their own words -

1. In rural areas, most of the pregnant women are suffering from health-related issues and in the lack of appropriate remedies at proper time, they have to face the bad experiences and most of the time in terms of own or fetus death.
2. The proposed work solves an important societal problem, the pregnant women from rural and remote areas of the developing countries face a lot of problems and they are prone to maternal mortality just because of untimely maternal care and lack of awareness.
3. Janani Kavach is the state-of-the-art non-contact vital data collection device designed for pregnant women. The device Janani Kavach consists of various sensors to collect the vital data of the patient. Portable health monitoring booth for pregnant women.



Video Demonstration - https://youtu.be/cLC_VZowBds

- **Contribution of NewGen IEDC in the same**

The team feels that NewGen IEDC contributed in the following manner -

- Patent Support
- IEDC grant Support to make our prototype ready
- Testing and validation support
- Promoting this Product to other funding opportunities.

- **Future plan**

The team is going to collaborate with some industry for carrying out trails and pilot study. They are looking for more funds from various government agencies. They are also working on building an AI prediction model for data collection.

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	Mar Ephraem College of Engineering and Technology	
Year of starting NewGen IEDC	2019	
Name of the Head/Principal of the Institution/College	Dr. A. Lenin Fred	
Name of NewGenIEDC Coordinator	Dr. A. Lenin Fred	
Contact Details of NewGenIEDC Coordinator • Mobile Number • E-Mail ID	9443483072 leninfred.a@gmail.com edc@marephraem.edu.in	
Financial Details	Sanction Order No./Date	Amount Sanctioned
Previous Sanction Order Details	1 EDII/DST/NewGenIEDC/18-19/RLS-I/06	60,00,000/-
	2 EDII/DST/NewGenIEDC/18-19/RLS-I/06 20/02/2019	47,50,000/-

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1	A Seminar on “Entrepreneurial ecosystem in our premises”	The students were able to recognize the scheme promoted from EDII and MSME
2	Entrepreneurship Awareness camp-2	The students were aware about the various facets of entrepreneurship as an alternative career option and also to highlight the merits of pursuing such an option
3	Entrepreneurship Awareness camp-3	The students were aware about the various facets of entrepreneurship as an alternative career option and also to highlight the merits of pursuing such an option
4	Seminar on technology commercialization and Business opportunities in different sectors	The students were able to understand technology commercialization and business opportunities in different sectors
5	Workshop on effective market research	The students are able to conduct market research for their innovative product or ideas

Sr. No.	Activities	Outcome/Achievements
6	Startup visit in villages – 1	The members of EDC visited the pottery manufacturing unit at Thalakulam and had discussion with them. As a result, they identified their problems which are in need of technical intervention.
7	Startup visit in villages – 2	The members of EDC visited the Eathamozhi coir cluster and had discussion with them. As a result, they identified their problems which are in need of technical intervention.

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	Workshop on how to prepare the business plan-Group 1 -Virtual Mode	The students were able to prepare business plan
2	Startup idea pitching contest	107 students pitched their innovative ideas in the contest
3	Workshop on how to prepare business plan Group 2-Virtual Mode	The students were able to prepare business plan
4	Talk Shows/ Discussions with alumni and other self-made entrepreneurs - Virtual Mode	Students were motivated to create their own startups
5	Interaction with alumni entrepreneurs-Virtual Mode	Students were motivated to create their own startups

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Interaction with industrial partners-Virtual Mode	Students were able to identify the challenges in the real time environment.
2	Training on identifying intellectual property in projects & provisional patent filing -Virtual Mode	Students were able to understand the need for patents, awareness about patent procedures and able to draft provisional patent application.
3	Training on complete application with claims for filing patent-Virtual Mode	Students were able to draft complete patent application with specifications and claim for their innovative ideas

Sr. No.	Activities	Outcome/Achievements
4	Interaction with alumni entrepreneurs- Virtual Mode	Students were motivated to create their own startups
5	Interaction with industrial partners- Virtual Mode	Students were able to identify the challenges in the real time environment.

Other Activities Conducted by NewGen IEDC Mar Ephraem

Sl. No	Events	Outcome/Achievements
1	Webinar on “Rethink & Research”	The participants were able to know about product oriented research and rethink over their research ideas.
2	Ideathon 2020	47 innovative Ideas were received and 15 ideas selected for NewGen IEDC 3 rd year student projects
3	Outreach Webinar Series on Entrepreneurship	The Students were able to get knowledge on entrepreneurship. 456 participants were participated from Tamilnadu and Kerala
4	Webinar on How to Start startup	The Students were able to understand how to start new startup
5	Webinar on Change by Innovation	The participants were able to discover how leading Organizations across the globe are employing cutting edge strategies to engage their employees and leaders with accompany wide culture of Innovation

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

Sl. No.	Activity	Reason
1	Master of market – competition	Covid 19 Pandemic and lockdown
2	Capacity building programmes	Covid 19 Pandemic and lockdown
3	Science and technology Expo	Covid 19 Pandemic and lockdown

3. Other important highlights (new initiatives), if any:

- Campus Company-With the objective of incubating the new innovative ideas of the grassroot innovators and student innovators, a new initiative of Campus company was started. This will incubate their ideas with incubation space and mentor support for certain period and guide them to end up with new start up.
- Creative ideas were pitched in Ideathon competitions.
- Technical and research findings had been published in reputed journals, conferences.
- Students participated in the competitions on Tamil Nadu Student Innovators conducted by EDII, TN at Anna University campus, Tirunelveli.
- Students/E-cell Members and faculties were attended various kind of webinars, seminars and Workshops conducted by external Agencies

4. Student Projects (Please provide the following details for each student project)

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
1	<p>Student Team: Ms. Jeba. J Ms. Julia Bergio. K Mr. Abinеш. E Mr. Alphin. A</p> <p>Mentor Name: Mr. Jackson Thanga Roy Assistant Professor / Mech</p> <p>Project Name: Portable Smart Rubber Harvesting Machine</p> <p>Description The portable smart rubber harvesting machine can detect the latex vessels in the rubber tree. The machine determines the depth of latex vessels before cambium layer and taps the rubber tree accurately to the required depth of tapping. The machine has separate feature for sensing the latex vessels before the cambium layer and tapping the tree bark using HSS blade arrangement with a slant directive motion provides controlled, fine tapping without damaging the trees.</p>	<ul style="list-style-type: none"> ❖ Literature survey is completed. ❖ The power module, control module and stepper motor drive setup for sensing and dc motor drive for tapping are completed. ❖ The Mechanical design is completed. 	<ul style="list-style-type: none"> ❖ Weight Reduction ❖ Portable Setup ❖ User Friendly ❖ Sensor for detecting the latex layer of the tree ❖ Rack and Pinion mechanism 	<ul style="list-style-type: none"> ❖ Prototype completed
2	<p>Student Team: Mr. Ashick Newbin. A.C</p>	<ul style="list-style-type: none"> ❖ Literature review and fabrication of fodder 	<ul style="list-style-type: none"> ❖ Self Priming hydroponics 	<ul style="list-style-type: none"> ❖ Product Completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	<p>Mr. Rahul. R. G Mr. Rithick. R. Gopal</p> <p>Mentor Name: Mr. John Thangam Assistant Professor / Civil</p> <p>Project Name: Self-Priming Automated Fodder System</p> <p>Project Description: Rearing livestock for secondary income by users who are employed in various profession and regular jobs has less possibility due to the necessity of feeding the cattle periodically during the day time. The proposed system will overcome the difficulty of feeding the cattle periodically and reduce the manual intervention for rearing the cattle.</p> <p>Moreover, this system will enable users to rear cattle without affecting their regular profession. By adopting this system, the requirement of grassland will be reduced. The cattle feeding system incorporates moisture control system which continuously monitors the optimum moisture content to be maintained in the germination chamber, temperature control system which will monitor and maintain an optimum</p>	system completed.	manufacturing for cattle feed	*Patent filed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	temperature of 22°C to 27 °C inside the germination chamber which is very crucial for accomplishing effective growth of green fodder, revolving tray system incorporates a series of trays fixed with a conveyer belt that continuously revolves the tray which will deposit the fodder on the automatic feeder conveyor and ensure continuous production of green fodder throughout the year with minimum manual intervention.			
3	<p>Students Name : Ms. Jenila Jacob Ms. Reshma Ms. Blessiya</p> <p>Mentor Name: Mr. LalinL.Laudis Assist Professor / ECE</p> <p>Project Name : Textacles</p> <p>Project Description The project aims to devise a spectacle that would convert the image of a text into audio for visually impaired people. The product would be marketed so that the visually impaired people can be the targeted customers. With this product, the visually challenged people can identify any texts in their</p>	<ul style="list-style-type: none"> ❖ Literature review completed ❖ Text to audio programming Completed. ❖ Image acquiring process in progress 	<ul style="list-style-type: none"> ❖ Developed a module to recognize text and convert it into audio 	Prototype completed “International Journal of engineering research and technology” (Paper Communicated)

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	vicinity and convert them into the required language of their wish. This would help them to assimilate the texts near them with precision. The detected texts would be converted into another language of their own choice and the results would be made available through an audio device which is connected to the ears of the visually challenged person.			
4	<p>Students Team Mr. Deuker Dikkinson Mr. Abish Raj .A Mr. Rino. M Mr. Simiyon.I</p> <p>Mentor Name: Mr. Manu Assistant Professor / Mech</p> <p>Project name Semi Automatic Coconut dehusker</p> <p>Project Description: The Coconut dehusking machine is an innovative product to support rural Coconut farmers and machine owners. It has the unique feature of Semi-automatic coconut dehusking setup. This helps the coconut farmers to reduce the requirement of skilled labour and time</p>	❖ Literature review completed, Design completed, material purchase is on progress	❖ Semi automatic type ❖ Roller operating system is used to dehusk the coconut.	Prototype completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	consumption. The prototype model of Coconut dehusking machine was successfully fabricated and tested in real field and demonstrated to the rural coconut farmers.			
5	Team Members Mr. Jaireesh J.S Aswinth Mr. Ajith B Mr. Ajay R B Mr. Ajesh R M Mentor Name: Dr. John Iruthaya Raj Assistant Professor / Mech Project Name Coin Operated Rubber Rollers Project Description This attachment is used to roll the processed rubber latex when a coin is inserted in the roller machine. A coin recognizer identifies the value of the coin and allows the user to roll the processed rubber latex. A battery is charged using the rotation of the hand wheel by suitable power generation circuits.	❖ The literature survey is done. ❖ The coin ❖ Recognizing mechanism has been identified.	1. Coin Acceptor setup 2. Locking system with Modified Gear arrangement 3. Timer with Electromagnetic Push and Pull Solenoid setup	Prototype completed
6	Student Team: Mr. Alex Sasi Mr. Dani Jaison Prakash. J.U	❖ Literature survey is completed.	❖ Developed a prototype to support Farmers to distract the wild Boar	*Prototype Completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	<p>Mr. Tom Saji Ms. Ancilin. H</p> <p>Mentor Name: Mr. Arthur Vasanth Assistant Professor / EEE</p> <p>Project Name: Solar Ultrasonic Wild Boar Repeller</p> <p>Project Description: This proposed device is used to repel the wild Boar in the agriculture farm by generating ultrasonic frequency audible to wild boar. Farming land can be protected from wild boar without killing that. This product can be easily installed in agriculture land because of solar powered device. This product can be marketed the farmers who have the farming land in Hill areas. It increases the yield to farmers.</p>	<p>❖ The power modules and the frequency generation modules are designed and fabricated.</p>	<p>from the farming Land.</p>	<p>*International Journal of engineering research and technology" (Paper Communicated)</p>
7	<p>Student Team: Mr. AjinKilbert Mr. Vinish Mr. Adarsh Mr. VelbinJijo</p> <p>Mentor Name: Mr. John Pradeep</p>	<p>❖ Literature Survey completed</p> <p>❖ CAD Design completed.</p>	<p>❖ Developed a prototype to support elderly persons who need care.</p>	<p>Prototype completed</p>

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	Assistant Professor / EEE Project Name: A Smart IOT Pill Dispenser Project Description The project aims to develop a Smart IOT Pill Dispenser based on beaglebone black which could deliver complex combinations of medicines for a patient based on the predefined time. The involvement of IoT allows the user to get notification for medicine in his smartphone and, also enables monitoring and control from anywhere in the world. This product would be marketed so that the caretaker people can be the targeted customers. With this product, the caretaker can monitor elder people who need help. This would help them to monitor the elder person to take medicine in right time. This device also alerts the elder people to take medicine.	❖ Pill Storage Fabricated.		
8	Student Team: Karthisuyan Sarath joe Rahul. M Sajan r Mentor Name: Dr. Rajeev HOD/Mech	❖ Literature review completed. ❖ Design Completed ❖ Material purchase is in progress	❖ Semi automatic typeCutting wheel operating system. ❖ Speed controllable coconut grating setup	Prototype completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	<p>Project Name: Coconut Deshelling and Grating Machine.</p> <p>Project Description: The Coconut deshelling and grating machine is an innovative product to support rural Coconut farmers and machine owners. Portable Coconut deshelling and grating machine has the unique feature of Semi automatic coconut deshelling and grating setup. This helps the coconut farmers to reduce the requirement of skilled labour and time consumption This feature also helps coconut farmers to get a required deshelling shapes of coconut and grating is done easily. The prototype model of Coconut deshelling and grating machine was successfully fabricated and tested in real field and demonstrated to the rural coconut farmers.</p>			
9	<p>Student Team Mr. Joein.J Mr. R. Relton Mr. Paul Richard. D.P Ms. Sherly.B</p> <p>Mentor Name: Mr. Dani Assistant Professor / Mech</p>	<ul style="list-style-type: none"> ❖ Completed Literature review ❖ 85% of the Plucker design has been completed. 	<ul style="list-style-type: none"> ❖ The system has a plucking arm positioned at the top of the telescopic pole with the rack and pinion gear assembly. ❖ The rack has teeth cut into it and they mesh with the teeth of the 	<p>*Prototype completed</p> <p>*Design Patent filed</p>

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	<p>Project title: Telescopic Semi- Automatic Fruit Plucker</p> <p>Project Description: Fruit plucker consist of four 12v dc motors (Motor1:30rpm, 20 kg torque), (motor2:10rpm, 10kg torque),(motor3: 30rpm, 5 kg torque), (motor4:2400rpm) in this motor take all the operations of plucker. And it is fully remotely controlled fruit plucker act as a robotic arm. Motor 1is used for up and down movement of telescopic rod. Motor2 is used for rotating the telescopic rod and motor 3 is used for forward and backward movement. Motor 4is used for cutting the fruit stalk. The controlled rotary motion of the pinion is converted into corresponding linear movement of the rack. The to and fro motion of the plunger will actuate the fingers to open and close. The free end of the finger provides sniping action. The fruits that are plucked are collected without any damage, so that the fruits are very demand in market.</p> <ul style="list-style-type: none"> • Easy to Handle • Cost is low as compared to other fruit harvester. 		<p>pinion gear. The motor is coupled with the pinion.</p> <ul style="list-style-type: none"> ❖ The controlled rotary motion of the pinion is converted into corresponding linear movement of the rack. ❖ The to and fro motion of the plunger will actuate the fingers to open andclose. ❖ The free end of the finger provides sniping action. ❖ The collected fruit flows through the hollow plunger into the cloth which can be collected from the bottom. 	
10	<p>Student Team: Mr. Sibin Reji Mathew Mr. Antro Akash A</p>	❖ Literature review has been done	Developed a prototype to support fire rescue care in	

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	<p>Mr. Aneesh John Zachariah Mr. Anto J C</p> <p>Mentor Name: Mr. Manjusha (Assistant Professor / EEE)</p> <p>Project Name: An Add-On device to detect trapped human in fire accidents</p> <p>Project Description: The proposed project identifies the presence of human beings inside the room during the fire. After installation of this device, it helps the fire rescue team to identify the trapped Human in fire accident Buildings. This product can be marketed as an Add-on device with fire sensor installed place such as shopping Malls, Schools, Colleges and Apartments etc.</p>	❖ Sensor selection is done.	Buildings.	Prototype completed
11	<p>Student Team: Mr. K. S. Ajith Mr. B. Ajil Mon Mr. C. Vinoth Mr. K. Sajin</p> <p>Mentor Name: Mr. Jude Felix (Assistant Professor / Mech)</p> <p>Project name:</p>	❖ Design completed and material purchase is in progress	<p>❖ Steam operated VCO cooker</p> <p>❖ Steam was generated in a boiler and transferred through hose</p> <p>❖ Stir is controlled by a motor</p>	<p>Prototype completed</p> <p>(MSME Registration is done)</p>

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	<p>Portable coconut oil cooker</p> <p>Project Description: The Portable virgin coconut oil cooker is an innovative product to support rural Coconut farmers and machine owners. Portable virgin coconut oil cooker has the unique feature of producing the steam in a external boiler and transfer to the cooker via hose. This helps the coconut farmers to use farm waste as the fuel This feature also helps coconut farmers to get high quality virgin coconut oil with less manpower. The prototype model of Portable virgin coconut oil cooker was successfully fabricated and tested in real field and demonstrated to the rural coconut farmers.</p>			
12	<p>Student Team: Ms.Anuja M.L Ms.Jincy P, Ms.Anisha V.</p> <p>Mentor Name: Dr. Benschwartz (Assistant Professor / EEC)</p> <p>Project Name : VISAD: A Vision based System for patient Abnormality Detection</p>	<ul style="list-style-type: none"> ❖ Literature review completed ❖ The Algorithm to detect the Abnormalities is under development 	<ul style="list-style-type: none"> ❖ A vision based motion detection algorithm was developed that would activate the safe system to prevent the patient falling from the bed. 	<p>Prototype completed</p> <p>VISAD: A “Vision based System for patient Abnormality Detection”, International journal of Engineering Research &</p>

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	Project Description : A Vision based system to detect the abnormalities of the patient in bed and give an alert to the care taker when an abnormality is detected			Technology (Paper Communicated)
13	Student Team Ms. ArpithaRenjan Mr. Bintu Binu Thomas Ms. Jebin G. Mentor Name: Mrs. Ashy V Daniel (Assistant Professor / CSE) Project Name : IoT based abnormality and health monitoring system for cattle. Project Description : The aim of the project is to identify and monitor the health of cattle to prevent illness and diagnose diseases earlier manually. The behavioural changes of the cattle are detected using machine learning models. The abnormality monitoring system using IoT is designed and developed. The machine learning model is developed by training with normal and abnormal images ofvarious cattle. The abnormality of the cattle is notified with the alert system and the behavioral changes of cattle will send alert messages to the usersthrough	❖ Literature reviewand image collected for normal and abnormal condition of cattle for training and algorithm Formation.	❖ Abnormality monitoring system is a hardware/software cloudbased technology isused to remotely monitor the health status of cattle.	❖ Prototype completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	phone through Wireless IoT application			
14	<p>Student Team: Mr. Yesudhasxavier Mr. Shivakumar R Mr. Lijin V Mr. Gokulkrishna V S</p> <p>Mentor Name: Mr. Babin (Assistant Professor / EEE)</p> <p>Project Name: Instinctive fertilizer feeder for cultivation in agronomy.</p> <p>Project Description: When plant needs the nutrient, it will release Hydrogen (H⁺) and Carbonic acid (HCO₃⁻) ions which alert Designed NPK sensor. In exchange, designed NPK sensor will intimate the fertilizer tank to releases Ammonium (NH₄⁺), Potassium (K⁺), and Phosphate (PO₄³⁻) ions along with other micro nutrients ions. This exchange process works naturally for the purpose of meeting the needs of nutrient at the time it is needed (Release-on-Demand). The “Release-On- Demand” is enabled by ion exchange mechanism between plants and fertilizer.</p>	<ul style="list-style-type: none"> ❖ Literature review completed, ❖ Designed the prototype of NPK sensor ❖ Automation work in progress. 	<ul style="list-style-type: none"> ❖ A dedicated GUI was developed that would monitor a given multi crop farm and irrigate with nutrition based on demand 	<ul style="list-style-type: none"> ❖ Prototype completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
15	<p>Student Team: Mr. Nijin.S.T Mr. Pratheesh .S.D Mr. Jayan.J.J Mr. Jijo.J</p> <p>Mentor Name: Mr. Leo Bright Singh Assistant Professor / Mech</p> <p>Project Name Coconut scrubber and milk extractor</p> <p>Project Description: The Coconut milk extraction machine is an innovative product to support rural Coconut farmers and machine owners. Portable Coconut milk extraction machine has the unique feature of Semi automatic coconut milk extraction setup. This helps the coconut farmers to reduce the requirement of skilled labour and time consumption. This feature also helps coconut farmers to extract coconut milk from the scooped coconut . The prototype model of Coconut milk extraction machine was successfully fabricated and tested in real field and demonstrated to the rural coconut farmers.</p>	<ul style="list-style-type: none"> ❖ Literature review completed ❖ Design Completed ❖ Material purchase is in progress. 	<ul style="list-style-type: none"> ❖ Semi automatic type ❖ Roller operating system is used for scrubbing the coconut. 	<ul style="list-style-type: none"> ❖ Prototype completed

Please Submit three/four high resolution (at least 300 dpi) pictures in jpeg format showing the prototype/product along with the students and their mentor for each project.

1. Self-Priming Automated Fodder System



Storing chamber



Prototype with Mentor & Mentees



Shaking chamber

2. Portable Smart Rubber Harvesting Machine



Field Survey and Data collection at Bethany Rubber Estate



Field Survey and Data collection at Bethany Rubber Estate



3. Coin Operated Rubber Rollers



4. Portable coconut oil cooker



5. Coconut Deshelling and Grating Machine.



6. Textacles

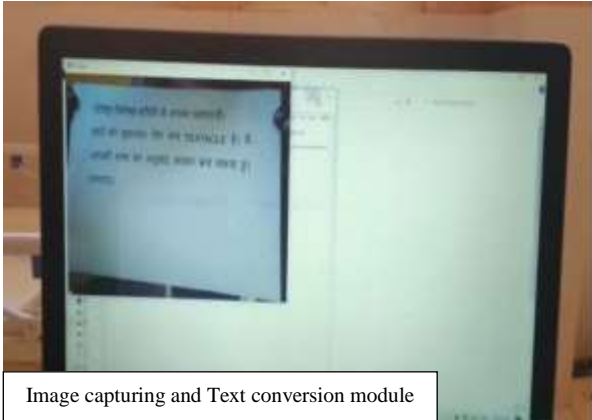
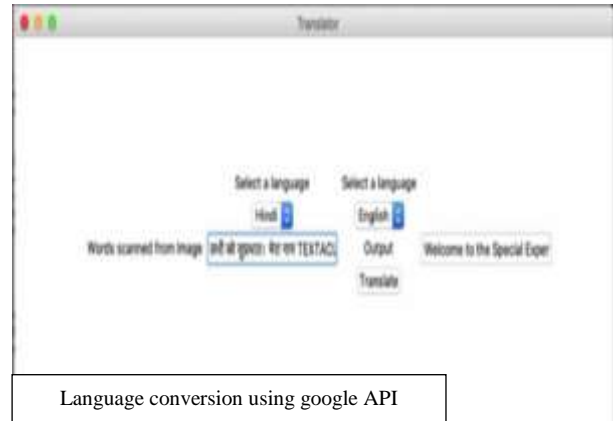


Image capturing and Text conversion module



Language conversion using google API



Prototype

7. Telescopic Semi- Automatic Fruit Plucker



Prototype live demo

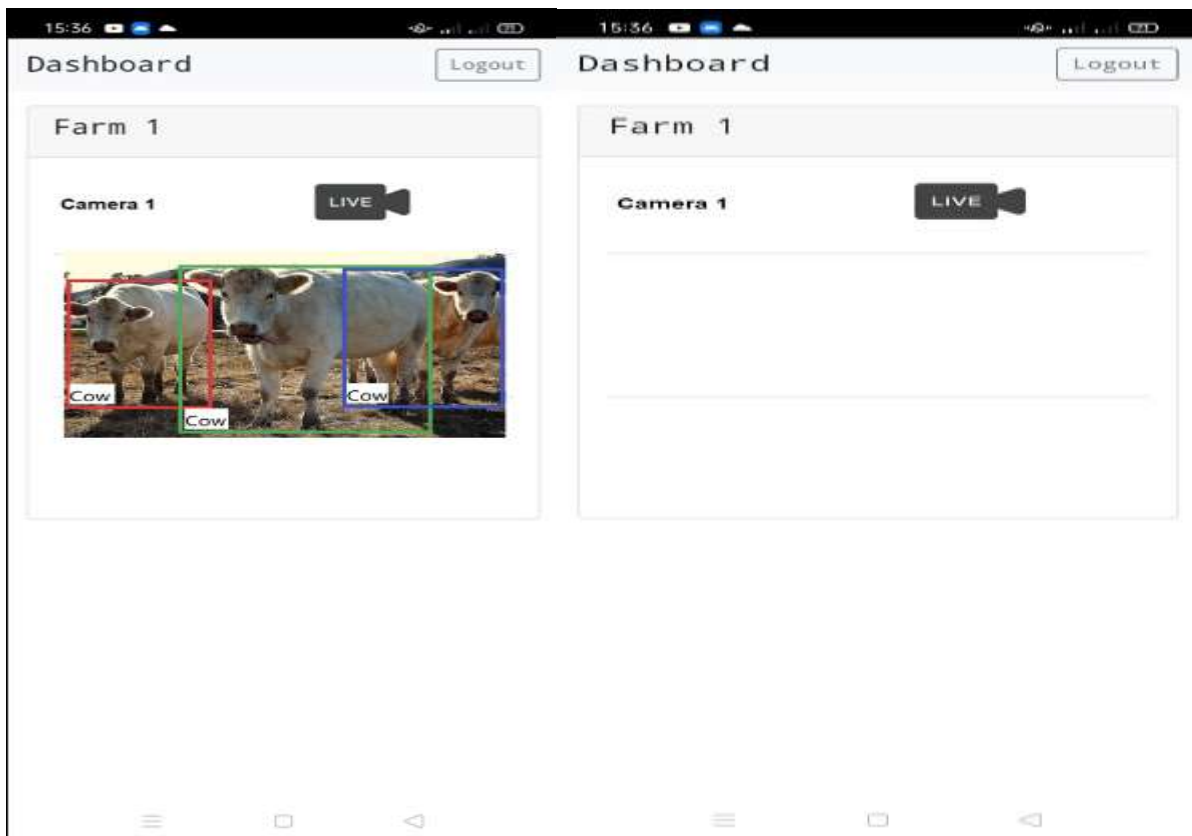


Prototype



8. IoT based abnormality and health monitoring system for cattle

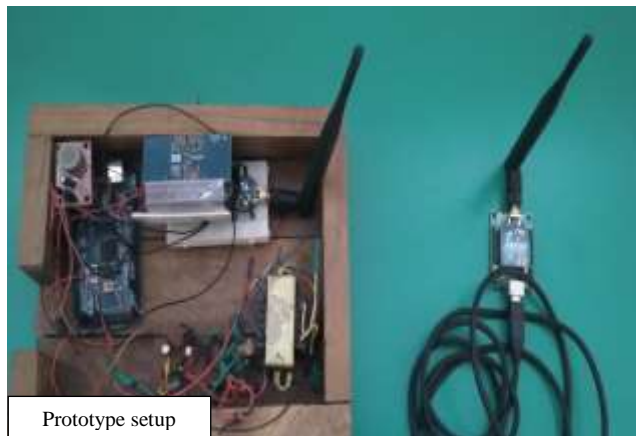




9. Semi Automatic Coconut dehusker



10. An Add-On device to detect trapped Human in Fire accidents



Prototype setup



Testing Add-on Device in fire



Prototype with Mentor & Mentees

11. Coconut scrubber and milk extractor



Prototype with Mentor & Mentees



Side view of prototype



Top view of prototype

12.VISAD: A Vision based System for patient Abnormality Detection



Testing



Testing



Prototype

13. Solar Ultrasonic wild Boar Repeller



Field test of Prototype

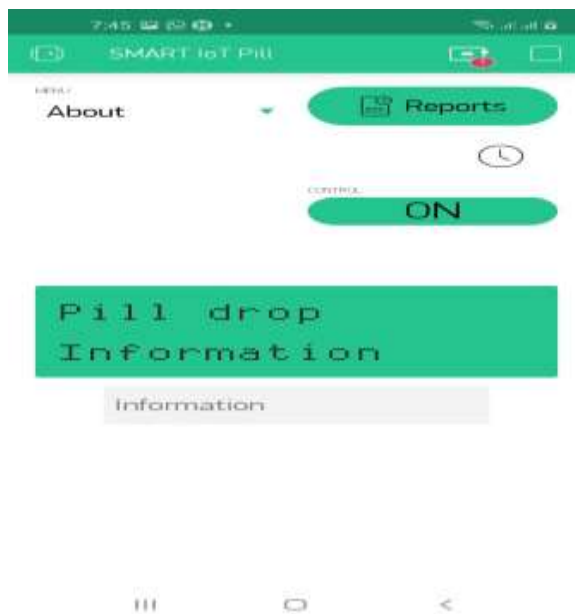


Prototype

Prototype with Mentor & Mentees



14. A Smart IOT Pill Dispenser



15. Instinctive fertilizer feeder for cultivation in agronomy





Prototype



Testing of Prototype in Field

5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

1. Portable Smart Rubber Harvesting Machine

Student team details (with contact information)

Sl.No.	Name/Dept.	Contact No.	Mail Id
1	Aibel George Biju [MECHANICAL]	8078217758	aibelbiju.19@gmail.com
2	Ameesh K.S [MECHANICAL]	8304989818	ks.ameesh03@gmail.com
3	Danis B Mathew [MECHANICAL]	8078310828	danis7biju12@gmail.com
4	RinsuReji [MECHANICAL]	9946603964	rinsureji02@gmail.com

- **Brief description about the student start-up:**

The Portable Smart Rubber Harvesting Machine is an innovative product to support rural rubber growers. Portable Smart Rubber Harvesting Machine has the unique feature of sensing the latex vessels in the cambium layer for any type of rubber clones accurately. The tapping process is done precisely with the help of HSS tapping knife arrangement using the sensed latex vessel position values. Accurate sensing of latex vessel and precise tapping provides better yield of latex and prevents damages in the tree during tapping when compared to other traditional methods and available semi-automatic tapping machines in market. The prototype model of Portable Smart Rubber Harvesting Machine is successfully fabricated and tested in real field and demonstrated to the rural rubber growers.

- **Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs**

India is the 4th largest producer of natural rubber in the world and rubber tapping is the livelihood of rural rubber farmers. Harvesting the liquid rubber latex is done by tapping, or cutting the outer bark of rubber trees, with a specialized knife by the traditional tappers, which will cause the rubber latex to flow out of the latex vessels. Deep tapping may damage the cambium layer of the tree and become a huge loss to the rubber planters as it even kills the tree.

Shallow tapping results in lower yield of latex. To overcome these problems, Portable Smart Rubber Harvesting Machine is developed. The Embedded controller controls the tapping knife and prevents the damages caused to cambium layer of tree and increases the yield by identifying the latex vessel appropriately through the latex sensor which senses the latex vessels accurately in the cambium layer and measures the depth up to 20 mm precisely by the resolution of 100 milliamps to 2 amperes. The device will be operated by 12V, 6A Li-Fe battery.



- **Contribution of NewGen IEDC in the same:**
 - Fund provided for the entire work during the Project
 - Reviews and appropriate guidance on every step of prototype development.
- **Future plan:**
 1. Portable and easy handling Model
 2. Reduction in weight of product
 3. Low cost product

2. Self-Priming Automated Fodder System

Student team details (with contact information)

Sl.No.	Name/Dept.	Contact No.	Mail Id
1	Mr. Ashick Newbin. A.C	7397171637	newbin58@gmail.com
2	Mr. Rahul.R.G	8304989818	rahuljith2001@gmail.com
3	Mr. Rithick.R.Gopal	7339597491	rithickrgopal@gmail.com

• **Brief description about the student start-up**

Rearing livestock for secondary income by users who are employed in various profession and regular jobs has less possibility due to the necessity of feeding the cattle periodically during the day time. The proposed system will overcome the difficulty of feeding the cattle periodically and reduce the manual intervention for rearing the cattle. Moreover, this system will enable users to rear cattle without affecting their regular profession. By adopting this system, the requirement of grassland will be reduced. The cattle feeding system incorporates moisture control system which continuously monitors the optimum moisture content to be maintained in the germination chamber, temperature control system which will monitor and maintain an optimum temperature of 22°C to 27 °C inside the germination chamber which is very crucial for accomplishing effective growth of green fodder, revolving tray system incorporates a series of trays fixed with a conveyer belt that continuously revolves the tray which will deposit the fodder on the automatic feeder conveyor and ensure continuous production of green fodder throughout the year with minimum manual intervention The prototype model of the self priming feeder is successfully fabricated and tested in the real field and the product prototype can produce green fodder

• **Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs**

The cattle feeding system incorporates moisture control system which continuously monitors the optimum moisture content to be maintained in the germination chamber, temperature control system which will monitor and maintain an optimum temperature of 22°C to 27 °C inside the germination chamber which is very crucial for accomplishing effective growth of green fodder, revolving tray system incorporates a series of trays fixed with a conveyer belt that continuously revolves the tray which will deposit the fodder on the automatic feeder conveyor and ensure continuous production of green fodder throughout the year with minimum manual intervention



- **Contribution of NewGen IEDC in the same**

NewGen IEDC has provided necessary funding and resources to develop the prototype. Also a mentor was allotted to guide the students to developing idea, selecting the suitable components for the product etc. The lab facility were provided for the product development activities.

- **Future plan**

1. Develop product for commercialization
2. Register in the the government scheme for startup
3. Plan to popularize the product

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting New Gen IEDC	Nehru Institute of Engineering and Technology, Nehru Group of Institutions, Coimbatore, Tamil Nadu	
Year of starting NewGen IEDC	2018	
Name of the Head/Principal of the Institution/College	Dr. P. Krishnakumar Nehru Group of Institutions, Coimbatore, Tamil Nadu	
Name of New Gen IEDC Coordinator	Dr. T. Jayaprakash	
Contact Details of NewGen IEDC Coordinator	Mobile Number: 9843121361 E-Mail ID: coordinatornewgeniedc@nehrucolleges.com	
Financial Details	Sanction Order No./Date	Amount Sanctioned
Previous Sanction Order Details	1 EDII/DST-New Gen IEDC / 18- 19/07 & 13.11.2018	Rs.60,000,00 /-
	2 EDII/DST-New Gen IEDC / 18- 19/07 & 04.11.2020 & 04.01.2021	Rs.47,500,00 /-

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1	Idea Pitch and Preparation for Startup	Students were given Idea on Preparing New Gen IEDC Startups and how to attract the customers.
2	Entrepreneurship Awareness Camp	75 Students from Nehru Institute of Engineering and Technology were participated in the 3 day camp.
3	Visits to industries of successful entrepreneurs & TBIs in the region	Startup students were visited nearby Industries and NGI – TBI for understanding the Business Ideas.
4	Entrepreneurship Awareness Camp	72 Students from Nehru Institute of Technology were participated in the 3 day camp.
5	Entrepreneurship Awareness Camp	75 Students from Nehru Arts and Science college were participated in the 3 day camp.

Sr. No.	Activities	Outcome/Achievements
6	Webinar on Patent Registration	Many startup students were participated and got benefitted.
7	Webinar on Awareness and Benefits of New Gen IEDC Projects	Many Higher Secondary Students and Diploma Holders were attended the programme and got benefitted.
8	Invited Talk on Coronaphobia – Overcoming Covid19 Stress & Myths	A webinar was arranged for the startup students to understand the current pandemic situation.
9	Workshop on 3D Printing Technology	More than 200 students were participated and gain the knowledge about working of 3D Printers.

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	Technology Based Entrepreneurship Development Programme (TEDP)	A six weeks TEDP was organized for 26 participants to understand the Bio Techniques for Enabling Bio Entrepreneurship and to learn the insights of the Business with the help of Industry Experts.
2	Screening Committee Meeting	40 Startups were presented their Ideas into External Panel Members through online mode.
3	Mentors Meeting	Every Two weeks, regularly arranging Mentors – Students meet.
4	Purchase Committee Meeting	To identify the difficulty of purchasing the equipment, Purchase committee has been framed.
5	Review Committee Meeting	Regular Interactive Session has been arranged among the startup students.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Implementation of Industry Institute Partnership Cell	Institute Industry Cell is implemented in Nehru Institute of Engineering and Technology
2	Signing of MoUs with Companies	Virtual MoU Signing with KPIT Sparkle Technologies.
3	Product development centre and Testing facility centre established at the Institute	Work under progress
4	Staff training Programmes for the Industrial Enterprises	Regularly organized the Programmes.
5	Marketing Assistance & Technology Commercialization	Through NGI – TBI, we have arranged the facility for the startup students.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:
NIL

3. Other important highlights (new initiatives), if any:

- MoU's with accelerators for initiating projects into next level.
- Organizing Entrepreneurship programmes under DST – NIMAT scheme.

4. Student Projects (Please provide the following details for each student project)

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
1	<p>Title: Automated Equipment to monitor Mask - wearing, body temperatures with automatic sanitizer dispenser for public places.</p> <p>Student Team: Mr. K. T. Gokul, Mr. Shibir V., Mrs. Febina Mehraban H. Mrs. Shantini C</p> <p>Mentor Name: Mr. S. Mani</p> <p>Project Description: Our project focuses to solve the problem of overcrowding especially in public spaces. Help maintain social distancing and allow optional contact tracing inside the workplace in an organization. Social Distancing Monitoring for public spaces and Fast Deployment Simplified Touch Tracing for faster recognizing working staff or visitors who have been in touch with an infected colleague.</p>	Designing & Formulation	Supported in Idea Pitch, Product Selection Prototype development & Business Plan Preparation.	Final stage and Testing Process is ongoing
2	<p>Title: Smart Health Monitor</p> <p>Student Team: Ms. Julie Christina Mr. Tharanish, Ms. Amirtha, Ms. Subhasarmila</p> <p>Mentor Name: Mr. Antony Pradeesh</p> <p>Project Description: The idea is to monitor the patient's health without interfering their everyday activities and without restricting their mobility. This product is used to check blood pressure, body temperature, ECG, blood oxygen level and pulse rate using sensors on a single unit that transfers the data to the cloud servers which can be viewed anytime by the users as well as health care professionals via our health care app instantly. All Analysis will be done and displayed in the Android App.</p>	Ideation	Supported in Idea Pitch, Product Selection Prototype development & Business Plan Preparation.	Final stage and Testing Process is ongoing. Completed three vital parameter measurements such as Heart rate, Blood oxygen level and Body temperature.

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
3	Title: Floor Cleaning Cyborg Wiper Student Team: Ms. Aiswaryalakshmi M. B. Mr. Salman A. Mentor Name: Dr. R. Kannan Project Description: Our start up idea is to design and fabricate product like floor cleaning robot with automatic and vision guided mode that are used in daily purpose and used in developing technology. The proposed cleaner is specially designed for cleaning hospitals, industries, Shopping malls etc. The Cyborg Wiper is an intelligent enough to clean itself using sanitizer. The Cyborg Wiper will detect the obstacles and redirect itself. A robot which is compact in size and low cost, so that it can suitable into hospital and industries.	Market feasibility study	Supported in Idea Pitch, Product Selection Prototype development & Business Plan Preparation.	Final stage and Testing Process is ongoing.
4	Title: Automatic analysis of soil for plant growth Student Team: Ms. S.Kaviya Ms. S.Vennila Mr. A.J. Jeswin Nijoe Mr. A. Dominic Sepastin. Mentor Name: Mrs. Gulja S. Nair Project Description: Our start up idea is to design and manufacture a smart soil analysis kit. The product will help farmers to analyze all the important parameters of soil required for planning the cultivation practices and also it will give the recommendations for improving the field conditions. This will help to increase the yield in the farmland. A smart kit which is suitable for all types of soil, so it can be used in all places.	Designing & Market study	Supported in Idea Pitch, Product Selection Prototype development & Business Plan Preparation.	Final stage and Testing Process is ongoing.

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
5	<p>Title: Manufacturing of Tiles using waste rubber.</p> <p>Student Team: Mr. Akhilraj AR Ms. Sankari MN Mr. Ragul P Mr. Pandiyaraj S</p> <p>Mentor Name: Mr. P. Selvaram</p> <p>Project Description: Our start up idea is to design and manufacture a rubber tile. By this method of tile making we can minimize waste rubber. It reduces the usage of sand and ceramic products .Reduction in cost of tile manufacturing .It reduces the burning of waste rubber and there by which controls the emission of Carbon-di-oxide. It also reduces the dumping of waste rubber on to the ground which helps in the control of soil pollution and hence improves ground water table.</p>	Testing & Market feasibility study	Supported in Idea Pitch, Product Selection Proto-type development & Business Plan Preparation.	Product completed and Market feasibility study
6	<p>Title: Battery-Powered Smart Agrochemical Sprayer</p> <p>Student Team: Mr. Sanam Siva Krishna Raju Ms. Penumarthi Hema Sri Ms. Abbireddy Kiranmayee</p> <p>Mentor Name: Dr. S. Subashree</p> <p>Project Description: Smart agri Enterprises proposed the Startup idea which is to design and manufacture an intelligent product called Smart Sprayer, which was designed with Machine Learning Technologies. It will adjust its Nozzle Patterns automatically for better focusing and spraying on infected areas effectively, which leads to reduce agrochemical wastages and environmental pollution as well. This is a very useful and demanding product to farmers.</p>	Ideation & Designing	Supported in Idea Pitch, Product Selection Prototype development & Business Plan Preparation.	Final Stage and Testing Process ongoing Market feasibility study

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
7	<p>Title: Automatic Spinach Soup Machine</p> <p>Student Team: Mr. Akshai Krishna.S Mr. Abilash R. Mr. Sourav P. V. Mr. Sudarshan G. A.</p> <p>Mentor Name: Mr. A. C. Ramkumar</p> <p>Project Description: Our start up idea is to design and manufacturing soup vending machine. The main aim of the project is to replace unhealthy soft drinks like Pepsi, coke, 7up etc. So, we planned to introduce healthy tasty soup via vending machine to crowd places like Offices, Malls, Theatres, Restaurant, School and College canteen etc. This project reduces manual work for making mass Production of soup.</p>	Market Testing	Supported in Idea Pitch, Product Selection Prototype development & Business Plan Preparation.	Product Completed and Market feasibility study process ongoing
8	<p>Title: Automatic Livestock Barn Monitor</p> <p>Student Team: Ms. Chitra G Mr. Chandraprakash K</p> <p>Mentor Name: Dr. M. A. Raja</p> <p>Project Description: The idea of the project is to develop Automatic livestock barn monitoring system based on wireless communication networks in dairy farms to replace traditional manual data collection. To monitor the vital parameters of a livestock, the Livestock Barn Monitoring System (LBMS) with temperature detector, vital sign detector, three axis measuring device detector and wetness detector has been developed. The system can even be used for analyzing the strain level admire Thermal Humidity Index (THI).</p>	Market feasibility study	Supported in Idea Pitch, Product Selection Prototype development & Business Plan Preparation.	Final Stage & Testing process and Market feasibility study process ongoing

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
9	<p>Title: Vertical Axis Wind Turbine with Booster for Urban and Rural Areas</p> <p>Student Team: Mr. C.Vignesh Mr.S. Shahul Kamal</p> <p>Mentor Name: Mr Allocious Britto Rajkumar</p> <p>Project Description: In our startup idea we have designed a new concept wind booster to overcome the disadvantage of starting VAWT at low speed that usually a problem occurring in traditional wind turbine. Our new concept turbine makes the incoming air faster because of the precision design so that it makes the turbine effective and makes to start at low wind speed. Since, it's being very compact, less maintenance, noise less it can be easily fitted even in urban areas.</p>	Prototyping	Supported in Idea Pitch, Product Selection Prototype development & Business Plan Preparation.	Modelling and simulation process
10	<p>Title: Development Of Bio Sensor For Rapid Detection Of Snake Venom</p> <p>Student Team: Mr.Rohinth.S Mr. Athulkrishna K vinod</p> <p>Mentor Name: Dr. K. Saranya</p> <p>Project Description: Our idea is to develop antibodies against four common poisonous snake in India through biosensor kit for the detection of specific snake bite. Principle behind our project is to develop kit /biosensor which can detect the type of snake bite by analyzing its venom. In a year, more than 1, 00,000 peoples are dead by the snake bite. The biosensor is used, on purpose, to decrease mortality caused by the snake bite.</p>	Conceptualization	Supported in Idea Pitch, Product Selection Prototype development & Business Plan Preparation.	Stage 1 completed (Production of Anti Venom)

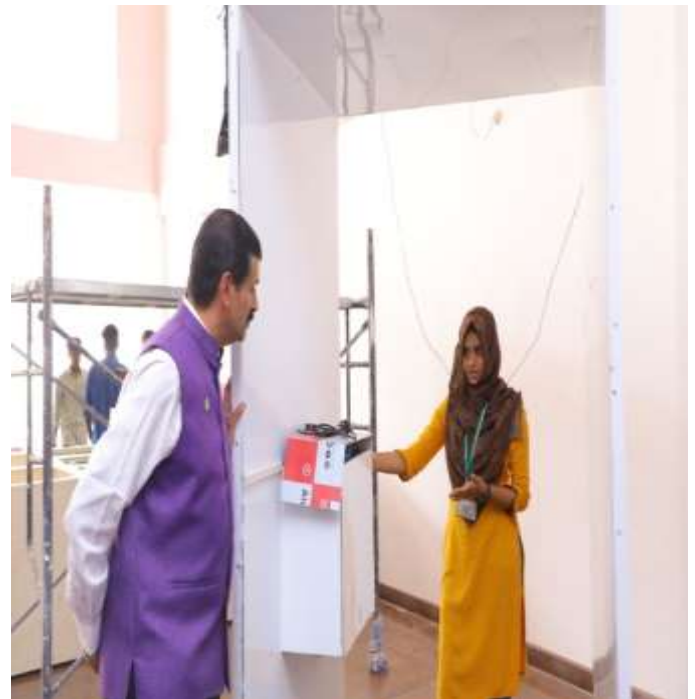
Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
11	<p>Title: Hand-made Seed papers from plant wastes and used-up papers</p> <p>Student Team: Ms. Bhavini K Ms.AkhilaNarayanankutty Ms. Alma V. Ms. Nair Yashika Vinod</p> <p>Mentor Name: Dr. E. S. Sudeepa</p> <p>Project Description: Our start up idea is to produce handmade seed papers, stationery products and packaging solutions by recycling and up cycling plant/ agro-wastes and post-consumed papers and other materials. We emphasise on sustainability and to be a zero waste producer like never before. Our products would be a replacement to prevailing stationery/ packaging products and would be for daily/ regular use, apart from customisations. Seeds (flowers, herbs, vegetables) would be embedded in the products and post-use, it can be planted in the soil to germinate new plants.</p>	Formulation & Market testing	Supported in Idea Pitch, Product Selection Prototype development & Business Plan Preparation.	Product Completed and Market feasibility study
12	<p>Title: Vegetable curry maker</p> <p>Student Team: Mr. Neetipudi Subhash Mr. G. MohanRaj</p> <p>Mentor Name: Dr. T. Jayaprakash</p> <p>Project Description: Our start up idea is to design and manufacture products like cooking machine that are used in daily purpose and used in developing technology. To manufacture a machine that helps people cook their food in an easy way and which takes very less time of their daily life. A machine which is compact in size, so that it can fit into house hold purpose.</p>	Market Testing	Supported in Idea Pitch, Product Selection Prototype development & Business Plan Preparation.	Stage 1 completed and Product development stage

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
13	Title: Dual Mode Dishwasher Student Team: Ms. V. Kamaleshwari Mr. K. Hariraj Mr. D. Kishor Mr. R. Hariharan Mentor Name: Dr. B. R. Senthilkumar Project Description: Our start up idea is to design a Dual Mode Dishwasher. This is very useful for society and Women's. We can able to save water by Dual Mode Dishwasher than normal one. It will be Portable so it can be place in house kitchen and easy to maintain.	Market Testing	Supported in Idea Pitch, Product Selection Prototype development & Business Plan Preparation.	Product developed and market feasibility study
14	Title: Medi - Copter (Medical Organs Transmit Emergency Ranger) Student Team: Mr. K. Vishnu Rohith Mr. A. Santhosh Mr. R. Thirukumaran Mr. V. Saran Mentor Name: Mr. J. Karthikeyan Project Description: Our start up idea is specified to design and innovative products like autonomous drones that are used to create an autonomous technology in day to day life that helps people for transporting the precious human organs and blood in a quick time without any effects and which keeps the organs and blood in a secure manner. A UAV which is compact in size, and so it is easy to monitor.	Prototyping	Supported in Idea Pitch, Product Selection Prototype development & Business Plan Preparation.	Product development stage

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
15	<p>Title: Anti nicotine chocolate</p> <p>Student Team: Ms. Sajna A Mr. Arul Jyothi J</p> <p>Mentor Name: Dr. E. S. Sudeepa</p> <p>Project Description: Smoking cigarettes and taking occasional puff has been considered as an emerging trend depicting wealth and style. Cigarette smoking is bad for both active and passive smokers. Our start up idea is to manufacture anti nicotine chocolate which will help to quit the habit the smoking. Dark chocolate as a major ingredient to quit the habit of smoking is truly an innovative idea in the field of health care and biomedical.</p>	Market Feasibility Study	Supported in Idea Pitch, Product Selection Prototype development & Business Plan Preparation.	Product development stage

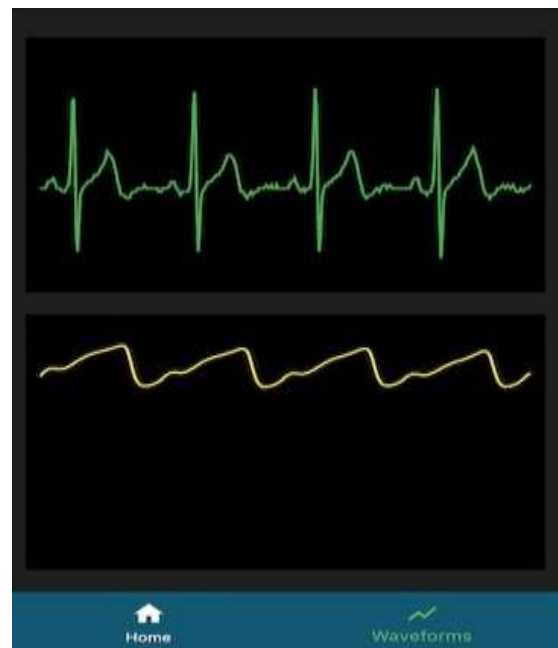
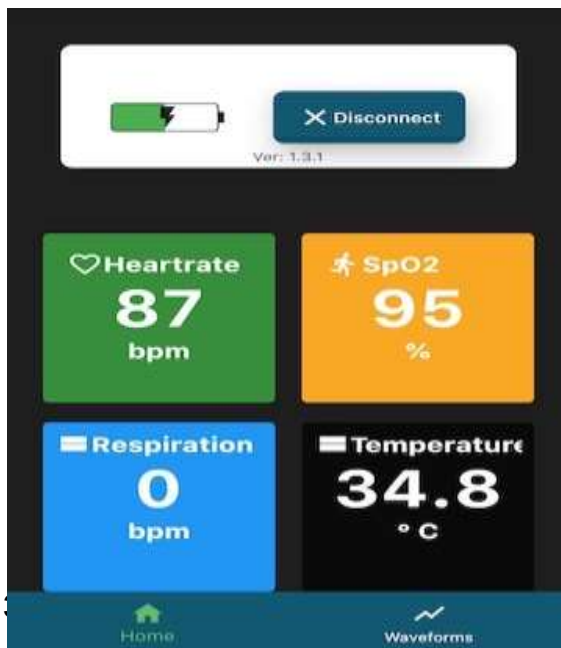
- Please Submit three/four high resolution (at least 300 dpi) pictures in jpeg format showing the prototype/product along with the students and their mentor for each project.

1. Automated Equipment to Monitor Mask-wearing & Body Temperature

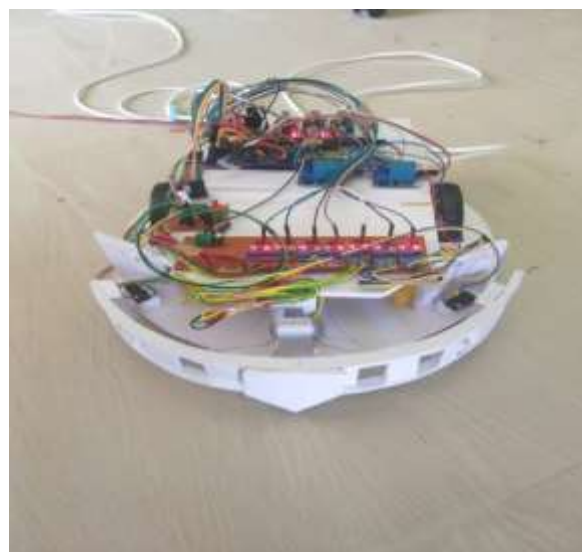
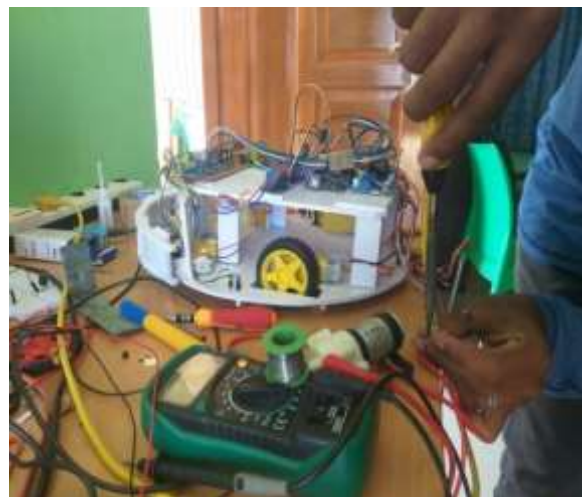


2. Smart Health Monitor

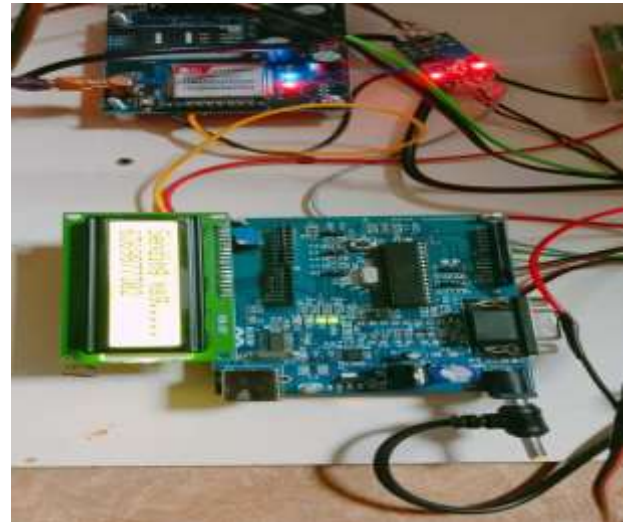
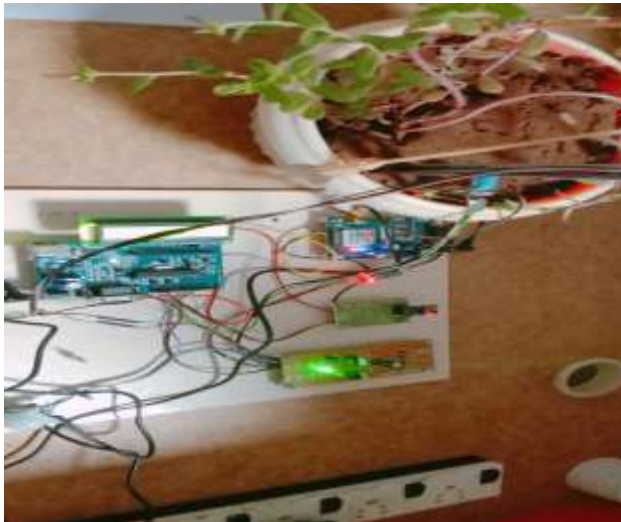




3. Floor Cleaning Cyborg Wiper



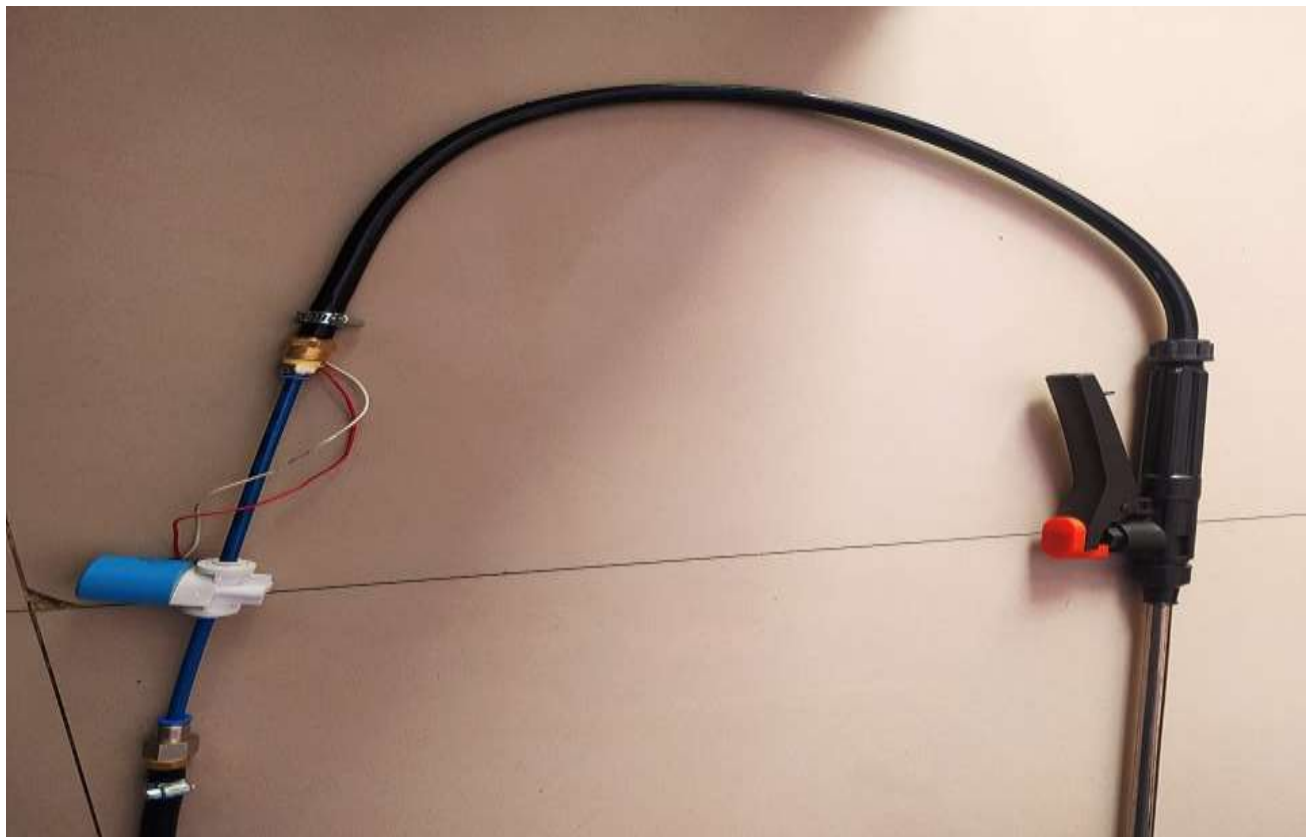
4. Automatic analysis of soil for plant growth



5. Manufacturing of Tiles using waste rubber.



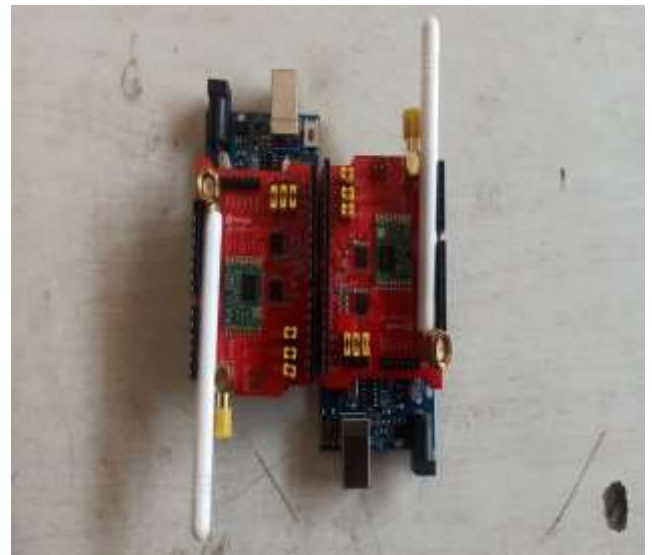
6. Battery-Powered Smart Agrochemical Sprayer



7. Automatic Spinach Soup Machine



8. Automatic Livestock Barn Monitor



9. Vertical Axis Wind Turbine with Booster for Urban and Rural Areas



10. Development Of Bio Sensor For Rapid Detection Of Snake Venom



11. Hand-made Seed papers from plant wastes and used-up papers



12. Vegetable curry maker



13. Dual Mode Dishwasher



14. MEDI - COPTER (MEDICAL ORGANS TRNASMIT EMERGENCY RANGER)





5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

- Student team details (with contact information)

Automated soup vending machine

Sr. no	Name, Residential Address Email & Mobile Number	Degree	College	Year	Aadhar Number
1	Akshaikrishna S – Founder 10/72, krishna swamy Naidu street, Amman pudure, mettur, Podanur, Coimbatore-641023 Email: akshaikrishna1998@gmail.com Mobile No: 9080202970	B.E- Mechanical Engineering	Nehru Institute of Technology	4 th	9734 9560 9323
2	Abilash R – Co Founder No-16, kk Nagar, 2nd Street, Podanur, Coimbatore-641023 Email: abikannan1210@gmail.com Mobile No: 8637622102	B.E- Mechanical Engineering	Nehru Institute of Technology	4 th	9100 6700 0835
3	Sourav PV – Co Founder SAYOOJ HouseKodiyeri, Paral(PO), Thalasseri, Kannur, Kerala- 670671 Email: souravsujith16@gmail.com Mobile No: 7025965236	B.E- Mechanical Engineering	Nehru Institute of Technology	4 th	8999 7849 2013
4	Sudharsan G.A – Co Founder W5/83, East Street, Devarayanpatti, Gopalpuram (po), virudhunagar, Tamilnadu-626136 Email:mailto:gasudharsan3@gmail.com Mobile No: 6382596049	B.E- Mechanical Engineering	Nehru Institute of Technology	3 rd	2009 5445 5697

BRIEF DESCRIPTION ABOUT THE STUDENT START-UP

1. Name of the Project: AUTOMATED SOUP VENDING MACHINE
2. Problem Statement: To provide healthy soup to the public instead of drinking un healthy soft drinks
3. Innovation: it is good with indigenous or local systems with simple mechanical and electrical components. So it is very good in feasibility and reliability of food quality as vending machine and heating technology are already available in market we just add our idea and brought a new technology.
4. Benefit of your product to the Society: Delivering soup to the customer without human contact.
5. Current Status of the Project: Completed and Market Feasibility progress ongoing.

-
- Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs

Currently very few peoples are considered about vitamins and ions. So, they used to get it from imported product which is very costly and it can't affordable for lower- and middle-class people. But same as available in our local productions because India is rich in production of grains and spinaches. But only thing is it is available only at rural places and people who lives out of the cities. So, our concept is to convert those things to bring back to the cities though they are abandoned in the village side which make lots of waste e.g., around 30 to 40 percentage of cultivation gone waste.

Instead of making waste we just dried and clean it and packed and bring to the cities and converted into powder than forming it as a Product. In order to reach it to the very minimum cost we are going with vending machine instead of human supplier. Because human supplier may cost 500 to 1000 INR per day. Whereas we are proceeding with vending machine, we can reduce the cost. The core concept is to provide healthy food stuffs to the middle- and lower-class people with the affordable cost. One does not need to keep a close watch on a soup vending machine. Once the installation has been done; there is no personnel that are required to stay by the machine to sell the soup. One can manage it from afar. Saves time. A vending machine saves a lot of precious time. The vending machine of our final diagram is shown in below fig.

TESTING ON SOUP VENDING MACHINE

- User Interface scenario – Verify that the dimension of the machine as per the specification.
- Verify that outer body, as well as inner part's material, as per the specification.
- Verify that the selected machine's body color as well the brand is correctly visible and as per specification.
- Verify the input mechanism for ingredients- water, powder, etc.
- Verify that the quantity of hot water, powder per serving is corrected.
- Verify the power/voltage requirements of the machine.
- Verify the effect of suddenly switching off the machine or cutting the power. The machine should stop in that situation and in power resumption, the remaining soup should not get come out of the nozzle.
- Verify that soup should not leak when not in operation.
- Verify the amount of soup served in single-serving is as per specification.
- Verify that the digital display displays correct information

- Check if the machine can't be switched on and off using the power buttons.
- Check for the indicator lights when the machine is switched on-off
- Verify that the functioning of all the buttons work properly when pressed
- Verify that each button has an image/text with it, indicating the task it performs well.
- Verify that complete quantity of soup should get poured in a single operation, no residual coffee should be present in the nozzle.
- Verify the mechanism to clean the system run correctly- foamed,
- Verify that the soup served has the same and correct temperature each time it is served by the machine.
- Verify that system should send notification when it runs out of soup powder.
- Verify that pressing the indicator button multiple times leads to multiple serving of soup and has to constrain.
- Verify that there is the passage for residual/extra soup in the machine.
- Verify that machine should work correctly in different atmosphere.
- Verify that machine should not make too much sound when in operation.
- Performance test – Check the amount of time the machine takes to serve a single serving of soup.
- Performance test – Check the performance of the machine when used continuously until the ingredients run out of the requirements.
- Negative Test – Check the functioning of the soup machine when two/multiple buttons are pressed simultaneously
- Negative Test – Check the functioning of soup machine with a lesser or higher voltage than required.
- Negative Test – Check the functioning of the machine if the ingredient container's capacity is exceeded.

Working:

One does not need to keep a close watch on a soup vending machine. Once the installation has been done; there is no personnel that are required to stay by the machine to sell the soup. One can manage it from afar. Saves time. A vending machine saves a lot of precious time.

An RFID system consists of a tiny radio transponder, a radio receiver and transmitter. When triggered by an electromagnetic interrogation pulse from a nearby RFID reader device, the tag transmits digital data, usually an identifying inventory number, back to the reader. This number can be used to track inventory goods.





- Contribution of New Gen IEDC in the same

NGI - NewGen IEDC provide access to Computer & Prototyping facilities and facilitate networking with Professional Resources, Advisors, Consultants, Rich pool of Industry Practitioners and Mentors.

2. Name of the Project: NOT SO PAPERLY PAPER

- Student team details (with contact information)

Sr. No.	Name, Residential Address Email & Mobile Number	Degree	College	Year	Aadhar Number
1	Bhavinik Sreekovil, Lakkidi P.O, Lakkidi Kootu patha, Ottapalam, Palakkad, Kerala -679301bhavini1205@gmail.com +919188681056	BSc Biotechnology	Nehru arts and Science college, T M Palayam, Coimbatore, Tamil Nadu	III	7506 6824 8149
2	Akhilananarayanankutty Nisthuala, Kanimangalam, Nemmara, Palakkad. akhilankutty@gmail.com +919605267693	BSc Biotechnology	Nehru arts and Science college, T M Palayam, Coimbatore, Tamil Nadu	III	2614 3864 4556
3	Almav Vrindhavanamhouse, Udayanagar colony, Kurudikad, Pudussery, Palakkad. alma.vinod007@gmail.com +918848698746	BSc Biotechnology	Nehru arts and Science college, TM Palayam, Coimbatore, Tamil Nadu	III	8704 5573 1702
4	NAIRYASHIKAVINOD 503, Swami Nityanand building, Nityanandbaug society, Mahulroad, Chembur, Mumbai Suburban Maharashtra. nairyashika26@gmail.com +919600311673	BSc Biotechnology	Nehru arts and Science college, T M Palayam, Coimbatore, Tamil Nadu	III	6527 0014 5695

Brief description about the student start-up

- Every day, it is estimated that almost 2 million trees are cut worldwide for making papers. In India, it accounts for about 3-7 billion trees per year.
- Apart from wood pulp, paper can be made from any pulp with high cellulose content in it, which can easily be obtained from plant wastes like dried leaves, twigs, flowers etc. Paper pulp can also be made from sugarcane wastes (after removing the sugar), cotton rags, even cloth wastes and used papers, thus recycling the same.
- This project is aimed at producing handmade paper products and other packaging solutions from such raw materials for use in schools, colleges and further commercialization in offices, stationery shops and other clients in the later stages.
- The paper being made will have seeds (fruits, vegetables, flowers) embedded in it, such that when the paper has been used up, instead of directly disposing it off in landfills or burning it, it can be planted in the soil and a new plant can be brought to life. Such papers and products will aid in conserving Mother Nature yet fulfill the human needs also.
- All aspects of these products would be sustainable, 100% non-toxic and biodegradable.
- We propose to create a small-scale home industry, involving local village-women in producing such Eco-friendly products, so that they also get an employment opportunity, and thus paves the way to women empowerment and rural development.

Mother Nature has suffered enough due to the mindless activities of us, humans. People often forget to give something back to nature which gave us every single thing, except for creating grave problems like pollution, climate change, global warming and what not!

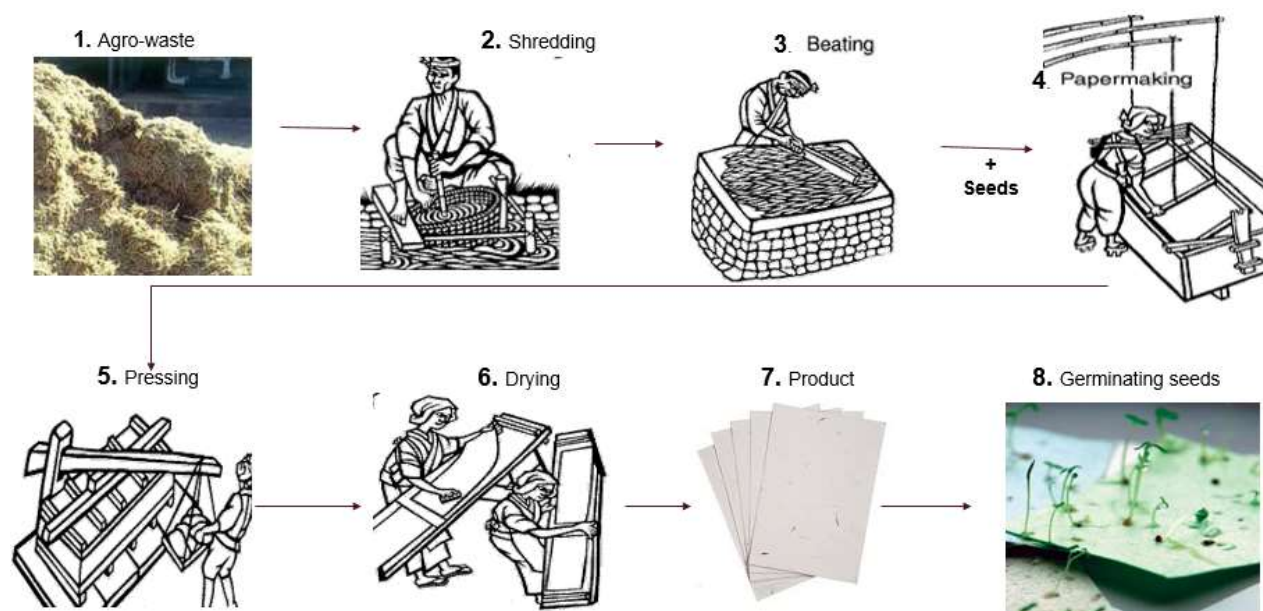
Despite digitalisation, the need for paper, related products and packaging materials has not come down. Post use, most of it ends up getting dumped in landfills or burned. Around 25% of the landfill wastes are of papers and packaging discards. Deforestation is another big concern in case of papermaking. In our search looking for options to make papers apart from wood pulp, we could find that agro-wastes can also be a potential raw material for papermaking. Managing agro-wastes in the farmlands is also found to be poor. Just like the old saying goes- striking two birds (or three, as in our case here!) with a single stone, solutions to all these problems has effectively given rise to Paperegy.

We, at Paperegy primarily focus on sustainable stationery and packaging solutions. Made from raw materials including agro-wastes like cotton rags, bagasse, banana fibres, grass, weeds, etc., and also from recycled papers, Paperegy products would be one of its kind- a perfect amalgamation of recycling and upcycling- 100% handmade and biodegradable. Our products would be a replacement to prevailing stationery or packaging products and would be ideal for daily or regular use, apart from customisations. And for a greener twist- seeds (flowers, herbs, vegetables) would be embedded in our products and after its use, it can be planted in the soil to germinate new plants. We thus emphasis on providing a wide range of good quality products that makes people know the importance of sustainable development in an eco-friendly and pocket-friendly manner.

Start-up entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high resolution photographs.

For developing the products, traditional handmade paper making procedure is followed. Firstly, all the raw materials are taken and shredded or cut into smaller pieces and soaked in water for hours. Later, the soaked mixture is beaten in a mixer/ beater and made into a pulp. Seeds are mixed in this pulp mixture and the consistency is changed by adding water. The pulp is poured into the mold and deckle set to attain the shape and thickness of the paper. Seeds will eventually be embedded in it. The paper is then kept for drying. The dried papers are flattened to remove any extra moisture content in it using a paper press. The final paper can be cut or trimmed the edges using the paper cutter. Thus, seed embedded papers are formed.

Similarly, seed embedded carton boxes can be made. Further, the products like books, invitation cards, business cards, paper weights, etc. can be developed.



Post use, the products can be planted in the soil to germinate new plants, instead of dumping it or throwing it away.



After definition, ideation and prototype phases it was time to see if our product actually worked in real life. In design thinking terms, testing means putting the complete product to trail using the best solutions created in the prototyping phases. In our case, the testing phase did not only take place at the end, but it was a constant loop of feedback and iteration whenever it was possible.

Once the prototype was completed, it was time to test it and check with them how effectively it met their needs, understand their perception, and understand if it accomplished their goals. One of the prototype embedded with red spinach seeds was used to test- it was possible to easily write and print on the produced prototype. Post use, the paper was cut into pieces and planted in the soil. After few days, as the paper decomposes in the soil, the seeds start to germinate, thereby ensuring sustainability and afforestation.



1.

HOMEMADE PROTOTYPE
(5" X 5", ~ 100 gsm)



2.

CAN BE WRITTEN ON IT



3.

POST USE, IT CAN BE PLANTED IN THE SOIL



4.

SEEDS GERMINATE

Contribution of NewGen IEDC: NGI - NewGen IEDC provide access to Computer & Prototyping facilities and facilitate networking with Professional Resources, Advisors, Consultants, Rich pool of Industry Practitioners and Mentors.

Future plan: As already mentioned, apart from stationery products, we would also be dealing with packaging related areas. We plan on producing upcycled seeded carton boxes for its required purposes like delivery services, courtyers, e-commerce, etc. We also plan to collaborate with various companies in future and also with e-commerce websites to achieve this innovation, which is not seen in India till now. Thus, the simplicity of planting this paper based box after use makes it one of a kind packaging solution, aart from our other stationery products like books and cards.

Also, in future, we plan in making a sustainable product wherein we can avoid the outer carton of the toothpaste and instead provide a layer of seed paper on the toothpaste tube. We are still looking at more options on that.

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	S. R. M. Institute of Science and Technology SRM Nagar, Kattankulathur - 603203 Kancheepuram District, Tamilnadu, India, Chennai, Tamil Nadu	
Year of starting NewGen IEDC	2019	
Name of the Head/Principal of the Institution/College	Dr. C. Muthamizhchelvan Vice-Chancellor (Engg. & Tech.)	
Name of NewGen IEDC Coordinator	Dr. Shantanu Patil Associate Director- SRM Innovation, Incubation and Entrepreneurship Centre	
Contact Details of NewGen IEDC Coordinator	<ul style="list-style-type: none"> Mobile Number E-Mail ID 	
	<p style="text-align: center;">7030142727 assocdirector.iiec@srmist.edu.in</p>	
Financial Details	Sanction Order No./ Date	Amount Sanctioned
Previous Sanction Order Details	1. EDII/DST-NewGen IEDC/18-19/08	Rs. 60,00,000
	2. EDII/DST-NewGen IEDC/18-19/08 Date: 13/11/2018	Rs. 47,50,000

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1	Chef's Fiesta Conferences 23/10/2020	Chef's Fiesta is a flagship event from CodeChef SRM Chapter with various interesting sub-events like a Projectathon, Webinars featuring special Guest Speakers, Technical and Non-technical Quizzes, The Second version of Our Coding Contest APOC 2.0 and Article writing contest on technical and non-technical topics.
2	International Conference on Electronics, Photonics and Smart Technologies (ICePhaST- 2020) Conferences 16th -18th November 2020	Conducted by ECE Department Chief Guest - Padmashri Dr. Mylswamy Annadurai Padmashri Dr Mylswamy Annadurai Former director, Indian Space Research Organisation Satellite Centre, (ISAC) as the chief guest of the event ,delivered a technical talk on 'SMART Technologies in emerging space programme'. Young and budding researchers in the field of photonics and optical dependent satellites were absolutely inspired by his speech. Faculty at SRM IST, researchers and students were very proud, delighted and enthusiastic to have him as the chief guest at the virtual meeting.

Sr. No.	Activities	Outcome/Achievements
3	Apoc 2.0 – Coding Contest 23rd & 31st October 2020	An online competitive coding contest to flaunt your coding skills and hack problems.
4	Abhivyakti Contest 23rd October 2020	An article writing competition on technical and non-technical topics to hone your language skills!
5	CONCEPTO Contest 26th October 2020	Innovation is the change that unlocks new value. The crusade for innovation however is one that cannot be traversed alone. Sharing knowledge with the world is one of the cornerstones of innovation and this principle is realized with CONCEPTO. Learn from twelve speakers hailing from various industries such as General Electric, Amazon, Google, and Morgan Stanley, to name just a few. These speakers are some of the most experienced professionals in their field, a diverse panel of individuals indeed because knowledge shared should not be kept exclusive to a field and its people, but instead be within reach of all those who wish to pursue it
6	PATENT DRAFTING WORKSHOP Date: 05/01/2021 No. of Participants: 31	Speakers: Mr Arun S. Venkatraman Founder & Global Head Invenk Solutions, Chennai, India The workshop was conducted with the view of creating a group of people, skilled in patent drafting, who can help and support innovators to file patents. This will help us to save patent drafting costs and also help increase the number of patents filed from our Institute. The topics covered includes Introduction to Intellectual Property, Important Clauses and Rules of Indian Patent Act ; Patent Analytics, Prior Art Search and Understanding Patent Documentation
7	Patent School Lecture Series – S01 by Dr. A. Balaji Ganesh Date: 03/02/2021	A Workshop Series to light up the grey areas of Intellectual Property Rights so that every faculty members and students of SRMIST will have a clarity on protecting their idea in a professional way. This workshop series will walk you through sessions that discuss Idea generation, protection and revenue generation out of the same. To start with, we announce the first workshop in this series on “Idea generation and Patentability Aspect Analysis”
8	Patent School Lecture Series – S02 by Dr. A. Balaji Ganesh Date: 05/03/2021	“PATENT SCHOOL 2” – A Workshop Series to light up the grey areas of Intellectual Property Rights so that every faculty members and students of SRMIST will have a clarity on protecting their idea in a professional way. The second workshop in this series on “Patent Search ; Patent Drafting”
9	Defence Hackathon (Date: 22/3/2021 Participants :200)	We launched the Defence Services Hackathon to tackle the various challenges faced by our brave soldiers in the armed forces. With the active participation of the Tamil Nadu defence corridor,

Sr. No.	Activities	Outcome/Achievements
		12 problem statements across various domains of software, IOT, AI/ML and hardware were selected for this hackathon. Nearly 54 teams of around 200 students and researchers participated in this virtual hackathon. It would be pertinent to point out that these included a team of High school students, students from a fine arts college along with research scholars and engineering students.
10	HackTrix Hackathon Date: 2nd - 4th April	<p>An international virtual hackathon-like-no-other with an add-on Conference. Interact with like-minded individuals as you hack your way up the leaderboard, going toe-to-toe with the best in your field as you leave your mark on the world of coding. Innovate, inspire and work towards making your ideas a reality and win lucrative prizes and SWAGs as you prove yourself to the world throughout a three-day spree of a pure coding frenzy</p> <p>Speakers Devasheesh Saxena Principal Architect & Global Delivery Leader for Digital Business (QuEST Global)</p> <p>Satya Iyengar Head Of Engineering, Aero-structures QuEST Global</p> <p>Suresh Paulchamy Co-Founder & Director of Technology and Analytics Fibonalabs</p> <p>Akshay Saini Software Engineer II (Uber)</p> <p>Soham Dixit Engineer III American Express</p> <p>Alon Grinshpoon CEO (echoAR)</p>
11	Patent School Workshop: 3 16/04/2021	“PATENT SCHOOL 3” – A Workshop Series to light up the grey areas of Intellectual Property Rights so that every faculty members, research scholars and students of SRMIST will have a clarity on protecting their idea in a professional way. The third workshop in this series on “Effective Patent Drafting Strategies; Patent Commercialization Plans”
12	Triumph Talk Series Date :28/5/2021 Participants :35	<p>Hrishikesh Datar, CEO/Founder of Vakilsearch.com; India's largest legal, tax and compliance platform. Enjoying every minute of working with our incredible team as we dare to do the impossible. Passionate about making India's legal and compliance structure the simplest to navigate in the world</p>

Sr. No.	Activities	Outcome/Achievements
13	IPR Awareness Session Dept. of CIVIL : 21.01.2021 No. of Participants:20	Session with Department of Civil Engineering to sensitise Faculty and students about importance of Patents and Copyrights.
14	IPR Awareness Session Dept. of BIOMEDICAL: 29.01.2021 No. of Participants:5	Session with Department of BIOMEDICAL Engineering to sensitise Faculty and students about importance of Patents and Copyrights.
15	IPR Awareness Session Dept. of EEE: 02.02.2021 No. of Participants:15	Session with Department of EEE Engineering to sensitise Faculty and students about importance of Patents and Copyrights.
16	IPR Awareness Session Dept. of AUTOMOBILE: 05.02.2021 No. of Participants:18	Session with Department of AUTOMOBILE Engineering to sensitise Faculty and students about importance of Patents and Copyrights.
17	Introduction on IPR & Startup Policy Dept, of ECE No. of Participants:21	Session with Department of ECE Engineering to sensitise Faculty and students about importance of Patents and Copyrights.

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	Entrepreneurship Awareness Camp 2nd Sep 2020 to 9th Sep 2020 (140 students)	Reflections, Team Formation Work on problem market fit, Reflections Work on their BMC, Meet some prospective customers and do an interview (videos of the interview to the posted), Reflections
2	Institute's Innovation Council Orientation Session on Design Thinking 30th November 2020	Dr. B. Samuel Jacob Innovation Ambassador – SRM IIC Associate Professor (Dept. of Biotechnology) College of Engg. & Tech. SRM IST
4	Seven Days Faculty Development Programme on Recent Advancements in Electric Vehicle Technologies EACs & FDPs 8th -14th December 2020 Participants : 232	Environmental concerns due to emissions and the depleting fossil resources are turning the attention of the automobile manufactures and the public. Program Theme : R&D and Innovation Program Type : Workshop
5	Workshop on Process of Innovation Development 14th December 2020	Mr. Arjun Panchal Founder - PapaZapata Author - What Happens in America Startup Mentor
6	Entrepreneurship Development Phases 3rd December 2020	Ideate – Dr. R. Chandrasekhar Menon Founder – Swift MBA. Execute – Mr. P. Balaji Anand First Employee Kira Engineers. Scale – Ms. Lakshmi Surya Proprietor, Oyil Design Studio.
7	National Innovation & Startup Policy Awareness Program Tech Talks	School / Department. Wise awareness created
8	Opportunities in Defence Sector by Dr. T K Varadarajan about various opportunities for startups and innovation. (120 students and faculty) 17th February 2021	SRM Institute of Science and Technology (SRMIST), Kattankulathur in association with Tamil Nadu Defence Industrial Corridor planned a Defence Forces Hackathon in the institute's premises. The hackathon's aim was to identify and support student and faculty teams for the development of technology/products for the Defence sector. A special emphasis on indigenization of all aspects of the technology and products supporting the Indian Armed Forces (Army, Navy, and Air Force) is placed. Dr. T K Varadarajan, Nodal Officer, Directorate General of Quality Assurance (DGQA) Facilitation Cell, shared various opportunities in the Defence sector and how the Government is supporting Defence Startups with students and faculty.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Workshop on Design Thinking 09.07.2020 - 11.07.2020	Workshop conducted for students of KTR Campus with Design Intellect. The participants were introduced to the concepts and practice of Design Thinking for product development
2	Innovator's life and crossroad motivational talk 19.06.2020 Participants : 83	Objective : The journey of an Entrepreneur Understanding the journey of an Entrepreneur from ideation to execution Program Theme : Startup Program Type : Leadership Talk
3	Workshop on Entrepreneurship and Innovation as Career Opportunity 25.06.2020 - 27.06.2020	Objective : motivational speech towards entrepreneurship. Star Performer : Mr. J Sabastian Sathish Program Theme : Motivation Speech Program Type : Startup
4	Workshop on How to plan for Start-up and legal and Ethical Steps 20.08.2020 - 21.08.2020	The overall objective of this workshop is to provide a strategic plan is a key component of planning for growth Business in Start-up journey. Also to prepare a realistic vision for the future of business and maximize business' potential in Start-up journey, legal and Ethical Steps to be followed during the Start-up journey
5	SIIC's Training Series Start-up Coach 101(40 Faculty members) 14th -19th August 2020	Faculty development program for SRMIST. Sensitisation workshop for the faculty of Kattankulathur Campus on Entrepreneurship and Innovation. .
6	Session on identifying Intellectual Property component at the early stage of Innovation 24th August 2020	Webinar on IPR, Copyrights and Trademarks for students and faculty of SRMIST, Chennai
7	Workshop on Business Model Canvas (BMC) Competition 11.09.2020	Competitive session for Final year E&T Students who participated in the Entrepreneurship Awareness Course
8	Workshop on New Product Development & Entrepreneurship Opportunities 7th -12th September 2020 Participants : 82	A workshop on "New Product Development and Entrepreneurship opportunities" Take Away <ul style="list-style-type: none"> • Out of box thinking • Customer satisfaction • Business strategy to ground execution • Creative conversations

Sr. No.	Activities	Outcome/Achievements
		<ul style="list-style-type: none"> Need for agility Shifting the culture Program Theme : Entrepreneurship Program Type : Workshop
9	My Story - Motivational Session by Successful Entrepreneur/Startup founder. 7th October 2020 Participants : 135	Objective : motivational speech towards entrepreneurship. Star Performer : Dr. Giriraj Kumar S Program Theme : Motivation Speech Program Type : Startup
10	My Story - Motivational Session by Successful Innovators 28th October 2020 Participants : 190	Objective : motivational speech towards entrepreneurship. Students and faculties gained knowledge on Entrepreneurship. Program Theme : Motivation Speech Program Type : Entrepreneurship
11	Industry talk on Innovation from Renewable Resources at L'OREAL 31st October 2020 Participants : 139	Innovation from renewable resources at L'OREAL. Program Theme : R&D and Innovation Program Type : Workshop
12	Workshop on “Entrepreneurship and Innovation as Career Opportunity” Workshop 18th October 2020 Participants : 168	Objective : Innovation as career. Motivation to students to step into a new frame. Program Theme : Innovation Program Type : Workshop
13	Technical webinar on Machine Learning and it's application in outdoor insulators assessment 9th November 2020 Participants : 176	To provide a basic understanding of machine learning and to give an overview of recent research trends across different domains. Speaker : Dr. Aymen El-Hag, SMIEEE Program Theme : R&D and Innovation Program Type : Workshop
14	Session on Problem Solving and Ideation Workshop Workshop 11th November 2020 Participants : 196	Objective : Students given insight about how to think in different perspectives. Students gained knowledge on how to convert their ideas into business. Program Theme : Entrepreneurship Program Type : Workshop
15	Pitching workshop & linkage of innovators with Innovation Ambassadors Workshop 20th November 2020 Participants : 200	Objective :Pitching workshop linkage of innovators with Innovation Ambassadors Program Theme : Entrepreneurship Program Type : Workshop

Sr. No.	Activities	Outcome/Achievements
16	FDP on Entrepreneurship 23.11.2020 - 27.11.2020	A Faculty Development Programme (FDP) is designed to train and develop professionals in entrepreneurship development so that they can act as resource persons in guiding and motivating young persons to take up entrepreneurship as a career.
17	Journey of Entrepreneur 11.12.2020	The entrepreneurial journey ought to begin with figuring out the issues within the ecosystem. An important instance may be the face recognition software program that began with the thought of capturing scholar attendance in faculties.
18	Design Validation through various model of design validation (e.g. Double Diamond Approach) 1st December 2020 Participants : 219	It is about how to work on business model canvas Speaker : Mr.G. Elavel Visuvanathan Program Theme : Innovation Program Type : Workshop
19	Workshop on Entrepreneurship Development Phases Workshop 3rd December 2020 Participants : 276	Organizer - Dr. K. Sankara Moorthy Resident Mentor – SIIC Ideate – Dr. R. Chandrasekhar Menon Founder – Swift MBA. Execute – Mr. P. Balaji Anand First Employee Kira Engineers. Program Theme : Entrepreneurship Program Type : Workshop
20	Session on Process of Innovation Development Workshop 14-Dec-20 Participants : 168	Organizer - Dr.V. Hari Baabu Resident Mentor – SIIC Mr.G. Elavel Visuvanathan Resident Mentor – SIIC Presenter - Mr. Arjun Panchal Founder- PapaZapata Program Theme : R&D and Innovation Program Type : Workshop
21	Motivational Talk by successful Entrepreneur 26.03.2021	Objective : motivational speech towards entrepreneurship. Students and faculties gained knowledge on Entrepreneurship. Program Theme : Motivation Speech Program Type : Entrepreneurship
22	FDP on Entrepreneurship 03.05.2021 - 08.05.2021	The Faculty Development program will help to disseminate the knowledge in Entrepreneurship. It empowers the participants to understand Entrepreneurship.
23	2 Days Workshop on Medical Devices, Workshop 18th &19th February 2021	Entrepreneurship, Intellectual Rights & Patents by Dr. A Balaji Ganesh The researcher and participants were exposed to different devices and products which have popped up in recent times.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any: No

3. Other important highlights (new initiatives), if any:

- 1. Maker Space-FabLab**
- 2. Tech – Entrepreneurship courses**
- 3. Design Centre in collaboration with Design Intellect**
- 4. Institute Ambassador Program**
- 5. Institute Innovation Council (IIC)**

4. Student Projects (Please provide the following details for each student project)

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
1	NIS0036 Aerem	We have devised a method to solve the increasing air pollution using micro algae as a bio filter. The micro algae absorbs the excess CO2 and other pollutants in air, thus cleaning the air and producing O2 at the same time. We believe the perfect blend of technology and biology could together solve this deadly problem.	Proof of Concept		We have completed the first phase of the project where we fabricated a prototype and a testing environment for the purpose of collecting data. Then we tested it to get the efficiency. After which we worked on the new design in order to increase this efficiency after fabricating the new design and collecting data and documenting that data, it is safe to say that we have a lab tested prototype of domestic air purifier ready with us.
2	NIS0039 COMPRESSED AIR ENGINE	That is reversing the process of reciprocating the compressor. And our main intention is to increase the efficiency by introducing value system and regeneration for compression air,	Proof of Concept Stage		Currently they have developed the final products with all interactions. They have adopted subscription-based model. Currently they have 5 Paid users.

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
3	NIS0041 Pyro- A Sanitizing Drive	The coronavirus has affected our society and livelihood. To regain back our lifestyle we need to keep our environment clean and healthy. Our project, PYRO-A Sanitizing Robot helps in achieving this task. With widespread infection and improper technology for sanitization, our robot can help in overcoming these problems. It is a semi-autonomous robot which helps in sanitizing of surroundings using UV-C tubes. The aim is to provide a low cost Sanitizing Robot. Safety is ensured without any hindrance to people working around the places where the Robot will traverse. Human Intervention is not required as the system is Fully Autonomous. It will travel along the entire floor space emitting UV-C radiation only along its way on the floor and the	Ideation		We have completed the zeroth prototype from the resources that we have and validated the product. Now we have to start purchasing the components and the fabrication has to be started (this is possible only after the relaxation from the pandemic as no one is in college to initiate the project).

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
		walls faced by the light. Since, in this fight with COVID-19, we all have to stand strong and ensure that no lapses are entertained. This system will be deployed in hospitals and commercial spaces where the chances of virus spreading are higher.			
4	NIS0042 Advanced Self Sanitizing Respirator	This project is about a medical provision that can be used to reduce the risk of transmission of communicable disease that mainly spread through air or droplets discharged from an infected person. This proposal mainly focuses on recent pandemic COVID-19 which is a highly communicable disease. This project aims to develop a respirator which includes a filtering and a sanitizing unit so that the contaminated air exhaled by the infected person cannot pass directly in the	Ideation		Components are purchased. But due to lockdown work on project is at halt as components are in SRM with our faculty not with us.

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
		atmosphere, and so it will reduce the chance of spread of infection to its nearby environment. Apart from filtering and sanitizing the air this mechanism also makes the user feel comfortable during respiration by controlling the pressure inside the mask. The filtration is performed by the wet scrubbing method aiming to filter out small enough particles and the sanitizing part is done by exposure of ultraviolet-C radiation which is the most effective way to deal viruses			
5	NIS0049 FlyLife	FlyLife has put together a plan of action which is already in effect thanks to a \$1000 seed fund from The Ford Motor Company Fund. We are currently in an R&D phase and in the process of designing a VTOL Drone with payload delivery capabilities. We aim to have a prototype ready to launch operations by November,	Proof of Concept		The project has made major progress in getting the prototype ready. The base structure of our drone has been made. Given the COVID-19 lockdown our processes have been put to a halt. The drone will be test-ready within 1 month of restarting work.

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
		<p>2020. A comprehensive roadmap has been put forward by the technical team which allows us to make improvements to the design of the prototype and logistics of the operation alike in the R&D phase. Our short term goal is to assist SRM Hospital in providing medical supplies to both, other hospitals and frontline workers, from a central source. We will expand to delivery for e-commerce platforms in a hyperlocal area and move to larger urban centres by 2022. Our long term goal is to operate a fleet of drones for delivery of e-commerce goods, e-pharmaceuticals and online food orders to a large urban centre in Chennai. FlyLife is a project jointly carried out by Enactus SRM & Team SPARS of SRMIST, KTR.</p>			

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
6	NIS0051 Curae	Medical centers work in isolation. Patient records are not digitized/transcribed and the data/record of the medical history of a patient is not readily available/accessible online or on-demand across various Hospitals. Our Idea is to provide an unruffled structure for the Medical Sector. We are providing the cloud structure for storing the data. This App will make the things easier and make the bridge between all the domain in medical departments i.e(Doctors, Patients, Diagnostic Centre, Pharmacy and Government). The app will be of great boon to those, who need urgent medication. Most people die because they don't get the proper, required treatment, at the true time. This app will be of great help to those.	Proof of Concept		Patient appointments can be seen on the dashboard calendar, along with managing appointment requests on it. An appointment list would be available on the appointment section of the dashboard, complete with the patients' name and appointment time. With the edit button on the sidebar, the doctors can edit their timings and other details, and this is also accessible through the setting tab from the navigation bar. Doctors can accept appointments from the appointment request section on their dashboard, and see the details of the upcoming appointments in the calendar tab. Upon clicking on the patients tab, the doctor can access collective and individual patient details. Doctors can add patients and schedule appointments even while offline, by clicking on the offline tab.

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
7	NIS0052 Anyview: An Efficient Refreshable Braille Pad For Visually Impaired	AnyView an Efficient Refreshable Braille Pad For Visually Impaired. This project aims to tackle the age-old conventional method of embossed paper braille system which is expensive and has limited works of literature converted. Refreshable cells is an emerging technology, wherein users can read e-books, computer screens, and other electronic supports using refreshable braille displays. The pad which contains 8 cells is portable and gives unlimited access to literature at an affordable price.	Prototype		Completed Phase 1, All Designs Ready for Phase 2

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
8	NIS0056 CCD based sensor to detect the change in biologically altered Fluorescence	This project is about using an effective method to develop a CCD (Charge Coupled Device) based sensor which can identify the characteristics of bio molecules by detecting fluorescence alterations in them.	Ideation		That First phase funds has been released and product purchase is a bit delayed due to the ongoing pandemic. The negotiation is ongoing with the supplier.
9	NIS0057 Compliance Enhanced Brace with Pressure Sensor for the treatment of Scoliosis.	Description: Scoliosis is the lateral and angular misalignment of the cervix and thoracolumbar bone in the upright position. Nearly 6 to 9 million cases are identified every year in the United States. In India, nearly five million cases are recorded every year. This issue highly affects adolescents and mostly young females. The affected people will have a deviation of cobb angle above 10 degrees from normal. The current treatment for Scoliosis is Spinal fusion surgery and Brace	Ideation		Designing of Brace using Fusion-360

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
		<p>treatment. Brace treatment is found effective in managing the curve progression and reduction of the Cobb angle. Braces apply pressure in the curvature to stop further progression and slows down the curve progression by maintaining the body in the correct posture. The patient finds the braces burdensome both emotionally and physically. Several braces resulted in complications like a pressure sore, a decrease in glomerular filtration, and muscular dystrophy. Our work focuses on developing a Brace design with improved compliance, with an added advantage, and at low cost. Pressure sensor assisted brace could sense the corrective pressure application and helps in maintaining the compressive pressure to get rid of pressure sores. The quality of life of</p>			

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
		patients who undergo this brace treatment is evaluated using Brace Questionnaire (BrQ). This helps in analyzing the efficiency of the developed brace in general health perception, physical functioning, emotional functioning, self-esteem and aesthetics, vitality, school activity, bodily pain and social functioning.			
10	NIS0058 Concrete Casting Mould	Usually Cast iron moulds which uses bolt and nuts take much large time for assembling and disassembling. Our solution for this is moulds made of HDPE with toggle clamps, this reduces the time at a larger margin, that the entire casting can be done within a short span of 15 minutes.	Ideation		Prototype -1 is ready for material testing Final Design is ready for manufacturing Note: Delay in project is due to covid situations; Waiting for the reopen of Milwright Workshops.

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
11	NIS0059 Portable Electric Crop Harvester	A portable device that can be easily used to harvest crops.	Ideation		Design Phase.
12	NIS0066 Development of Compression Techniques to Transmit HD Images / Videos over Half-Duplex Very High Frequency (VHF) band.	We are working out ways to innovate present Digital Image & Video Processing Techniques to achieve maximum quality well within the Compression Ratio range of 1:50. We will be simulating the whole algorithm and Processing Technique on MATLAB & Simulink. Which will be followed by designing of an Application Specific Integrated Circuit (ASIC) as a Digital Signal Processor, which will be coded by exporting the Simulink Model into a Verilog File and later will be synthesized using Intel	Proof of Concept		1. Developed Image Processing Technique for Thermal Images on MATLAB. 2. Developed Compression Algorithm on MATLAB. 3. Currently Developing Encryption Model for the same. 4. Working on Verilog & HDL Coding for FPGA Implementation.

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
		Quartus Prime Design Suite. In the meantime, a hardware Printed Circuit Board (PCB) will be designed under IPC-A-610			
13	NIS0069 Surveillance System using Raspberry Pi	Security systems are inherently technology intensive and require substantial investment of time, money and resources. The motto of the project is to develop a self-powered surveillance system that is capable of identifying and classifying moving objects (both humans and vehicles) in long range with sophisticated alarm systems that notify at first sign of trouble, during the day or night. It can be implemented using a Raspberry Pi, surveillance device and alarm system. Implementation of additional modules such as object segmentation & detection and improving the quality of incoming video will be heedful add-ons to	Proof of Concept		Currently, few of the mentioned software modules have been developed and others are under progress. Hardware will be set up post-purchasing and will be integrated with developed software modules.

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
		the system in real-time environments. The presence of such a system will serve as a deterrent to would be thieves and prevent undesirable happenings in the neighborhood.			
14	NIS0024 Design and development of a Crop Quality Monitoring and Classification System using IoT and Blockchain	Design and development of a crop quality monitoring system with aim to a) Sensing the various parameters on-field and warehouse to determine the crop quality. b) To update this data into the blockchain. c) To enable a secured transaction between the distributor and the farmer.	Ideation Stage	The sensors were calibrated to obtain better accuracy and first implemented in the horticulture department for testing purposes. For real-time data, 6 bags were taken, and seeds sown with the soil	Currently they are working on second prototype for big area of agriculture land and setting up their device at various location to understand characteristics of soil at various position, accordingly they will notify to farmer through mobile/web app.

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
				<p>containing fertilizers as well. The crop was monitored throughout the growing stage and tomatoes were obtained. The sensor data was recorded and stored in the database classification of quality. The private Ethereum blockchain network was built initially to visualize the working efficiently.</p>	

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
15	NIS0025 Design of wearable full duplex Digital Transceiver for underwater optical wireless communication	A wearable full-duplex digital transceiver based on blue LED for high speed data communication such as audio/video Under working condition.	Ideation Stage	They have created digital model to test their all ideas, all the simulations have been completed and the results have been verified, analyzed and tabulated.	Currently they have procured all the required resources for development of their first prototype to experiment and check the results in real systems.
16	NIS0033 Design Development and Implementation of parallel drivetrain for 3 wheelers	Design Development and Implementation of parallel drivetrain for 3 wheelers	Digital Cad designs and simulations were ready.	To test their concept, they had created digital model and run all the simulation to study the performance. Results were convincing	Currently, they have procured all the required components and have finished all CAD designs of mechanical parts and PCB board designs.

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
				based on that they have finalized all components for their first prototype.	
17	NIS0035 Automated Audiometer to Assess Acoustic Threshold using Pure Tone generation method	Automated Audiometer to Assess Acoustic Threshold using Pure Tone generation method	Ideation Stage	They have created digital model to test their all ideas, all the simulations have been completed and the results have been verified, analyzed and tabulated	Software got over, Hardware (PcB pending) & searching for components and go for testing. Not raised
17	NIS0071 Myopia Tracker	Development of Smart spectacles to monitor and modify myopia related health behavior in children	Proof of Concept		Design Phase.

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
18	NIS0072 Smart Waste Bin Capable of Automated Waste Separation with real time tracking and recycling of used food	Smart bins are an intelligent form of waste disposal. By scanning waste materials defining bio-degradable / non-biodegradable, recyclable / non-recyclable waste materials, the smart bin can be used to complete the whole waste segregation process here. It will have different chambers for each waste segment and will segregate the equivalent waste into one. Finally, when the bin is filled and ready for emptying, notifications are automatically sent via e-mail.	Ideation Stage		Design Phase

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
19	NIS0073 IOT based non-invasive blood parameter tracking system	Through this project we aim to design and develop a system which is capable of tracking various blood Parameters like haemoglobin levels, insulin levels etc. with our primary focus on blood sugar level tracking. We aim to design a simple tool to reduce manual labour and eliminate the use of needles to procure blood samples and providing a painless and hygienic method to measure different parameters.	Ideation Stage		Design Phase

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
20	NIS0074 Tessellate	<p>As the entire world is moving forward towards industry 4.0 and Internet of Things will be at the core of it.</p> <p>This had made accessible internet and connectivity with one another in all spaces cardinal and of the utmost importance.</p> <p>We want to bridge the gaps that the current network solutions hasn't covered and provide a system which will keep us in the network in every situation possible.</p>	Proof of Concept		Design Phase
21	NIS0075 Oxygen Concentrator	We aim to build a portable oxygen concentrator prototype with built in IOT system that will help family members or doctors to monitor and adjust the oxygen level of the patients through another device without being physically present near them.	Proof of Concept		Design Phase

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
22	NISD0011 Snow Destroyer	A vehicle to clear out snow in HAA using a hybrid snow destroying system.	Prototype		Design Phase.
23	NISD0012 L.A.N.D (Landslide Arrester For National Defense)	The main aspect of our proposed solution involves developing a dynamic artificial root system to hold the soil. The length of these mechanical roots can be modified as per the soil requirements after they are inserted into the soil. The root would have multiple cilia-like structures to help hold the soil and connect loose soil to the more stable variant. We would also use a moisture detecting system (a moisture detector + a microcontroller) that will detect changes in moisture levels of the soil and send an alert when the moisture level crosses a pre-set upper value. Multiple mechanical roots in bulk along with more conventional methods like ropes to minimize damage can be	Prototype		Our current status is as follows:- 1) Optimisation of weight (weight/density ratio) to reduce amount of material used, thereby reducing production costs. 2) Some materials for the root body have been short-listed. The list maybe updated further based on various requirements for different areas. 3) Further optimization of actuation mechanism to increase effectiveness and maximise grip 4) Study about required modifications to shape of tentacles as per the requirements of different regions (varied practical aspects) 5) Length optimisation for modularity is still under debate 6) Top drill type is to be modified but an addition of concrete injection is under discussion 7) Further analysis and updated CAD

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
		used.			simulation are under progress. 8) The actual amount of material required is yet to be known as it has to scaled down for prototyping purpose . (So we would be modifying this bill submitted in this form) 9)We request you to release funds when we come to campus as we would not be able to work from home due to lack of resources and diversity in location of our team members .
24	NISD0013 Fire Extinguishing Bomb	Use of fire extinguishing balls as part of a proposed system, where drone and remote-sensing technologies are utilized cooperatively as a supplement to traditional firefighting methods. The fire extinguishing ball will have an explosive that will help disperse the CO2 gas and/or ABC dry powder and also create a shockwave that will doze off the fire. For remote sensing technology, we propose a drone system that will carry these fire	Proof of Concept		The designs have been updated and have been given a overhaul treatment. The build of Materials as well as the materials used for the different components have been re-evaluated and have been updated. So far we have been going relatively with accordance with the proposed schedule, with this period being the period of design updates and modifications, which are being successfully conducted.

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
		extinguishing balls as a payload to be dropped at the areas where it will be difficult to reach using conventional fire fighting methods.			
25	NISD0014 Salad Flight Simulator (SFS)	This is a flight simulator to train pilots to handle a aircraft without any risks. So even if you crash or do something risky. We don't need to worry about their life because it's just a virtual simulator and it is supported by so many cockpit controllers and that's the iconic part of this simulator and it is a VR simulator and can even be played on LowEndPC...		Prototype	Design Phase.

Sr. No.	Team/ Project Name	Description	Project Status Beginning of the year	Intervention Made	Current Status
26	NISD0015 Smartisation of Anti Infiltration Obstacle System	Border security forces are diligent in eradicating infiltration across borders to establish peace in the country. By introducing a smart system, we would lend them a hand in escalating peace across the country and ceasing infiltration of foes across borders. The need of the hour is to design an automated border surveillance system which can perform the surveillance task without requiring any human assistance.	Proof of Concept		Design Phase

- Please Submit three/four high resolution (at least 300 dpi) pictures in jpeg format showing the prototype/product along with the students and their mentor.

Link: <https://drive.google.com/drive/folders/1S-9Ram7aSbE0KOH3R1dpct81ITXtUhDn?usp=sharing>

5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

- Student team details (with contact information)
- Brief description about the student start-up
- Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs
- Contribution of NewGen IEDC in the same
- Future plan

Link:

Project 1:

<https://drive.google.com/drive/folders/1nD5w1NgbR6mFS70d8USHzqpNrOYeBIY0>

Project 2 : <https://drive.google.com/drive/folders/1HzbcZi8PwrYH4FhSkJu-2iPl6fEzOrjd>

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	C. V. R. College of Engineering	
Year of starting NewGen IEDC	2018-19	
Name of the Head/Principal of the Institution/College	Dr. K. Nayanathara	
Name of NewGenIEDC Coordinator	Prof. P. Viswanath	
Contact Details of NewGenIEDC Coordinator	Mobile No: 9440575769 E-Mail Id: panchagnulaviswanath@gmail.com	
Financial Details	Sanction Order No./ Date	Amount Sanctioned
Previous Sanction Order Details	1 EDII/NewGen-IEDC/2018-19/09	60,00,000
	2 EDII/NewGen-IEDC/2018-19/09	47,50,000

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1	One Week Entrepreneurship Development Programme on "Start-Up Entrepreneurship in IT sector" Conducted by NEDC, New Delhi for 80 students of our college	The students are able to recognize the innate entrepreneurial competences within them. They are able to recognize and assess opportunities in the environment. They understand the role that entrepreneur can play in enhancing their lives and lives of others.
2	One year internship programme on "Entrepreneurship" conducted by T-Tribe (T-Hub, IIIT, Hyderabad) for 58 students of our college	It was a wonderful platform for our students to interact with several Entrepreneurs who delivered sessions on various Entrepreneurial topics. It has helped the students to develop entrepreneurial mind set, learn enterprise initiation and develop entrepreneurial skills.
3	One Day "Awareness Programme-2020 on MSME" conducted by National Small Industries Corporation (NSIC,	Students are now in a better position to know what types of Entrepreneurial opportunities are there even in rural markets. They also have clearly understood the type of technical and

Sr. No.	Activities	Outcome/Achievements
	Hyderabad) Ltd. on 3 March 2020 for 100 students	financial support which NSIC can give to students especially for Start-ups in rural areas.
4	Two Months “Entrepreneurship and skills development programme on Web Developer” organized by National Institute of Small and Medium Scale Enterprises (ni-msme, Hyderabad) from 15 October to 31 December, 2020	Students have got deep insight into the scope of Entrepreneurship in Web Developer and have the required skills for Web development

[B] To identify, develop & commercialize students’ innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	Ten students participated in Hackathon on “Hack for the Need” organized by Vaagdevi College from 6 April 2020 to 11 April 2020	Team of 4 students stood first in the Hackathon
2	5 Campus Ambassadors from our college for E-Cell, IIT, Hyderabad	2 students stood second in the Case study competition conducted by IIT, Hyderabad
3	Nineteen students participated in “A Three-Day webinar Wake Up Call-Virtual Wisdom Event for Aspiring Entrepreneurs” which was organized by Anurag University on 17, 18, 19 July 2020.	Students got a better insight on issues such as novelty and competitiveness of idea, marketing, financial projections and other aspects to make a compelling argument for their business idea.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	One Day workshop on “Need Identification and Ideation” on 27 December 2020 for 80 students	The guest speaker gave valuable inputs to the students on how a need can be identified and become the source of ideation.
2	One Day workshop on “Creativity, Innovation and Ideation” 21 December 2020 for 120 students	It was an interactive session with students coming up with excellent innovative ideas and it helped bring out their creativeness.

Sr. No.	Activities	Outcome/Achievements
3	Two Day workshop on “Make in India and Entrepreneurship” on 2 and 3 January 2021 for 135 students	The students could come up with solutions to real time social problems faced in India which were discussed at length.
4	30 students participated in E-Seminar on “Industrial E technology on medical and Bio medical Sector” organized by Indian Chamber of Commerce on 1 July 2020	It broadened the knowledge on implementation of technology in medical and bio medical sector.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any: NIL

3. Other important highlights (new initiatives), if any: NIL

4. Student Projects (Please provide the following details for each student project)

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
1	AI Powered Diabetic retinopathy diagnosis system	Idea stage		Prototype developed Product
2	Employee Attendance Management using Face Detection	Idea stage		Prototype developed Product
3	Conversion of Solid waste into Fuel and fertilizers	Idea stage		Prototype developed Product
4	Agricultural Pesticide Spraying Drone	Idea stage		Prototype developed Product
5	Smart Electric Metering Infrastructure	Idea stage		Prototype developed Product
6	Nano Crystalline Polymer for EM wave absorption	Idea stage		Prototype developed Product
7	Smart Saline Bottle Management	Idea stage		Product development stage
8	Smart Room Lighting System	Idea stage		Product development stage
9	Cap for Visually Challenged	Idea stage		Product development stage
10	Temperature Curing on Concrete using Zeolite Textile	Idea stage		Product development stage
11	Suraksha	Idea stage		Product development stage
12	Blocks from Waste Plastic for Construction purpose	Idea stage		Product development stage
13	Non-Contact Temperature Monitoring	Idea stage		Product development stage

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
14	Pocket PI Learning Kit	Idea stage		Product development stage
15	Electrical Billing & Appliance health monitor	Idea stage		Product development stage
16	Smart Chest Measurement Unit for Police Recruitment	Idea stage		Product development stage
17	Smart Garbage Dispenser	Idea stage		Product development stage

- Please Submit three/four high resolution (at least 300 dpi) pictures in jpeg format showing the prototype/product along with the students and their mentor for each project. Enclosure 3

5. Provide a minimum two- page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

CASE-LET 1 - SMART INTERFACE FOR CONVENTIONAL ENERGY METERS

MENTOR	DESIGNATION	AADHAR NUMBER
Dr. S. Praveen Chakkravarthy	Associate Professor, Department of Electronics and Communication Engineering	2611 2255 0484
STUDENT TEAM		
G. Sohan Reddy		8588 4282 5123
GaddamSrilekha		7464 7101 1197
Sruthi Chttipalli		4591 6124 9771
NikileshAnchuri		6682 6948 8382
G.Nitin Reddy		6650 2882 0802
NannapaneniPhani Sri Harsha		5707 3487 2235

Identification of the problem:

The present system of energy metering as well as billing in India uses electromechanical meters and relatively fewer digital energy meters. It consumes more time and labour to accommodate such a vast population and geography of India. One of the striking reasons to build a smart infrastructure for conventional meters is that the traditional billing systems are inaccurate and often cannot cater to longer billing cycles. Also, this obsolete system is slow, costly and lacks flexibility/reliability.

Today, accuracy and reliability in billing is highly recommended, for which the smart energy meters provide an impeccable solution. It can provide real power consumption as well as accurate billing over long-time cycles. The processing and communication section is responsible for calculating various derived quantities from digital values generated by metering engine. It also establishes communication using various protocols and uses interfacing algorithms to connect to other modules.

The key challenge for Indian DISCOM is reducing the Aggregate Technical & Commercial (AT & C) losses. The necessity to consider AT&C losses is that it provides a realistic picture of the current energy and its associated revenue scenario. AT&C losses primarily consists of 2 elements: technical losses and commercial

losses. Technical and commercial loss bears effect on operational performance of DISCOM. Besides, it is also an indicator of the health of distribution system and billing. The elephant in the room is to reduce high AT&C losses, which will be addressed by the smart metering infrastructure.

Challenges:

- Lack of standard specification of meter
- Selection of communication technology

To combat loss and facilitate simple and user-friendly communication infrastructure, a suitable communication protocol should be deployed. The need for LPWAN comes into picture when low cost, low power and latency are considered to build a smart communication infrastructure for conventional energy meters across the country.

Motivation: To effectively balance electrical loads and power outages, streamline energy distribution through more accurate forecasting and improving transparency on monthly energy bills. To summarize, we want to achieve the mission statement of UDAY Scheme, which is “Financial turnaround of Power Distribution Companies”, and to create energy awareness among consumers, which has been the slogan of the Govt. of India.

The entire population of India who use conventional energy meters and DISCOM can use this smart infrastructure. There is no need to change or invest on conventional energy meters across the country and automatically customers will be connected to smart infrastructure gateway. The product can be purchased by Consumers and DISCOM. By collaborating with DISCOM's, we would first engage the customers about the benefits of the product which is real time energy monitoring, energy theft detection etc. The USP of the product is implementing smart energy infrastructure without hindering any communication from the customer side.

Market data for the potential idea /innovation

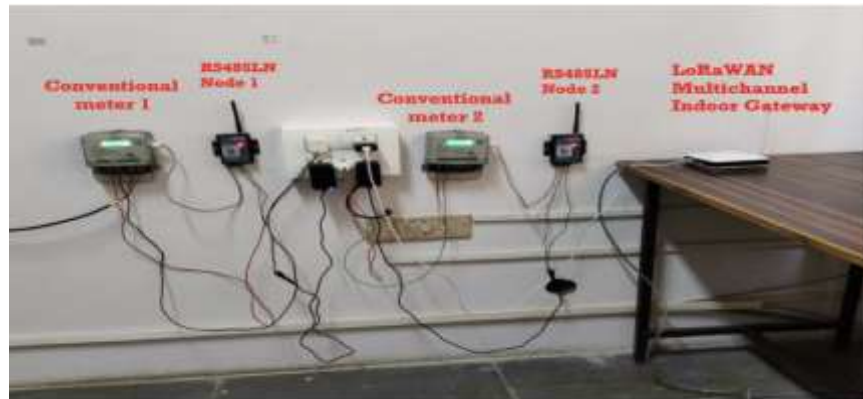
Growing demand: India is ranked sixth in list of countries to make most investments in clean energy at an estimated 90 billion USD. Growing population along with increasing electrification and per-capita usage is set to drive growth in power consumption to 1894.7TWh by 2022.

Attractive opportunities: From June 2019, government launched 5 billion USD worth tenders in transmission line in phases, to reach the 125 GW target by end of 2022. Increased growth avenues in renewable power segment is driven by the target to achieve renewable installed capacity of 175 GW by FY 2022.

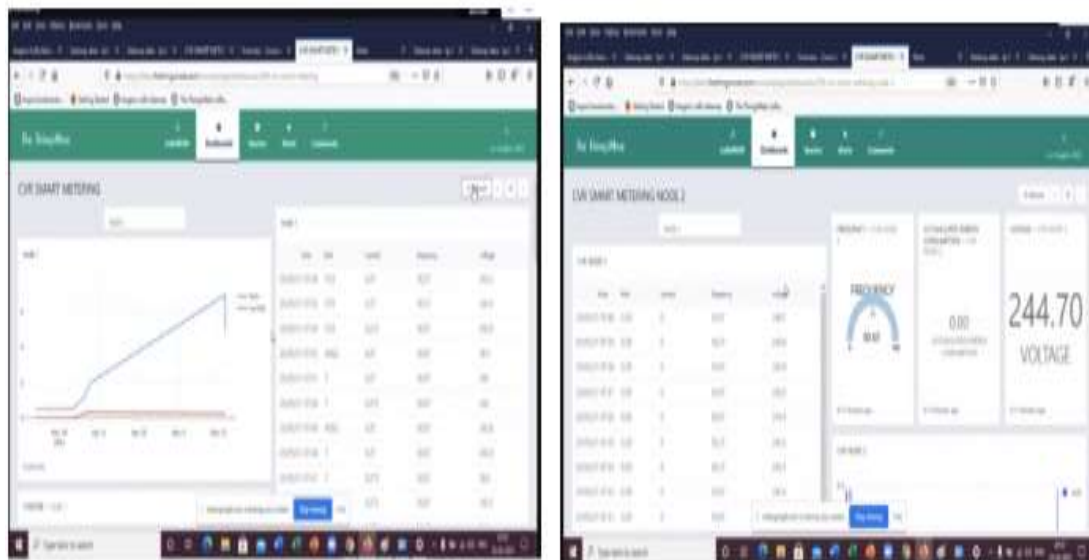
Policy support: Electrification in the country is increasing with the support of schemes like DeenDhayal Upadhyay Gram Jyoti Yojana (DDUGJY) and Integrated Power Development Scheme (IPDS).

Higher investments: As per economic survey 2018-2019, additional investments in renewable plants upto year 2022 would be about 80 billion USD and an investment of around 250 billion USD for the period 2023 -2030. In recent times, FDI inflows in the power sector reached 14.2 billion USD during April 2000 to December 2018.

PRODUCT:



DASHBOARD:



Case-Let 2 :Smart Chest Measurement Unit for Police Recruitment

Project Title		Wireless Chest Measurement Unit for Police Recruitment	
Mentor(s)		Mrs. K. Deepika, Assistant Professor, EEE Dept. and Mr. Phani Kumar K.S.V, Assistant Professor, EEE Dept.	
Student Team			
S.No	Name	Roll. No	Aadhar No.
1.	K. Shiva Kumar	18B81A0295	569669060232
2.	K. Pavan Sai	18B81A0286	686833522676

Motivation:

State level police selection process requires measurement of chest circumference of contestants for recruitment. Current methods are purely mechanical using tailoring tape method, a semi-automatic method using a measuring tape mechanism which moves between the rollers (Fig. 1 &2) with serial interface to computer for logging of data. However, this method suffers from the slackness in tape movement, due to slackness in guiding rollers. Also, the uniform gap between markings in the magnetic indexing varies over a period of usage. These issues result in inaccurate measurements, requiring repletion of or at times recalling contestants. This is a serious constraint particularly when the number of contestants is large i.e., 500 people per day. The inaccurate measurements affect the selection process, increase in process time and raise discrepancies. Therefore, there is a need of frequent replacement. State police recruitment agencies approached us for a better and robust solution.



Fig. 1: Existing Chest Measurement Unit



Fig 2. Roller mechanism

Functional Specifications and technology- Existing Solution

A magnetic encoder is placed between the reader module and when the strip is moved either way, the reading is noted as the distance travelled by the strip. A AS5306 (AS5304) with magnetic multi-pole strip magnet is used for obtaining linear motion measurement. The AS5304/AS5306 require a multi-pole magnetic strip or ring with a pole length of 2mm (4mm pole pair length) on the AS5304, and a pole length of 1.2mm (2.4mm pole pair length) on the AS5306. The magnetic field strength of the multi-pole magnet should be in the range of 5 to 60mT at the chip surface. The Hall elements on the AS5304/AS5306 are arranged in a linear array. By moving the multi-pole magnet over the Hall array, a sinusoidal signal (SIN) is generated internally. With proper configuration of the Hall elements, a second 90° phase shifted sinusoidal signal (COS) is obtained. Using an interpolation circuit, the length of a pole pair is divided into 160 positions and further decoded into 40 quadrature pulses. The data obtained is sent via serial port to PC where this information is read, and a counter is used to update the movement details of the rope/strip.

Disadvantages of existing solution – In order to provide smooth movement of the strip, rollers are attached on entry and exit ways to create a stiff path so that the magnetic poles on the strip pass only through the hall sensors. This is causing slag in the movement of strip and leading to an incorrect reading (Fig. 3). There is no pointer used to mark the exact distance measured on the strip. So, there is always a chance of manual error to be made. The whole unit needs to be moved to get the readings. The possibility of placing the unit parallel to ground is always questionable and it can affect the reading of the candidate.



Fig. 3: Measurement using existing Chest Measurement Unit in NewGen Center

Functional Specifications and technology- Proposed Solution

The block diagram of the proposed solution is shown in Fig. 4. A rotary encoder coupled with a DC motor is provided here (Fig. 5). There is a Fixed String (FS) and a Movable String (MS). MS is wound to the shaft connecting encoder and the motor. When the candidate stands in front of the measuring unit, MS will be pulled and buckled to FS. While pulling, the rotary encoder keeps a track of the shaft rotation and hence distance is calculated and noted as the pre-inhalation measurement (Fig. 6 & 7). For the post inhalation, candidate can inhale and expand his chest after a beep indication. Again, reading is noted. Once measurement is done, the buckle can be removed, and the motor unwinds MS to the initial position.

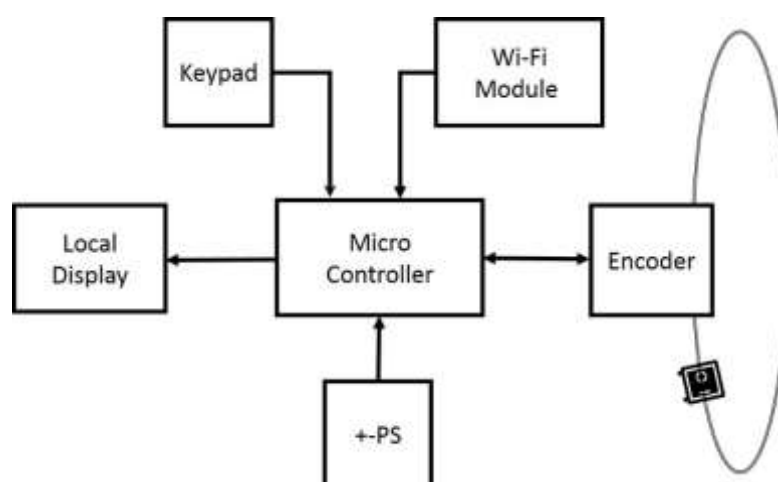


Fig. 4: Block diagram representation of proposed scheme.



Fig. 5: A rotary encoder coupled with a DC Motor



Fig. 6: Prototype-1 Chest Measurement Unit



Fig 7. Prototype-1 Chest Measurement Unit

Advantages

1. Precise measurement can be made.
2. Ease of use.
3. No slackness.
4. Autorewind availability. So, no pushing- natural tension.
5. Frequent maintenance and replacement can be avoided.
6. Holding to stand automatic reading to pc and manual.

Work in Progress

- Testing under various conditions
- Provision of inclinometer
- Wireless data transfer implementation
- Compact & Robust design of the Prototype
- Figures 8 and 9 show the POC prototype being tested in NewGen Center

Customer is pursuing this project regularly and indicated to place an immediate order for purchase of the equipment since the recruitments are to be done soon. Once the prototype is tested successfully, field trials will be done within a month time. Any further modifications needed shall be done once final the production starts.



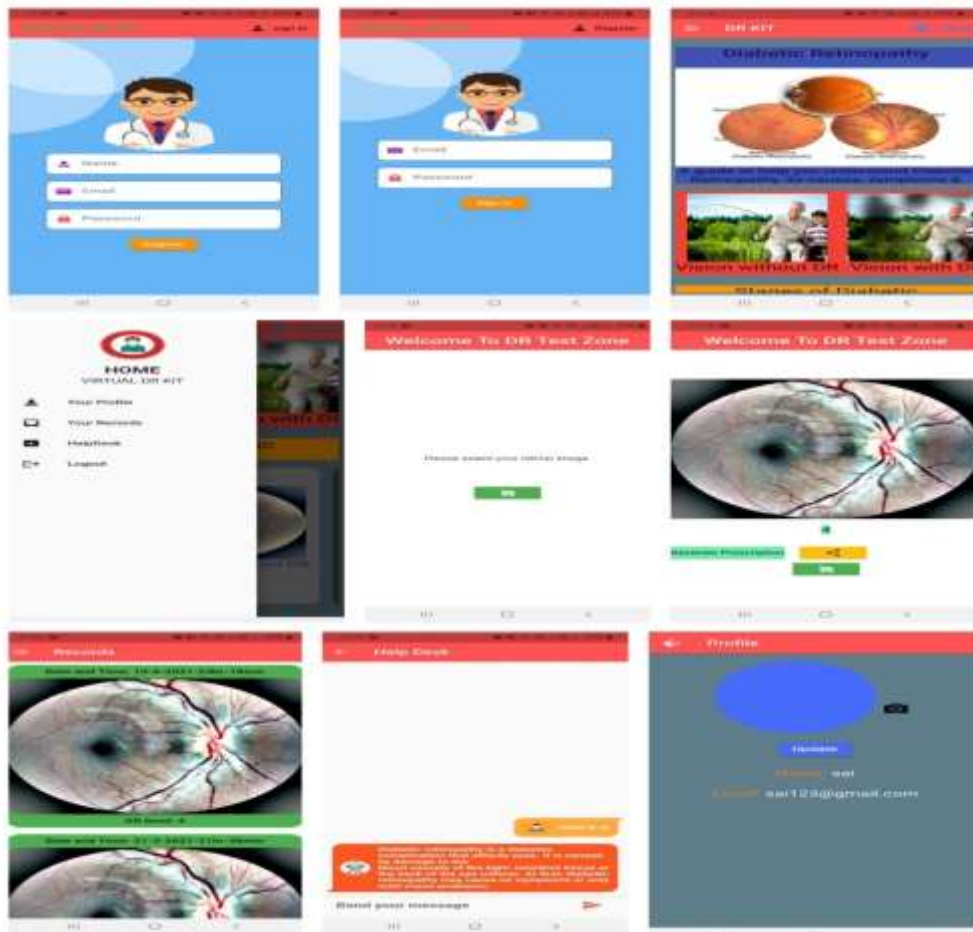
Fig.8 Digital pulse study during simulated measurement



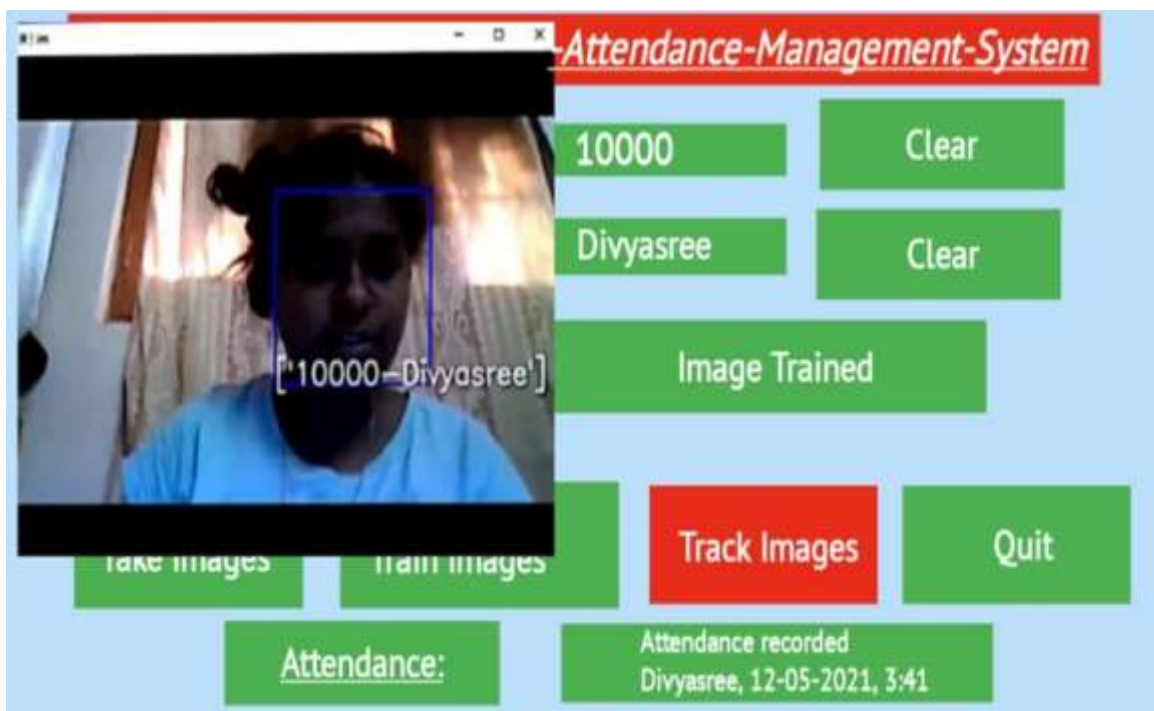
Fig.9 POC prototype for in Lab

Pics of Prototype Products developed under NewGen IEDC (2020-21)

1. AI Powered Diabetic retinopathy diagnosis system



2. Employee Attendance Management using Face Detection



3. Conversion of Solid waste into Fuel and fertilizers



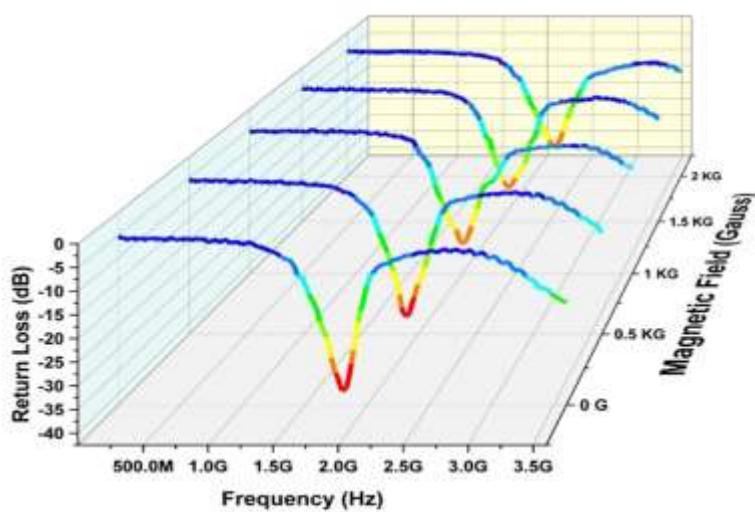
4. Agricultural Pesticide Spraying Drone



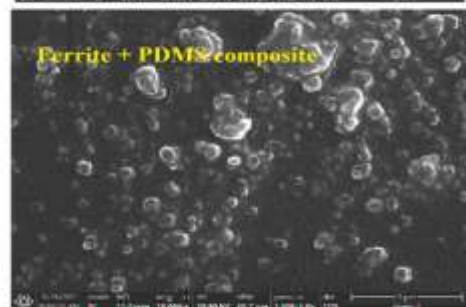
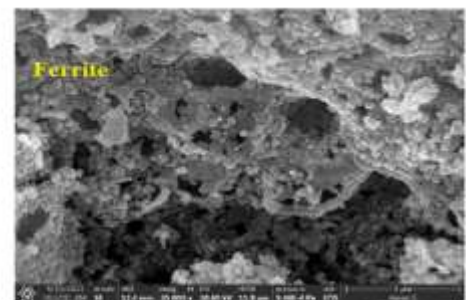
5. Smart Electric Metering Infrastructure



6. Nano Crystalline Polymer for EM wave absorption

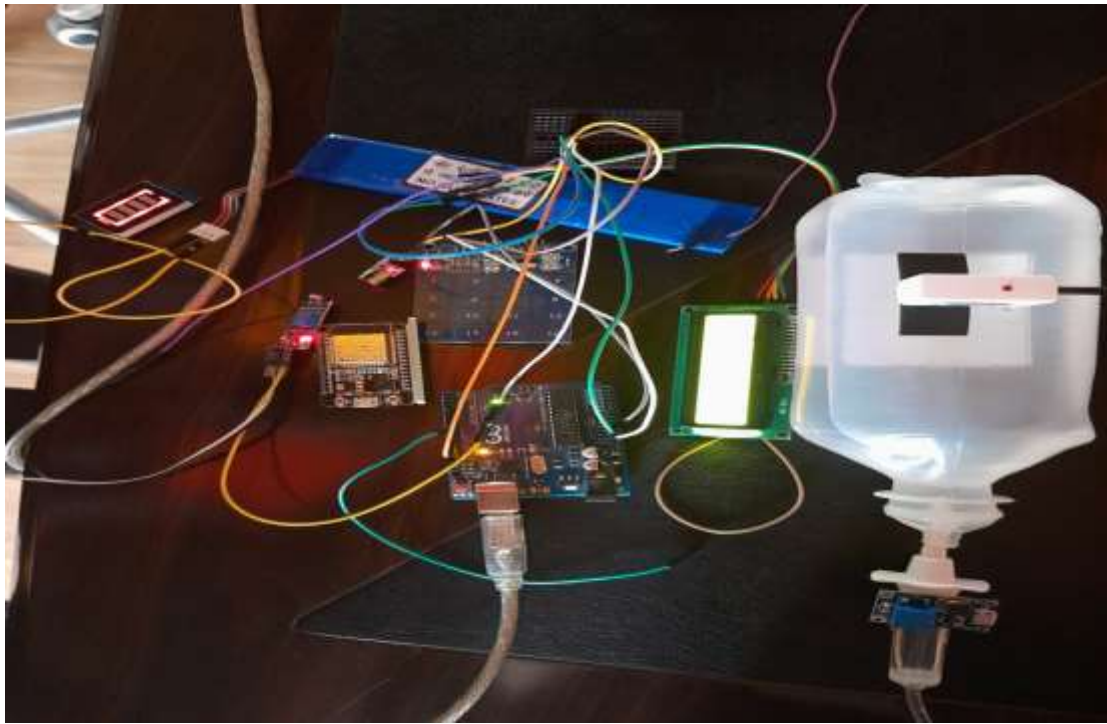


Return Loss measurement under Magnetic Field for ferrite loaded PDMS flexible composite



FE-SEM pictures of Ferrite and Ferrite + PDMS composite

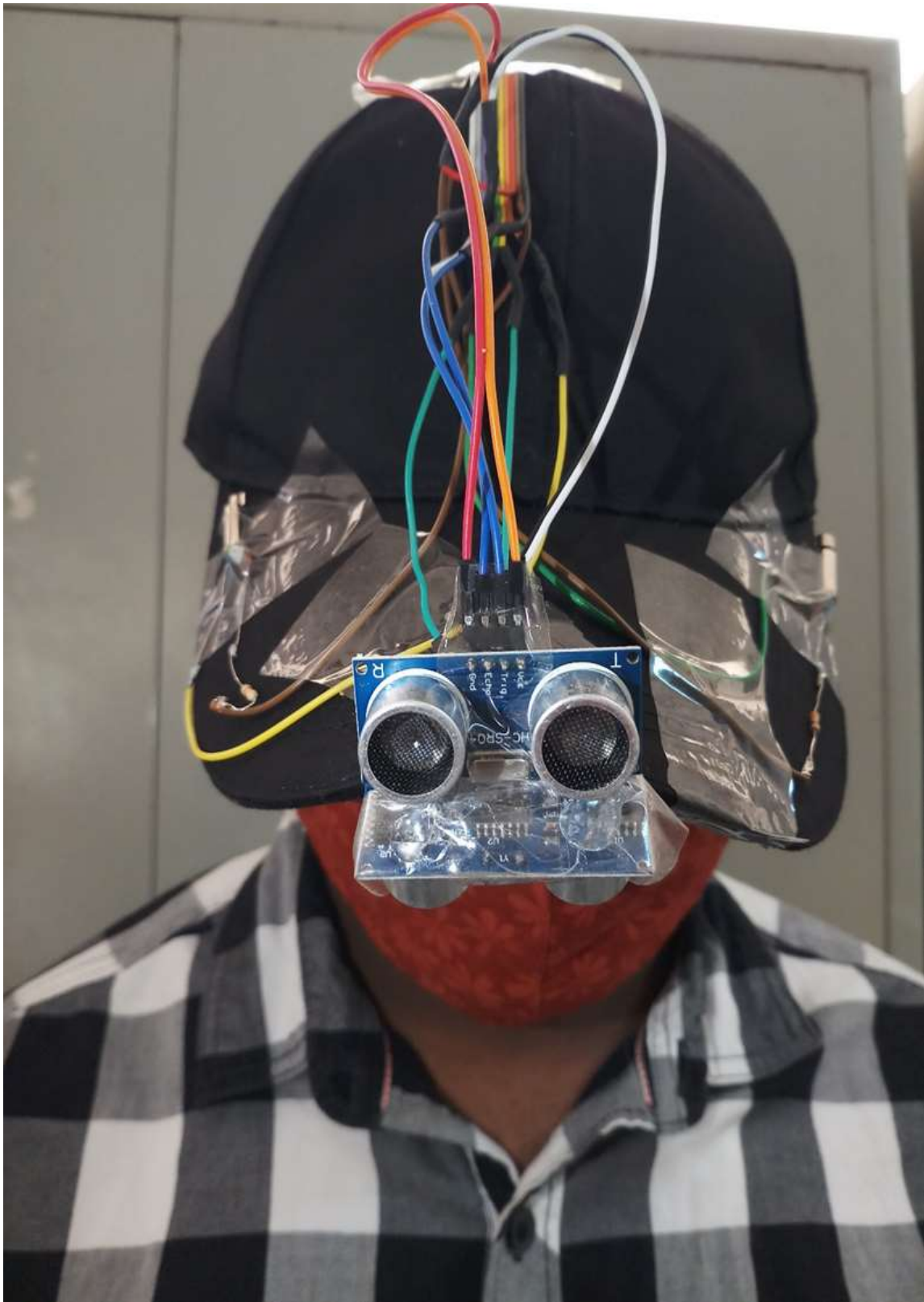
7. Smart Saline Bottle Management



8. Smart Room Lighting System



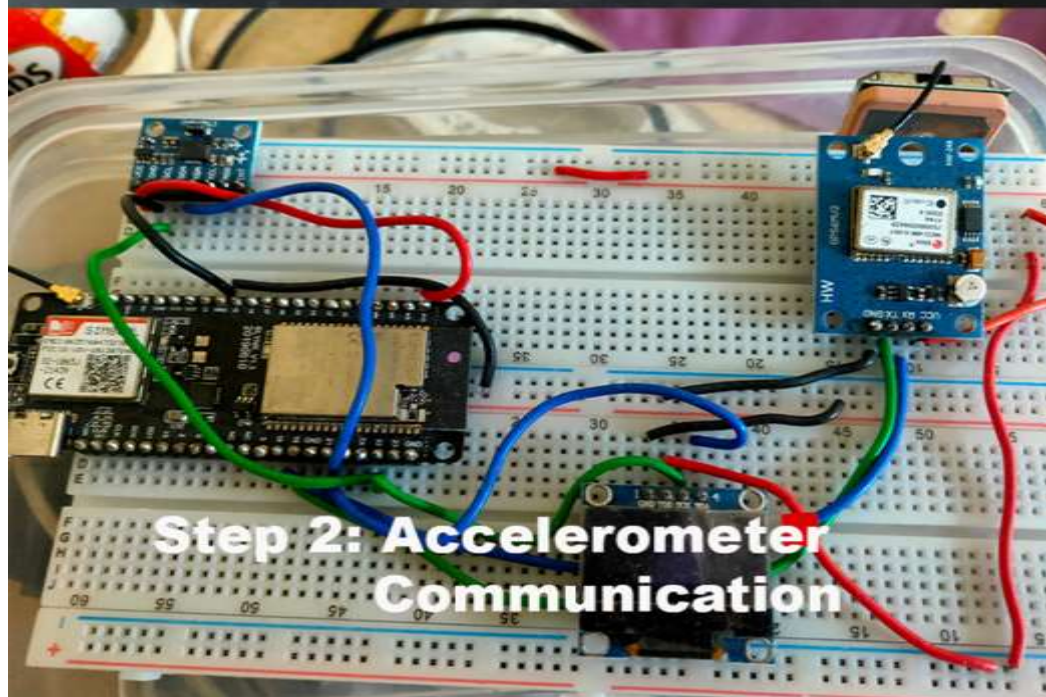
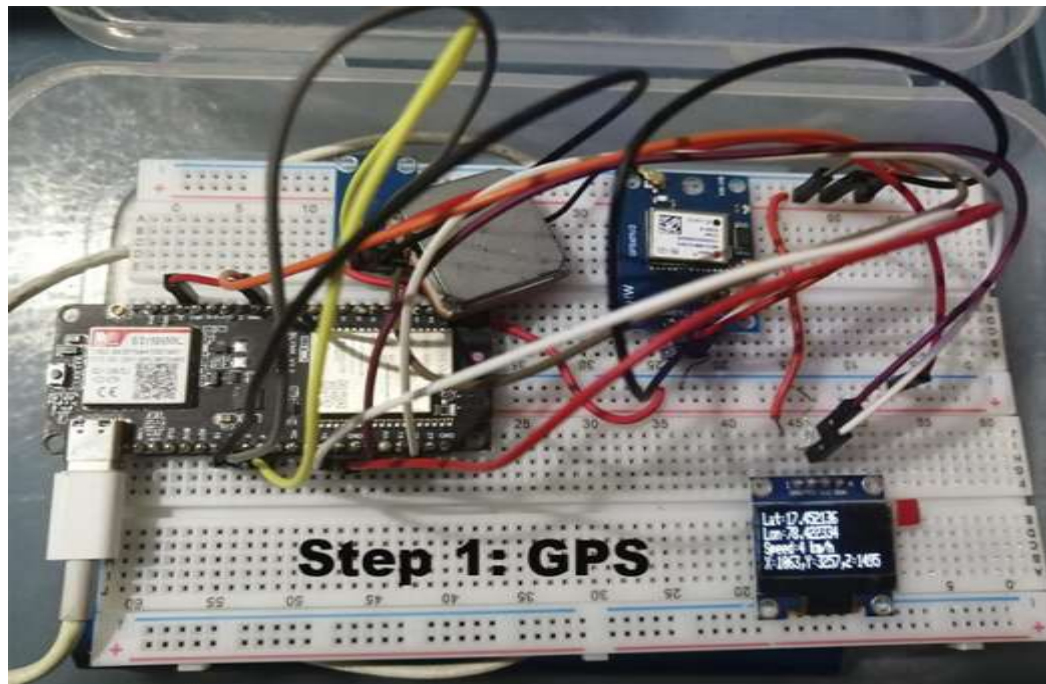
9. Cap for Visually Challenged



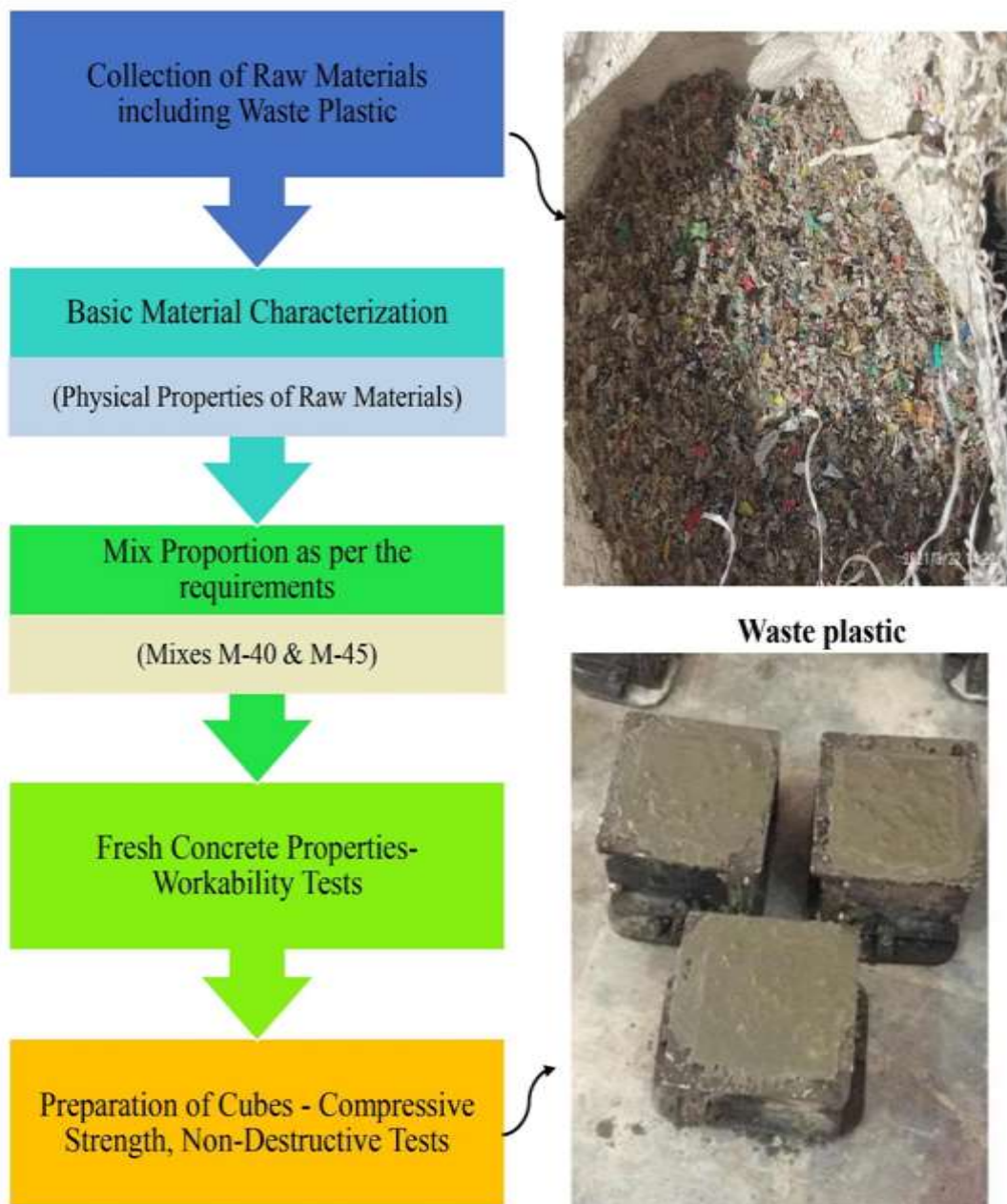
10. Temperature Curing on Concrete using Zeolite Textile



11. Suraksha



12. Blocks from Waste Plastic for Construction purpose

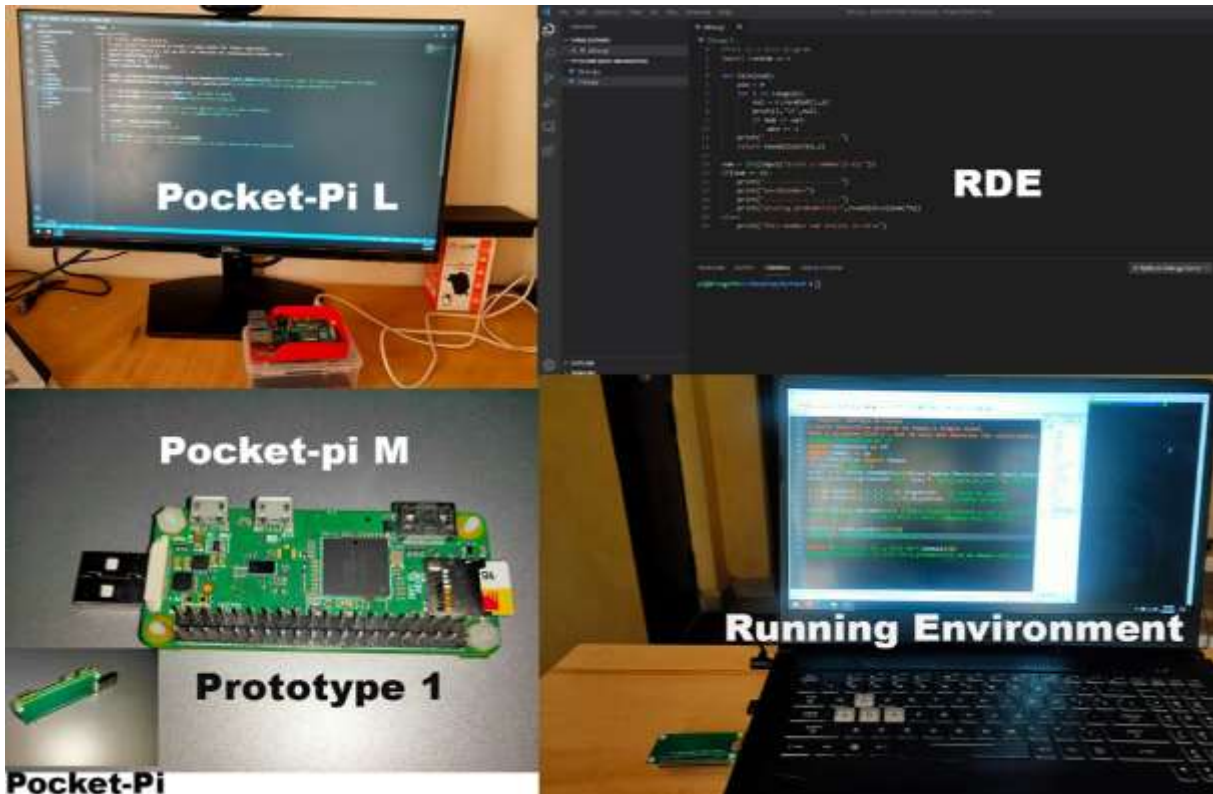


**WASTE PLASTIC – A SOLUTION FOR ECO-FRIENDLY
WORLD**

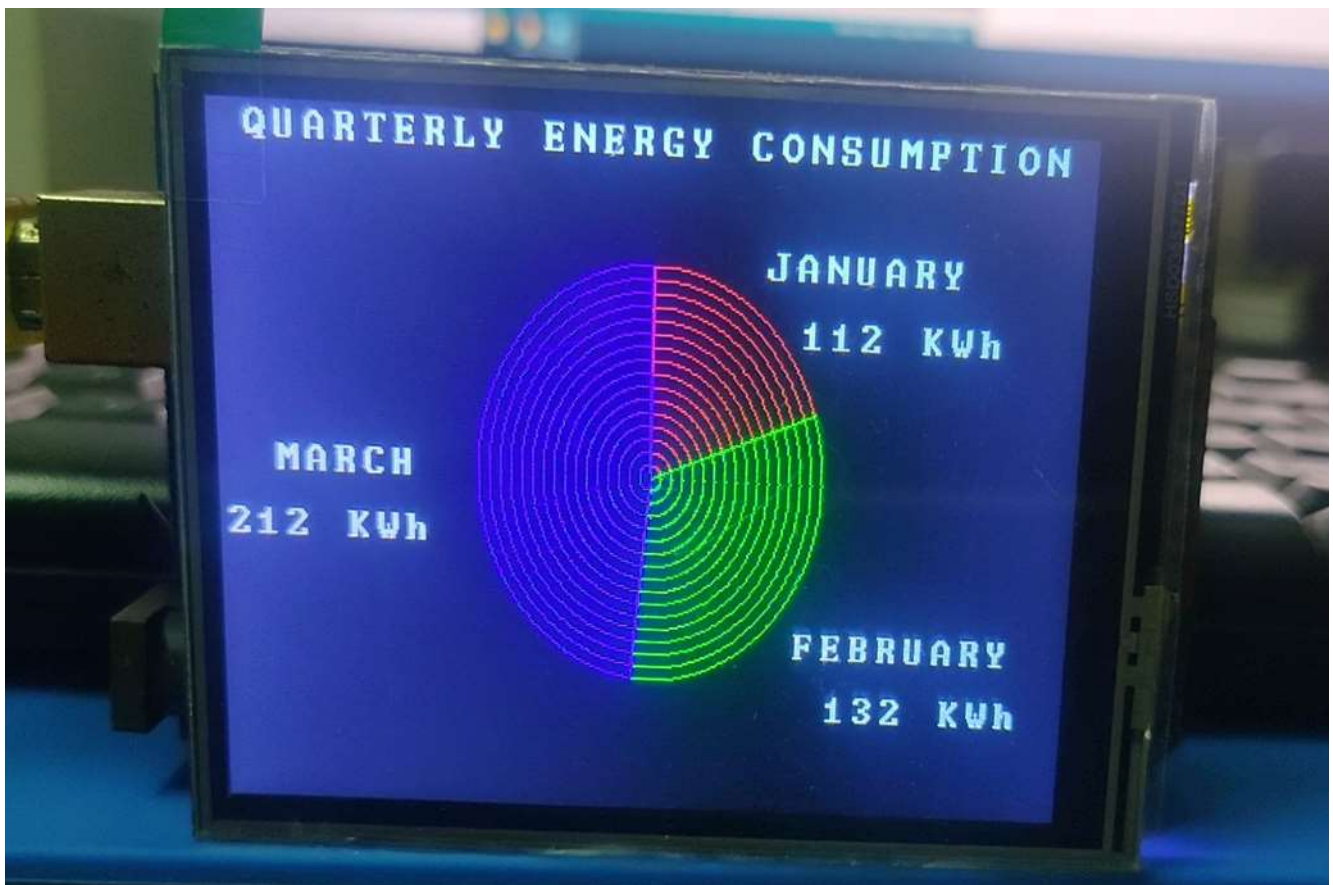
13. Non-Contact Temperature Monitoring



14. Pocket PI Learning Kit



15. Electrical Billing & Appliance health monitor



16. Smart Chest Measurement Unit for Police Recruitment



NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGenIEDC	Sumathi Reddy Institute of Technology for Women		
Year of starting NewGen IEDC	2019		
Name of the Head/Principal of the Institution/College	Dr. I. Rajasri Reddy		
Name of NewGen IEDC Coordinator	Mr. Shyamsunder Merugu		
Contact Details of NewGen IEDC Coordinator	<ul style="list-style-type: none"> • Mobile Number +91 9502908210 • E-Mail ID newgeniedc@sritw.org 		
Financial Details	Sanction Order No./Date		Amount Sanctioned
Previous Sanction Order Details	1	EDII/DST-NewGen IEDC/18-19/10,Dated 13.11.2018	Rs. 60,00 000/-
	2	EDII/DST-NewGen IEDC/18-19/RLS – I/10,Dated 4/11/2020 &4/1/2021	Rs. 47,50,000/-

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1	Weekly Innovation Challenge	Every week student teams developed a solution for a given problem statements
2	Project Expo	Every student gets hands on experience on project development
3	Startup Awareness Drive	Five products are under process to establish their startups

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	Tinker Camp	Students from different disciplines will be chosen and work together to complete the project. Tinkercamp helps different engineering students to know the role of other disciplines in completing a project. Campers will also know how engineering can change human living conditions. Tinker Camp is organized for engineering and management students every year
2	Ideation Fest	15 Ideas are shortlisted for NewGen IEDC Second Year projects
3	Innovision	Students presented their ideas, and projected prototypes.
4	Buildathon	Students went through a 36 hours buildathon for converting their idea into a product.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Industry Interaction Program (IoT Hackathon)	Student teams participated in a 24 hours hackathon to develop IoT based prototypes.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:
No

Due to COVID-19, we were unable to conduct offline activities.

3. Other important highlights (new initiatives), if any:

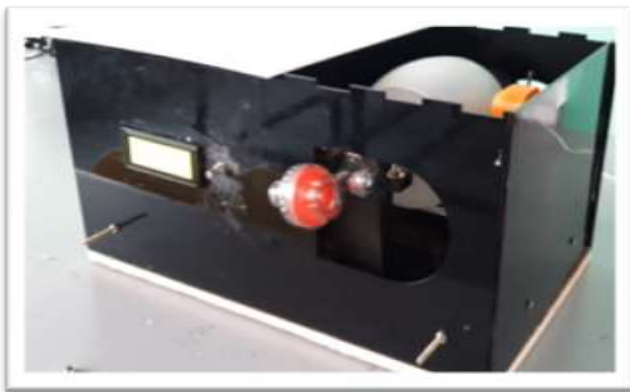
4. Student Projects (Please provide the following details for each student project)

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
1	AAMBU (Automatic Artificial Mechanical Breathing Unit)	Idea generation	Automatic breathing support unit	Startup under establishment
2	Curd Making Machine	Idea generation	Cost effective Less time consumption Easy to use	Startup under establishment
3	UV Sterilizer	Idea generation	Less time Efficient disinfectant of all types of items	Startup under establishment
4	Fish Scale Remover	Idea generation	Easy to use Cost effective Replaces human effort	Startup under establishment
5	Automatic Thermal Screening and Sanitizer	Idea generation	Redesigned with thermal screening	Startup under establishment
6	Smart Wire stripping and Cutting Machine	Idea generation	Automation is added for wire cutting	yet to be commercialized
7	Automatic Cotton Picker	Idea generation	Machine learning is used	Under progress
8	ML Based Automatic Alert System for Vehicles	Idea generation	Machine learning is used for efficiency	prototype completed
9	Portable Manure dispenser Machine	Idea generation	Identified the targeted farmers with Primary Agriculture Committees(P AC's)	Prototype completed
10	Autonomous Vehicle for Fixed Routes	Idea generation	Designed an prototype to suitable local paths	Prototype completed
11	Treadmill Walker cum Electric Cycle	Idea generation	Treadmill function is included	Startup under establishment

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
12	Ozonized air dispenser	Idea generation	Large room automatic disinfectant	Under progress
13	Portable electric elevator	Idea generation	First floor	Under progress
14	Support device for bedridden patients	Idea generation	Effective and low cost	Under progress
15	Design and fabrication of 3D printer	Idea generation	Effective and low cost	Under progress
16	Library Management System	Idea generation	Efficient algorithm	Under progress
17	Agriculture crop yield Unit	Idea generation	Unit with statistical measures	Under progress

- Submit three/four high resolution (at least 300 dpi) pics in jpeg format showing the prototype/product along with the students and their mentor

1. AAMBU (Automatic Artificial Mechanical Breathing Unit)



2. Curd making machine



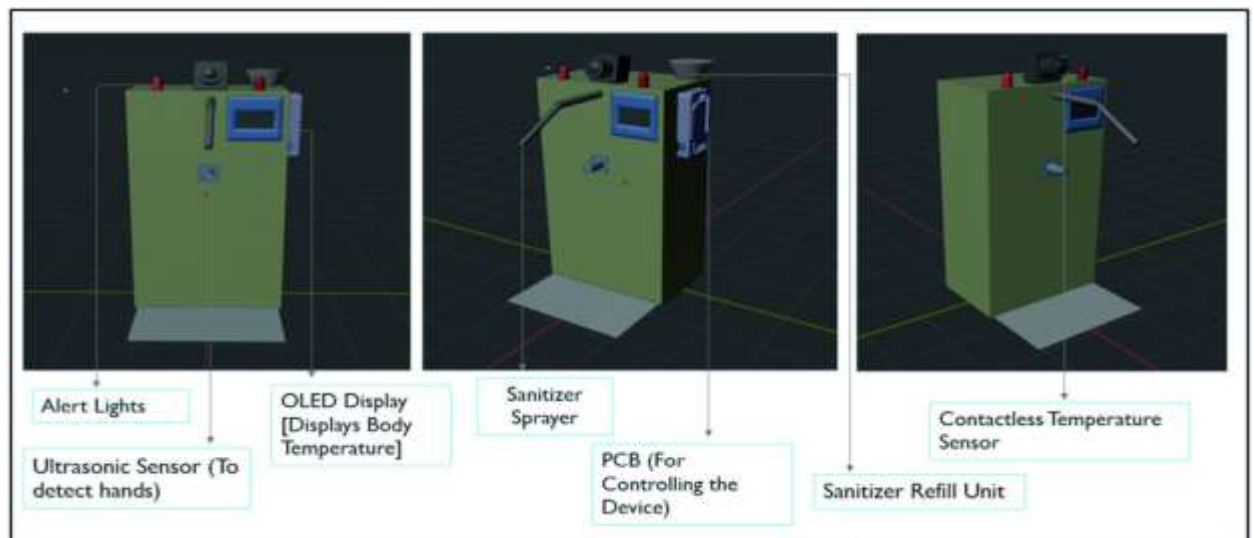
3. UV Sterilizer



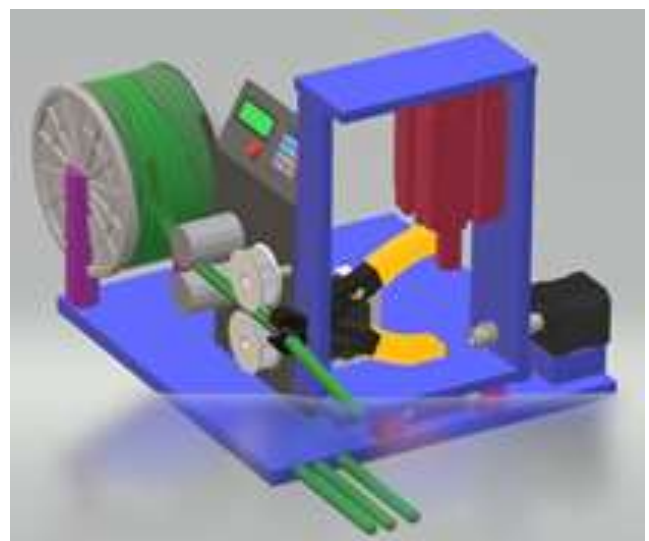
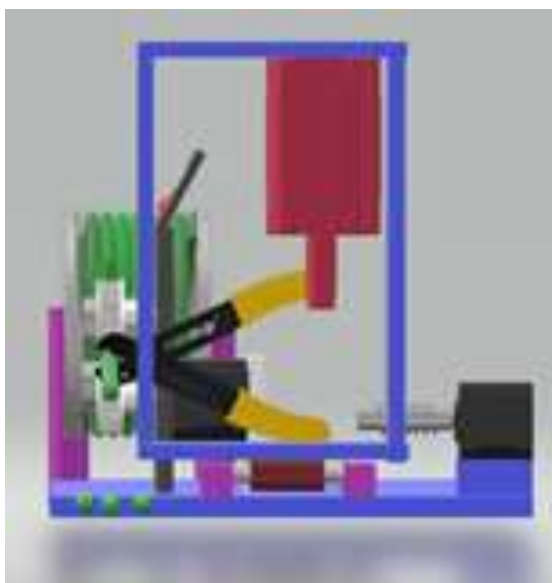
4. Fish Scale Remover

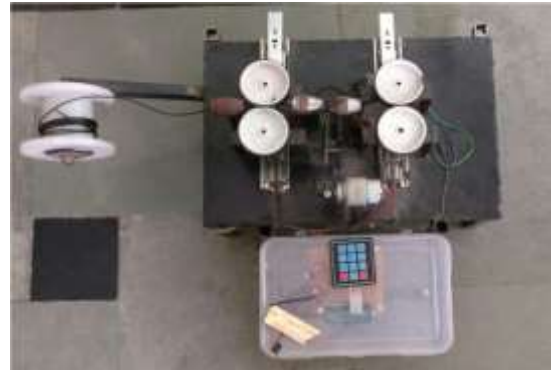
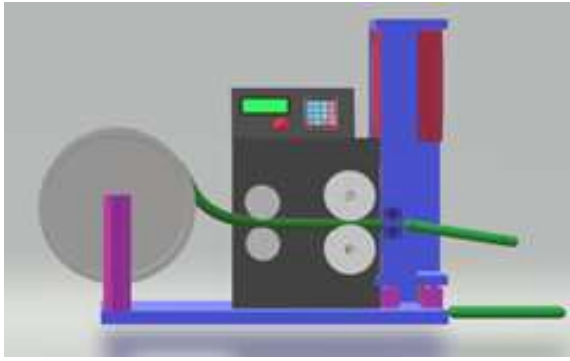


5. Automatic Thermal Screening and Sanitizer

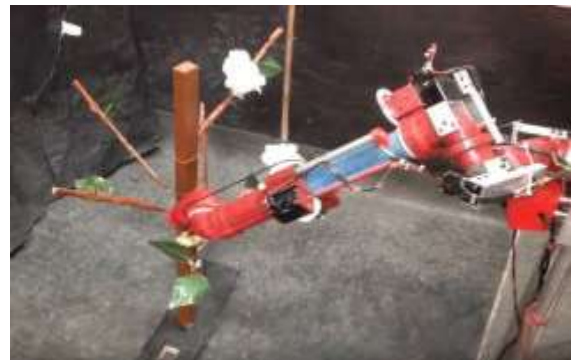
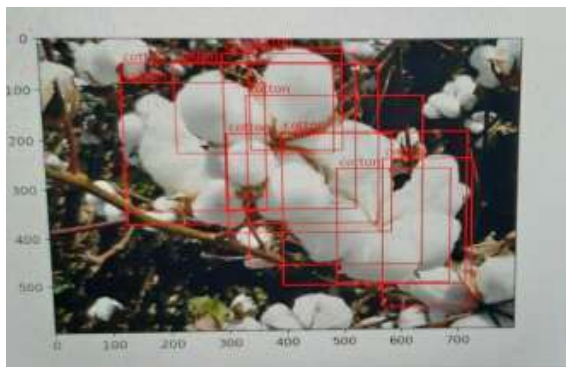


6. Smart Wire stripping and Cutting Machine





7. Automatic Cotton Picker



8. ML Based Automatic Alert System for Vehicles



A. Topview of device

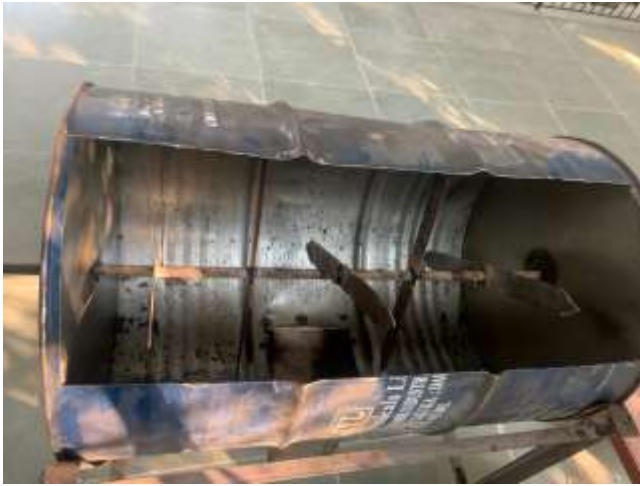


B. Sideview of device



C. Overturned vehicle

9. Portable Manure dispenser Machine



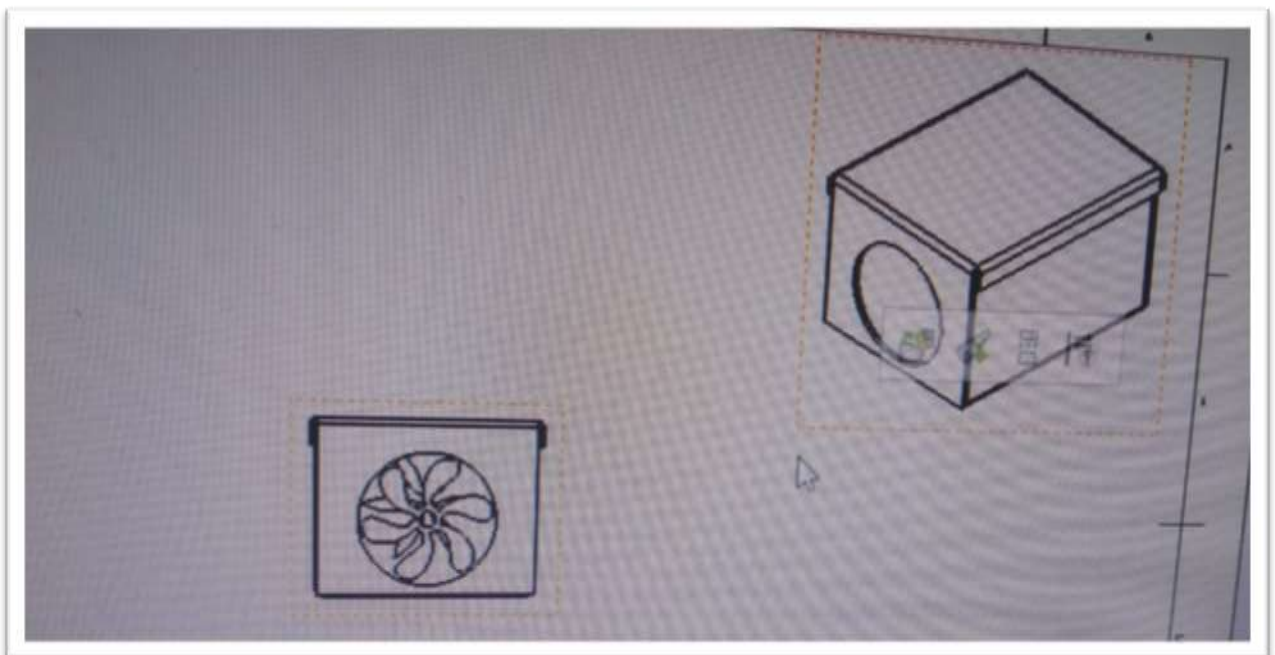
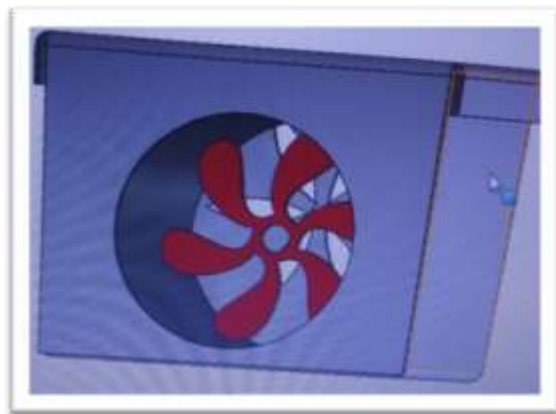
10. Autonomous Vehicle for Fixed Routes



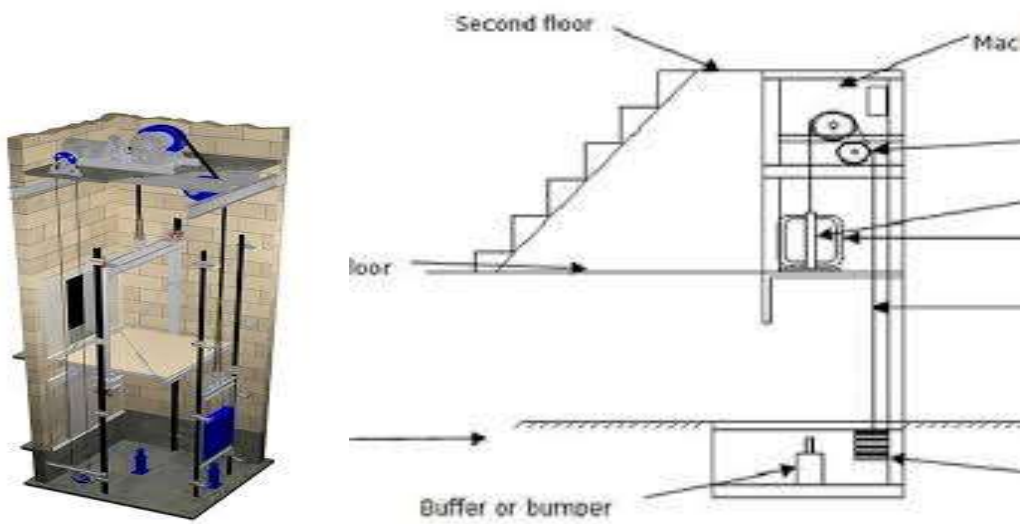
11. Treadmill Walker cum Electric Cycle



12. Ozonized air dispenser



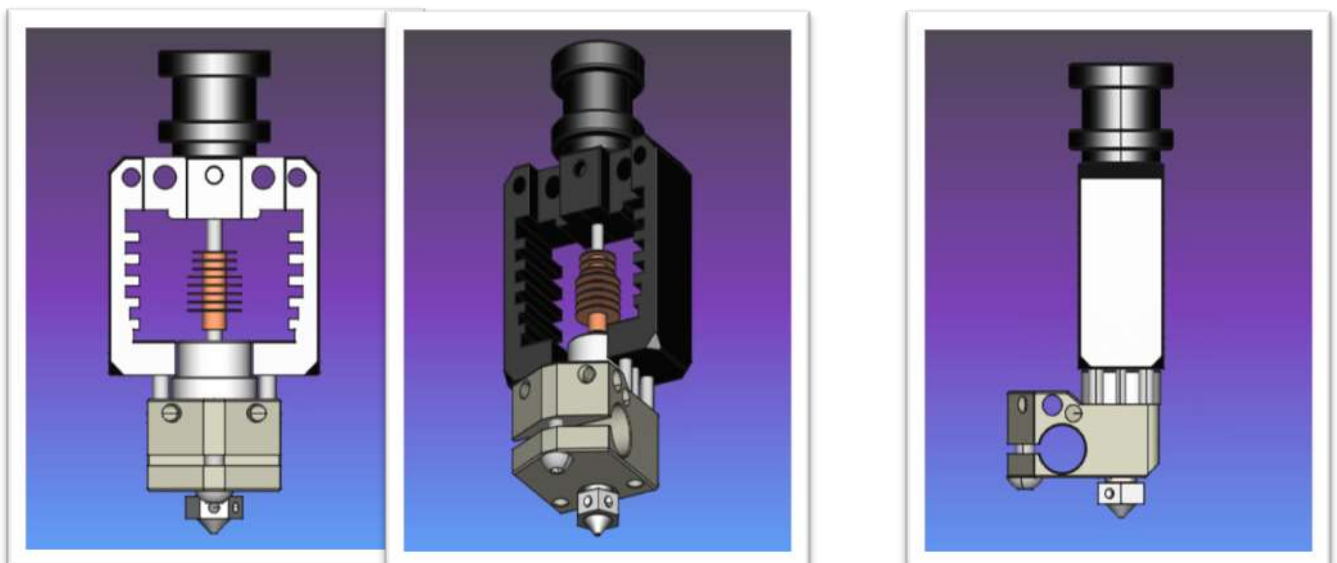
13. Portable electric elevator



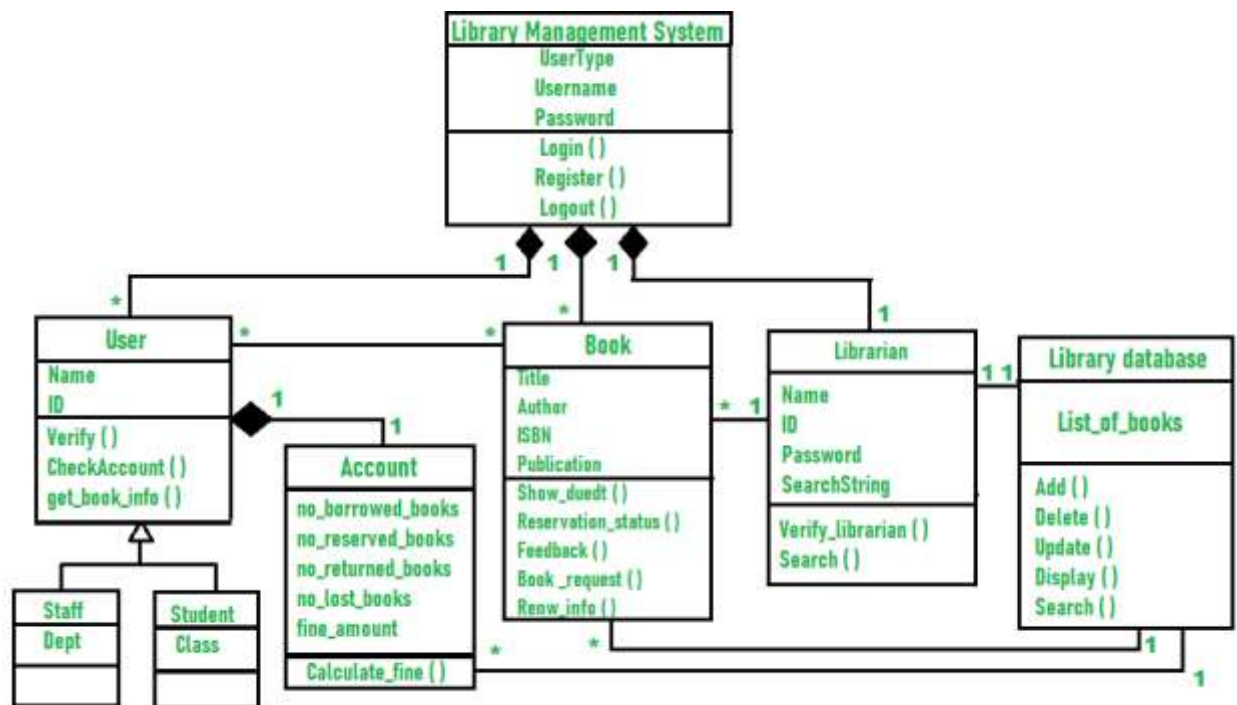
14. Support device for bedridden patients



15. Design and fabrication of 3D printer

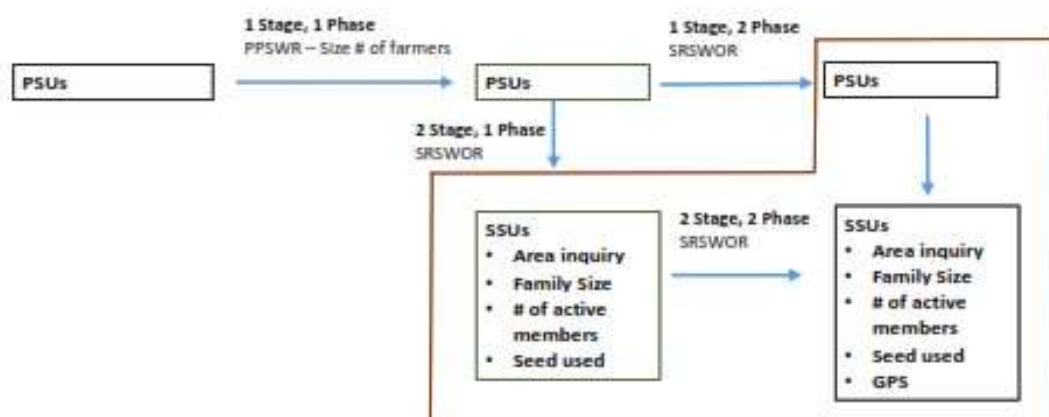


16. Library Management System



17. Agriculture crop yield Unit

AREA MEASUREMENT Sampling Design



5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

- Student team details (with contact information)
- Brief description about the student start-up
- Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs
- Contribution of NewGen IEDC in the same
- Future plan

Project-1: Automation of Artificial Mechanical Breathing Unit (Ambu)

Student Team:

Student Name	H.T. No	Mobile Number	Aadhar Number
Durga Sharma	196Y1A0481	9908420446	4644 8753 4136
Shivani Diwan	196Y1A0482	9390698766	2328 2315 5258
Seerla Akshaya	196Y1A0592	9390676986	2073 0519 8677
R. Tejasri	196Y1A0477	9701469771	9818 2288 4754
Sruthi Kasireddy	196Y1A0593	9160893277	8487 9624 0340
Sumayya Yasmeen	196Y1A0594	9059971960	5582 4809 1337

Description:

In pandemic times, the surge in clinically ill patients may overwhelm the number of trained critical care clinicians. Hence, the critical care team is augmented by non-critical care clinicians. The mechanical ventilation does not cure the patient condition, but will buy some time for the medical team to implement proper treatment options to resolve the patients underlying condition and provide the patient time to heal until such a time that they can breathe on their own without mechanical ventilator.

The mechanical ventilation is generally separated into 2 goals:

1. Provide assist with minute ventilation to remove carbon dioxide
2. Provide FiO₂ and maintain end-expiratory lung volume

Our automated mechanical breathing unit delivers breaths by compressing an Artificial Mechanical Breathing Unit (Ambu) bag. Tidal volume and number of breaths per minute are set via user-friendly input knobs. The prototype also features an assist-control mode and an alarm to indicate over pressurization of the system.

Future iterations of the device will include a controllable inspiration to expiration time ratio, a pressure relief valve, Positive end-expiratory pressure, PEEP capabilities to maintain oxygenation and an LCD screen. Through this prototype, the strategy of Motor Ambu bag compression is proven to be a viable option to achieve low-cost, low-power portable ventilator technology that provides essential ventilator features at a fraction of the cost of existing technology.

Targeting Market: Healthcare

Design and pictures:



Contribution of NewGen IEDC:

- Mentor is assigned
- Technical support is provided from academicians and industry experts
- Arranged periodical interactions
- Project funding is provided

Future plan:

- Product manufacturing

Project-2: Curd Making Machine

An intelligent next generation kitchen appliance to ease the home maker life!

Student Team:

Student Name	H. T. No	Mobile Number	Aadhar Number
Koyalkar Divya	206Y1A0551	8790113303	7706 4278 6408
Maraboina Siri Chandana	186Y1A0564	8688765112	9631 2238 6183
Polasani Saipriya	196Y1A0476	9502545825	2969 5100 5488
Dadi Srija	206Y1A6612	9676165669	9412 6428 4107

Description:

It is always tough to boil the milk which always opts for maximum attention by the home maker.

- It is often happens that the milk spill over when over heated (we somehow loose the attention when it is about to happen and feel sorry after happened). Cleaning the stove when the milk is spill over shall always a typical unnecessary burden to the home maker.

Curd preparation is an art which requires hands on experience to prepare the curd with a consistence taste/flavor.

- The preparation needed by considering the seasonal changes.
- Time to prepare the curd is never predictable! And fully depend on seasonal changes.
- Ironically for some people, it never forms!

A thorough research has been carried out for couple of year's, the physics behind the process is charted then formulated by interviewing the older generations to make the curd making art alive and to accessible home maker.

- Formulated process is fully traditional, the procedure do not opt for adding any chemicals or catalyst, hence the process is 100% safe and natural .
- User only needs to place the milk and the curdant in the respective containers and tell the machine to start making the curd.
- The machine will prepare the curd in 3 hours in any season.

The user can trigger the C U R D Z process virtually from any ware using mobile app.

- Which enables the user to have the fresh tasty and sweet curd just before it is to be consumed.
- It separates water from the prepared curd up to 70%, this rarely happens in traditional process.
- It helps in preparing maximum thickness curd out of the milk.
- It generates repeatable taste from the same type of the milk any time.

Targeting market: Households

Design and pictures:



Contribution of IEDC:

- Mentor is assigned
- Technical support is provided from academicians and industry experts
- Arranged periodical interactions
- Project funding is provided

Future Plan:

- Product manufacturing

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	I. T. S. Engineering College		
Year of starting NewGen IEDC	2018		
Name of the Head/Principal of the Institution/College	Dr. B. C Sharma		
Name of NewGen IEDC Coordinator	Mr. Saurav Kumar / Mr. Mahip Singh		
Contact Details of NewGen IEDC Coordinator	9069345557 / 9582058878		
• Mobile Number			
• E-Mail ID	sauravkumar.ce@its.edu.in/ mahip.me@its.edu.in		
Financial Details	Sanction Order No./ Date		Amt Sanctioned
Previous Sanction Order Details	1	EDII/DST/NewgenIEDC /19-20	Rs. 60,00,000/-
	2	EDI/DST/NewgenIEDC/ 19-20 & 02/11/2020	Rs. 47,50,000/-

1. Initiatives/Activities Undertaken as per the Action Plan Submitted:

Sr. No.	Activities	Outcome/Achievements
1	Entrepreneurial Awareness Drive (In Campus)	Students were made aware about entrepreneurship and its benefits
2	The Start-up Unlocked (Seminar on Key aspects of Entrepreneurship)	Students were introduced to the key aspects of the process while undergoing entrepreneurship
3	Workshop on “how to identify a great business idea”	Students get an idea on how idea a student can identify an idea for him/herself
4	E-Week (including a number of entrepreneurial events)	Students have undergone many events to understand entrepreneurial situations
5	Talk Shows/ Discussions with Alumni and other self-made Entrepreneurs	Discussions with the Alumni can give a glimpse of their life decisions and experiences
6	Induction Program on different forms of entrepreneurship	Different types of schemes were introduced government as well as private
7	Session on Technology Commercialization and Business opportunities in different sectors.	Students were guided on how they can increase their speed for faster commercialization of the idea and Market research was introduced so that Business opportunities within wide range of sectors can be identified
8	Workshop on competency mapping, Team building, Communication and Leadership exercises	Workshop was conducted so that Students can effectively Build their teams, what types of agreements are to be signed, terms and conditions.

B. To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	Start-up Idea Pitching contest	Based on the pitching contest student ideas were selected for DST funding.
2	Business Venture Simulation Games	To develop business mindset certain Simulation games were introduced and students played them to get an idea of how Business is done.
3	Workshop on conducting an effective market research	Students were briefed on what the steps are taken to conduct proper Market research and how they can connect with prospective customers in order to take their feedback to further develop their products.
4	Workshop on identifying a true value proposition for start-up	Students were introduced to What is value proposition, how to effectively identify the uniqueness of the idea that they are working on
5	Workshop on "how to identify a target market for your product/ service"	Students were briefed with practical examples on how they can identify and focus their product to target a very specific market segment.
6	Hands On session for strategy building	Students were given tasks on the basis of their capabilities to complete their tasks and report on time.
7	Expert guidance on creating realistic and convincing financials for start-up	Experts were brought in to help and guide students make financial plans for their own startups, types of F-plan.
8	Introduction to "Cost effective means of self-marketing"	Students were introduced to Effective and cost efficient methods they can use to market their startup and products.
9	Session on "What is the right time to raise external funding?"	With proper case study students got to know the perfect time for a startup to raise Funds from outside, what strategy should they use to make a proper plan to raise the funding.
10	Workshop on preparing an effective pitch deck and mock investor pitching session	Students were briefed on how B-Plan are made, what are the key points that one should mention in the B-Plan, types of business plan and how to effectively pitch it.
11	Business plan competition	Students have to form a complete business plan on the idea that they have submitted. How will they commercialize their product so that they can get funding of any kind.
12	Investors Meet	Students met investors and were briefed on how investors look at different perspectives of an Startup before investing into one and what are the stages of funding that a startup goes through

C. To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Workshop for faculties on “identifying industry expectations from academic institutions”	Complete brief to faculties that how they have to train the students as per the industry requirement
2	Seminars on Industry Needs and opportunities in different sectors by Industry experts	Students are trained and explained about how they have to be ready as per the industry requirement
3	Organizing Faculty trainings in industry	Faculties are given opportunities to be trained under experts in industries according to their requirement.
4	“Solutions for industries” technology-based innovation contest for students and faculties	On the basis of the live problems given by the industry, we conduct a competition so that each one can have the opportunities to give forward their ideas.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

All program were proposed offline mode but due to covid situation institute was under lockdown as per Govt. guidelines and all the program was organized online through webinar/seminar/workshop.

3. Other important highlights (new initiatives), if any:

These are some new initiatives taken by NewGen IEDC ITS Engg. College

1. NewGen IEDC ITS Engineering college has Registered a section -8 Incubation Centre named “Navrachna Foundation for Entrepreneurship Development” to support the startup by providing co-working office area as well as co-working factory.
2. We have launched our startup policy to support student's start-up for 10000 Days under which we provide co-working space at consumable cost only.
3. Under our startup policy we are providing internship to our students with a monthly stipend of Rs. 3500/ PM with our startup team, this will inculcate the innovation and entrepreneurial skills.
4. Under our start-up policy we are providing funding support to start-ups in registering their enterprise and institute will pay 50% of total profession cost of registering a startup.
5. Institute bears all the costs involved in IPR filing, publishing and grant of patent.

4. Student Projects (Please provide the following details for each student project)

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current Status
1	<p>Title - Painting Automation</p> <p>Team Members- Uday Sharma Shubham Sharma</p> <p>Team Mentor- Mr. Saurav Kumar</p> <p>Project description- Assistant Painting Machine: Painting automation is a smart way to whitewash the wall and ceiling without spilling or wasting the mist. The different sensors deployed ensure uniform painting as well as optimization of the Mist usage.</p> <p>Patent application number: 202111035713</p> <p>Patent status: Published</p>	Ideation Phase	<ul style="list-style-type: none"> • Patent Filed • In touch with concerned industry for Testing 	Completed
2	<p>Title - Flywheel absolute Energy Storage System</p> <p>Team Members- Tushar Verma Aakash goyal</p> <p>Team Mentor- Dr. Monika Jain</p> <p>Project description- Flywheel Energy Storage System: Flywheel Energy Storage System is a unique way to store energy. It is assumed that the losses in any rotating body are due to friction and drag. The invention is all about eliminating these two factors in order to store the mechanical energy for a very long time using a vacuum chamber and magnetic bearings.</p> <p>Patent application number: 202111031122</p> <p>Patent status: Filed</p>	Ideation Phase	<ul style="list-style-type: none"> • Patent Filed • In touch with concerned industry for Testing 	Completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current Status
3	<p>Title -Continuous Variable Generator “A smart way to save fuel”</p> <p>Team Members- Masood Alam & Rishabh kumar</p> <p>Team Mentor- Mr. Mahip Singh</p> <p>Project description- CV Generator is a smart way to save fuel. It works based on the electricity demand. The Stepper actuator synchronizes the RPM of the engine and gear ratio simultaneously. A component named speech synchronizer insures and fluctuated continuous grid power supply.</p> <p>Patent application number:202111026018</p> <p>Patent status: Published</p>	Ideation Phase	<ul style="list-style-type: none"> • Patent Published • Startup Registration in process 	Completed
4	<p>Title - Wireless Laptop Charging platform</p> <p>Team Members- Abhay Purwar & Om Gupta</p> <p>Team Mentor- Mr. Praveer Saxena</p> <p>Project description- Wireless Laptop Charging platform: Wireless laptop charging platform is designed on a table where users can place the laptop anywhere on the table and without any charging connection, the laptop will automatically charge. Induction is the main constituent. 4 different copper coils are placed below the table throughout the area using a complex circuit in order to manage the magnetic field. The small retrofitted induction coil is permanently attached below the laptop battery. Whenever these two coils, feel the magnetic field the induction starts and the laptop starts charging.</p>	Ideation Phase	<ul style="list-style-type: none"> • Patent Filling is in Process • In touch with concerned industries for Testing purposes. 	Completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current Status
5	<p>Title - Accelerator Enhancer for Bikes</p> <p>Team Members- Yash Kumar Sakshi Sharma</p> <p>Team Mentor- Mr. Agha Hussain & Mr. Mahip Singh</p> <p>Project description- This project addresses the main pain point of electric bikes which are acceleration and mileage. The acceleration enhancer is the combination of multiple Motors with a smart way to synchronize them according to the load needed. The machine smartly and gradually switches the Motors according to the need.</p> <p>Patent application number: 202111038661</p> <p>Patent status: Published</p>	Ideation Phase	<ul style="list-style-type: none"> • Patent Filed • Startup Registration completed 	Completed
6	<p>Title - Hospital Assistant Robot (Import Solution)</p> <p>Team Members- Gaurav Kumar, Vaibhav Kumar Yadav & Saket Tiwari</p> <p>Team Mentor- Mr. Mahip Singh</p> <p>Project description- Hospital Assistant Robot (Import Solution): A hospital assistant robot is an advanced robot specially designed for medical assistance. It has auto thermal testing sensors, automatic sanitizing unit, disinfectant sensors, convertible into a wheelchair whenever needed, and manages oxygen supply for 7 beds simultaneously.</p> <p>Patent application number: 202111030805</p> <p>Patent status: Filed</p>	Ideation Phase	<ul style="list-style-type: none"> • Patent filed • Startup Registered • Commercialization in Process • Applied for seed funding 	Completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current Status
7	Title -Smart Thermal Testing Goggle Team Members- Nidhi Sharma Naman Garg Team Mentor- Mr. Saurav Kumar Project description- Smart thermal testing goggle is a fashionable Google designed in such a way that if someone in front of the Google is having temperature more than threshold it indicates immediately physically as well as in the app.	Ideation Phase	<ul style="list-style-type: none"> • Patent Filling • Testing is in Process. 	Completed
8	Title -3D solar Team Members- Ayushi Agarwal & Manas Sonwane Team Mentor- Dr. Monika Jain Project description- 3D 16 is an innovative method to enhance the efficiency of solar panels. The sunlight passes through the fresnel lens in a concentrated form in a decahedral box, where the solar panels are placed inside. By refracting and reflecting from one to another panel the entire system give the efficiency more than 40% Patent application number : 202111030992 Patent status: Filed	Ideation Phase	<ul style="list-style-type: none"> • Patent Filed • Startup Registered • Seed funding received 	Completed
9	Title -Self Cleaned/Sanitized Dining Table Team Members- Samiruddin Ansari Shubham kumar Team Mentor- Dr. Kamal Gupta Project description- In this project we have made a table which after	Ideation Phase	<ul style="list-style-type: none"> • Patent Filling is in Process • Testing completed at concerned places 	Completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current Status
	the table has been used can automatically clean itself as well sanitize itself with UV light and 90% alcohol solution. This ensures that 99% virus and Bacterias are removed.			
10	Title - Kitchen Automation Team Members- Piyush Sokhi Amit Singh Rawat Team Mentor- Dr. Nidhi Puri Project description- Kitchen automation is designed to get rid of hassles inside the kitchen. It is an IoT-based design that helps in finding the different items in the kitchen. Google assistant is attached to the system. The user can ask for any masala, and the device will bring it in front of you within the second. Not only this assistance but it tells on the mobile app how much quantity is left.	Ideation Phase	<ul style="list-style-type: none"> Patent Filling is in Process also in touch with industry for Testing. 	Completed
11	Title -AI Based Glue Inspection System On Cards Team Members- Plakshi Tomar & Nitish Kumar Jha Team Mentor- Mr. Saurav Kumar Project description- In the smart card-making industry, fixing the smart chip using glue, and the removal of glue splashed is done manually. The inventor has made a device based on image processing to inspect the Glue to be removed. This system makes the production many time faster than the existing one.	Ideation Phase	<ul style="list-style-type: none"> Patent Filling is in Process also in touch with industry for Testing and sell of Rights of production. 	Completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current Status
12	Title -Fully Automatic Shoe Polish Rack Team Members- Kaushambi Srivastava Utkarsh Srivastav Team Mentor- Mr. Manvendra Yadav Project description- Polishing the shoe every day is a tedious job especially in the morning. A compact device has been made which is fully automatic for polishing the shoes. You just need to put your shoes inside the box and relax for 10 minutes. That device ensures the appropriate temperature, the right quantity of shoe polish and the right number of strokes for the brush everywhere on the shoe.	Ideation Phase	<ul style="list-style-type: none"> Patent Filling is in Process also in touch with industry for Testing and sell of rights of production. 	Completed
13	Title - Zero energy Toilet Team Members- Ainun Hasal Anshree Bhui Team Mentor- Mr. Manvendra Yadav Project description- In this project we have made a toilet which doesn't require a Pump or Water tank to be kept at a height, In this project advanced fluid Dynamics concepts were used such that no pump is required to fill the tank hence the name zero energy toilet.	Ideation Phase	<ul style="list-style-type: none"> Trying to create social awareness to accept the unique technology. 	Completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current Status
14	Title -EV-VCU Development Team Members- Sindhuza Singh & Yash Srivastava Team Mentor- Mr. Agha Husaain Project description - The electric vehicle control unit is a smart control panel designed especially for electric vehicles where the user can control all the activities on a single touch screen. And all the parameters can be reflected on the screen like inside temperature, battery status, range, mileage, safety features, GPS, infotainment, etc.	Ideation Phase	<ul style="list-style-type: none"> Patent Filling is in Process also in touch with industry for Testing and sell of Rights of production to company named Raftaar E-Mobility Startup Registered 	Completed
15	Title - Tadpole eMobility, “A smart Trike” Team Members- Vaibhav Srivastav & Harshita Bishnoi Team Mentor- Mr. Saurav Kumar Project description - Tadpole eMobility, “A smart Trike” is a three wheeled battery powered vehicle having tadpole setup. It is equipped with various sensors like centrifugal sensors, body role sensor, object detection, etc. to make it a smart one.	Ideation Phase	<ul style="list-style-type: none"> Startup Registered Commercialization rights has been transferred. 	Completed
16	Title-Development of biodegradable coating based solution. Team Members- Nitesh Kumar Jha Team Mentor- Dr. P.C. Jha Project description- The biodegradable coating solution is used for coating of those items which are supposed to be nonstick like pans electric iron. This solution can be used many times upon the devices in order to make them non-sticky again.	Ideation Phase	<ul style="list-style-type: none"> Product testing Phase 	Completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current Status
17	Title - Smart down rod Team Members- Mayank Raj Jeevesh Gupta Team Mentor- Mr. Mahip Singh Project description- The biodegradable coating solution is used for coating of those items which are supposed to be non sticky like pans electric iron. This solution can be used many times upon the devices in order to make them non-sticky again.	Ideation Phase	<ul style="list-style-type: none"> • Patent Published • Startup registration in process 	Completed
18	Title - Traffic data Analyzer Team Members- Harshit Kumar Singh Syed Yusuf Amin Team Mentor- Mr. Saurav Kumar Project description- It is the device to analyze the traffic data in metro cities in order to make policies and other work.	Ideation Phase	<ul style="list-style-type: none"> • Startup registered 	Completed
19	Title - Cutting fluid Optimizer Team Members- Kamlesh Thakur Team Mentor- Mr. Mahip Singh Project description- It is the smart way to optimize the cutting fluid in the machining operation. Few sensors ensure the surface finish of the work piece and accordingly allow the servo governed knob to open the fluid supply. Patent application number: 202111033458 Patent status: Published	Ideation Phase	<ul style="list-style-type: none"> • Patent Published • Pilot testing in process 	Completed

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current Status
20	Title - Milk spilling Control Unit Team Members- Ranjan Sinha Rijul Singh Team Mentor- Mr. Mahip Singh Project description- In this project we are solving the problem of milk wastage as well as the effort of cleaning the wastage after the milk spills. As we do not allow the milk to spill with the help of temperature sensor and conductivity sensor.	Ideation Phase	<ul style="list-style-type: none"> • Patent filed • Startup Registered • Commercialization Started 	Completed

*Images of some project are not available due absence of incubatee, as incubatees are at there home due to Covid guidelines, we shortly share the remaining images.

5. Provide a minimum two-page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

Cipher Infinity

Team Detail

Sr. No.	Name of Incubatee	Branch/Year	Contact No	Email ID
1.	Harshit Kumar Singh	4 th / Electrical	8826565590	harshitkumarrs_eee17@its.edu.in

Mentor Name: Mahip Singh, ME, Mobile No: 9582058878

Patent Status: Filed Successfully on March 21, 2021.

Start-up Status: Start-up Registered.

Entrepreneurial Story

A gist of accomplishments so far

- 16 designs ready and more in pipeline with patents pending and published.
- 1st position at Grid-tech 2019 organized by Power Corporation of India.
- Won study tour for Japan organized by IEPC, Pune.
- 1st position at AKTU technical fest Kapp-Tech.
- Top 20 startup at MIC IIC organized by AICTE and MHRD.
- Funded from AICTE for incubation support.
- Selected for incubation at IIT Mandi.

“It all started when a group of young inquisitive minds gathered together in the room of most notorious class of the entire school, 11th, where we banged our heads just to come up with this project name “Cipher Generator” which slowly transformed into reality.

For us, science was not an option, but the only option we had. Hence, whatever we do as we do it is with full passion and dedication”

-Incubator

I am privileged to be part of this journey as mentor as well as the evident of developing and nurturing their idea into reality.

So how can Cipher Generator be any different! From being young boys with an idea in mind to being the men we are today, it took us 2 years and lot of shedding of skin to make it a reality.

It was at college, I.T.S. Engineering, where he met people who spoke our language and he knew he was at home. Here the tech-team of NewGen and professors really understood what he was trying to do and with all the support, he can finally claim that yes, he made something that's a game changer!

In the 1st year of his college, he made a model of compact disks, magnets where it showed how it worked but it turned out that it was not enough. He had to spend another year to actually understand the whole scenario and simplify the design to fetch desired results.

In the 2nd year, he was finally able to make a fully working simplified model of cipher generator with two input shafts. With this model he was able to explain the concept with much clarity. When he was satisfied, he approached and convinced industries and other eminent engineers working at Power Corporation of India that our concept is feasible and can be turned into a fully blooming reality. As a result of which he won at GRIDTECH 2019 with cash money of 3 Lakhs.

This gave a boost to his confidence and he participated in the event of Kapptec 2019, which was organized by A.K.T.U University, here too he secured the 1st position and a cash prize of 20 Thousand.

From school boys with no exposure to being the “Smart guys” of the college, these events have shaped him in all positive ways. He was the boy who was not even able to express his thoughts to anyone before.

Now it seemed to him as a good opportunity to shift his focus from ideation phase to prototype development and technical growth to business/startup. Therefore he decided to inculcate the model in NewGen and searched for the next big event and started preparing for it day and night. He finally found the right events for us which specifically focused on the projects which were in the process of getting into the startup stage.

The two events were IIC MIC POC organized by AICTE and IIT Mandi Catalyst 2019.

At IIC MIC POC, he was nominated as a team to represent ITS Engineering college. He qualified from each zonal level and finally made it to the top 2 teams from Uttar Pradesh state and the only private college to represent at national event at AICTE Headquarters. This event taught him a lot about B-Plans and execution of the idea into a startup.

The next event was just a few days later, IIT Mandi Catalyst 2019.

After his online evaluation that he sent during his application process, he was selected and called for interview/Startup Pitch. At this moment he started to get deep into the know-how of the startup world.

He managed to secure the incubation from IIT Mandi, which filled him with the much required fire to do even better.

All in all, 2019, was a good year for him. Now it was time for him to make 2020-21 better.

In January 2020, he received the much awaited e-mail from AICTE. It stated that they wanted to look further into our project for incubation funding support. He hastened his seat belts and completed all the formalities at one go. Later, he was called for interview in front of the jury members who judged our project from business point of view. At this very same time, he had a chance to gain some international exposure, as he bagged an opportunity to represent I.T.S Engineering College, Greater Noida, at NASA Human Rover Exploration Challenge 2020, during which his problem solving capabilities were further expanded. Unfortunately, due to the ongoing COVID-19 pandemic, the event was shifted online.

Amongst all this, the result from AICTE came out and he was awarded INR 4 Lakhs grant to further build our prototype. Later in 2020 fall, he also had a paper funded from Canada based investors for an equity exchange of 49.9% for INR 3.5 Crore but unfortunately, due to certain financial issues he was unable to take it further as 49.9% approximately make up to 50% and that would have given the investors half the power and control over the technologies he was working on.

Fast forward to 2021, he started back with NEWGEN where with mentor he worked on the project, which helped him to rectify the mistakes and encounter the problems he faced in his journey so far and learn from new perspective.

His project is all about producing almost double power using the relative motion technology in Genset industries using same engine.

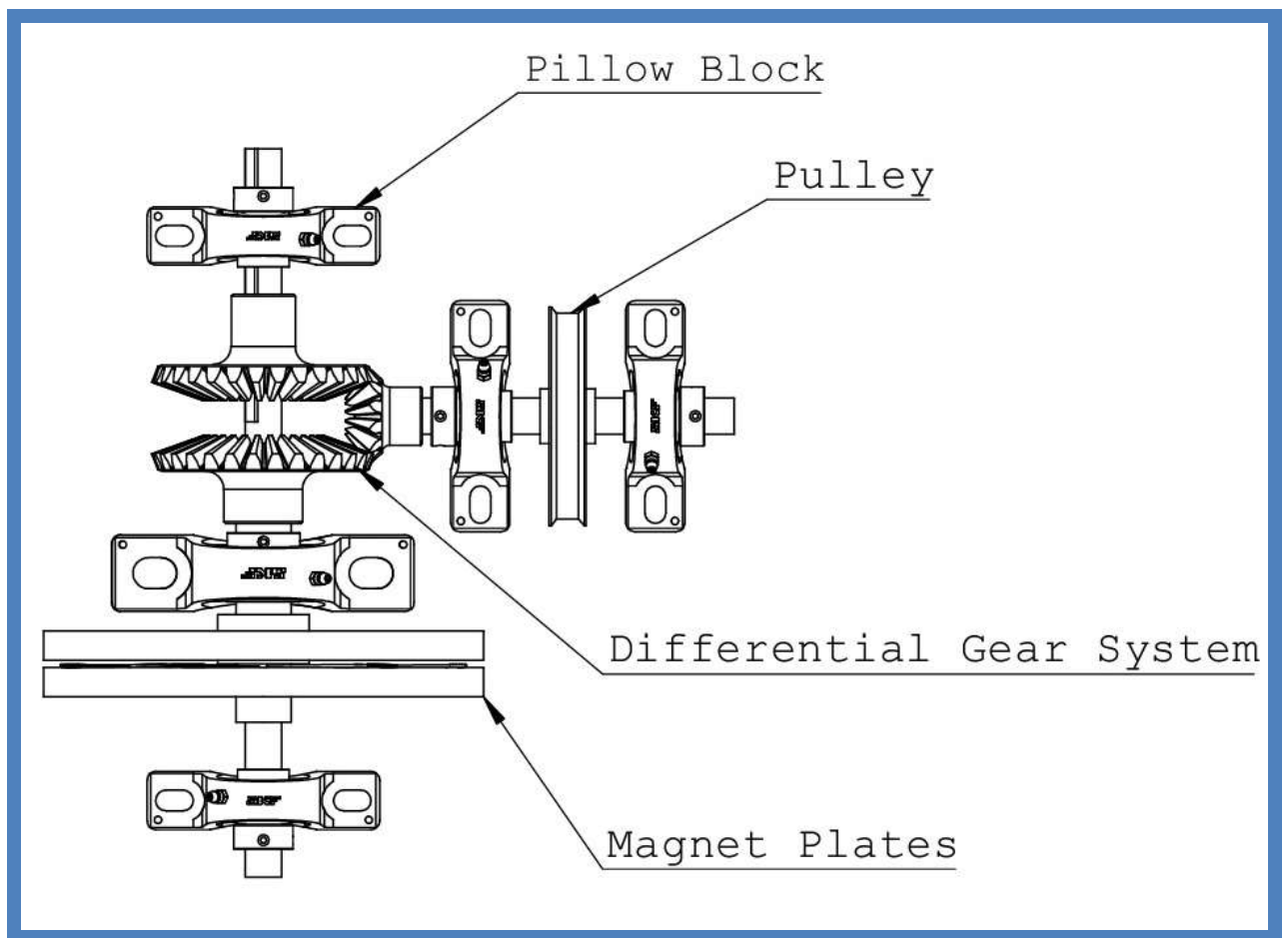
NewGen IEDC contributed the team in the terms of

1. Mentoring support
2. Fund support
3. Interaction with relevant industries
4. Networking support
5. Testing validation support

Now he has reached on very interesting point where he is about to commercialize his product. The future plan is to make its next improved and efficient model for commercialization purpose. He is also talking to different industries like Statcon Energias, Noida, Innovant International Pvt. Ltd, Greater Noida and few more. He is also trying to find out some partner who can help to commercialize it and make it ready for the market usage.

Some Glimpses:





Top 17 position at AICTE National level Event IIC Proof of Concept Contest-2019



Won Study tour in Japan National level Event IPEC 2019



Oxygen Monitoring and control, multi-functional convertible Robot for hospital assistance

Team Detail

Sr. No.	Name of Incubatee	Branch/Year	Contact No	Email ID
1.	Nidhi Sharma	2 nd /Mechanical	9654562130	nidhisharmans_me19@its.edu.in
2.	Sindhuza Singh	3 rd / CSE	8527750190	sindhuzasinghvks_cse18@its.edu.in
3.	Mayank Raj	4 th /Mechanical	9914769565	mayankrajsk_me17@its.edu.in

Mentor Name: Mahip Singh, ME, Mobile No: 9582058878

Patent Status: Filed Successfully on May26, 2021.

Start-up Status: Start-up Registered.

“Our heart goes out to people who lost their lives in the COVID-19 pandemic due to human negligence. The fact that those people could have been saved shakes me to the core. Having lost a few closed ones we knew it was time that this stopped.

Our country has undoubtedly produced the brightest minds to ever step on Earth but it still lags behind in producing even the average kind in decent quantity. The second wave was just a wakeup call. There was and still is so many deaths for medical staff that it becomes nearly impossible for the people to handle something as huge as a pandemic.

Considering all the emotional and logical turmoil in our mind, we approached NewGen and our mentor, and he being the most supportive human, we immediately got down discussing details. As we went deeper into discussing our project, we realized how a lot of things needed to be changed and that change had to come from scratch. This left me feeling overwhelmed most of the times. But slowly and steadily, my mentor and we progressed.

“We always wondered why somebody didn’t do something about that. Then we realized we were somebody.”

If we were privileged enough to make a difference, why not? This is how we decided to make *Oxygen Monitoring and control, multi-functional convertible Robot for hospital assistance*. “

-Team Incubatee

Being Mentor, I feel proud on our students for having such thoughts and having potential to make their dream true by working day and night at our NewGen lab.

A group of three students from a completely different background, studying different fields academically, and being on different stages of life, when together brainstorming with bright ideas and honest intentions came, is how the Oxygen Monitoring and Control, Multi-Functional Convertible Robot for Hospital Assistance took birth.

The three incubates, kept on discussing the current pandemic situation in India, took notes on daily basis of the cases rising each day, observed the pattern carefully, and connected to the suffering of the people. This led them on to discuss the whole idea to me, i.e., their mentor. They had the goal but not the knowledge of the road that would lead them to there. They would ask, “How can we curb this at the earliest? How can we manage to be helping hands in the current time?” Since I had the knowledge and they had the idea, we started to work together. We narrowed or options down to a few things, but later we knew that the Hospital Assistance Robot is the right choice.

To be more specific and make our model more useful, they went around taking notes from eminent doctors, hospitals, and other experts to take their opinions and ideas. After our meetings with the doctors and people, we knew what was lacking in our medical industry and what we needed to do. Our next task was to discuss the technological solutions.

We started to make our model, and the more we worked on it, the more problems we faced. The team worked all days and almost nights and barely slept for 2-3 hours. The stages involved in making an actually functioning robot was too much for one of the incubatee, she couldn't sleep all night and was in turmoil all day. There were many problems faced, but we overcame them as a team. It involved a lot of article reading, a clash of ideas, picking up ideas from everyday news, emotionally connecting to people on personal basis, and losing sleep. This was a huge task for our young incubatees, but they were adamant enough to do the right thing.

The journey was not easy; initially the whole team had an idea which did not go as planned. Sometimes after working for days, we had to start from scratch.

We made our first prototype, which was nearly half as good as we thought it would be. Then, we made our second prototype, which also was not very satisfactory. We had to make some technological changes and we tried even harder. Coming back to ground zero after so much of hard work is never easy. But, because of the hardships faced, we are proud of our final model.

I can't deny the fact that many a times they felt low because of many failures, but I think those are the times where mentor is strictly needed. When your effort is appreciated, it results the multiplication in moral and it happened when their patent filed successfully after one failed attempt.

The team emerged stronger after we completed our model. They learnt a lot of things that will stay with them for life. It fills me with immense joy to have a team that takes pride in hardships faced and cares a lot about society's well-being.

The final model to be made was supposed to be a attractive for people to look at and appreciate it. We again had a lot of thinking to do. All through the developing of our model we were always open for ideas and advices. We received some precious inputs from our colleagues. We always had a healthy discussion in the NEWGEN. It became a daily ritual to sit down and have a dialogue.

The team worked tirelessly to make the final model which we are immensely proud of today. It is the situations like these when the actual potential of a person comes forward.

After successful completion we found that we were almost done all the tasks we mentioned in our to-do list before start.

Staying true to its name, the Hospital Assistance Robot has many unique features. In the second COVID-19 wave we witnessed a shortage of both beds and oxygen, and where oxygen was being supplied; there was immense wastage of it due to the following reasons.

- Patient itself increases the oxygen flow.
- Attendants open valve in panic conditions.
- The supply is kept open usually while shifting the patients

All of these above mentioned conditions can be handled by the Robot. . In a hospital ward, if there are many cases of COVID having oxygen support, it can communicate with the SpO2 device and regulate the optimum oxygen supply accordingly for 7 patients together in the absence of doctor. This Robot has oxygen concentrator inbuilt which can supply oxygen with a rate of 6 Litres per minute which supports while shifting of patients or any other condition.

It is also convertible robot into wheel chair when needed and it can carry the patient up to 100 kg with different operation mode.

- a. Self-driven (by patient)using joystick inbuilt upon handle
- b. Wireless Remote controlled
- c. Voice controlled using phone

It scans the patient standing in front of it in the range of 1 meter and tells the report whether he/she is in safe range of need to consult the doctor. Also the temperature scanned by robot is sent to a cloud using RF id scanner for the future reference. Other testing IOT based equipments includes ECG and Blood Pressure.

When our front-line warriors come in contact with COVID infected patients, they immediately become more prone to infecting themselves. The strongest pillar, i.e., the doctors shouldn't be affected and that is why we need this Robot. . Avoiding physical interaction with patients and providing them proper oxygen on time is only way to make them safe. Few pain points are mentioned.

1. Physical interaction with patients makes health workers at high risk including routine check-up, Meal delivery or goods delivery to the patient ward.
2. The oxygen control of entire ward for every patient will help to minimize the wastage of oxygen.
3. If the oxygen mask is not in use, the oxygen management system inside the robot will automatically cut off the supply to save oxygen.
4. Shifting corona infected patients is another risky job.
5. There are different units to sanitize the rooms and wards which are additionally increasing the capital expenditure of the hospitals.
6. Maintaining the patient's data manually unnecessarily engages an expert person to feed.
7. Patients and health workers can communicate using the screen of the robot which helps to establish a proper communication in between.

I believe this will cost us much less in the long run and hence it is cost-effective. If nothing, we will succeed in saving a lot many lives.

The team was exited to get the offer from Ram Manohar Lohia Hospital and KGMU Hospital, Lucknow for phase 1 trial.

When this is all over and we return to the environment where we all went out and had our fun by eating outside, shopping and hugging each other instead of elbow-bumps, this robot can be used as assistance in the hotel industry to serve people.

“In a country like India where the population is both a curse and a blessing, it takes just the right amount of luck and guidance to dodge a bullet.”

NewGen IEDC contributed the team in the terms of

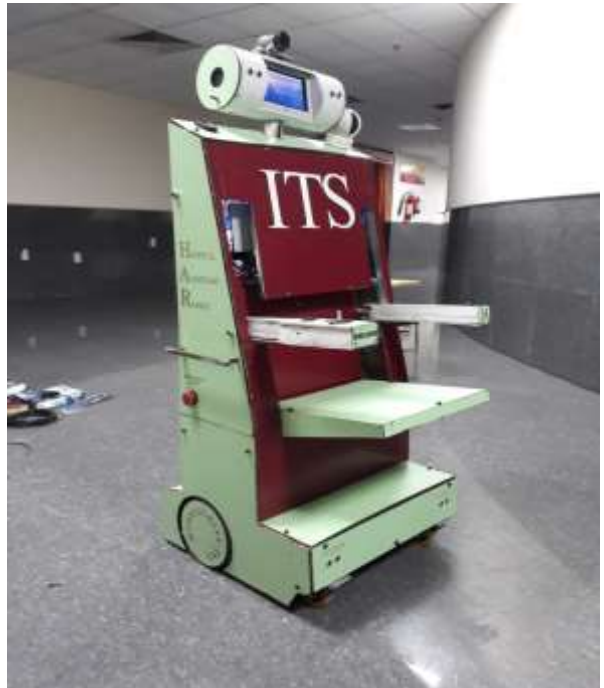
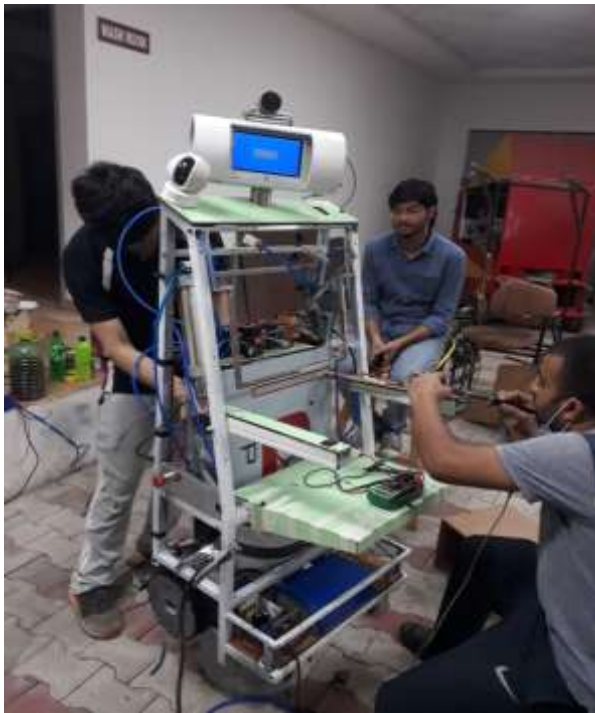
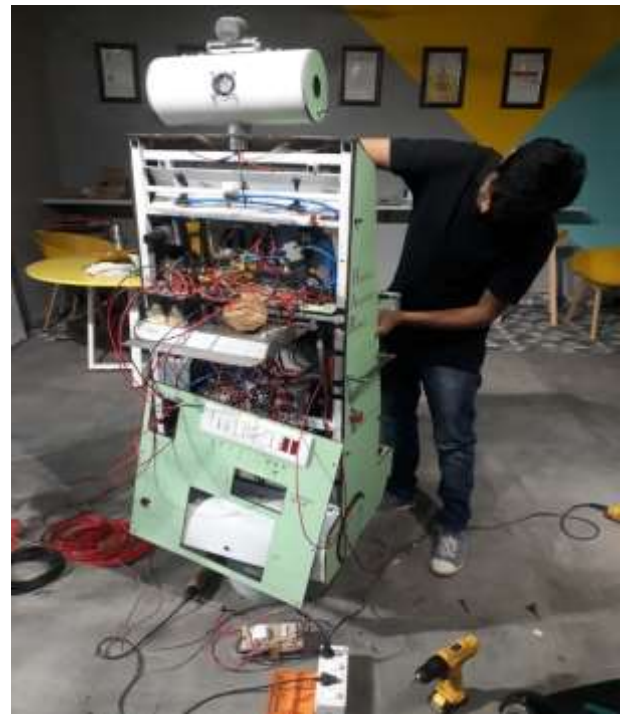
1. Mentoring support
2. Fund support
3. Outsourced the professional developer for programming
4. Networking support

The future plan is to make it available at the most minimum price for the market. We are in contact to few companies who can develop it commercially by tech transfer.

Not confined to the hospitals only, we are also exploring the opportunities in the area of hotel industries as it is going to be hot cake in its field.

Few glimpses are mentioned below





NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	Indian Institute of Information Technology, Allahabad	
Year of starting NewGen IEDC	2018	
Name of the Head/Principal of the Institution/College	Prof. P. Nagabhushan	
Name of NewGen IEDC Coordinator	Dr. Ranjana Vyas	
Contact Details of NewGen IEDC Coordinator	<ul style="list-style-type: none"> Mobile Number 9406054819 E-Mail ID ranjana@iiita.ac.in 	
Financial Details	Sanction Order No./ Date	Amount Sanctioned
Previous Sanction Order Details	1 EDII/DST-NewGen IEDC/18-19/RLS-I/12, 04.11.2020	60,00,000
	2 EDII/DST-NewGen IEDC/18-19/RLS-I/12, 04.01.2021	47,50,000

1. **Initiatives/Activities Undertaken as per the Action Plan Submitted:**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1.	Orientation Session cum Pitching Workshop	An orientation session was taken to make the students aware about the startup ecosystem and the means by which they can delve into the same. Further, the business pitching workshop was conducted by Ansh Arora, Campus Director, Hult Prize, IIM Calcutta
2.	IPR Workshop	In order to make the people aware about the IPR provisions related to the project, the IPR workshop was organized by MyCrave Consultancy Pvt. Ltd.
3.	Innovation Fest bouquet of talks	Talks by the following eminent speakers: <ul style="list-style-type: none"> Dipan Sahu, Assistant Innovation Director, Ministry of Education's Innovation Cell, All India Centre for Technical Education (AICTE), Government of India Marie Brueser, Thought For Food Community Manager, Thought For Food® Foundation (TFF) George Abraham, Adviser, Drone

Sr. No.	Activities	Outcome/Achievements
		<p>Academy, NTPC Group of Colleges, England, United Kingdom</p> <ul style="list-style-type: none"> • Siddhant Aggarwal, Program Coordinator, Developer Relations, Google India, Lead, Build For Digital India (Solve For India), powered by Google in collab with MeITY, ACM's International Distinguished Speaker • Gagan Aggarwal, India Associate, Canada-India Centre For Excellence, Carleton University, Ottawa, Canada • Helen Ese Emore, Business Development Expert, Agribusiness & Circularity Advocate, Advisor to Founders of Growing & Tech-Enabled ventures in Africa, Certified International Facilitator, Co-Founder Scientia Consult & Auntie Helen Foods • Rajive Gulati, Sr. Program Officer Incubation UNTILabs (United Nations Innovation Labs), Advisor, African Asian Rural Development Organization, Ex-Head, Hartron Innovation & Startup Hub, CoE-IoT-Incubation, Gurugram • Prof. Jyoti Kumar, Assistant Professor, Department of Design, Indian Institute of Technology Delhi • Boris Otter, Founder, Swiss Space Tourism, Aeronautics Specialist, Simulator Pilot, SkyGuide, Geneva, Switzerland
4.	Workshop for startups	It was decided to conduct a 2-day intensive workshop on entrepreneurship development in an online virtual mode due to the pandemic. It was decided to open the same for all colleges, especially the ones running the NewGen IEDC program. The workshop was done by Dalvik Apps.
5.	Pitching Contest	<p>A pitching contest was organized for all the students. Considering the online nature due to the pandemic, the contest was open to all students nationwide. The contest got numerous entries, therefore only best 30 teams were screened, out of which top 4 were rewarded. The judges were:</p> <ol style="list-style-type: none"> 1. Vamsi Krishna Yadav : Entrepreneur, VC, & Director of Google Start-Up Grind 2. Dhanush Ram : Entrepreneur Behind the Entrepreneurs and Technology Venture Capitalist from Speciale Invest 3. Dr. Rahul Kala : Coordinator, IIIC & Newgen IEDC IIIT Allahabad

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1.	Business Hackathon Contest	In order to promote the development of projects with a commercial inclination, a business hackathon was conducted for all the students of IIITA.
2.	Customer Discovery Contest	A limitation of numerous current projects was noted to be customer discovery and outreach, therefore a contest specifically for the same was organized where projects were judged based on the idea's feedback by the prospective users.
3.	Beta Release Contest	An ambitious aim was to create a contest to judge product development based on the feedback from the 1 st users. Many students whole-heartedly tried, but none could achieve a launch within the limited time given. Hence no winners were declared.
4.	HULT Prize Talk, Hackathon and Pitch	The centre collaborated with the Hult prize to host the institute edition of the prize at IIITA. A number of students participated in the talk, hackathon and pitch of the same.
5.	Mentorship Session with Mr. Teun Mentzel, PUM Netherlands (twice)	A mentorship session with Teun Mentzel was organized. Due to the popularity, the session was conducted twice.
6.	SheHacks	To promote the participation of women, a hackathon exclusively for women teams was organized.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1.	Alumni Entrepreneur Talk by Samir Menon, Dexterity	A startup talk cum interactive session was organized by an alumni entrepreneur from the famous robotics startup, Dexterity.ai. The aim was to encourage the students to follow the same route.
2.	Industrial Talks on Blockchain and Fintech	Talks from the following eminent personalities were conducted: <ul style="list-style-type: none"> • Ram Gopal, CEO, Barclays Bank • Shiv Aggarwal, Leading Blockchain Technologist, CEO – EarthID • Workshop from Quantinsti on Algorithmic Trading
3.	Industrial Talks cum Panel Discussion in AI	Talks from the following eminent personalities were conducted: <ul style="list-style-type: none"> • Data Science Workshop by Kaggle Master Tanul Singh - A Noobs Journey to Becoming a Kaggle Master, State of the Art ML Practices, Interactive Q/A Session • Dr. Zamyra Chan, Associate Director University of Toronto, Prev. at Harvard

		<p>An AI Panel discussion was conducted that consisted of:</p> <ul style="list-style-type: none"> • Dr. Fabio Moiola, Microsoft AI, Faculty at Harvard – PANELIST • Shagun Sodhani, Facebook AI – PANELIST • Dr. Roman Yampolskiy, Best Seller AI Author, Prof. CSE – PANELIST • Tanul Singh, Kaggle Master - MODERATOR
4.	Industrial Talks cum Panel Discussion in Quantum Computing	<p>Talks from the following eminent personalities were conducted:</p> <ul style="list-style-type: none"> • Nithyasri Srivathsan, Founder & CEO, SheQuantam • Manas Mukharjee, CQT, NUS <p>A panel discussion with the following members was conducted:</p> <ul style="list-style-type: none"> • Nithyasri Srivathsan, Founder & CEO, SheQuantam – PANELIST • Manas Mukharjee, Centre for Quantum Technologies, NUS – PANELIST • Shesha S. Raghunathan, Quantum Computing Expert, IBM – PANELIST • Dr. Shayan Srinivasa Garani, Prof. at IISC - MODERATOR
5.	Workshops	<p>The following general purpose workshops were conducted:</p> <ul style="list-style-type: none"> • Workshop from Geeks For Geeks on Competitive Coding • Workshop from Isha Foundation, Yoga for Success - Mindfulness Workshop.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

- “Coffee session with representatives of CII” was replaced by an industrial talk.
- “Getting aligned with startups through fun games and fun activities” was originally planned as a physical meetup keeping the essence of the event live. The COVID19 restrictions prohibited the conduct of the event, which was hence replaced with a talk.
- “Interaction with top 25 tech startups at their place of work, to be prepared as a case study” was an ambitious event that required the students to visit startups during the vacations. It was decided not to ask the students to undertake any travel due to COVID19 pandemic and hence the event was replaced with equivalent talks.


3. Other important highlights (new initiatives), if any:


- Launch of the minor in innovation, entrepreneurship and IPR
- Launch of the program to accommodate projects/startups from other colleges
- Launch of the program to accommodate projects/startups from young recently graduated students (3rd year, applications invited, selections to be done in end July, 2021)
- Launch of the structured mentorship program (3rd year, to officially commence in August, 2021)

4. Student Projects (Please provide the following details for each student project)

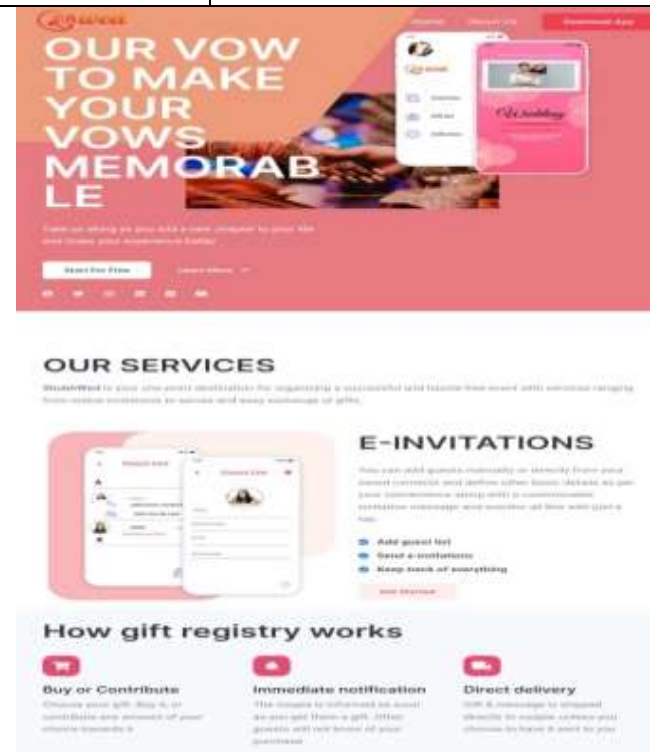
Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
1	Develop a Robo-advisor, AI based tool for financial investing, Siddhant Sanjyot Bhisikar 7211 3540 7804	Currently, in the final stage of developing a stock market prediction algorithm.	The algorithmic work is mostly done. The product still is not launch ready until the gaps are filled.	The work is ongoing.
2	Outpass Automation System in IIITA, Automate key aspects of the local college administration, Anshul Agarwal 871988072521	The design is being discussed within the team and authorities.	The initial prototype was developed. The scope of the work was further advanced.	Due to the pandemic, the institute did not open and testing was not possible. Possible steps are being thought over.
3	Illazo, Medical Help Application, Ritik Harchani 3945 9789 6275	Informal talks and communication with the doctors of various fields have been made. The mobile application is still in the development phase and we have incorporated the video call feature.	An initial prototype was developed, however, the pandemic made seeking collaborations very difficult.	The business model is being re-worked.
4	Generalized Administration System for Colleges, Automating college administration, Abhishek Singh , 9272 7525 0656, Manthan Surkar, 5440 5192 6398	The system is ready as per the specific requirements of one specific college.	The pandemic made it difficult to seek collaborations on this front and necessitated a re-look at the features. The development needs to be specific to target colleges.	The team is awaiting getting leads from colleges.
5	Smart Portable Container, Temperature controller container for biological samples and perishables,	An initial design of the concept is ready. The specifications are being discussed.	The project did not go as planned since it required a strong handholding of the	The project will resume once the institute re-opens.

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	Chaitanya Joshi 243560166857 Shivam Agrahari 901415038494, Sanidhya Gupta 963060795261		mentors for hardware design, that could not be facilitated due to the pandemic.	
6	Piezoelectric Device for converting electricity from motion, embedding a piezoelectric device at the sole of the shoe to generate energy as people walk, Pranshu Tripathi 643067905705, Vishesh Mittal 738024133106, Mohit Garg 387953010644, Archit Agrawal 807841244426	Discussions with teams are undergoing. The project is yet to effectively start.	Under development	Under development
7	Efficient Solar Cell, Motor-controlled mirrors with light intensity detector-based feedback for increasing the efficiency of the solar cells, Mayank Saini 8670 9934 2622, Ajay Singh 6880 9185 9817, Prakash Rajak 5507 9480 6834	Started on the design of the project	The project needed infrastructure that was not possible to be done in home settings with a distributed team. The work was thus paused.	The project shall resume after the institute re-opens.
8	Rail-Road Safety, A system to estimate the opening time of the rail-road crossing and modify driving instructions and route, Riya Goyal 567391421533, Tejas Agrawal 509933577198, Akash Kumar 877395201242, Yash Mishra 962606276863	Integrated the microcontroller with a web service to handle HTTP requests on gate status updates.	The work is affected due to a lack of collaboration and availability of needed facilities to the team, that is highly distributed. The work is planned to be resumed.	The work is under development.
9	Smart Dustbin, a dustbin with sensor to detect garbage level and use the same for efficient garbage collection, Aditi Jain 7644 1982 7437,	The design of the project has started.	The project was hardware intensive and since the institute did not open after the pandemic, it was difficult to	The project was paused during the pandemic and is to be re-started.

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
	Vrishabh Agamya 8391 2593 0674, Saloni Singla 3905 3071 9351, Anushka Verma 3637 9890 5665		get the needed infrastructure and mentorship.	
10	Bidding System For Used Products. Harish Rajora 824869239942, Hemant Kumar Lader 808528798148, Fanishwar Satyam 645284418399.	The project is under design.	The following modules have been worked out: Login/ SignUp facilities, Product addition functionality, Bidding logic, Bidding functionality working, Approval facility and moderator panels working, Profile functionality, Address Functionality working. Feedback from experts have been taken.	The development was slowed down due to the pandemic and is being taken up.
				
11	Inter-language chat application for travelers and Customised printed products, Palak Mittal, Archisha Baranwal	The team is working with the prospective user to finalize the features	The prototype is being developed.	The prototype is being developed.
12	Smart Agro Tech, Raunak Singh Rathore 8834 3112 5786, Mrityunjaya Tiwari 4884 9904 2560, Kodi Pravallika 9083 6497 0680, Rishabh 9213 5425 8407	At the time of last review, we have presented our idea and we were just having the idea about the implementation of our project. In the mean time we have tried to	At the starting stage, we have developed a sample model, which was not working efficiently, so we tried to change the algorithm and	Currently we are working on testing mode and development of the design of our kit.

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
		modify, made few changes and built our model.	trained by giving more data. Meanwhile we also developed website for registering purpose and connected this to the kit.	
				
13	Deep Learning Pipeline using Graphical Drag and Drop interface, Aayush Joglekar 4870 9844 0215, Ambuj Agrawal 9866 2119 5830, Rahul Jha: 7265 3835 9809, Vishal Pani 3106 8332 6992	The research component is complete. The development is being sought.	A suitable prototype was developed and tested. There were limited business aspects that restricted adoption.	
14	Athen, online practice tests for examinations, Pratyush Pareek 2906 3566 3241, Aaryan Bhardwaj 5984 7850 3259, Anirudh Arora 9387 8761 4096, Sanskar Patro 5793 7614 1791	The idea is finalized, the design is being done	The idea was formulated before the lockdown. The work needed collaborations and discussions that were not possible during the lockdown. The approach is being re-designed.	The work is being re-conceptualized and re-designed.
15	ShubhWed, A wedding announcement and wishlist portal, Ananya Agarwal	Nil/New project	Prototype app and the website was made and we got a pilot customer	Currently, we are making wedding cards in the form of

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
			(www.shubhwed.com) and the app is semi-finished so it is on playstore in internal track.	a website and to get our customers and understand the dynamics of this market better we are focusing on wedding planners and card printers.



Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
16	Midas, Reinforcement Learning based Cryptocurrency investing, Harsh Kochar 3557 9715 9716, Mrigyen Sawant 5821 8933 5467	The product was under design at the start of the year.	A significant progress was made in Reinforcement Learning. Steps were taken towards hosting the platform, and the work was stuck due to a few glitches.	The current team has now some research aspirations due to which the online hosting of the platform is delayed. The team is looking for new members to complete the same.

5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:



Team:

1. **Ananya Agarwal:** Electronics and Communication Undergraduate at IIIT Allahabad iec2019097@iiita.ac.in / ananya@shubhwed.com
+91 6306393462
2. **Sneha Gupta:** Electronics and Communication Undergraduate at IIIT Allahabad iec2019111@iiita.ac.in / sneha@shubhwed.com
+91 94625 72921

Brief description

ShubhWed is (will be) one point destination for organizing a successful and hassle-free event with services ranging from online invitations to secure and easy exchange of gifts. You can add guests manually or directly from your saved contacts and define other basic details as per your convenience along with a customizable invitation message and monitor all this with just a tap. The blessings of loved ones are always priceless. Nonetheless, if you wish to extend a token of love, we bring to you our customized gift wishlist to cater to your needs with options that suit you best.

Startups entrepreneurial journey

We started with an idea to organize the process of gift giving by providing a facility of gift registry.

First step for us was to register our idea under NewGen IEDC. Luckily we got selected and got Pavan sir and Shefali mam as our mentors. In just two initial sessions with them we learnt so many basics of entrepreneurship and after that we designed our first business plan and designed our prototype.

In December we took part in B-Hack 2.0 where we acted upon our plans and made a prototype application and started customer validation. It was after this our idea took a turn from just providing e-invitation and gift registry to a possibility to provide all the services under one name. We did more research on different possibilities for us in this space and made our first lean canvas.

In May we built our landing page (www.shubhwed.com) and got a pilot customer. As our platform is yet to be completed to provide these large scale of services we resort to making e-invitations for the time being and searching for our customers.

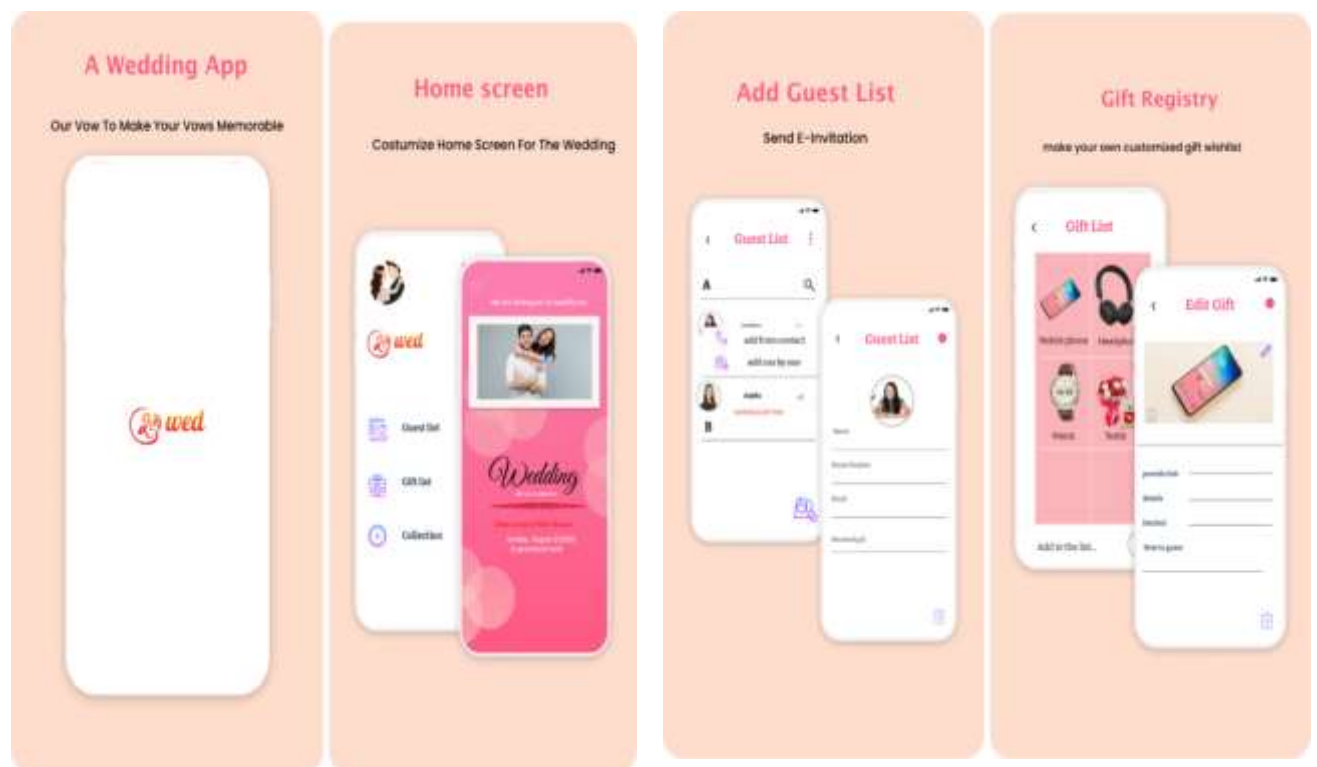
Contribution of NewGen IEDC

NewGen IEDC provided us the mentorship support which helped us to take our very first step into execution of our startup. Mentors also guided us about the different aspects of this idea and how a bigger market can be approached.

It also helped us with the monetary support we needed to host our website and publish our app on playstore.

Future plan

We plan to make shubhwed a one stop shop for wedding requirements. Where our customers will be both the couple getting married, their families and guests and service providers, vendors, designers, planners etc so that they can offer their services on an online platform with a consumer base just to their requirements.



Nazmehayat Enterprises Private Limited

3. Student Team Details

Name: Swapnil Singh

Designation: Director

Email: swapnil.nazme@gmail.com

Contact No: +91-7458015678

Name: Anushree Goswami

Designation: Director

Email: anushree.nazmehayat@gmail.com

Contact No: +91-7007340376

4. Brief description about the student start-up

Nazmehayat Enterprises is a publishing and content marketing company that builds a bridge between writers/authors and readers/viewers. It provides books and magazines publication services, content marketing services in both written and visual formats. Creating/bringing quality content and large-scale marketing of the same is the fundamental goal of the company.

5. Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs

The commencement of Nazmehayat Enterprises was done by Mr. Swapnil Singh & Ms. Anushree Goswami, who has a great longing to curate and come forth with a platform for worthy writers.

During the initial stage, they themselves became a part of the various writing platforms representing themselves as writers and tried their best to seize the opportunities.

As every coin has its two sides, the same was faced by the founders while learning from the different platforms and finally, an idea stuck them of filling the gaps by starting something of their own. And this was the time when they finally decided to start Nazmehayat.

Nazmehayat was started on 24th October 2019. The first and foremost step that they took was creating a group on one of the social media platforms for contests to be posted in and so from here, the journey begins...

30th July 2020, THE WEBSITE LAUNCH

Although the contests were running on various social media platforms and many writers got connected through them with an amazing team built up, the founders wanted to bring them all to one platform, i.e., by creating their own website. Thus the founders started the work through the bootstrapping stage and website creation work began, in November 2019. Crossing many hurdles, from November 2019 to July 2020, here comes the big day...THE WEBSITE LAUNCH.



30th July 2020, a big day in the history of Nazmehayat, when the website was launched by the auspicious hands of the honorable Guest, Dr. Shlesh Gautam, Professor Allahabad University and a Renowned Poet. Due to Covid-19, the launch event was organized digitally only, where other than Dr. Shlesh Gautam, various authorities from different sectors such as education, healthcare, literature, and others joined the event as a guest and contributed in the website launch. Link to the website: <https://www.nazmehayat.com/>

New Challenges, New Goals

Now the challenge for the Nazmehayat team was to bring the writers to the website, those who were connected through various social media platforms and to bring new writers as well. So the journey over the website begins with organizing various contests that bring qualitative content and various authors and their books were also promoted through the platform. The contents that come were passed through the content filtration by editing, formatting the contents by the editorial team and then posted over the website. Also, the writers were encouraged to write over the platform by providing various rewards and recognition to them through Nazmehayat. Various contents were published over the website in both written and visual format merging through Nazmehayat YouTube Channel.



On 2nd September 2020, the Nazmehayat website got approved for Google AdSense and thus Company started earning through the website, slowly but steadily. However, the founders knew that just by building a digital platform, it is not easier to get connected to the writers easily and physical interaction with the writers is very important to build up a bond and trust with the writers. And so the Aagaz event was organized by the Nazmehayat team.

On 1st November 2020, Aagaz event was organized

Aagaz was literature and cultural event held under the guidance of Dr. Shlesh Gautam. The event got lightened up by the presence of Yoga Guru, Chief Justice and IPS Officer of Prayagraj, Doctors and various Poets. The book launch of various books written by the founders of Nazmehayat and the host of the event Ms. Ayushi Singh was also done in the auspicious presence of the Guests. The event was held following all the protocols for the precautions from Covid-19.



Meanwhile, the founders were looking for the registration of the company since the website launch, but due to Covid-19, they were facing various challenges. On 1st December 2020, the company got registered as a Partnership Firm and also registered themselves under MSME Act 2006. As time passed, the founders did understand that just by bootstrapping it is very tough to scale the business and thus the search for investors begin.

February 2021, Got Funded under New Gen IEDC IIIT Allahabad

In the search of investors, the founders came to know about the New Gen IEDC IIITA and thus they have applied for the same. Crossing the hurdles of various interviews and pitching rounds, finally, the company got funded under the New Gen IEDC IIIT Allahabad which turns out to be an angel for the founders.

Under the mentorship of Prof. Rahul Kala, founders came to know about the various investor and incubation programs and other entrepreneurial competitions and so they started actively applying in the same.

Nari Open Mic held on 8th March 2021

With the help of New Gen IEDC IIITA, Nazmehayat was able to organize an open mic event, held on 8th March 2021, on the beautiful occasion of International Women's Day with 30 participants. The videos of the event are soon to be uploaded over the Nazmehayat YouTube Channel.



On the other side of the coin, the website faces many issues in meantime and thus few updates and improvements in the functionalities occurred over the website.

The Turning Point, THE BRAND INDIA Mentorship

As the founders were actively applying for the investment and looking for investors, participating and attending various online events, they got to attend one event named as JGU Startup Expo through which they got to meet Dr. Pravash Dey, founder of THE BRAND INDIA, who was really interested in their Startup.

With consecutive online meetings with TBI, founders came to know about all the loopholes of their company and work. Thus, Dr. Pravash Dey proposed to mentor the founders and guide them throughout the process. On 12th May 2021, the founders get into the contract for the mentorship under THE BRAND INDIA.

Rise of Nazmehayat Enterprises Private Limited

Although the Nazmehayat Company was registered under Partnership Firm, the founders understood that most investors and incubators are interested in Private Limited Companies and thus on 18th June 2021, Nazmehayat Enterprises registered themselves under Private Limited Company. Also as the company was already inclined towards the Publication market and the TBI mentor also gave the green signal to work in this department, the Nazmehayat Publications began as well.

Current Scenario

Nazmehayat Enterprises Private Limited is working on the Publication of various anthologies and solo books, and also renewal of the website is in the process which will help improve the speed, functionalities, features, UI, product sales and thus bringing more traffic to the website.

6. Contribution of New Gen IEDC in the same

New Gen IEDC played an important role in the smooth working of Nazmehayat and providing financial support to the founders. Since it has been the 1st funding for the founders and the company, it proves to be fruitful for them to get under the New Gen IEDC. Since the beginning, the New Gen IEDC has helped through providing financial support in organizing the event, in the registration of Nazmehayat Company in Private Limited, and currently providing the funds for the renewal of the website and other important payments as well. Also, with the mentorship of Prof. Rahul Kala, founders were able to understand this business sector in a better way, to approach various ventures supporting startups and providing incubation and investment and thus improving their work for the betterment of the company.

7. Future plan

The future depends on now and as we know the current scenario of the company, Nazmehayat is working on building up and creating a strong impact in the Publication field and also working on the renewal of the website to do the content marketing in a better way. In the near future, the company is supposed to build a strong foundation in the Publication sector and also with digital sales through the website. Also, the content marketing of the writers will be done in a more efficient way, improving the quality of the contents over the website, bringing more qualitative content, and doing the product sales of the books and magazines through the website, different distribution channels, and other platforms as well.

And so the 3-year growth plan of the company looks like, to generate revenue through the Publication of the books and magazines and through the content marketing as well.