NEW GENERATION INNOVATION AND ENTREPRENEURSHIP DEVELOPMENT CENTRE (NewGen IEDC)

Progress Report

Submitted to:

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

Submitted by:

Entrepreneurship Development Institute of India Ahmedabad

PROGRESS REPORT: INSTITUTION YEAR WISE

Sr. No.	Institutions	State
	2017-18	
1.	Kuppam Engineering College, Kuppam	Andhra Pradesh
2.	Ramachandra College of Engineering, Eluru	Andhra Pradesh
3.	Sasi Institute of Technology & Engineering, Tadepalligudem	Andhra Pradesh
4.	L. J. Institute of Engineering and Technology, Ahmedabad	Gujarat
5.	Manav Rachna International University, Faridabad	Haryana
6.	B. N. M. Institute of Technology, Bengaluru	Karnataka
7.	University of Science and Technology, Ri-Bhoi	Meghalaya
8.	College of Technology & Engineering, Udaipur	Rajasthan
9.	Dr. M. G. R. Educational and Research Institute, Chennai	Tamil Nadu
10.	National Engineering College, Kovilpatti	Tamil Nadu
11.	Velammal Engineering College, Chennai	Tamil Nadu
12.	Sphoorthy Engineering College, Hyderabad	Telangana
13.	GLA University, Mathura	Uttar Pradesh
14.	University of Kashmir, Srinagar	Jammu & Kashmir

Progress at a Glance

NewGen IEDCs Supported by NSTEDB, DST during 2017-18 and 2018-19

Progress Made and Outcome (as on May 22, 2019)

2017-18:

Sr. No.	NewGen IEDC	Progress Made	
1	Kuppam Engineering College, Kuppam, Andhra Pradesh	* Total number of Student Projects supported * No. of Patents filed by students * No. of companies Set up by Students	12 04 01
2	Ramachandra College of Engineering Eluru, Andhra Pradesh	* Total number of Student Projects supported	10
3	Sasi Institute of Technology & Engineering, Tadepalligudem, Andhra Pradesh	* Total number of Student Projects supported * No. of companies Set up by Students	10 01
4	L J Institute of Engineering & Technology, Ahmedabad, Gujarat	* Total number of Student Projects supported * No. of companies Set up by Students	20 02
5	Manav Rachna International University, Faridabad, Haryana	* Total number of Student Projects supported * No. of Patents filed by students * No. of companies Set up by Students	14 01 02
6	B. N. M. Institute of Technology, Bengaluru, Karnataka	* Total number of Student Projects supported * No. of Patents filed by students * No. of companies Set up by Students	14 02 02
7	University of Science and Technology, Ri-Bhoi, Meghalaya	* Total number of Student Projects supported * No. of companies Set up by Students	10 01
8	College of Technology and Engineering, Udaipur, Rajasthan	* Total number of Student Projects supported * No. of companies Set up by Students	10 01
9	Dr. MGR Educational and Research Institute, Chennai, Tamil Nadu	* Total number of Student Projects supported * No. of Patents Granted * No. of companies Set up by Students	10 02 03
10	National Engineering College, Kovilpatti, Tamil Nadu	* Total number of Student Projects supported * No. of Patents filed by students * No. of companies Set up by Students	10 08 01
11	Velammal Engineering College, Chennai, Tamil Nadu	* Total number of Student Projects supported * No. of Patents filed by students	25 06
12	Sphoorthy Engineering College Hyderabad, Telangana	* Total number of Student Projects supported * No. of Patents filed by students	12 06
13	GLA University, Mathura, Uttar Pradesh	* Total number of Student Projects supported * No. of Patents filed by students * No. of Patents Granted * No. of companies Set up by Students	14 03 02 02
14	University of Kashmir, Srinagar, Jammu and Kashmir	No Progress Reported So far	

Progress Summary of 2017-18

Sr. No.	Outcome	Total
1	Total number of Student Projects supported	**171**
2	No. of Patents filed by students	**30**
3	No. of Patents Granted	**04**
4	No. of companies Set up by Students	**16**

2018-19

Sr. No.	NewGen IEDC	Progress Made
1	Indian Institute of Technology (IIT), Guwahati, Assam	• 10 Student Projects have been identified by each of these NewGen IEDC • All Student Teams have started working on their Projects • Funds have been released recently (3-4 months before) • Visible/Concrete progress will be noticed at least after 6-8 months of time.
2	Marwadi University, Rajkot, Gujarat	
3	Jawaharlal Nehru National College of Engineering, Shimoga, Karnataka	
4	Datta Meghe Institute of Medical Sciences, (Deemed to University), Wardha, Maharashtra	
5	Chitkara University, Rajpura, Punjab	
6	Mar Ephraem College of Engineering & Technology, Elavuvilai, Tamil Nadu	
7	Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu	
8	S. R. M. Institute of Science and Technology, Kattankulathur, Tamil Nadu	
9	C. V. R. College of Engineering District: Ranga Reddy, Telangana	
10	Sumathi Reddy Institute of Technology for Women, Warangal Urban, Telangana	
11	I. T. S. Engineering College Greater Noida, Uttar Pradesh	
12	Indian Institute of Information Technology Allahabad, Uttar Pradesh	

01. Kuppam Engineering College, Kuppam, Andhra Pradesh

NEW GENERATION INNOVATION & ENTREPRENEURSHIP DEVELOPMENT CENTRE

PROGRESS REPORT

(UPTO 31ST OCTOBER, 2018)

UNDER

DEPARTMENT OF SCIENCE & TECHNOLOGY, NEW DELHI

SUBMITTED TO

NATIONAL SCIENCE & TECHNOLOGY ENTREPRENEURSHIP DEVELOPMENT BOARD (NSTEDB), NEW DELHI.

By

KUPPAM ENGINEERING COLLEGE

Approved AICTE New Delhi, Affiliated To JNTU Anantapuramu
Accredited by NBA, NAAC and ISO 9001:2008 Certified
KES Nagar, Kuppam, Chittoor District, Andhra Pradesh
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KUPPAM ENGINEERING COLLEGE

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Date: 03/12/2018.
Place: Kuppam

From

The Principal,
Kuppam Engineering College,
Kuppam.

To

Mr. S.B. Sareen,
Project Director & Member Secretary DST-NIMAT Project,
Entrepreneurship Development Institute of India,
Dist. Gandhinagar,
Gujarat.

Sub: Submission of progress report of NewGen IEDC Activities for 2017-18

Respected Sir,

With reference to the above subject, we are hereby sending the hard copy of the New Gen IEDC Activities progress report for the year 2017-2018. (Up to October 31st, 2018).

Thanking you sir,

Yours sincerely,

Dr. S. SUDHAKAR BABU, Ph. D.
Principal
Kuppam Engineering College,
Kuppam 517 425, Chittoor Dist. A.P.

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NewGen IEDC [2017-22]
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report (As on October 31, 2018)

Name of the College/Institution hosting NewGen IEDC	KUPPAM EINGINEERING 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.Kodandaramaiah		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	+91-9502686286 gnk.ramaiah@gmail.com		
Financial Details	Sanction Order No./ Date		Amount Sanctioned
Previous Sanction Order Details	1.	EDII/DST-NewGen IEDC/17-18/01 dated 15/06/2017	Rs:60,00,000

1. Initiatives/Activities Undertaken as per the Action Plan Submitted: (*Refer Enclosure I*)

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

Sr. No.	Activities	Outcome/Achievements
1	**"Entrepreneurship Orientation Program"** conducted on 20th & 21st September, 2017. Resource persons: Mr.Raman Gujral, South Regional Head & Mr.Yasaswi Nag, Associate Professor, EDII, Bengaluru. No. of Students Participated: 100	• Enabled the student's community to inculcate the spirit creativity & innovation in becoming future Techno-entrepreneurs. • Students have realized the significance of "Entrepreneurship" to curb the future employment crisis. • There on more & more students started to participate in Innovation & Start-up contests.
2	**"Entrepreneurship Awareness Camp [EAC]"** conducted by ECE, EEE, CSE, ME & CIVIL departments sponsored by NSTEDB, DST-NIMAT-2017. EAC Conduction dates of all 5 departments are;	• Students have come to know the importance & benefits of choosing entrepreneurial route for socio-economic well-being. • Understood the need of "Thinking out of the Box" for creating Innovative idea's & also applying creative innovation to bring value

	ECE Dept.: 08-03-208 to 10-03-2018. EEE Dept.: 15-03-2018 to 17-03-2018 CSE Dept.: 23-01-2018 to 25-01-2018 CE Dept.: 15-03-2018 to 17-03-2018 ME Dept.: 16-02-2018 to 19-02-2018 Invited eminent personalities from EDII, Bengaluru, Industrial experts, officials from MSME, R&D directors & Successful entrepreneurs.	for a product or service in the market. • Insight knowledge on Business plan preparation of an innovative idea. • Learnt about start-up opportunities and ease of doing businesses. • Exposure to the real work culture in the industries
3	**"Role of Innovation in industrial Product development"** by Dr.K.T.Deepak, Professor, IIIT, Dharwad. Held on 5th January, 2018.	• Scope of innovation in design & manufacturing industries. • Nature of work & risk handled by the product development engineers in industries. • Students undergone internship training program in IIIT, Dharwad.
4	**"IoT-Innovation to Market Deployment"** by Dr.Pandian angaiyan chief technology officer, Tech Mahindra, U.S.A, held on 21st July, 2018.	• Business opportunities on IoT based Product/Service development. • Benefits of IoT in reducing the operational costs, improving productivity & Enhance efficiency. • Business opportunities in improving customer services & Experience.

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

Sr. No.	Activities	Outcome/Achievements
1	**"Startup India-BOOT-CAMP"**, By STARTUP INDIA team Lead by Mr.Karan, held on 27-08-2018 @KEC Campus	• 70 ideas are registered on spot @KEC. • 30 Ideas shortlisted for 2nd level completion held at Mahila University, Tirupathi. • 15 Teams selected for State level start-up competition held @ Vishakapatnam, Andhra Pradesh • One Team won the second prize of cash money Rs.55, 000/- in social innovation.

2	**"KEC IDEATHON"** Held on 08-08-2018, Mr.Vinny Patro, CEO of APITA & AP Innovation Society was the Chief Guest and judge for the event. Given a talk on "Role of Innovation & Entrepreneurship" in personal & corporate life. Also emphasized the availability of Incubation support for taking an idea from Prototype-to-product.	• Around 45 innovative ideas were presented by the KEC students. • A team from ECE won the First prize of Rs.3000/-, & a team from CSE won the second prize of Rs.1500/-. • Innovative Idea creation event increased the student's enthusiasm to participate in innovation & entrepreneurship events.
3	"**Designing IoT APPs"** by Dr.Anbunathan, Senior Manager, LG Systems, Bengaluru, held on 28th July, 2018.	• Students learnt insights of Industrial IoT & significant benefits of Application development on top of IoT. • Started developing interactive mobile application for remote monitoring and controlling applications.
4	**"Start-ups through Incubation**" by Dr.Satish, CEO, Atal Incubation, SK University, Anantapur. Held on 29-09-2018.	• Enriched the students with insights of start-up idea & role of incubations in nurturing student innovations. • Practical session on "Idea-to-Market" Enlighted the students to express their innovative ideas on the spot. • Assured of incubation support for innovative idea's and possible industry interventions for taking prototype-to-product & commercialization.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	**"Product Development Life Cycle and Sustainability"** by Mr. Haneef, Embedded Design Engineer,	• Workshop let us to know the industrial product design & Development stages. • Importance of Value Engineering to know the

	Technologics, Bengaluru, on 5th September, 2018	life & death of the product. • Our project team designed the "Solar Plant monitoring System" Demo Model in collaboration with Technologics, Bengaluru by undergoing one week training on the said project.
2	**"Product Development using IoT"** 5th to 8th ,Sept 2018 Resource Persons: Mr. Naveen, Technical Engineer & a team of trainers, Edgate Technologies, Bengaluru.	• Students have gained more practical knowledge on using IoT as a service. • Started developing mini projects on IoT platforms. • Few students could able to development mobile applications on IoT for remote monitoring & control operations.
3	**"Prototype to Product Development"** by Mr. Raghavendra Shetty, CEO, RDL Technology,Bengaluru, dated 18th May, 2018.	• Assured of supporting innovative project idea's developed under NewGen IEDC in their Incubation Centre to take into the Product development stage. • Submitted few prototype idea's for next level support by RDL Technology. • Agreed to train our students through the internships.
4	**"Intellectual Property Rights to enhance the Industry-Academia Collaborations"** by Mr.Saravanan, Patent filing authority, KK Technologies, Chennai. On 10th October, 2017.	• Get to know what are the ways to protect our intangible/intellectual assets (like patents, Copyrights, trademarks, Geographical indicators & Trade secretes etc). • Four Patents are filed by our student teams as an outcome of the workshop.
5	**"Industrial Product Development"** by Mr.Krishnamurthy, CEO, Plant Control & Automation, Chennai, Held on 11th August, 2017.	• Discussed about product development stages and life cycle in automotive industries. • Agreed to support prototype to product development of innovative 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 also there is a slight change in the meaning & titles of few of the activities.

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.

The important reasons for short deviation/changes in the execution of few projects are;

a. **"Smart Helmet":** Only proof-of-concept prototype is developed in collaboration with E2Get Company, Kuppam. Due to patenting issues we let down the consultation with Vega Company (already we obtained Patent rights for smart helmet). Looking for the government's intervention to implement & support our helmet idea.

b. **"Bluetooth Tag":** Proof-of-concept (POC) prototype is developed with the assistance from Cost Prize Online India Pvt. Ltd., Bengaluru, who assisted in developing tracking application only. Due to expensive design & Development costs of a single unit, the customized industrial product development was dropped off.

c. **"Smart Bins":** we proposed only prototype development of smart bins but our project team took a step ahead & could able to design Demo model which is currently under field testing @KEC Campus. More importantly "Smart Bin" idea is selected under Student start-up NIDHI Programme launched by NSTEDB, DST-New Delhi, and soon we are going to register a "Start-up" company for smart bins product development & Commercialization.

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

Kuppam Engineering College (KEC) and NewGen IEDC are working collaterally 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;

i. Institution Innovation Council (IIC):

KEC is been selected for establishing "Institution Innovation Council (IIC)" by Ministry of Human Resource Development (MHRD), Govt. of India, through 'MHRD's Innovation Cell (MIC)'. The primary mandate of MIC is to encourage, inspire and nurture young students by supporting them to work with new ideas and transform them into prototypes while they are informative years.

Major Objectives of IIC are:

- To create a vibrant local innovation ecosystem.
- Start-up supporting Mechanism in Institution.
- To Establish Function Ecosystem for Scouting Ideas and Pre-incubation of Ideas.
- To Develop a better Cognitive Ability for Technology Students.
- To Prepare institute for Atal Ranking of Institutions on Innovation Achievements Framework.

ii. Member of A.P Innovation Society (APIS) Start-up:

KEC is the biggest beneficiary & Part of the Andhra Pradesh Innovation Society (APIS) initiative launched by Government of Andhra Pradesh with the vision to create a world class technology start-up ecosystem by fostering entrepreneurship and a culture of innovation which contributes to increased knowledge, wealth and employment in our society.

*Conducted "KEC IDEATHON" on 08-08-2018 at KEC campus in association with NewGen IEDC & CDC KEC, as a part AP Innovation Society activity by inviting Mr. Winny Patro, Chief Executive Officer (CEO), APITA & Additional in-charge of AP Innovation society as jury member & invitee speaker.

AP Innovation Society Provides the following benefits to our Science & Technology students;

- Fostering Innovation Culture among the young science & Technology students through various innovation activities.
- Provides Incubator/Accelerator support for student innovators.
- Creating Start-up ecosystem through industry collaborations, venture capitalists & angel investors etc.
- Encourages student's innovation & Entrepreneurship through Bootcamps, Hackathons, Exhibitions/Fairs, E-summits, Investor meetups, Start-up Meetups & Start-up events.

iii. Pradhan Mantri Kaushal Vikas Yojana by Technical Institutions (PMKVY-TI):

KEC is been identified as one of the training centre for implementing PMKVY schemes approved by AICTE under the ministry of Skill Development & Entrepreneurship (MSDE), for imparting Engineering Skills training to the unemployed rural youths to find jobs in suitable private sectors & providing entrepreneurial orientation along with required skills & also trained for self-employment and entrepreneurship development.

*KEC is Currently providing training to various standards of students in 8 various sectors/specialized fields.

Objectives of PMKVY-TI are;

- Encourage the institutions for effective utilization of available infrastructure & resources during off hours for vocational training courses.
- Provide employable & certifiable skills based on National Occupational Standards (NOS) with necessary soft skills & engineering skills.
- Provide for up-gradation & certification of traditional/acquired skills irrespective of age
- Provide entrepreneurial orientation along with required skills, trained for self-employment & entrepreneurship development.

iv. New Initiatives of NewGen IEDC@KEC:

- An "INNOVATION CLASS" is added in an academic time table to all the years of engineering students, for exploring the importance of innovation & creativity in entrepreneurship.
- Provides financial support & Appreciation Award for registering patents, Trademarks etc. by the student innovators.

Sl.No	Title of the Innovation	Student innovators	Patent No.	Status
1	Compact & Effective Infant Monitoring System by using Embedded Boards	J Yashwanth R Sandhyarani	201841009478	Filed
2	Low cost automatic LPG cylinder booking Leakage Monitoring System	M Vasanth Kumar T Mounika	201841009187	Filed
3	Appliance Failure Detection System	K Ravi Karthik KR Lakshmi Ramya	201841045229	Filed

- 3 Patents are filed by the student teams on their innovative ideas developed under NewGen IEDC.
- Mr.J Yashwanth, 3rd B.Tech student has been conferred with "YOUNG ENTREPRENEUR" Award by NewGen EDC for registering a "TRADEMARK" on "GROCERY-to-HOME (G2H)" a service to deliver groceries directly to home.
- He also started an online service portal "BUSIFARM: A Business for Farmers" for providing direct marketing links between farmers & customers to avoid loss of revenue through the middleman. "BUSIFARM" start-up idea was shortlisted by New Horizon College, Bengaluru for participating in Indian Technology Congress & demonstrated the BUSIFARM start-up model to Chief Minister of Karnataka on 5th & 6th September, 2018, NIMHANS Convention Centre, Bengaluru.
- NewGe IEDC refers student teams to take up technical internships in various companies & industries.
    - List of students undergone internship in industries & Companies

Sl.No	**Name of the student**	**Year/Sem & Branch**	**Company/Industry**	**Duration (In**
1	M Mahesh Reddy	III/II, ECE	Cloud Byte India Technologies Pvt Ltd. Bengaluru	6
2	M Mahesh Reddy	IV/I, ECE	Supralax Electronics Pvt. Ltd, Bengaluru	3
3	B V Chetan	IV/I, ECE	TechKnowLogic India Pvt Ltd. Bengaluru	3
4	K Ravikarthik	III/II, ECE	Technolgics, Bengaluru	3
5	P Anitha	III/II, ECE	TakeOff, Tirupati	1
6	M Varneesh Reddy	III/II, CSE	Ulektz, Bengaluru	3
7	S Kavya	III/II, ECE	Kalasalingam Academy of Research & Education,Tamil Nadu	1
8	M Vasanth Kumar	III/II, ECE	Kalasalingam Academy of Research & Education, Tamil Nadu	1
9	Sripad Raj	II/II, CSE	Cloud Byte India Technologies Pvt Ltd. Bengaluru	6
10	C Rahul Reddy	IV/I, ECE	Technolgics, Bengaluru	1

- NewGen IEDC Provides Incubation & Start-Up support access to the student innovators through collaboration.
    - Few of the Incubators & MSME's, we are collaborating are;
        - Atal Incubation Centre, S.K University, Anantapur, A.P
        - NRDC Sunrise Incubation Centre, Vishakhapatnam, A.P
        - Atal Incubation Centre, Jyothi Institute of Technology, Bengaluru, K.A
        - MSME, Anand Institute of Higher Technology, Chennai, T.N
    - 6 Student teams have presented their innovative ideas to Mr. C Muruli Krishna Kumar, Chief-consultant of NITI, AAYOG & Dr. Satish, CEO, of Atal Incubation Centre, S.K University, Anantapur on 2nd, November, 2018 for supporting Prototype to Start-up & commercialization.
- Promoting student innovators to explore their innovative ideas in National & State level Innovation contests, Start-up challenges, project expo's etc. by providing TA-DA allowances & other incentives.
- Refer ***ENCLOUSRE-II*** for more details about Student achievements

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	**"Appliance Failure Detection System"** **Student team (with AADHAR):** 1. A Dinesh (962861497331) 2. K. Ranjitha (483341161865) 3. K Ravi Karthik (258388813742) 4. K.R.Lakshmi Ramya (450117231232) **Project Description:** Appliance or load failure is uncertain due to fluctuations, short-circuit or aging. Failure monitoring becomes most important task in places like Intensive care units, industrial process monitoring, Night vision, tracking systems, electrical motors and remote monitoring etc. Quick response and replacement of failed appliances/loads.	**"Conceptual Level":** a. Addressed specific problem it solves. b. Target audience c. Discussed practical feasibility & Commercial viability. d. Elicitation of Design requirements & Technology to be adopted.	a. Project team has been trained on "Electrical Measurement & Circuits Design" by Technical expert (Electrical & Electronics Engineering) of R&D, KEC. b. Team had been able design the Proof-of-Concept (POC) prototype successfully to detect the failures in AC & DC Loads	**"POC PROTOTYPE"** a. Patent filed for the Idea. b. Participating in the Start-Up exhibitions, innovation challenges for bringing venture capitalists, angel investors and industry take-off. c. Participated in "IGNITE" Start-up exhibition on 2nd November, 2018, at "ATAL INCUBATION CENTRE" SK-University, Anantapur & demonstrated the prototype to Dr. C Muruli Krishna Kumar, Chief Consultant, NITI, AAYOG. d. Discussed with CEO of "ATAL INCUBATION CENTRE" SK-University, Anantapur for possible industry interventions and drawing angel investors.

2	**"Smart Street Lights"** **Student Team (with AADHAR):** 1. M Giriprasad (523642322789) 2. G Govindamma (706252638720) 3. C Rahul Reddy (427608952986) 4. P Anitha (742112113853) **Project Description:** Street Lights are burning during the day time in most of the rural areas in India. Though the street lights are automated in some areas (Semi-urban, urban and metropolitans) but most of the power wastage is observed during mid-nights with no traffic. To save the maximum possible energy during the late mid-nights, traffic lights intensity will be varied upon the detection of traffic and Even Lights shall be turned-off at mid-nights.	**"Conceptual Level":** a. Done Rigorous screening of Idea & specific problem it solves. b. Target audience & market size. c. Evaluated & Compared for the Commercial viability. d. Elicitation Design requirements & Cost-effective Technology to be adopted.	e. For Prototype development, our student team worked with "Go-Shakthi Renewable Energy Solutions, Bengaluru". f. With the assistance from "Venture Control Solutions, Bengaluru", our project team successfully designed a "Demo Product" for Real-Time testing @KEC.	**"Demo Model"** a. Demonstration of the Demo Model at various start-up exhibitions for drawing attention of industrial assistance, venture capitalists and angel investors. b. Real-Time testing and Implantation is underway @ KEC Campus.

3	**"Solar Jacket: A wearable electronic Gadget"** **Student Team (with AADHAR):** 1. T.B.Sindhu (314902564333) 2. M Khaleel Basha (573065166201) 3. S.Kavya (322277269441) 4. K.R.Ajith Kumar (577149327878) **Project Description:** In numerous real-life instances as we go outdoors, it is essential to ensure that we need to be protected against different weather conditions as we feel warmth or chill. The project aims to design a wearable portable solar jacket as an electronic gadget, which can be used to adjust the jacket temperature (Warmth or Cool) conditions according to surrounding temperature. The technology is driven by an array of flexible solar strips which are implanted on the jacket which charges the batteries inside the coat, this stored power can be used to run and cool the system and also charge almost all types of electronic devices, like Mobile Phones, etc.	**"Evaluation Stage":** a. Rigorous screening of different solutions for the idea to arrive at best feasible solution. b. Evaluated & Compared for commercial viability. c. feasibility study	a. Project team had worked with "CEEDEC Solutions, Kuppam for implementing Cooling & Heating Systems & proceeded to design Proof-of-Concept (POC) Prototype. b. Sought Assistance from Project developer R&D, KEC for electronic circuits design & Communication interface.	**"PROTOTYPE"** a. Sophisticated industrial design & Technology adoption is yet finding.

4	**"BLUETOOTH TAG:** Advancement in the technology of tagging with Valuable Devices**".** **Student Team (with AADHAR):** 1. J Bhavyasree (822192125719) 2. Y.Sheshadri (498849647128) 3. J Prasad (756189705406) 4. C Shalini (599870935186**)** **Project Description:** Every person wants his/her valuable belongings to be secured from unauthorized use/theft and also able to search the things in the supermarket. We never let to leave our valuables like mobiles, bags, wallets, vehicles or anything. Theft security of our belongings by everywhere we carry has become a matter of concern, that too when we go for journey (bus, train etc.), no assurance of security to our valuable things. Tagging with the valuable things allows continuous track of our belongings. And also makes it ease in finding the goods in the supermarket.	**"Conceptual Stage":** a. Need for and origin of the idea. b. Specific problem it solves and proposed Innovations c. Target customers and market segment. d. Project roadmap.	**a.** Project team could able to develop Mobile Tracking Application in collaboration with **"Cost-prize Online India Pvt Ltd."**	**"PROTOTYPE"** a. Discussion is in progress with "**Pavan Empowerment solutions",** Palamaner, A.P for technology transfer and possible product development.

5	**"Solar Plant Monitoring System: Panel Cleaning and Health tracking"** **Student Team (with AADHAR):** 1. S Dinesh (294942355894) 2. M. Bindu Madhuri (383228562915) 3. J. Mahendra Reddy (978191560526) 4. M. Bhargavi (311098745629) **Project Description:** To overcome Reduced solar power efficiency due to accumulation of Dust on the solar panels and manual cleaning of solar panel regularly to improve the panel efficiency, we propose to design an Automated solar panel cleaning with flexible mounting setup with individual panel health monitoring to improve the efficiency of harvesting the solar power. Identifying inefficient/damaged panel with continuous energy tracking and Real time data analytics application is used for regular performance analysis.	**Experimentation Level:** a. Defined Specific solution to meet the consumer needs. b. Laboratory testing of solar panel health tracking circuits sensing circuits. c. Business plan: Market survey, financial analysis, revenue model, Innovation with optimized technologies.	a. **First Stage:** Project team was able to design and develop the "Proof-of-Concept Prototype" in collaboration with "Technologics, Bengaluru" b. **Second Stage:** Students team has undergone project specific training under Technologics R&D Centre, Bengaluru for further taking the prototype to Product development level.	**"DEMO PRODUCT"** a. Working on MoU for establishing the "Joint Venture" with "Venture Control solutions" Partner Company of Technologics to engage with custom Product development & Marketing.

6	**"Design of Intelligent Baby caring system"** **Student Team (with AADHAR):** 1. R.Sandhya Rani (360356611337) 2. N. JayaPrakash (447023102608) 3. J.Yashwanth (293511314844) 4. N.Bhargavi (205053281541) **Project Description:** A low cost intelligent baby monitoring system is designed to monitor the infants. This proposed system gives peace of mind to loved ones when they are away from their infant as they can get an updated status of their well being. The other advantage is the programmability of alarm conditions can alleviate any inaccuracy through a normal sensor. This system monitor vital parameters such as body temperature, moisture condition, movement of an infant and this information is transferred to their parents regularly through Short Messaging Service (SMS). And also we design a Cradle Moving Module (CMM) with low cost and high efficiency. This module works when the baby cries.	a. An idea is formed based on survey conducted at urban and Metropoliton Cities. b. Discussed open issues and risks on possible mechanical design and electronic Control System. c. Elicitate the design requirements and Methodology. d. A business plan is generated.	a. Proof of concept developed by support of Technilab Instruments, Bangalore. b. With association of Mr. Shivanand, Technical Advisor, S Technologies, Bangalore PCB is designed. c. Initial Cradle Moving Model (CMM) is designed by wood, later we used Aluminium for reducing weight and compact model with collaboration of Turbotech Engineering, Bangalore. d. CMM made for independent of cradle. e. CMM have 5 gears to control speed. f. The Demo model is shown to Dr.C.Murali Krishna Kumar, Technical Consultant & Sr. Advisor, NITI Aayog, India for suggestions to improve the model.	a. Patent Filed with application number 201841009478 @ Intellectual Property India, Chennai. b. First version (Ver-01) module is designed and developed. c. Validation of the developed model is undergoing.

7	**"Design of LPG Monitoring & Automatic Cylinder Booking With Alert System"** **Student Team (with AADHAR):** 1. T.Mounika (796737504500) 2. S.Praveen Kumar (953856682409) 3. T.Sharvani (270330720412) 4. M.Vasanth Kumar (216597735198) **Project Description:** There is a system to measure daily consumption of petroleum products but there is no system to measure daily consumption of LPG in domestic market, hence, "***Design of LPG Monitoring & Automatic Cylinder Booking with Alert System"*** has become important because this system continuously measure the weight of the cylinder and as soon as it reaches the minimum threshold it	a. Idea developed based on problems facing by rural folks. b. Opportunities are evaluated based on surveys and critically analyzed the idea for possible product. c. Discussed open issues and dangers. d. A strategy for business plan is created.	a. Design an onboard module with association of Technical Instruments, Bangalore. b. Plastic is used as casing for electric shock prevention. c. In the discussion with Atal Incubation Centre, SKU, Ananthapur, wheels are added for free moving to the model. d. In the discussion of Dr.C Narayanacharyulu CEO, Radiant Info System Wifi Module is added instead of Bluetooth.	a. Patent Filed with application number 201841009187 @ Intellectual properties India, Chennai. b. First version (Ver-01) module is designed and developed. c. Demonstrated the demo model at **Atal Incubation Centre**, SKU, Anantapuramu for seeking industry support. d. Demonstrated the demo model at National Research Development Corporation (NRDC), Sunrise Incubation Centre, Visakapatanam and some safety issues are asked to observe. e. The model demonstrated to CEO radiant info system Dr. C Narayanacharyu

	will automatically sends an SMS alert to the user as well as authorized LPG agent so that they can act accordingly. A cost-effective detection, using load sensors, gas sensors can be designed along with gas leakage detection, as this system gives a fully automated approach towards the gas booking. Real time weight measurement of the gas and makes an efficient home security system.			lu. He suggested some safety issues like any ignition possibilities if electronic equipment used with LPG.
8	**"Smart Bin"** **Student Team (with AADHAR):** 1. R.N Mohan (613245121399) 2. M. Mahesh Reddy (748224837093) 3. G. Priyanka (807405363156) 4. C S Jhansi (761695529303) **Project Description:** Traditionally, litter bins are emptied at certain intervals by cleaners. This method has several	**"Analysis Level"** a. Feasibility of idea & its impacts on social wellbeing was discussed. b. Concept of networked bins was developed. c. Business plan: Target customers, market size, financial analysis, technical aspects, consumer analysis etc. discussed & prepared the roadmap. d. Level sensors were simulated in laboratory to check	a. Discussed with technical experts of Young Minds Company, Tirupathi for preparing design requirements & Project roadmap. b. Project team had worked with technical expert team of Young Minds to design the proof-of-concept (POC) prototype successfully. c. The Project team has finally developed a	**"Demo Model"** a. Startup company registration is under process. **b.** "Demo Model" of smart bin is currently under real-time testing @KEC Campus. c. The "Demo Product model" is demonstrated at NRDC, Sunrise Incubation Centre, Visakapatanam,

	drawbacks such as, some litter bins fill up much faster than the rate of emptying and they are full before the next scheduled time for collection. This leads to overflowing of rubbish bin and poses hygiene risks. This proposed project presents a new frame work that enables the remote monitoring of solid waste bin in real time, via wireless sensor networks to assist the solid waste management process. The system is designed to monitor the status of the bin as soon as someone throws waste insight it. The system framework is based on a wireless sensor network, contains three levels: smart bin, gateway and Master control station that stores and analyze the data.	the filling status. e. Experimental set-up was developed in lab.	"Demo Model" of smart bin with the design experience obtained by Mr.Mahesh Reddy by attending 3 Months internship at SUPRALAX ELECTRONICS Pvt. Ltd.	Atal Incubation Centre, S.K University, Anantapur (A.P) to draw the government attention for commercialization. d. Discussion is going on with the municipal corporation, Kuppam for possible smart bin implementation.

9	**"Smart Helmet"** **Student Team (with AADHAR):** 1. N Shaziya (775540155739) 2. K Nikhil (565727186791) 3. C Prashanthi (740681634823) 4. P Teja (943063054395) **Project Description:** Now a day, in some places traffic volume consistently, extremely large in rush hours that it would take hours to travel. Due to this Humidity keeps on building up inside the helmet and causes accidents by attending the calls while driving. So in order to provide security, safety and comfort driving scenario an innovative thought SMART HELMET is necessary. The proposed system uses Thermoelectric cooler, Bluetooth, Ignition control switch and Ignition Control system, Vibration sensor, GPS and GSM which provides security, safety against accidents and gives comfort driving experience.	a. An idea is formed based on survey. b. Discussed open issues and risks. c. Designed plan of work and methodology. d. A business plan is generated.	a. For prototype development our team discussed with vega Company and Steel bird company. b. For cooling purpose additional fan is incorporated. c. Synthetic material is used in design of Module for reducing weight. **d.** Cognitive design to integrate Embedded components for now and future enhancements and Vehicle theft alert system is designed and developed in association with e2get company.	**"Prototype"** a. Patent Published with application number 6985/CHE/2015 @ Intellectual property india, chennai. b. First version (Ver-01) module is designed and developed. c. Design Hazards identifications in the ver -01. d. Participated in various start up exhibition and innovation challenges across the country.

10	**"Fabrication of a Power generating stationary Bicycle"** **Student team** 1. V Pavani (595977863049) 2. N Arun kumar (318368995589) 3. N Ravi kumar (833701158336) 4. T Pavan (454161650071) **Project description** To design a non-conventional electro mechanical based energy storage system To generate and save power as well as motivate people to maintain a healthy life To electrify the parts of the country which still has no access to electricity	**Conceptual level** a. To design a non-conventional electro mechanical based energy storage system b. To generate and save power as well as motivate people to maintain a healthy life c. To electrify the parts of the country which still has no access to electricity	a. Development of a prototype model b. Our students worked with turbotech fabrication in Bangalore and project laboratory at KEC. c. With assistance from turbotech fabrication solution, Bangalore, our project team successfully fabricated a demo model.	a. Successfully designed and fabricated prototype model. b. At full charging a 100 watt bulb can be lighted for 5 hours or 5 bulbs of 100 watt for 1 hour c. Testing the module & developing product module. d. Developing the module prototype and redesign with expert feed back
11	**"Real Time Sign Language Recognition System"** **Student team** 1. B.V Chetan (629531971398) 2. M. Akhil Naidu (857700548046) 3. Y Harun Kumar (488316909596) 4. K Krishna Kishore (436454517852)	a. An idea is formed based on survey. b. Discussed open issues and risks. c. Designed plan of work and methodology.	a. Hand gloves used for designing the module. On the discussion with Dr.C.Naryanacharyulu, CEO Radiant Info, Bangalore, He suggested to use Lithium battery to reduce the weight.	a. First version (Ver-01) module is designed and developed. b. Design Hazards identifications in the ver -01.\ c. Demonstrate the Demo Model at various project expo's and start up exhibitions

	Project description Maple dog's express their feelings by oscillating his tail. Similarly cows express their feelings with his feet, neck and tail. Every feeling has its distinct body movements. So by placing this model on their communicating body part we transform the animal feelings into words and phrases. This model also helps the deaf and dumb community to communicate with others in oral language. In this model we transformed six American Sign Language postures into words. We proposed efficient algorithms based on Euclidean distance metric and neural network pattern recognition tool with spline interpolation technique.		b. With the discussion of Dr.S.A.K. Jilani two sided Flex sensors were used to improve the efficiency.	

12	**"FABRICATION OF AERIAL SURVEILLANCE SYSTEM USING QUADCOPTER"** **Student team** 1. B.Sadaq Vali (633913219755) 2. A.Kowshik (791541716482) 3. G.Prasad (735717522688) **Project description** This project is scalable to larger extent to search and rescue firefighting law enforcement military and news reporting by being able to diploid aerial correspondence must faster than conventional helicopter. The result of this project to use the stable aerial quad copter design for practical users by attaching a live feed camera to a small scale, remote control, quad rotor, unmanned aerial vehicle. The quad copter can perform their mission at any risk places and based on risk factor no humans are injured or killed.	a. Idea is generated from the students based on the needs. b. The scope of implementation has been discussed with the technology people.	a. Design and fabrication of bicycle, our students worked with TurboTech fabrication in Bangalore and project laboratory at KEC. b. With assistance from NOVA Bicycle solution, Bangalore our project team designed pedal system With assistance from GoShakti energy source solution, Bangalore for inverter.	a. Successfully designed and fabricated prototype model. b. At full charging a 100 watt bulb can be lighted for 5 hours or 5 bulbs of 100 watt for 1 hour c. Testing the module & developing product module. d. Developing the module prototype and redesign with expert feed back

- **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 III*)**

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 IV*)

S No	Name of the Project
1	Smart Bin
2	Solar Plant Monitoring System: Panel Cleaning and Health Tracking
3	Design of Intelligent Baby Caring System

6. Minutes of the Advisory Board Meetings (held so far): (*Refer Enclosure V*)

S No	Date	Place	Members Attended
1	15-6-2017	Board Room, Kuppam Engineering College.	**1. Dr. S.Sudhakar Babu,** Principal/ Head of the Institute **2. Dr. Naveen Vasishta,** Representative of NSTEDB **3. Professor. S.B.Sareen,** Representative of EDII **4. Mr C.Narayanacharyulu,** Representative from Industry **5. Dr.S.Suresh Babu** Representative from Incubator **6. Mr.J Sasi Kumar** Lead Bank Manager **7. Dr.G.N.Kodanda Ramaiah** NewGen IEDC Coordinator **8. Mr. M Lakshmipathy** Associate Professor, Kuppam Engineering College **9. Mr. Santosh B Panjagal** Associate Professor, Kuppam Engineering College **10. Mr.N Chandrashekar** Alumni Entrepreneur **11. Mr.Karthik** Alumni Entrepreneur

7. Progress Summary:

1.	**Total number of Student Projects supported**	**12**
2.	**Total fund provided towards supporting Student Projects**	**₹ 24,44,982**
3.	**No. of Patents filed by students (Refer Enclosure)**	**04**
4.	**No. of Patents Granted**	**00**
5.	**No. of companies/Starts up Set up by Students (Refer Enclosure)**	**01**
6.	**Social Impact Made, If any**	**-**

ENCLOSURE-I

Initiatives/Activities Undertaken as per the Action Plan

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

1. **"Entrepreneurship Orientation Program"** conducted on 20th & 21st September, 2017. Resource persons: Mr.Raman Gujral, South Regional Head & Mr.Yasaswi Nag, Associate Professor, EDII, Bengaluru

2. **"Entrepreneurship Awareness Camp [EAC]"** conducted by ECE, EEE, CSE, ME & CIVIL departments sponsored by NSTEDB, DST-NIMAT-2017.

3. **“Role of Innovation in industrial Product development”** by Dr.K.T Deepak, Professor, IIIT, Dharwad. Held on 5th January, 2018.

4. **“IoT-Innovation to Market Deployment”** by Dr.Pandian angaiyan chief technology officer, Tech Mahindra, U.S.A, held on 21st July, 2018

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

1. **"Startup India-BOOT-CAMP"**, By STARTUP INDIA team Lead by Mr.Karan, held on 27-08-2018 @KEC Campus

2. **"KEC IDEATHON"** Held on 08-08-2018, Mr.Vinny Patro, CEO of APITA & AP Innovation Society was the Chief Guest and judge for the event.

3. **“Designing IoT APPs”** by Dr.Anbunathan, Senior Manager, LG Systems, Bengaluru, held on 28th July, 2018.

4. **“Start-ups through Incubation”** by Dr.Satish, CEO, Atal Incubation, SK University, Anantapur. Held on 29-09-2018

[C] To enhance Industry-Academia interaction

1. **"Product Development Life Cycle and Sustainability"** by Mr. Haneef, Embedded Design Engineer, Techno logics, Bengaluru, on 5th September, 2018

2. **"Prototype to Product Development"** by Mr. Raghavendra Shetty, CEO, RDL Technology, Bengaluru, dated 18th May, 2018.

3. **“Intellectual Property Rights to enhance the Industry-Academia Collaborations”** by Mr.Saravanan, Patent filing authority, KK Technologies, Chennai. On 10th October, 2017.

4. **“Industrial Product Development”** by Mr.Krishnamurthy, CEO, Plant Control & Automation, Chennai, Held on 11th August, 2017.

ENCLOUSURE-II

NewGen Students Achievements

Student & Mentor team has exhibited BUSIFARM start-up model to Chief Minister of Karnataka @ Indian Technology Congress on 5th & 6th September,2018, NIMHANS Convention Centre, Bengaluru.

Students team participated in start-up India state level contest on 15th September,2018 and won the second prize with cash award of Rs. 55,000/- held at Vishakhapatnam, A.P.

Four Student teams have participated & Demonstrated their innovative models to Sri. Nara Lokesh, IT & Rural development Minister of Andhra Pradesh, in "AP ELECTROTHON" a "Make-in-AP for AP" Start-up contest held on 13th, 14th & 15th March,2018 @ K.L University, Vijayawada, A.P.


Smart Helmet Project team won the first prize with cash award of Rs. 15,000/- in “AAVISKAAR-2018” A national level project exhibition held at SVPCET, Putturu, on February 2018.


Smart Helmet Project team won the Second prize with cash award of Rs. 4,000/- in “IEEE Student Project Expo” organised by CSV Mahavidyala, Kanchipuram, Tamil Nadu, on March, 2018.


LPG Monitoring


Smart Helmet Team


Baby Care Monitoring Team

Three Student Teams of 1) LPG Monitoring & Automatic Booking system 2) Smart Helmet & 3) Baby Care Monitoring System have participated & Got selected in JNTUA District Level and University Level "TECH FEST" held at Tirupati & Anantapur on January, 2018.

Three Student Teams of 1) LPG Monitoring & Automatic Booking system 2) Head light failure & Replacement sytem & 3) Country Basket have presented their Project models to Chief Minister of Andhra Pradesh held at S.V University, Tirupati on August, 2018.

Four Students team Exhibited their Innovative project models on occasion of "GNANABERI" University Start-up program held at S.V University, Tirupati, and Andhra Pradesh on 4th August, 2018.

Nithin and Team has received appreciation award from Mr. Naveen Vashista, Scientist DST and Mr. S.B.Sareen, Project Director EDII, Ahmedabad for registering the Online Food Delivery Service Company "2B2C"

KUPPAM ENGINEERING COLLEGE,KUPPAM

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

CERTIFICATE OF APPRECIATION

This award is presented to

Mr. J Yaswanth

FOR BECOMING "YOUNG ENTREPRENEUR" BY REGISTERING A START-UP COMPANY IN THE SERVICE AREA.
IN THIS REGARD THE MANAGEMENT, PRINCIPAL AND NEWGEN IEDC CHIEF-COORDINATOR RECOGNIZES HIS BUSINESS SKILLS AND PRESENTS A TOKEN OF APPRECIATION.

Chief Coordinator
NewGen IEDC

Principal

Mr. J Yaswanth has received an Young Entrepreneur award for registering trademark on G2H –Grocery to Home Online door delivery service.

ENCLOSURE-III

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

1. Appliance Failure Detection System

Student Team Explaining “Appliance failure Detection System” prototype to Mr.Naveen Vasista, Scientist, DST and Mr.SB Sareen, Project Director, EDII,Ahmedabad.

Demonstrated “Appliance failure Detection System” prototype to Mr.C Narayanacharulu,CEO, Radient infosystems,Bengaluru and Mr.Vinny Patro, CEO,AP Innovation Society, Govt. of Andhra Pradesh.

2. “Smart Street Lights”

Smart Street Lights POC Prototype (Version-1)

Smart Street Lights Demo Product Model (Version-2)

Student Team Explaining “Smart Street Lights” prototype to Mr.Naveen Vasista, Scientist, DST and Mr.SB Sareen, Project Director, EDII,Ahmedabad.

Demonstrated “Smart Street Lights” prototype to Mr.C Narayanacharulu,CEO, Radient infosystems,Bengaluru.

3. “Solar Jacket: A wearable electronic Gadget”

Project Team with Solar Jacket Prototype

Project team has demonstrated the Solar jacket prototype to Mr.Naveen Vasista, Scientist, DST and Mr.SB Sareen, Project Director, EDII,Ahmedabad.

Technical demonstration of Solar jacket to Dr. Suresh Babu, CEO Technology Business Incubator, Aadiman College of Engineering, Hosur,Tamil Nadu.

4. **“BLUETOOTH TAG”**

Project Team with Blueetooth Tag Version-1 Prototype

Demonstrated the Optimized Bluetooth Tag prototype to Mr.Naveen Vasista, Scientist, DST and Mr.SB Sareen, Project Director, EDII,Ahmedabad.

5. “Solar Plant Monitoring System: Panel Cleaning and Health tracking”

Project Team with Solar Plant monitoring system Prototype module

Demonstrated solar plant monitoring prototype to Mr.Naveen Vasista, Scientist, DST and Mr.SB Sareen, Project Director, EDII,Ahmedabad.

Prototype was demonstrated to Mr.Vinny Patro, CEO, AP Innovation Society,Govt. of Andhra Pradesh

Mentor & Student team with Solar Panel Cleaning Demo Product.

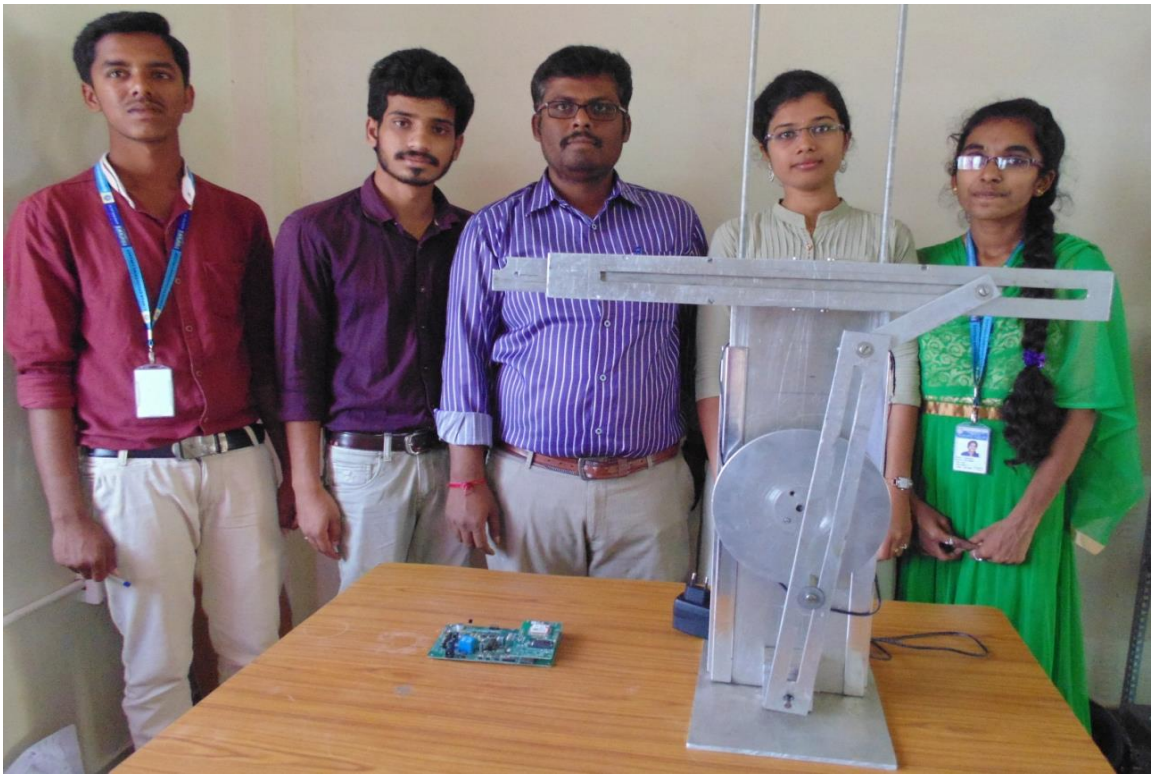
Mentor & Student team with Solar Panel Cleaning Demo Product.

6. “Design of Intelligent Baby caring system”

Project team with Baby care monitoring System Prototype

Demonstrated Baby care monitoring prototype to Mr.Pandian Angaiyan,CTO,Tech Mahindra, U.S.A.

Demonstrated Baby care monitoring prototype to Mr.Vinny Patro, CEO. AP Innovation Society, Govt. of Andhra Pradesh



Project team with Bay care monitoring System “Demo Product” module

7. **Design of LPG Monitoring & Automatic Cylinder Booking with Alert System**

Project team with LPG monitoring & Booking System Prototype Module.

Demonstrated LPG monitoring & Automatic Booking System prototype to Mr.Naveen Vasista, Scientist, DST and Mr.SB Sareen, Project Director, EDII,Ahmedabad.

Students team exhibited LPG monitoring & Automatic Booking System prototype to an industrial expert @ both District level & University level start-up contest, Tirupathi.

Project team with LPG monitoring & Automatic Booking System Customized developmental model (Version-02)

Student team has demonstrated LPG Monitoring Automatic Booking system prototype to Mr.Pandian Angaiyyan, CTO,Tech Mahindra, USA & Mr.Vinny Patro, CEO,AP Innovation Siciety, Govt. of Andhra Pradesh

8. “Smart Bin”

Project Team with “Smart Bin” Prototype

Project team demonstrated the smart bin prototype to Mr.Suresh Babu, CEO, Incubation centre, Aadhiman College,T.N

Project Team with Real-Time Testing Smart Bin Demo Module Implemented @KEC Campus.

9. “Smart Helmet”

Project Team with Smart Helmet Prototype (Version-1) Module

Project Team with Smart Helmet Prototype (Version-2) Module

Team has demonstrated the Smart Helmet prototype to Mr. Naveen Vasista, Scientist, DST and Mr.SB Sareen, Project Director, EDII,Ahmedabad.

Smart Helmet team won first prize with cash award of Rs.15,000/- in AAVISKAAR, National level Innovation Contest held @ Tirupathi

10. “Power generating stationary bicycle”

Project team with power generating stationary bicycle prototype module

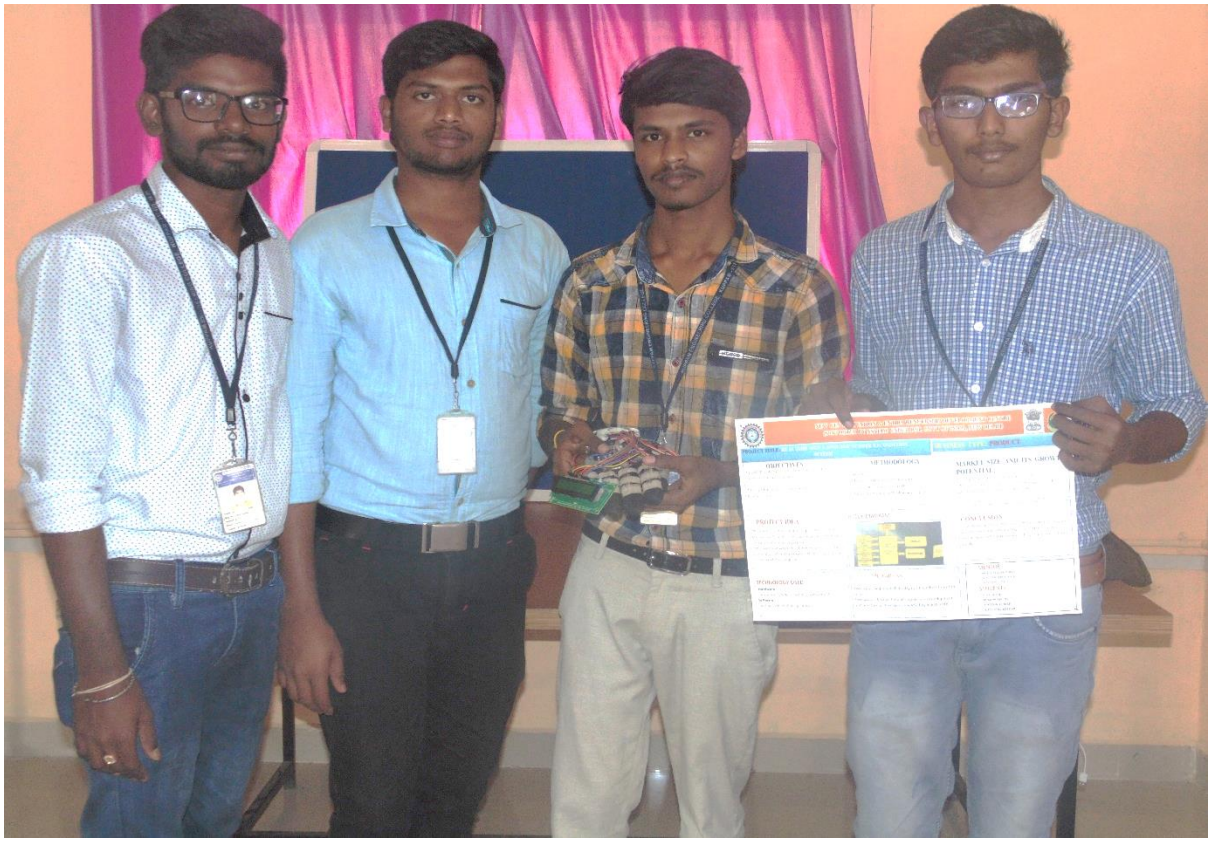
Project team with power generating stationary bicycle prototype module

Team has demonstrated the power generating stationary bicycle prototype module to Mr. Naveen Vasista, Scientist, DST and Mr.SB Sareen, Project Director, EDII, Ahmedabad.

ADDITIONAL 2 PROJECTS PHOTOS

11. “Real Time Sign Language Recognition System”

Project team with Real-Time sign language recognition system prototype



Project team with Real-Time sign language recognition system prototype

12. “Fabrication of Aerial Surveillance System Using Quadcopter”

Project team with Aerial Surveillance Quadcopter prototype

Project team with Aerial Surveillance Quadcopter prototype

ENCLOSURE-IV

TWO PAGE CASE-LET OF BEST THREE PROJECTS

Project 01: Smart Bin

i) Student team details (with contact information)

Sl.No	Name of The Student	Year of Study	Contact Details
1	R N Mohan	IV	1045, MDO Office Road, Ramakuppam, Chittoor Andhra Pradesh 517401 Mobile:9553364919 Mohanmls4234@gmail.com
2	G Priyanka	IV	8-11, C.G .Palli Eguva Nampalli Irala Chittoor Andhra Pradesh 517130 Mobile:9676217138 Priyankaguntur5336@gmail.com
3	M Mahesh Reddy	2018 Passed out	#6-3-943, Maruthi Nagar, Anantapur, Andhra Pradesh 515001 Mobile : 7032937625/8919122341 Maheshreddy7797@gmail.com
4	G Sumalatha	2018 Passed out	#6-67, Bhoomaiaya Gari Palle, Chilamathur , Anantapur, Andhra Pradesh 515601 Mobile: 8790314711 Sumalathareddy65@gmail.com

ii) Brief description about the student start-up

Start-Up Status:

A Start-up company named "Smart-Bin India Pvt Ltd" registration is under process for production & Commercialization of "Smart Bin" product.

"Smart Bin" Idea has been selected for Start-up through Student Start-up NIDHI Programme under the aegis of NSTEDB, DST, New Delhi, Govt. of India.

Objectives:

- Efficient waste management through fully automated Smart Bin product for keeping the society clean & Disease free.

- Bringing Municipal authorities & Civic workers on single window through mobile applications & GUI web application for faster bi clean-up & real-time monitoring and management.
- Production & commercialization of smart bin product by working closely with municipal corporations, hospitals, organizations & government for successful implementation.

Designated Board Members of the start-up:

Name of the member	Designation
R N Mohan	Chief Executive Officer (CEO)
G Priyanka	Chief Operating Officer (COO)

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 smart bin idea addresses, innovations, practical feasibility, Commercial viabilities & social impact at the beginning of the year.
- Discussed with technical experts of Young Minds company, Tirupathi for preparing design requirements & Project roadmap.
- Project team had worked with technical expert team of Young Minds to design the 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. Following experts had given the feedback to improve the design aspects;
    - Mr. Vinny Patro, CEO of AP Innovation society
    - Mr.Pandian Angaiyyan, CTO, Tech Mahindra, USA
    - Mr.Karan, Expert, Startup india club
    - Mr.Narayanacharulu, CEO, Radient infosystems, Bengaluru
    - Mr.Raghavendra Shetty, CEO, RDL Technology, Bengaluru
    - Dr.SVSN Reddy, Director R&D,HP Bengaluru
    - Dr. Venkatesh, Sarpanch, Kuppam Town
- Demonstrated the smart bin Idea to CM of Andhra Pradesh and also participated in "Navanirmarna Deeksha Chief Minister program" at Kadapa,A.P.

Project Team with “Smart Bin” Prototype

Demonstrated the smart bin prototype to Mr.Suresh Babu, CEO, Incubation centre, Aadhiman College, Tamil Nadu

Second Stage: (Prototype-to-Demo Product)

- Feedback from the experts leads the project team to work on improvisation/optimizing the Design aspects & intercommunication network device between multiple bins in prototype model to take into the Demo product model.

Project Team with Real-Time Testing Smart Bin Demo Module Implemented @KEC Campus.

- One student (M Mahesh Reddy) of the project team undergone 2 internship training session on electronics design & software application design in Cloud Byte INDIA Technologies Pvt. Ltd. & SUPRALAX ELECTRONICS Pvt. Ltd.
- The Project team finally developed a "Demo Model" of smart bin & currently this model is under real-time testing @KEC Campus.
- The "Demo Product model" is demonstrated at NRDC, Sunrise Incubation Centre, Visakapatanam, Atal Incubation Centre, S.K University, Anantapur (A.P) to draw the government attention for commercialization.

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.
- Discussed with Sarpanch of Kuppam Municipal Corporation & sought willingness letter of intent for providing smart bin technology as a part of "Smart Village" initiative.
- Permitted the project team to work with R&D team of young minds company to develop the proof-of-concept (Smart Bin).
- Encouraged the project team to submit proposal on "Smart Bin" idea to Student start-up NIDHI programme under NSTEDB, DST,New Delhi & allowed the student team to present their idea at EDII Ahmedabad, as a result the team had succeeded in fetching Student Start-up grant from DST.
- The smart bin prototype was demonstrated at NRDC, Sunrise Incubation Centre, Visakapatanam, Atal Incubation Centre, S.K University, Anantapur (A.P) to draw the government attention for possible implementation at all municipal corporations.
- 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 smart bin product within 3 years from the date of company registration.
- Collaborating with all the municipal corporations and village panchayat's for introducing smart bin concept to curb the waste management issues.
- Commercializing the product through different marketing channels for increasing many clients.
- Increasing customers base through market expansion.
- Training rural youths & providing employment opportunities.
- Planning to expand services for creating awareness on "Health effects" of Landfill gas emissions around the waste dumping yards.
- Extending R&D activities to cope up with the future technologies.

Project 02: Solar Plant Monitoring System: Panel Cleaning and Health Tracking

i) Student team details (with contact information)

Sl.No	Name of The Student	Year of Study	Contact Details
1	J Mahendra Reddy	IV	10/7, Gadela Road, Obulavaripalli, Kadapa, Andhra Pradesh 516108 Mobile: 8328065840 mahendrajabbireddy@gmail.com AADHAR: 978191560526
2	M Bhargavi	IV	14-239,Temple Street, Kuppam, Chittoor, Andhra Pradesh 517425 Mobile: 8309110558 bhargavi.apuluri@gmail.com AADHAR: 311098745629
3	M Bindu Madhuri	2018 Passed out	#1-41,Vendugampalli, Kuppam, Chittoor, Andhra Pradesh 517425 Mobile:7330830349 Email:bindumadhuri999@gmail.com AADHAR: 383228562915
4	S Dinesh	2018 Passed out	#1-54/1, Bramhana Gajulapalli, Thavanampalli, Chittoor, Andhra Pradesh 517129 Mobile:8008428407 Sivaaramdinesh28@gmail.com AADHAR: 294942355894

ii) Brief description about the student start-up

Start-Up Status:

Working with Technologics, Bengaluru & Atal Incubation Centre, S.K University Anantapur, for possible production & Commercialization of "Solar Panel cleaning system (SOLARPACS)" product.

Objectives:

- Production & commercialization of cost-effective SOLARPACS product with fully automated operation.
- Easing the process of Solar Panel cleaning & Achieving Maximum solar energy harnessing capabilities by using the rugged design of SOLARPACS.

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 its solves, innovations, practical feasibility & Commercial viabilities at the beginning of the year.
- Discussed with technical experts of Technologics Company for preparing design requirements & Project roadmap.
- Project team was able to design the proof-of-concept (POC) prototype successfully, with the assistance from technical experts of Technlogics.
- Demonstrated the prototype model to many industrial experts, investors for possible intervention to take up to the product level. Following experts had given the feedback to improve the design aspects;
  - Mr. Vinny Patro, CEO of AP Innovation society
  - Mr.Pandian Angaiyyan, CTO, Tech Mahindra, USA
  - Mr.Karan, Expert, Startup india club
  - Mr.Narayanacharulu, CEO, Radient infosystems, Bengaluru
  - Mr.Raghavendra Shetty, CEO, RDL Technology, Bengaluru
  - Dr.SVSN Reddy, Director R&D,HP Bengaluru

Prototype was demonstrated to Mr.Vinny Patro, CEO, AP Innovation Society, Govt. of Andhra Pradesh

Project Team with Solar Plant monitoring system Prototype module

Second Stage: (Prototype-to-Demo Product)

- Feedback from the experts leads us to work on improvisation/optimizing the Design aspects in prototype model to take into the Demo product model.
- 2 Students have undergone project specific training sessions on product design & testing for 1 week in Product design lab, Technologics, Bengaluru.

- Project team could finally able develop “Demo Product Model” of solar panel cleaning system in “Product design Lab” Technologics company.
- The “Demo Product model” is demonstrated to Dr. Satish, CEO, Atal Incubation Centre, S.K University, Antantapur (A.P) for getting the links for commercialization.

Mentor & Student team with Solar Panel Cleaning Demo Product.

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 product 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.
- Provided 1-week industrial training on product design & testing in specific to the solar panel cleaning system.
- Permitted the project team to work with R&D team of Technologics Company to develop the “Demo Product” (SOLARPACS).
- Proposal on “SOLARPACS” is been submitted to Atal Incubation Centre, S.K University, Anantapur (A.P) for seeking angel investors, venture capitalists & industrial links for commercialization.

- Chief-Coordinator of NewGen IEDC, KEC is holding different levels of meeting with Technologics, Bengaluru & Atal Incubation Centre, S.K University, Anantapur for signing MoU & looking forward to seek the support for student start-up.
- 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

- Registering the "SOLARPACS" student start-up company either by industry interventions or seeking support from Angel Investors, Venture capitalists, corporate sponsors etc.
- Commercializing the product through different marketing channels.
- Increasing customers base through market expansion.
- Training rural youths & providing employment opportunities.
- Expanding various services related to solar devices, storage etc.
- Extending R&D activities to cope up with the future technologies.

Project 03: Design of Intelligent Baby Caring System

i. Student team details (with contact information)

Sl.No	Name of The Student	Year of Study	Contact Details
1	J.Yaswanth	IV	1-34, Chelidiganipalle Chelidiganipalle, Ramakuppam, Chittoor, Andhra Pradesh 517424 Mobile: 9704932829 Yashwanth.j123@gmail.com AADHAR: 293511314844
2	N.Bhargavi	IV	1/165, Kamathamur, Kuppam, Chittoor, Andhra Pradesh 517425 Mobile: 9000063347 Nbhargavi1997@gmail.com AADHAR: 205053281541
3	R.Sandhya Rani	2018 passed	#4-1029, Vidyaranya Nagar, KLD Road, Anantapur-515004, Andhra Pradesh Mobile: 7330899450 Ragulupadusandhya7797@gmail.com AADHAR: 360356611337
4	N.Jayaprakash	2018 passed	# 18-7, JP. Road, Newpet, Kuppam-517425, Chittoor, Andhra Pradesh Mobile: 9440073968 Jaiprakashn17@gmail.com AADHAR: 447023102608

ii. Brief description about the student start-up

A Start-up company named “BABY CAMOS” is under process for registration. We, the team working with Technilab Instruments, Bangalore, S. Technologies, Bangalore and Atal Incubation Centre, SK University, for possible product of baby care monitoring system “BABY CAMOS”.

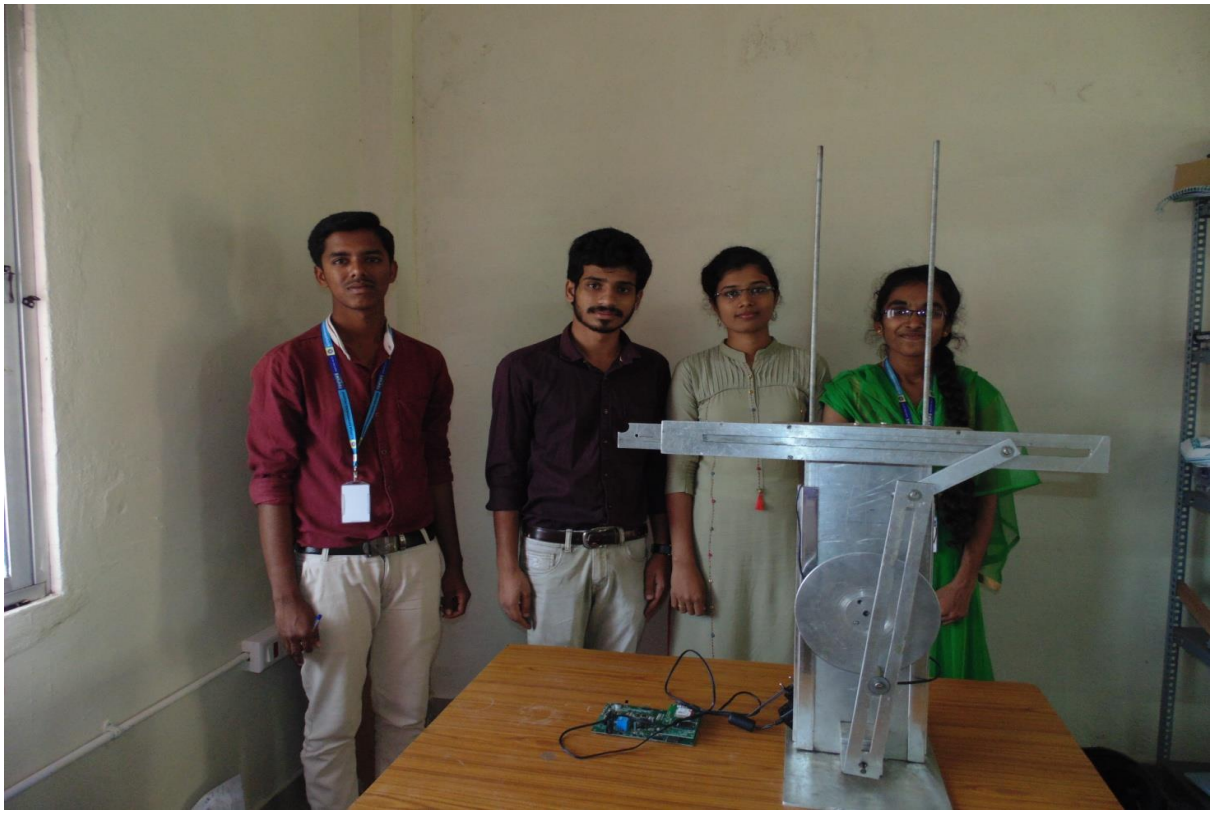
Objectives:

- To design of low cost and efficient BABY CAMOS product to monitor the infants.
- Monitoring the parents their kids from any location using smart technology.
- Measures the vital parameters such as body temperature, moisture condition, movement of an infant
- Design an efficient Cradle Moving Module (CMM).

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

Start-ups entrepreneurial journey passed through two different stages by carrying out various activities to complete the project design and development process.

Project Team with Design of Intelligent Baby Caring System Prototype module



Project Team with Design of Intelligent Baby Caring System Prototype module

First Stage: (IDEA to Prototype)

- Initially the Concept of idea was discussed with the mentor for practical feasibility, commercial viability.
- Applied the idea to NewGen IEDC and presented in front of Committee Members of NewGen IEDC.
- The team has developed a prototype design Baby Care Monitoring System.
- Cradle Moving Module is designed by wood with the collaboration of Mechanical department, Kuppam Engineering College, kuppam.
- Proof of concept developed by the team with collaboration of Mr.Ravi kumar CEO,technilab instruments, Bangalore.
- This project is applied for patent to IPI, Chennai.
- The Prototype model is demonstrated in various places for to take up into product level. the following experts had given valuable suggestions and feedback for improvement of the model.
    - Mr. Narayanacharulu, CEO, Radient inforsystems, Bangalore.
    - Mr. Raghavendra Shetty, CEO, RDL Technology, Bengaluru.
    - Dr. SVSN Reddy, Director R&D, HP Bengalure.

Second Stage (Prototype to Demo Product)

- Feedback from the experts leads the project team to work in improvisation the design in prototype model to take into the demo product model.
- With the collaboration of Mr. Shivanand, S. Technologies, Bangalore the Team develop PCB design.
- Demonstrated the demo model in Nava Nirmana Deeksha to CM Sri. Nara Chandrababu Naidu at Kadapa.
- Demonstrated the demo model in gnanaberi to CM Sri. Nara Chandrababu Naidu at Tirupati.\
- The Demo Model is presented to Mr. Satish Kumar, CEO, Atal Incubation Centre, SK University, Anantapur and National Research Development Corporation (NRDC), Sunrise Incubation Centre, and Visakhapatnam.
- The demo model is demonstrated in various places for to take up into product level. The following experts had given valuable suggestions and feedback to lead the team to work on demo model and take into product model.
    - Mr.Vinnay Patro, CEO of AP Innovation Society.
    - Mr. Pandian Angaiyyan CTO, Tech Mahindra, USA.
- Contribution of NewGen IEDC in the same

The NewGen IEDC, KEC have played a vital role in promoting the student idea to start up level by bridging the industries with KEC.

- Provided financial assistance to develop the prototype module of the idea.
- Invited many experts from various industry, CEO's, and Entrepreneurs to KEC for improving the project by giving their feedback and suggestions.
- Permitted to present our model in various events at different places.

iv. Future plan

- To become a successful start up firm for providing low cost BABY CAMOS within 3 years.
- Commercializing the product through different marketing channels for increasing many clients.
- Training rural youths and providing employment opportunities.

ENCLOSURE-IV

MINUTES OF MEETING

MEETING - 1 11

Proceedings of the Advisory board meeting held on 8-12-2017.

Venue :- Board Room
Time :- 10:30 am -

Members:-

1) principal - Dr. S. Sudhakar Babu
2) Dr. Naveen Vasishta
3) prof. S. B. Sareen
4) Mr. C. Narayanacharyulu
5) Dr. S. Suresh Babu
6) Dr. G. N. Kodanda Ramaiah
7) Mr. M. Lakshmipathy
8) Mr. Santosh. B. panjagal
9) Mr. N. Chandrashekar
10) Mr. Karthik
11) mr J Sasi Kumar

Agenda of the Meeting

1) progress of the purchase.
2) Progress of New Gen IEDC projects.
3) Interaction with project mentors.
4) Guidance from the board members.
5) Any other items with the permission of the chair.

I) Introduction :-

1) The chair person of the advisory board Dr. S. Sudhakar Babu, principal has introduced Dr. Naveen Vasishta and professor S. B. Sareen to management, special invitees and all the other board members.

2) Dr. S. Sudhakar Babu has thanked all the members for their presence.

3) Dr. S. Sudhakar Babu has conveyed his thanks to Department of Science and Technology, Govt of India New delhi and Entrepreneurship development institute of India, Ahmedabad and all other dignitaries who and all supported in getting the New Gen IEDC to the institution like kuppam Engineering College which is located in rural area like kuppam.

4) All the Advisory board members have inaugurated the chief Coordinator New Gen IEDC room, mentors room, Hardware lab, Software lab and Seminar Hall.

5) The mentors and student innovators has given their live demo to the advisory board.

II) Discussion :-

1) Dr. S. Sudhakar Babu has explained the functions of the advisory board.

2) The chief Coordinator Dr. G. N. Kodanda Ramaiah has presented the project status to the advisory board members.

5) Dr. Naveen Vasishta, professor S.B. Saleem, Dr. S. Suresh Babu, Mr. C. Narayanacharyulu and other special invitees has given the valuable Suggestion to the student innovatoes for further development of the prototype to product.

4) Members Dr. S. Suresh Babu, C. Narayanacharyulu and other special invitees has appreciated the student innovators.

5) Dr. Naveen Vasishta and professor S.B. Saleem have given the important financial guidelines to principal, chief Coordinator, Mentors and students.

6) Dr. Naveen Vasishta and professor S.B. Saleem has motivated all the young minds towards the entrepreneurship.

III) proposals:-

1) The chief Co-ordinator has presented additional project proposals for this year.

i) Surveillance Quadcopter
ii) Sign language Recognition.

2) Dr. Naveen Vasishta has briefed about the DST support and sponsored programmes for the young entrepreneurs.

IV) Token of Appreciation :-

i) The board members have presented memento's to all the mentors and Student achievers those who participated in

i) JNTU university - Srish TI
   a) Secured 1st place by T. Mounika
   b) Secured 2nd place by R. Sandhya Rani
   c) Secured 4th place by M. Mahesh Reddy.

ii) Hackathon program in BERKELEY-ANDHRA PRADESH and received certificate of excellence.
   a) M. Dilip kumar
   b) Raavi Venkatesh
   c) M. Akhil Naidu
   d) V. Harish Gandhi
   e) N. Mallikarjuna Reddy.

iii) the development of Vajrapath App -
   a) Shazia
   b) T. Mounika
   c) J. Yashwanth

iv) The development of 2B2C mobile app -
   a) D. Mithun
   b) A. Kowshik
   c) Y. Sheshadri
   d) G. Deva Reddy

2) The chairman of the institution B.C. Nagaraj, Vice chairman Dr. B.C. Sunil Raj, chief Executive

officer B.C. Sagar raj and peincipal Dr. Sudhakar Babu have felicitated the boaed membeus Dr. Naveen Vasishta, peof. S.B. Saeem and C. Narayanacharyulu and Dr. Suresh babu for thei continuous support and encouragement.

V) Adjournment :-
The next meeting iis adjoumed to the month March 2018.

Weitten by

M.

(M.N. VINAY)

chair person

(Dr. S. Sudhakar Babu)

Dr. S. SUDHAKAR BABU, Ph. D.
Principal
Kuppam Engineering College,
Kuppam 517 425, Chittoor Dist. A.P.

Dr. G.N. Ramaiah

New Gen IEDC chief coordinator
Dr. G.N. Kodanda Ramaiah

CHIEF CO-ORDINATOR - NewGen IEDC
INNOVATION & ENTREPRENEURSHIP DEVELOPMENT CENTRE
KUPPAM ENGINEERING COLLEGE
KUPPAM - 517 425

02. Ramachandra College of Engineering, Eluru, Andhra Pradesh

New Generation Innovation and Entrepreneurship Development Centre-RCEE

Under the aegis of

National Science & Technology Entrepreneurship Development Board (NSTEDB)

Department of Science and Technology, Government of India, New Delhi

NewGen IEDC

Progress Report

Ramachandra College of Engineering

Eluru, Andhra Pradesh

NewGen IEDC [2017-22]
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report (As on October 31, 2018)

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**		
Name of NewGen IEDC Coordinator	**Dr. K. Kalyan Chakravarthy**		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	**Professor** **MBA Department** **Ramachandra College of Engineering, Eluru** **Mobile No. 9491124153** **EmailId:varthychakri@gmail.com**		
Financial Details	**Sanction Order No./Date**		**Amount Sanctioned**
Previous Sanction Order Details	**1.**	**EDII/DST- New Gen IEDC/17-18/02**	**Total Budget:Rs: 60,00,000**
	2.		

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**	• **Create Awareness on Entrepreneurship Development.** • **Information given about government schemes MSME & KVIC.** • **Successful Entrepreneurs shared their experiences with the students.** • **Advised students to identify the local domestic, agriculture, industry, individual problems and work on it.**
2.	**Women Entrepreneurship Development**	• **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.	**Entrepreneurship & Intellectual Property Rights**	• **Created a bench mark standard through intensive training and skills enrichment on Entrepreneurship development.** • **Inculcate IPR culture in campus.** • **Suggested to go online courses on IPR, through World Intellectual Property Organisation (WIPO).**

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

Sr. No.	Activities	Outcome/Achievements
1.	**Smart India Hackathon -2018 Hardware Edition Finalist for Technology for Rural Development Theme**	• **3 projects, were submitted, 1 project (Jag- Repellent by Kotipalli Lakshmi Kala) was short listed for final round.**
2.	**Student Start-up NIDHI Programme**	• **8 projects were submitted, 1 short listed for final round and presented at EDII, Ahemedabad**
3.	**Amaravathi Mini Maker Fair- 2018**	• **4 projects displayed in Amaravathi maker fair.** • **2 projects (Sonic Pump & Portable Refrigeration) were shown interest and asked them to manufacture according to their requirement.** • **Students experienced a lot when public are raising doubts towards their product.**
4.	**Empresario Start-up Summit- 2018**	• **Students got rich experience on start-ups.** • **Students were motivated by Hon. Minister of Commerce & Industry Shri Suresh Prabhu's speech.** • **Experiences shared by Mr. Kris Gopalakrishnan, chairman Axilor Ventures, Co-Founder: Infosys Ltd., Chairman: Advisory Committee, CrAdLE** • **A platform to have interaction with industry mentors, student community, entrepreneurial endeavors and experiences, gain amazing new insights for start-ups.** • **Surveyed the stalls to know more about the problems, solutions and the challenges faced by them.**

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1.	**Programming on MAT LAB**	• **Basic knowledge on MAT Lab.** • **Learning on Arrays, datatypes, Header Files, fundamental about structures.** • **Program implementation, code & using it on Micro-controllers using MAT lab**
2.	**PCB designing**	• **Knowledge related to PCB, Editing & routing, to develop the layout, creation of library and components & report generation.** • **Toner transfer method, drilling technique.**
3.	**Micro Strip Antenna using High Frequency Structures Simulator**	• **Knowledge on HFSS for designing antennas.** • **How to frame & design micro strip antenna**
4.	**Robotics**	• **Learning skills in Automation & Robotics.** • **Practical approach learning by students on drones & Robotics.**
5.	**Kusalava International Limited**	• **Knowledge gained by students to manufacture break liners.** • **They understand how to design layout for product based system.** • **They understood how to pack the break liners for export and import.**

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

- **No Deviation as per the given schedule.**

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

- **Hosted Institute Innovation Council in the campus.**
- **Students were initiated to do online courses on Intellectual Property Rights & NPTEL.**
- **Hosted Intellectual Property Rights Cell.**

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.	**Team:** • K.Jeevan Sagar • T.Eswar Ramki • S.Sai Dhanush • M.Maniratnam **Mentor:** • Mr.M.EKAMBARAM Assistant Professor RCEE **Project:** Design and development of Aligners using 3D printing technology.	• Two patients has been treated so far and initiated to approach dental colleges in Vijayawada. • College has MOU with CTARS, Chennai • In a process of setting up Centre of Excellence in Manufacturing of Aligners.	• One of the patients is still continuing the treatment using the 3D printed Aligners without facing any discomfort and any health hazards. • Students publicize the product in college display boards. • Making awareness about the product in class rooms and social medias	• Prototype of the Product is completed. • One of the students is undergoing treatment. • Taking steps to market the product. • Planning to sign MOU with St.Joseph Dental College, Duggirala, Eluru.
	   			
2.	**Team:** • T.Subbarao • K.Pannagesh • K.Sivasankar • D.Likhitha **Mentor:** • Mr.K.Radhakrishna Assistant Professor RCEE	• Establish MoU with impact Engineering solutions start up will be set up shortly , next version of masks will be developed in the college • During trial	• Student visited Sandya Aqua export, Pamarru village on 06/02/2018 and identified the problem that the workers	• Prototype of the product is completed • Taking steps to market the product.

	Project: **Low cost head gear and nose mask for working personal**	**with Sandhya Aqua export cold storage workers, team received positive feedback and instructed to make some advancements.**	**who are working in cold storage at low temperature (i.e. -20^{0}c) without having any suitable mask.** • **Student visited Blue park sea foods Pvt. Ltd, Pamarru village on 07/06/2018 and identified the health hazards caused while working in the low temperature environment like breathing disorders, nasal respiratory problems were identified.** • **Student visited Jute mill in Eluru on 20/03/2018 identified the health hazards like problems in lungs related to respiratory and breathing problems**	

			while working.	
	 			
3.	**Team:** • **Mohammad Salma Bajid** • **Pakalpati Maneesha** • **Maddula Neelima** • **Dasari Shanmuk** **Mentor:** **RLR. Lokesh Babu** **Assistant Professor** **Project:** **Passive Infrared Sensor based energy saving device**.	**<u>Product Development:</u>** ▪ **Two prototypes versions are developed by reducing the detection time without having time delay.** ▪ **The following are the product specifications** **<u>Product dimensions:</u>** ▪ **Length: 850mm** ▪ **Width: 40mm** ▪ **Height: 250mm** **<u>About sensor:</u>** ▪ **Voltage: 5V – 20V** **Power** **Consumption:65mA**	• **Planning to add Light Dependent Resistor (LDR) for better improvement for power saving.** • **Improved prototype made to respond to the detection of sensor with less in time.**	• **Installed in college campus** • **for awareness and testing purpose.** • **Suggestions/feedbacks taken from students, staff and started working on that aspect.** • **To make prototype with minimal space consumption.**
				

4.	**Team:** **V.Tarun Teja** **M.SaiKrishna** **V.Bala Manohar Sai** **D..Murali** **Mentor:** **Bhavanarayana. K** **Project:** **Farmer Friendly Sonic Pump**	**Review of the Sample idea with Research solution** **This sonic pump Runs on DC supply so no need of AC power source** **It has a self-power unit to carry any where** **Major advantage of this pump is it can operate even in remote areas where no power is available.** **It is also useful for agriculture and nursery maintenance** **On one complete charge it will run up to 100 minutes and above** **It sucks water from up to 11 feet below and deliver up to 15 feet height** **It is a multipurpose pump, it can use in municipality works especially repair of leakage water pipe lines**	**1. Analyzed the actual Pump and its consumption.** **2. Researched and identified problems in the existing pumps** **3. Designed a theoretical analysis** **4. Integrating the components to execute for optimize output** **5. Testing**	**Product with Proto Type**

	  			
5.	**Team:** **Y.Prudhvi** **S.Harsha vardhan** **N.Madhu** **V.Lakshman** **Mentor:** **Bhavanarayana.K** **Project Description:** **Advanced Portable Refrigeration Machine**	• **This machine helps to chill the huge amount of liquids with in less time** • **This machine helps to dropdown the temperature of any liquids in less time.** • **It can replace ice blocks for hygiene purpose** • **Equipment cost is very less than compared to existing machines used for huge cooling capacities** • **It is portable and easy to carry anywhere.** • **Higher chilling rate** **Review of the Sample idea with Research solution**	**1. Analyzed the actual refrigeration system and in process of freezing of liquids.** **2. Find out the drawback in existed Machine** **3. Designed a theoretical analysis** **4. Integrating the components to execute optimize output** **5. Testing and result**	**Product with Proto Type**

				
6.	**Team:** **B.V.Subrahmanyam** **Md.GulshanAli** **P.DurgaPrasad** **B.Sai Kiran** **Mentor:** **Sai Surendra** **Project Description:** **Carbon Filters For Water Bottles** **The Main Objective of this project is to fit a water filter for the portable water bottle of any dimensions to remove the impurities in the water at the time of drinking itself**.	**Review of the Sample idea with Research solution for individual water bottles of 0.5 lit to 2.5 lit**	**Based on the survey we Identified some problems in the design of the bottle and filters are changed as per the feedback taken from different sources (both domestic and industries)**	**Product with Proto Type is finalized awaiting confirmation from municipality for safety certificate. Planning to tie an MOU with local distributors.**
	 			
7.	**Team Members:** **1- M.Nikhil** **2- D.Satish kumar** **3- S.Vernika Nageswari** **4- A.Mounika Rajyalakshmi**	**1. Designed ergonomically as an innovative gadget for ease of handling.** **2. Engineered for dry and wet cleaning, attached with a water container for spraying.** **3. Incorporation of**	**1. Analyze the different floor mopping machines available in the market.** **2. Incorporation of small and powerful motor,**	**1. Developed prototype, product development is completed.** **2. The product is tested for**

	Mentor: **CH.S K.B Pradeep Kumar** **Project Description:** **Electric Floor Mopping Machine** **The objective of the proposed project is to design and development of electric floor mopping machine which could be easy to transport and maneuver. The proposed mopping machine comprises of simple motors and water spraying system. This mopping equipment can be used for household applications as well as in industries, malls etc., where the cleaning area is large**.	**small and powerful motor, batteries for automation which considerably reduce the overall size and weight of the machine.** **4. Designed with maximum performance for optimized mopping and cleaning, the corners which are hard to reach.** **5. Utilization of locally available material.**	**batteries for automation which considerably reduce the overall size and weight of the machine.** **3. Initially the design is framed using steel for telescopic handle and tripod frame due to which the overall weight of the product is increased.** **4. Updated with plastic tripod and telescopic handle for reduction of weight and friendly user.**	**different speeds, different mops with different mop sizes. Also updated on the levels water spraying system.**
				
8.	**Team:** • **J Pavan Kumar** • **K L N Vally Priya** • **N S Pavan Kumar** • **V Sri Rama Devi** **MENTOR:** **P.CHAKRADHAR** **Professor** **Project: Development of E-Commerce Platform for Aquaculture.**	**<u>Process development:</u>** **Web portal have been developed using word press interface and provided information pertaining to precise aqua farming, feed, seed, medicine, Equipment and other**	• **In the processes ofdeveloping web portal students contacted many distributors of seed, feed, equipment, and**	• **Based on web portal launched taking steps to market the product to aqua farmers, feed suppliers,**

		useful information. **<u>Product URL:</u>** **missionaqua.com**	**medicine for precise information and rates.** • **Making awareness about the portal, students met Fisheries and Aquaculture Department officials, Aqua farmers, Aqua product manufacturers and suppliers.** • **Students promote the Product by publicize in social media.** • **Due to the current work aqua farmers will get tremendous benefits and enable farmers for finding solutions pertaining to aquaculture**	**and prospect customers.** • **We are planning to include online payment option.** **Taking steps for company registration.**

			products. Aqua farmers got harvesting techniques and mentor assistance on 24*7 basis.	
				
9.	Team: N. Siva Chandana A. Rushi P. Salomi J. Hari Krishna Mentor: Dr. A. Daveedu Raju Project Description: Smart Phone App for Checking Dissolved Oxygen in Fish Pond Development of Android application for real time monitoring of dissolved oxygen	1. Requirement gathering, Such as information of various sensors available in the market. 2. Case study of the available DO sensors that are used by farmers, noticed that are not affordable by small scale formers. 3. Consulted various experts of IoT, Java, Python.	1. Done survey at aqua formers and ponds visit. 2. Had interactions with field workers at ponds. 3. Studied the instruments that the formers are using for finding the dissolved oxygen. 4. Various electronic instruments are studied that related to IoT. 5. IoT devises that related to Dissolved Oxygen are investigated.	1. Developed a prototype. 2. The product is testing for different water samples, at aquariums.

	levels in fish ponds. The fish will sustain its life if and only if it acquires the required oxygen in the water. The levels of this oxygen should be monitored constantly to avoid the reduction of oxygen levels in the water. This oxygen levels are increased by rotating the aerators on top of the water surface. Without human intervention DO levels are informed to frmers by message to their mobile.			
				
10.	**STUDENT TEAM:** • **Md. Hussain** • **I.V.Prudhvi Raju** • **R.Pavan** • **M.Mounika**	• **West Godavari has about 5.18 lakh hectares of agricultural land, about 5, 81,312**	• **Removal of weeds through rotary motion of unique blade**	• **Prototype of the product is completed.** • **Taking steps to**

	MENTOR: **Mr.K.SUDHAKAR BABU** **Assistant Professor** **RCEE** **Project Description:** **Development Of An Affordable And Portable Weeding Machine For Effective Weed Removal** **The objective of the proposed project is to design and development of Portable weeding machine for effectiveweed removal . which could be easy to transport and maneuver. The weed control is one of tedious task in agriculture Concern about herbicides polluting ground and surface water, human health risks from herbicide exposure. development of herbicide resistance and the lack of approved and effective herbicides for minor crops such as vegetables, are the major factors**	**farmers are involved in agriculture.** • **Weed control is one of the most tedious tasks in agriculture, which accounts for a considerable share of the cost involved in agricultural production.** • **Manual weeding usually requires 300 to 500 man hours/hectare which is about 25% of total labour requirement.**	**assembly.** • **This machine involves simple mechanism and operation requires less manual effort compared to conventional weed removal technique.** • **Light weight and Low cost compared to present available weeding system (which is of Rs 65,000/-).**	**market the product.**

	driving the present and increasing interest in non- chemical weed control			

- **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.**

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 – I

ELECTRIC FLOOR MOPPING MACHINE

PROJECT CASE

Name of institute: New Gen IEDC, Ramachandra College of Engineering

Name of Mentor: CH.S K.B Pradeep Kumar

Sl. No	Name	Branch	Phone No.
1	M.Nikhil	Mechanical	8897394409
2	D. Satish Kumar	Mechanical	9666004826
3	S. Vernika Nageswari	Electrical&ElectronicEngineering	9491475272
4	A. Mounika Rajyalakshmi	MBA	9849396404

Project Title: Electric Floor Mopping Machine

Brief description about Student Start-Up

- Existing devices need an electrical energy for its operation and not eco friendly.
- The electric Floor Mopping Machine consumes low power as compared to heavy cleaning machinery available in the market.
- It can be used for both wet and dry floors simultaneously, which lacks in machines that are available in the market.
- The overall weight of the device is low because use of plastic material.
- Heavy machinery doesn't compact for effective cleaning of the corners, to overcome this problem a suitable design is attached in the electric floor mopping machine for effective cleaning of corners.
- In households and small scale companies floor cleaning is done by manual process. Whereas electrical mopping machines are affordable for effective cleaning of floors.
- In manual floor cleaning process people will face spinal related problems. To overcome this effect, adjustable telescopic handle can be used.
- Easy to operate and handle/user friendly
- Use of local available material leads to reduce the cost of the product.
- This device is used mainly in both domestic & commercial purpose like household, railway stations, shopping malls, small scale companies etc.
- **Start-ups entrepreneurial journey from ideation to prototype or commercialization**

  Electric floor cleaning machines are based upon conversion electrical to mechanical.

  Exiting floor cleaning machines are consumes high power. In electric floor mopping machine use of small motor can decrease the power consumption. So electric floor mopping machines consumes low energy and it is eco friendly device.

  The weight of available floor cleaning machines is more as compared to electric floor mopping machine. Easy to operate and handle due to less weight. Both dry and wet floors can be cleaned simultaneously. It is used for effective cleaning of corners.

  It is useful for reducing the manual effort while cleaning the floor, as compared to manual floor cleaning process.

Contribution of New Gen IEDC in the same

- We got the knowledge and confidence towards becoming active partners in the economic development process
- It helps to catalyze and promote development of our knowledge and innovation to develop as entrepreneur and it help to promote employment
- It helps to inculcate a culture of innovation driven entrepreneurship among the students
- Our project executed by fund provided by the New Gen IEDC.

What in your opinion could be done further to make the project more effective? Future Plan

In further development we are aimed to design all the components more compactable to reduce some more size,
Stages of planning are:

- Evaluation
- Patent
- Feed back/ necessary modifications
- Start-up
- Design and manufacture the required components more compactable than now by consult manufacturing industries
- Make publicity and awareness on this product to stake holders
- Establish the company and its requirement by having funds

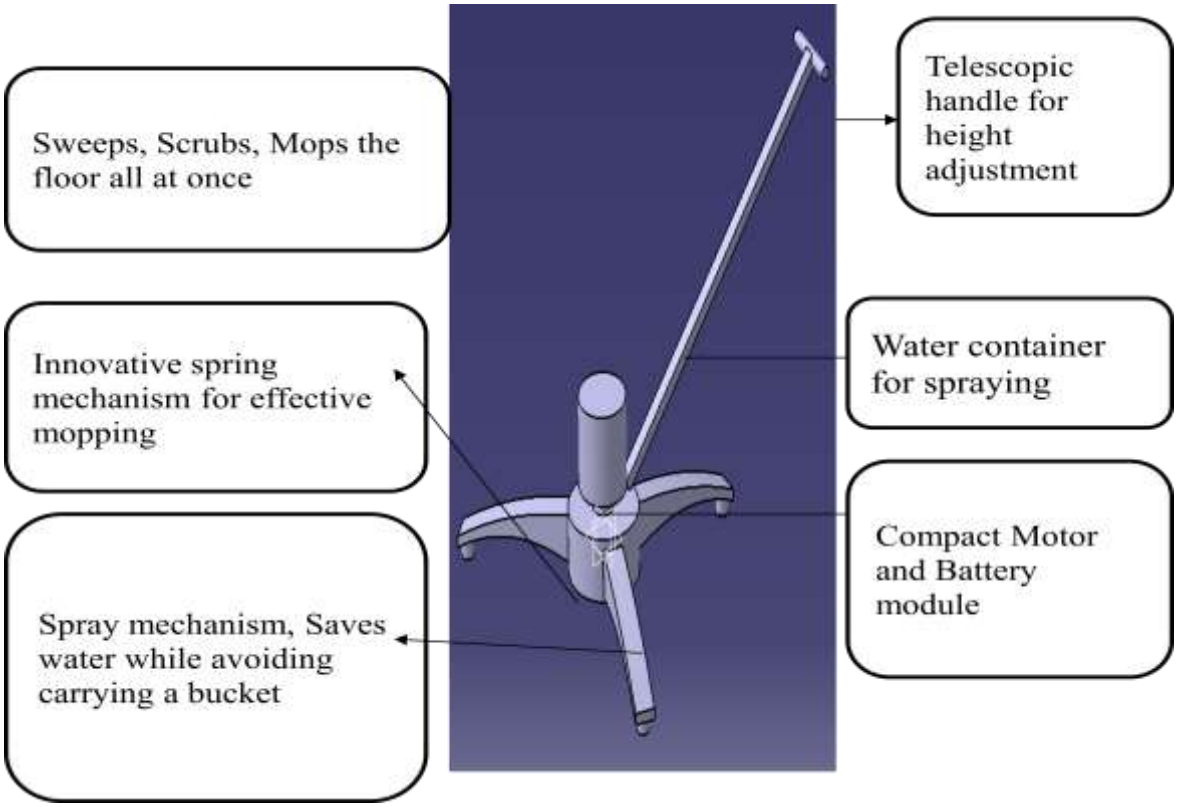


Fig: Design model components and its function

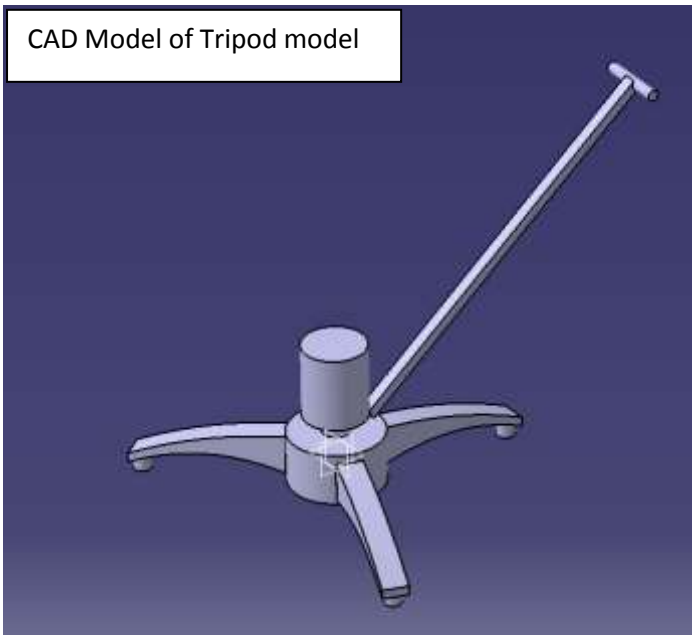


Fig: Developed Prototype

Fig: Side View Of The Prototype

Fig: Top View Of The Prototype

Electric Floor Mopping Machine Photograph with Brochure for Marketing

Project – II

- Student Team Details:

SI.No	Name	Contact No
1	Rushi Ambati	9100139025
2	N.Shiva Chandana	9542336704
3	K. Hari Krishna	8142030335
4	P. Salomi	9490832227

- Brief description of the student startup:

The student start up is initiated by observing the major cultivation in and around West Godavari district is **aqua culture**.

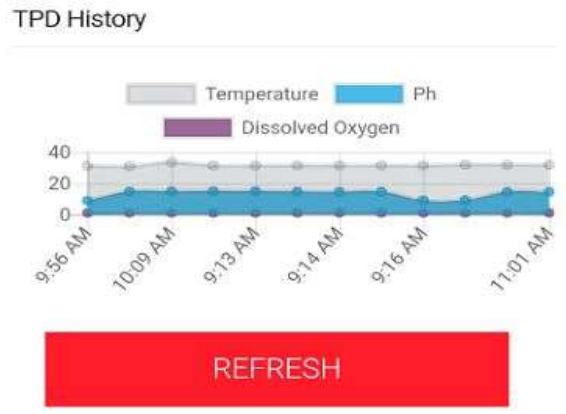
- **Survey feedback from farmers on aqua culture**
- Eluru has more than 1950 aquafarms involving fishing, shrimp farming, oyster farming etc. We visited aqua culture units (Grow wel) in Eluru and got the feedback form from the farmers to initiate the project.
- **Data is below**
  - ✓ Actual farming unit under **Grow Wel** - 33 acres of fish pond.
  - ✓ Farming yield - 15 to 20 MT for 3 months
  - ✓ Total electricity cost for aerators in the pond - 90000 Rs/- per month
  - ✓ Total revenue generation is average - 3 crore for every 3 months
  - ✓ Electricity consumption by aerators - 15000 units for 12 acres

There are various difficulties that the formers are facing before getting the final yield. And unfortunately it is not so easy but highly sensitive to the reaction of the formers with respect to the variation of ph and dissolved oxygen (DO) and sensitivity. Among these sensing the dissolved oxygen is high importance because the oxygen level (DO) is below 5% for more than 10 minutes entire crop (Aqua crop) will fail, that leads to total loss to the former and his team with family who depended on this yield.

This scenario of importance of getting the DO information for every 5 minutes in the pond lead to the idea of the startup of **development of the mobile app** which carry the information from pond to the former in the form of message through IoT technology such that the former will take the initiation of switching on or off the aerators to maintain the perfect oxygen level. This startup involves 3 modules

1. The sensor that dipped in the water surface.
2. Control unit which carries the circuit board
3. Mobile app which display the DO to the former

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



- **Contribution of NewGen IEDC**

  All Support is provided by keeping the various workshops for awareness of the startups and entrepreneurship and encouraging by providing every financial assistance.

- **Future Plan:**
    i. Some more test cases are to be done at pond level
    ii. User interface for desktop or computer has to be modified that to be best viewed by the former
    iii. This instrument is to be embedded with another module which will switch on or off aerators automatically

6. Minutes of the Advisory Board Meetings (held so far):

1. Advisory meeting held on 09/12/2017.

- Inauguration of New Gen IEDC on 09/12/2017.
- Action Plan of implementing New gen IEDC for next five years.
- Interaction with student projects and giving suggestions to their ideas.

7. Progress Summary:

1.	**Total number of Student Projects supported**	**10**
2.	**Total fund provided towards supporting Student Projects**	**14,22,401**
3.	**No. of Patents filed by students**	**--**
4.	**No. of Patents Granted**	**--**
5.	**No. of companies/Starts up Set up by Students**	**--**
6.	**Social Impact Made, If any**	**--**

Dr.Kalyan.C.K
Co-Ordinator
New Gen IEDC

Dr. Dola. Sanjay.S
PRINCIPAL

03. Sasi Institute of Technology & Engineering, Tadepalligudem, Andhra Pradesh

NewGen IEDC [2017-22]
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report (As on October 31, 2018)

Name of the College/Institution hosting NewGen IEDC	Sasi Institute of Technology & 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-NewGen IEDC/17-18/03 Dt. 15/06/2017	Rs. 60,00,000
	2.		

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	Seminar-cum-Meeting Conducted on 20-09-2017 from 15.30 hrs in Project Lab of ECE Department	Students received exposure to Entrepreneurship and Functions of New Gen IEDC.
2	Field trips for idea generation and brain storming ideas on various dates	Students received comments from intended customers

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

Sr. No.	Activities	Outcome/Achievements
1	Project Idea Poster Exhibition on 05-12-2017	Students presented their ideas through poster and received comments and suggestions from variety of audiences.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Guest lecture by Mr. V Venkatesh, Managing Director, Sri Surya Power Projects, Visakhapatnam Alumni Entrepreneur from Host Institution.	Students got motivation from Alumni entrepreneur towards establishing company.
2	Workshop on "Intellectual Property Rights (IPR)" under New Gen IEDC, sponsored by Department of Science & Technology on 14th July 2018.	Students received process of drafting patents.
3	Participated in Amaravathi Mini Makers Fare.	Students' idea and prototype is introduced to industry customers and received probable contacts for further production.

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

A Workshop on product re-engineering is planned earlier and unable to conduct due to proper resource persons from industry related.

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

One project got attention from Aqua Feed industry and received proposal for product development and supply. A startup is being planned in the line of supplying IoT based products to the intended industry. A strategic meeting is also held on the same.

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	Mentor: Dr K Anand Kumar (For Dr. M V Rama Sundari) Title: HAT Control Based Application	Equipment order, Doing literature survey Prepare objectives	For sensor data storage things peak api and cloud sql server data base	Build Prototype get the data make it as application. Continuous monitoring on Health Information of Patient available while traveling from one area to another area
2	Mentor: Dr. R Bapaiah Choudary Title:	Feather waste is being sent for landfills or indiscriminately	A hand operated hydraulic hot press was purchased. Students learned the	The following tests are being conducted on chicken particle boards: modulus of

	Handmade paper using chicken feather fiber	disposed in outskirts. Students have basic theoretical knowledge of hot working.	technique of cleaning and chopping the feathers. The art of making particle board is mastered. The boards are laminated with vinyl, PVC floor mat, Rexene, etc. The products were exhibited in Amaravathi Mini Maker Faire, Vijayawada.	rupture, screw holding, nail head pull through, moisture content, water absorption, thickness swelling. These tests are useful in assessing the competitiveness of chicken particle boards compared to conventional particle boards.
3	Mentor: Dr. R Bapaiah Choudary Title: 3D Pattern Making for Foundries	Students have theoretical knowledge of 3D printing. They know that gold ornaments are made by goldsmith.	Students and mentor learned practical knowledge of drawing 3D images of required object, converting into STL format, exporting it into g code, transferring the file to the printer using data card, setting printing parameters as per product specifications, printing the object and cleaning the object Students have interacted with customers and jewelery shop owners and collected data on their requirements.	Students are working to increase the data base of ornament designs. They are learning specialized software like ArtCAM JewelSmith, CAD-Fast, JWEEL, SketchUp They are developing net work to develop good contacts.
4	Mentor: Dr. A Ravi Kant Title: Artificial eye: Assisting virtual perception of the surroundings for poor vision	The system has been tested for various types of textual images taken randomly and gives a good prediction. The audio signals generated were clear and without ambiguity. The person is able to	Successful conversion of randomized images into audio signals with accuracy. The system is able to register the words from books; regardless of the font type. Further machine learning algorithms tested to improve the accuracy levels.	Prototype is ready. Further research is required to improve the accuracy before commercialization.

		hear the content that has been captured via camera. However, due to the complexity of the environment and light shadings, further image processing step are to be integrated.		
5	Mentor: Mr. E Aswani Kumar Title: Smart Window Mosquito Zapper	A proto type is being planned based on the idea proposed. Several experiments were conducted based on the related ideas for experience.	Project exhibited in project expo.	Design of scaled down version of the product according to customer needs
6	Mentor: Mr. T V Reddy Title: Hearry (Smart Heat Carry)	Prepared block diagram. Identified all the hardware and software requirements for implementation of prototype. Also prepared the flow chart of the working of the systems. Market analysis is prepared to know the feasibility of the product being launched in to the market.	IoT based remote monitoring and controlling is used for device operation. Flexible electronic heating element is used for the kettle for heating requirements. That provide small size, low power consumption, less weight, etc are incorporated in the project	Prototype implementation is complete. Initiation yet to be taken to commercialize the product .
7	Mentor: Mr. K Sudheer Title: Smart Home Lock	Prepared block diagram. Identified all the hardware and software requirements for implementation of prototype. Also prepared the flow	Implemented prototype by properly interfacing all the hardware which are programmed as per the functionality. Android app is developed using app inventor which	Prototype implementation is complete. Initiation yet to be taken to commercialize the product .

		chart of the working of the systems. Market analysis is prepared to know the feasibility of the product being launched in to the market	controls the hardware through web page.	
8	Mentor: Dr. N K Chaitanya Title: GPS based Pesticide Spraying Drone for Agriculture	Simple version of drone is studied for testing purpose. Autonomous technology is studied and experimented on the test vehicle.	Prototype is ready for 1 ltr storage. Outcome is up to the expectations. Showcased in real-time environment.	Social impact of the proposed project is high, if it is supplied with nominal cost with government subsidies.
9	Mentor: Dr. N K Chaitanya Title: FonuTe-Intelligent Handy System for Elderly/Illiterate/Vocally-Challenged People for Communicating towards Fulfilling Needs in Daily Life	Arduino Board based experiments were developed for finding possibilities of making the system simple and less complex. Several test cases were ran based on the user needs.	Prototype is completed and Outcome is as expected. Ready to showcase in industrial exhibition for customer reaction to the outcome.	Commercial usage of the project is very good as per the survey done by team members. Aqua Feed Industry is approached for product development for their needs after examining the proposed product.
10	Mentor: Dr. N K Chaitanya Title: Crop Disease Mapping System	Image processing algorithms were studied and applied using Matlab. Python based implementation of ANNs were studied and implemented for existing algorithms.	Identification System is ready. Two typical diseases were targeted as identified which can be extended for further diseases.	Real-time testing is performed for two diseases. Aqua Feed Industry is approached for product development for their needs after examining the proposed product.

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 following projects were implemented and two best projects identified are (Details are discussed in the following pages):

1. **Project Name: : HANDMADE PAPER USING CHICKEN FEATHER FIBER**
   Mentor Name: Dr. R B Choudary, Dept. of ME

2. **Project Name: FONUTE- INTELLIGENT HANDY SYSTEM FOR ELDERLY/ILLITERATE/VOCALLY-CHALLENGED PEOPLE FOR COMMUNICATING TOWARDS FULFILLING NEEDS IN DAILY LIFE**
   Mentor Name: Dr. N K Chaitanya, Dept. of ECE

Below are the total ten projects implemented as part of New Gen IEDC 2-17-2018. (First Year of Operation)

1. **Project Name:** A HAT based control application

Mentor Name: Dr K Ananda Kumar, Professor, Head of the Department

Student team details (with contact information)

Reg No	Name	Contact no	Email ID
15k61a0536	G Vasavya	8886750439	15k61a0536@gmail.com
15k61a0539	G Kiran Kumar	9581041057	15k61a0539@gmail.com
15k61a0544	G Vara Babu	9032689856	15k61a0544@gmail.com
15k61a0593	P Surya Teja	7981591353	Pemmarajusuryateja87@gmail.com

Descript Brief description about the student start-up:

The main idea of the startup is to provide a better The Health and Traffic control application is the app that used in smart watches, Phones & Tabs. It gives the clear, easier and faster way to reach the destination of travelling. There will be faster way of medication to the persons who needed immediately. The HAT control application helps the users creating the self-caring by not depending on other mankind which is needed most have today's world. This system has been developed and implemented using the sensor for heartbeat, temperature, etc. based integrated technology. After getting the signal from these sensors, if there is any variation from normal human's heart, temperature, speed rate then the system detects whether it may be abnormal condition. Then the system will immediately transmit the location of the accident to the preconfigured contacts through Short Message Service(SMS) and sends signal (location of accident person through GPS) to 108 services, so that an immediate cure can be taken to the accident person within a short span of time.

Startups entrepreneurial journey:

Initially market analysis is performed based on the idea and collected all the information regarding Total Available Market(TAM), A HAT based control application. Then started preparing prototype Based on the market analysis as it is feasible for marketing. Prototype making started with Preparation of block diagram. Identified all the hardware and software requirements for implementation of prototype. Also prepared the flow chart of the working of the systems. Implemented prototype by properly interfacing all the hardware which are programmed as per the functionality. E-Health Care KIT-2.0 with Arduino UNO is used as the controller for this prototype as it internally contains Wi-Fi module.

Contribution of NewGen IEDC in the same:

NewGen IEDC has provided a good platform in developing idea in to real time prototype with timely cooperation in all aspects. Supported by providing finance whenever it is needed and helped in successfully completing the prototype

Future Plan:

Ready to exhibit at national and international expos and planned discussions with related clients.

- 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

FIRST BEST PROJECT

2. Project Name: Handmade paper using chicken feather fiber
Mentor Name: Dr. R Bapaiah Choudary, Dean R&D, Professor

Student team details (with contact information):

S.No.	Department	Student Team	Class	Reg. No.	AADHAAR No.
1	ME	O V Subrahmanyam	III B.Tech	15k61a03b1	968678172751
2		P Udayramu	III B.Tech	15k61a03d3	522152272987
3		Sk M Subhan	III B.Tech	15k61a03e8	587297703497
4		Ch Brahma Raju	III B.Tech	15k61a0324	340283860207

Brief description about the student start-up:

Particle board is a poultry feather based engineered board. It is manufactured from chopped feather with phenol formaldehyde binder. Prototype models were made in Sasi Institute of Technology & Engineering, Tadepalligudem. The process of making particle board begins with feather waste. Particleboard is manufactured by mixing chopped feather with resin and forming the mix into a sheet. Formaldehyde based resins are the best performing when considering cost and ease of use. Once the resin has been mixed with the shredded feather, the mixture is made into a sheet in a pre-pressing press. The mats formed are then hot-compressed under pressures between two and three mega Pascals and temperatures between 110°C and 140°C. This process sets and hardens the glue. The boards are then cooled, trimmed and sanded. They can then be sold as raw board or surface improved through the addition of a wood veneer or laminate surface.

It will generate new employment as a new product is being introduced into the market. Prudent use of chicken feather waste will reduce environmental pollution. Since it is a sustainable source, this technology will increase the earning of poultry farmers. It will reduce cutting of trees. This product meets the modern automotive specifications that at least 30% of interior of an automobile be made with natural materials.

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

Chicken feather was collected from chicken shops and poultries and cleaned thoroughly. Feather was shredded into small pieces with a shredder. Varying proportions of binder (phenol formaldehyde was added to chopped feather and the

mixture was thoroughly blended. A jack operated hydraulic press was used to make useful products like particle boards. The boards were subsequently laminated. Some real time products like stools, furniture were made using this material.

(a) Pre-pressing die

(b) Pre-pressed mat

(a) Hot pressing die

(b) Feather fiber board

(c) Hot press

Amaravati Mini Maker Fair 2018

Contribution of NewGen IEDC in the same

- Created a zeal in searching for potential areas suitable for new startups.
- Given an opportunity to learn the subject waste management thoroughly.
- Provided facilities to learn hot compression moulding
- Arranged interaction with meat sellers to learn the process of feather waste generation, with Chemistry teachers to learn the formulation of cleansers to wash toiled feather, hot press technicians to learn operation and maintenance of hand operated hot press, with lawyers to learn the legal issues related patents, with bankers to learn finance related matters.

Future plan

Once the technological aspects are stream lined, production will be taken up at places where chicken feather is available in large quantities like KFC, Suguna Chicken, etc. and product will be released into market in Tadepalligudem.

3. Project Name: 3D Pattern Making for Foundries

Mentor Name: Dr. R Bapaiah Choudary, Dean R&D, Professor

Student team details (with contact information):

S.No.	Department	Student Team	Class	Reg. No.	AADHAAR No.
1	ME	P Ram Sai	II B.Tech	16k61a03a9	470619559649
2		K Manikanta	II B.Tech	16k61a0365	742868694695
3		Ch Prasad	II B.Tech	16k61a0324	552242797099
4		A Rohin	II B.Tech	16k61a0302	537000646440

Brief description about the student start-up

3D printing is changing the way goldsmiths work and design. Instead of making the gold pattern directly, goldsmiths are using plastic 3D patterns and lost wax casting technique to build the design. The plastic 3D printing process is a type of stereolithography that uses a plastic filament. The plastic pattern printed is polished and used for making a rubber mould. 2 out 4 students in the team are planning to take up career in 3D printing of jewelery patterns. 2 students from final year are exploring the possibility of extending the technique to 3D printing of patterns needed in foundries and medicine. Jewelry clients are happy that their dream jewelery can now be drafted on the spot as per their wish and final product is delivered in a short time. It will fill dearth of skilled artisans who can produce jewellery patterns. It will reduce the lead time dramatically as manual sculpturing is substituted by computer aided drawing and the internet permits global clients to interact with the artist and therefore the scope for business is unlimited. Students are working to increase the data base of ornament designs. They are learning specialized software like ArtCAM JewelSmith, CAD-Fast, JWEEL, SketchUp. They are developing net work to develop good contacts.

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

- Students learned: working principle, classification, machinery available, manufacturers, materials used, advantages limitations and applications.
- Students and mentor learned practical knowledge of drawing 3D images of required object, converting into STL format, exporting it into g code, transferring the file to the printer using data card, setting printing parameters as per product specifications, printing the object and cleaning the object
- Students have interacted with customers and jewelery shop owners and collected data on their requirements
- They prepared a data bank of 3D CAD files of jewellery in public demand
- They have polished their skills in modifying the existing jewelry drawing as per changes needed by the customer

1. Patterns of gold jewellery patterns

Contribution of NewGen IEDC in the same

1. Created a zeal in searching for potential areas suitable for new startups.
2. Given an opportunity to learn the subject of 3D printing thoroughly.
3. Provided facilities to learn 3D printing
4. Arranged interaction with gold smiths to learn the process of ornament making, with Jewellery CAD artists to learn the intricacies of making CAD models of gold ornaments, 3D printer technicians to learn operation and maintenance of 3D printer, with lawyers to learn the legal issues related patents, with bankers to learn finance related matters

Future plan

The students team wish to initiate a startup “A-One 3D Printing Hub”. Establish 3D printing facilities with high resolution large size printers. They want to cater to the needs of jewellery makers, toy makers, foundry pattern makers. Plans are on the anvil to create a web portal through which customer can interact with the CAD artist in live and place his order. The delivery is planned through courier system. The business can be run as apart time job.

4. **Project Name:** Artificial eye: Assisting virtual perception of the surroundings for poor vision

Mentor Name: Dr. A Ravi Kant, Associate Professor

Student team details (with contact information):

Sn	Reg.No	Class	Name	Contact No.	Email Id
1	16K65A0209	III BTECH EEE	D.Y. Ram Kumar	9059433035	yatish.darla@gmail.com
2	16K65A0215	III BTECH EEE	J. Ayyappa	9052712989	ayyapajattinga@gmail.com
3	16K65A0207	III BTECH EEE	Ch. Mahesh	9652117882	mahesh.chaparla065@gmail.com
4	15K61A0223	III BTECH EEE	G. Lokesh Prasad	9989988805	lokeshprasadganta@gmail.com
5	15K61A0212	III BTECH EEE	Ch. Prabhakar	7702309562	prabhakarchamana21t@gmail.com

Brief description about the student start-up

We have developed an artificial eye that can help person with poor vision in performing their daily tasks such as navigation, reading and perform job related works. Using Raspberry Pi – 3 system, we were able to process the visual images and determine the surroundings such as identification of obstacles, reading the text contents from newspaper, books and other articles in random pictures taken through the camera. We have successfully translated them into audio signals and transmitted via the audio port to ear phone. We hope that such technology would enable the person to see the world through his ears.

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

It will be useful for persons will poor vision who need such systems to perform their daily tasks on their own. Currently no such system is available in India, and considering the huge number of persons suffering from vision problems, we hope that the system will make a huge impact in the society. We are planning to start a venture.

Contribution of NewGen IEDC in the same

We have received generous support from the centre for conducting our research and pursue the idea.

Future plan

We have already developed the prototype and tested for randomized images. With the initial success, we plan to improve the accuracy of the system by using modern algorithms, perform multiple testing, and study the applicability of the system to various environments. Once this stage is completed we wish to plan for the commercialization of the product.

5. **Project Name:** Artificial eye: Assisting virtual perception of the surroundings for poor vision

Mentor Name: Mr. E Aswani Kumar, Associate Professor

Student team details (with contact information):

Sn	Reg.No	Class	Name	AADHAAR No.
1	B Bhagath Kum	III B.Tech	15k61a0210	742163408779
2	S Siva Sai Gane	III B.Tech	15k61a0271	328179543560
3	D Naga Ajay K	III B.Tech	15k61a0217	213939584969
4	M Rama Naidu	III B.Tech	15k61a0241	479865589363
5	Ch N T Lakshm	III B.Tech	16k65a0206	492535962676

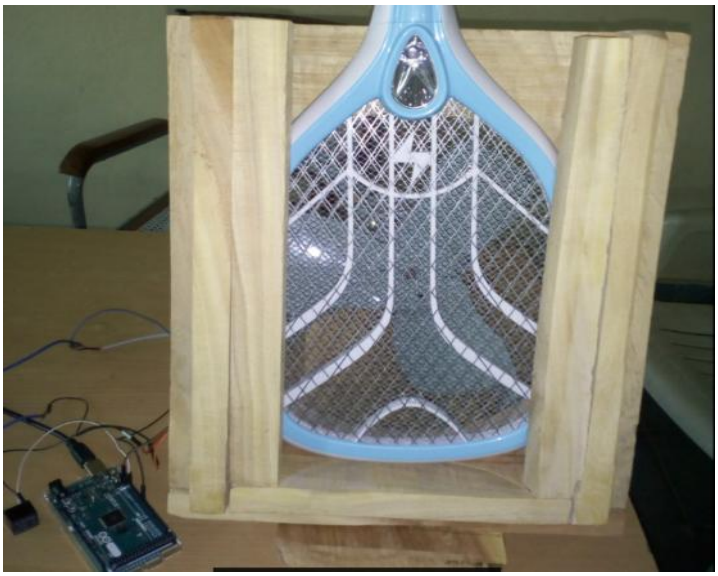
Brief description about the student start-up

Most of rooms in apartments have an attached rest room. The rest rooms have an exhaust fan or small window for air circulation. Mosquitoes find their job easy to enter in to living rooms through small windows. So the designed solution transforms conventional mosquito bat structure to a small window, which integrates a triple layer structure with an exhaust fan on the room side of the design. The Fan is controlled by Arduino with relay arrangement for on and off. The Arduino-board is powered by a 12 V switch-mode power supply (SMPS). The control signals from Arduino are fed a to sugar cube relay. The relay can switch ON or OFF the fan motor. The conventional mosquito swatter is reengineered to avoid manual intervention to switch it ON/OFF. It is powered by a 230 V AC power supply. Finally the modified mosquito swatter window will integrated with the controlled exhaust fan on a supporting frame. The finished product can certainly help to control mosquitoes.

SMARTPRO, a startup from dept.of EEE Sasi Institute of Technology & Engineering in the year 2017 by a team of students. It offers the products, which are smart, such as smart mosquito zapper according to consumer specific customizations.

Startups entrepreneurial journey from ideation to prototype:

Most of rooms in apartments have an attached rest room. The rest rooms have an exhaust fan or small window for air circulation. Mosquitoes find their job easy to enter in to living rooms through small windows. So the designed solution transforms conventional mosquito bat structure to a small window, which integrates a triple layer structure with an exhaust fan on the room side of the design. The Fan is controlled by Arduino with relay arrangement for on and off. The arduino-board is powered by a 12 V switch-mode power supply (SMPS). The control signals from arduino are fed a to sugar cube relay. The relay can switch ON or OFF the fan motor. The conventional mosquito swatter is reengineered to avoid manual intervention to switch it ON/OFF. It is powered by a 230 V AC power supply. Finally the modified mosquito swatter window will integrated with the controlled exhaust fan on a supporting frame. The finished product can certainly help to control mosquitoes.



Contribution of NewGen-IEDC:

The team members and the mentor are thankful to NewGen- IEDC for providing the financial support for the execution of this idea in to a proto type.

Future plan:

Design of scaled version of the product according to specifications by customers will be considered.

6. Project Title: Hearry (Smart Heat Carry)

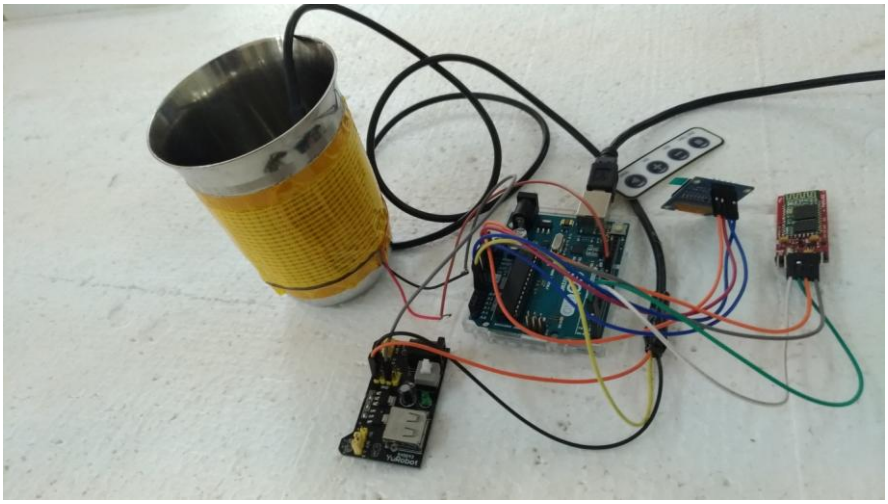
Mentor: Mr. T Venkateswara Reddy

Student team details (with contact information):

Sn	Reg.No	Class	Name	AADHAAR No.
1	15k65a0403	IV B.Tech	A Kishore Kumar	443986163664
2	15k65a0415	IV B.Tech	N Sai Lokesh Kum	443678512614
3	15k61a0437	III B.Tech	J Manikanta	546854780496
4	16k61a04a6	II B.Tech	K Renuka	914908020105

Prototype along with team members & Mentor

Clear view of prototype



Brief Description about the Startup:

It is an electronic kettle that can heat the water or milk for infants and old people whenever we need. The operation of the kettle can be controlled and monitored by manual switches available in the kettle and also with the app in the android mobile in the user.

7. Project Title: Smart Home Lock

Mentor: Mr. K Sudheer

Student team details (with contact information):

S. No.	Reg.No	Name	Contact No.	Email Id
1	14K61A0416	B Anusha	9505736732	anushaburugupalli55@gmail.com
2	14K61A0426	D V Sailaja	9010566265	venkatasailaja111@gmail.com
3	14K61A0433	G Purnima	9533684728	poornima111.golthi@gmail.com
4	15K61A0411	B Sridhar	9949398998	boggavarapu.sridhar1998@gmail.com

Descript Brief description about the student start-up (Smartrik):

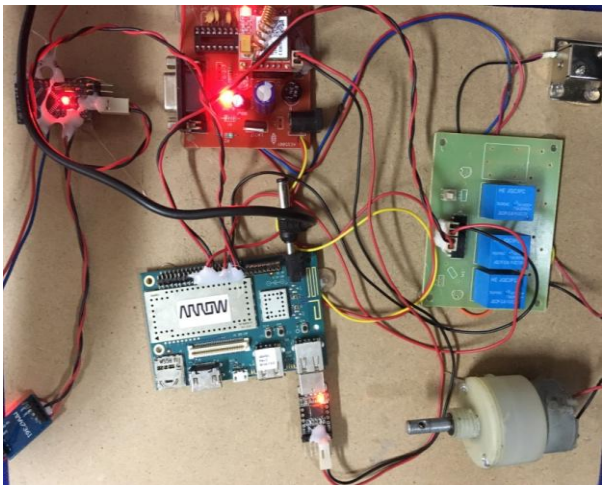
The main idea of the startup is to provide a better security for the people living in rural areas at affordable price range. As now a day's many people living in rural areas also using smart phones, this product will have a good market. People in rural areas showing interest towards this smart locks as they are being habituated of using smart devices. This provides a better security and mental peace as people can lock/unlock their doors from any remote place.

Startups entrepreneurial journey:

Initially market analysis is performed based on the idea and collected all the information regarding Total Available Market(TAM), Serviceable Available Market(SAM) and Serviceable Obtainable Market(SOM). Then started preparing prototype Based on the market analysis as it is feasible for marketing. Prototype making started with Preparation of block diagram. Identified all the hardware and software requirements for implementation of prototype. Also prepared the flow chart of the working of the systems.. Implemented prototype by properly interfacing all the hardware which are programmed as per the functionality. DragonBoard 410c is used as the controller for this prototype as it internally contains Wi-Fi module. MEMS sensor used for detecting the vibrations at the door if anyone try to open forcibly in owners absence. Android app is developed using app inventor which controls the hardware through web page which controls the functionality of hardware through Wi-Fi.

Contribution of NewGen IEDC in the same:

NewGen IEDC has provided a good platform in developing idea in to real time prototype with timely cooperation in all aspects. Supported by providing finance whenever it is needed and helped in successfully completing the prototype.



Future Plans:

To implement the final real time product by commercializing the prototype and releasing it into the market making it available for the rural people.

8. Project Title: GPS based Pesticide Spraying Drone for Agriculture
Mentor: Dr N K Chaitanya, Associate Professor

Student team details (with contact information)

S. No.	Reg. No.	Class	Name	Contact No.	Email Id
1	15K65A0412	IV B.Tech	K Sri Sowjanya	7842745679	srisowjanya.varma@gmail.com
2	14K61A0415	IV B.Tech	B Ganeshwar	9533661300	ganeshwarbunga@gmail.com
3	15K61A0412	III B.Tech	B Durga Bhavani	8142847391	durga191096@gmail.com
4	16K61A0415	II B.Tech	Ch G V Santosh	8317608335	ganapathisanthosh2@gmail.com

Brief description about the student start-up

- Majority of rural population depends on agriculture having rice/wheat/vegetables/sugar-cane crop as a major income source.
- Diseases and pest damage to these crops can greatly reduce the yield. Spraying of pesticides is a key phase in farming.
- In majority cases, spraying is done by human-beings only.
- Although they will take precautionary measures during spraying, most of the people may not follow the exact procedure which may cause serious health issues as well.
- The proposed work targets for a multi-purpose pesticide spraying system for agriculture farming which can be operated autonomously using real-time data processing combining navigation and drone technology.

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

Contribution of NewGen IEDC in the same:

The system is developed under New Gen IEDC and all the equipment related is purchased as per the budget limit. Two prototypes were developed and tested out of which second one is successful.

Future Plan:

Below channels are identified for distribution: Pesticide retail outlets across the regions; State/Central government agriculture development schemes; From our study on local scenario, each pesticide retail shop has a minimum number of trusted customers because of two main reasons: Quality pesticides and suggestions given by shop owner to farmer; Credit facility; Product can be sold through government schemes through agriculture departments of individual states. In Andhra Pradesh, Raitu Mitra groups are formed with an objective of introducing the latest farming equipment to the farmers. By collaborating with such groups will directly benefit all the stake holders. It is easy to reach each individual customer. Fast enough to grab the attention of the customer. One can cover the large area in a very short time with good reachability.

SECOND BEST PROJECT

9. Project Title: FonuTe- Intelligent Handy System for Elderly/Illiterate/Vocally-Challenged People for Communicating towards Fulfilling Needs in Daily Life

Mentor: Dr. N K Chaitanya, Associate Professor

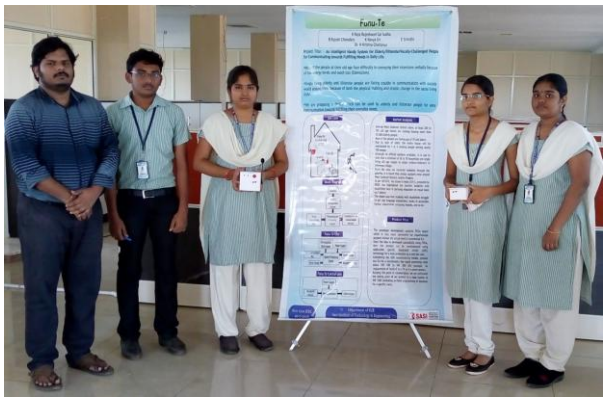
Student team details (with contact information)

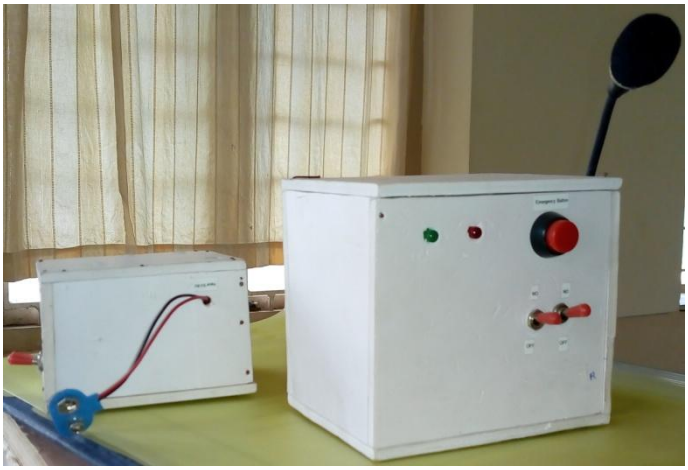
S. No.	Reg. No.	Class	Name	Contact No.	Email Id
1	14k61a0485	IV B.Tech	K Raja Rajeshwari Sai Sudha	8985979622	saisudha9622@gmail.com
2	15k61a0413	III B.Tech	B Rajesh Chowdary	9550537170	rajeshbommireddy@gmail.com
3	15k61a0447	III B.Tech	K Navya Sri	9676367795	navyakaruturi1998@gmail.com
4	16k61a0437	II B.Tech	E Srinidhi	8496622748	srinidhie37@gmail.com

Brief description about the student start-up:

- Old age is the most challenging time for executing one's daily needs.
- According to the United Nations Population Division (UN 2011), the share of India's old age population over 60 is projected to increase from 8% in 2010 to 19% in 2050.
- Old age people has low physical energy levels for long conversations in crowded places, where the noise dominates, leads to unfinished expressions and body strain.
- As a contribution to Assistive and Enabling Technology, the proposed project aims to develop an intelligent system for assisting people towards fulfilling their daily needs.
- Constructively, the main features of the proposed system are:
    - Recognizing a variety of dialects and delivering the related information.
    - Recognizing a variety of sounds made by the user.
    - Easy-to-use phenomenon with less buttons and more functions.
    - Modular design.
    - On-field extension for improved database.
    - Low cost and minimum hardware.

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





Contribution of NewGen IEDC in the same

The system is developed under New Gen IEDC and all the equipment related is purchased as per the budget limit. Successful prototype is developed after several attempts.

Future plan

- Around West Godavari district alone, at least 200 to 300 old age homes are running housing more than 30,000 elderly people.
- Most of the people are having age of 70 and above.
- Due to lack of labor, the entire house will be maintained by 1 or 2 working people serving nearly 100 people.
- Although no official numbers available, it is sad to note that a minimum of 50 to 70 households are single living old age couple or single (widow/widower) in Velivennu village.
- A start-up with name ‘GoAkuwa’ is proposed and made several discussions on real-time commercial product development with M/S Martek Bio-science India Pvt Ltd.
- M/S Martek Bio-science India Pvt Ltd showed interest in the project and discussed on possibilities of developing commercial products based on IoT for Aqua farming.

10. Project Title: Crop Disease Mapping System
Mentor: Dr. N K Chaitanya

Student team details (with contact information)

S. No.	Reg. No.	Class	Name	Contact No.	Email Id
1	14K61A0477	IV B.Tech	P Manikanta	9052859918	manikanta.pendyala02@gmail.com
2	16K65A0405	III B.Tech	G Sai Kiran	8014554789	saikirang405@gmail.com
3	15K61A04B8	III B.Tech	V N Devi Lalitha Kumari	7342855865	lalithavndk99@gmail.com
4	15K61A04A7	III B.Tech	T Padma	9989286422	padmathota97@gmail.com
	15K61A0481	III B.Tech	P Sai Raghavendra	7013265351	raghavendrasai98@gmail.com

Brief description about the student start-up:

- Farmers lose an estimated average of 40% of their rice crop to diseases and pests every year which results in reduction of returns due to increased investment.
- Disease can infect paddy at all growth stages and all aerial parts of plant (leaf, neck and stem root) such as big irregular patches.
- It is not practically possible to look at each plant and check whether the disease occurs or not.
- As per the survey done on local farmers in West Godavari district of Andhra Pradesh, at least 30% to 40% extra fungicide is used on crop for two reasons:
- Difficulty in finding the disease on individual plants.
- Fear of disease spreading to another unaffected area of the rice field.
- To implement and test.
- Crop Disease Mapping System.
- Identifying diseases in a rice field and alerting farmer on type of disease and immediate precautionary measures to take.

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


Status :UNHEALTHY
Disease Name: Bacterial Spot

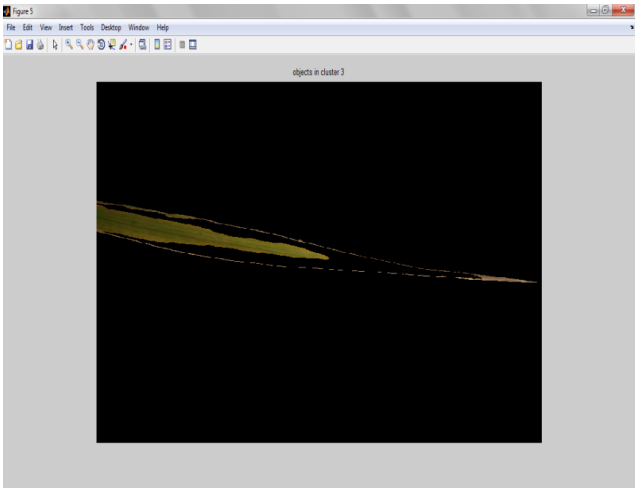


Figure 5
File Edit View Insert Tools Desktop Window Help
objects in cluster 3


Figure 1
File Edit View Insert Tools Desktop Window Help
H&E image

Contribution of NewGen IEDC in the same

The system is developed under New Gen IEDC and all the equipment related is purchased as per the budget limit. Mapping is developed using Raspberry Pie board after executing image processing techniques using ANN.

Future plan

Mapping is identified as a key solution to know the depth of diseases. If a farmer knows where exactly the type of disease spread and how deep it is in that particular location, then it will be useful for him to buy enough pesticide than spraying the entire field which is a very common phenomenon now a days.

M/S Martek Bio-science India Pvt Ltd showed interest in the project and discussed on possibilities of applying similar technique to aqua diseases.

6. Minutes of the Advisory Board Meetings (held so far):

Sasi Institute of Technology & Engineering
Tadepalligudem

Academic Year 2017-18
Board of Advisory Meeting
meeting NO 1

principal has convened Board of Advisory Meeting in the Board room at 10.00 AM on 09/12/2017.

Agenda of the Meeting :

1. Introducing the members by member secretary
2. Detailing the infrastructure as a part of establishing the centre through non-recurring grant
3. To Discuss projects offered by students and mentors
4. To discuss plan of action for next 4 years
5. Any other matter with permission of chair

principal

Resolutions made

1 Dr. N. Krishna Chaitanya introduced all the members of advisory board with each other.

2 Dr N. Krishna Chaitanya, member secretary briefed about Intra structure details, recurring and non recurring expenses details to establish center.

3 Dr N. Krishna chaitanya discussed about projects being offered by students. He presented all 10 project ideas which are ready implemet to all advisory members. out of 10 projects students of ECE offered 5 projects, students of EEE offered 2 projects, students of ME offered 2 projects and student of CSE offered 1 project. member secretary informed the members about the process of scrutinising the projects.

4 Member secretary discussed about the plan of action about various events to organised for the coming four years. It was decided to invite eminet personalities from industry and entrepreneurship wing and organise events at regular intervals.

5) The members of meeting made suggetions regarding successful functing of New Gen IEDC suggetions by Mr S.B Soren :-

① Improving capacity of students to become entrepreneurship

② Let the students have the information abut different bussiness schemes offered by Government of India

a) Technology based entrepreneurship of six weeks duration

b) women entrepreneur ship

③ Make the linkage New Gen IEDC and industries near by for providing solutions regional problems.

④ students should be aware of market and schemes offered by Government.

⑤ Students should have awareness abuct local requirements and challanges

⑥ we should interact with industry and find out the real time problems and need to give the solutions.

Suggestion by Mr Naveen Vasishta;

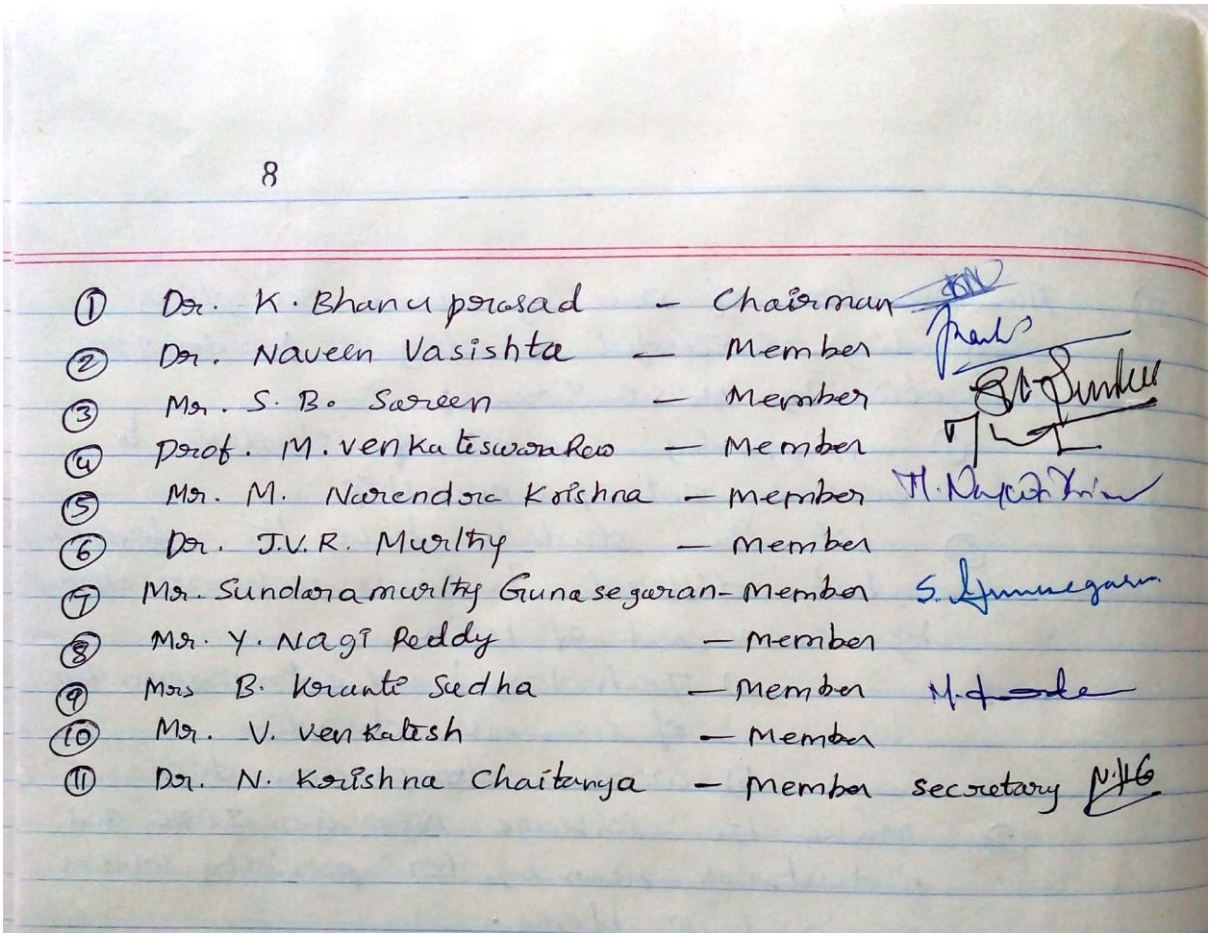
① Fenancial assistance to the project should be given through digital means to the mentor with aproval of Cordinator and Principal.

② Inventory should be properly maintained.

③ Facilitation center should be created to store projects.

④ Proto tape projects can be Shared to Industry with minimd Charges.

⑤ The upper limit of project is 2.5 lakh and if the dooted amount is not reached i.e 25 lakh can be utilised for extra project.



7. Progress Summary:

1.	**Total number of Student Projects supported**	**10**
2.	**Total fund provided towards supporting Student Projects**	**25 Lakhs**
3.	**No. of Patents filed by students**	**0**
4.	**No. of Patents Granted**	**0**
5.	**No. of companies/Starts up Set up by Students**	**1**
6.	**Social Impact Made, If any**	**2**

04. L. J. Institute of Engineering and Technology, Ahmedabad, Gujarat

NewGen IEDC [2017-22]
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report (As on October 31, 2018)

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 ● Mobile Number ● e-Mail ID	● +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 - 60 lacs sanctioned Utilization till October 31, 2018 Non recurring - 14,14,015 Recurring - 09,63,157 Project - 14,11,011
	2.		

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	**Future Technologies**	A session conducted by Mr Darshan Trivedi from MICA. The purpose of this session was to sensitize students on the advancements in future technologies and how to look at things with a different perspective which is very much necessary for students. there were 40 participants.

2	**Creative thinking**	A session by Mr Abhishek Jain who is a product designer. This session had activities like breaking the deadlock and interacting with unknowns which is a very important skills to be an entrepreneur. Another activity included taking photographs which no one could recognize, this demands critical thinking from students. there were 50 students.
3	**Business Crafting 1.0**	A session on business plan was organized to make students understand various aspects of a business models.
4	Design Thinking	A session by Ms Aditi Gupta was conducted on what are the steps of design thinking. more than 20 students participated in it.
5	**Managing Human Resource**	a session by Mr Nirav Vasa & Mr Joy Shah. The session was to provide students an insight on how a startup needs to manage it's human resource.
6	**Legal & Intellectual section**	we conducted two sessions on the legal and intellectual side of any product. Students were taught the legal aspects of forming a company and were also guided on which type of company should be formed at an initial stage
7	**How to Invest wisely**	a session by Mr Vikas Agrawal, who is an entrepreneur. He briefed students on how to look for futuristic opportunities and how one should not invest money and time if the technology is not futuristic.

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

Sr. No.	Activities	Outcome/Achievements
1	L J Innovation Village 2018	more than 300 projects from India displayed their innovative projects on 17th february, 2018. 90 best projects were selected fro further
2	L J Start-up Week 24*7	45 projects from L J Innovation village

		participated in it for a 2 days rigorous mentoring on technical and business model canvas
3	Pitch Deck	these are open jury sessions where any project can apply. the jury is expert from various domains like engineering, commerce, IPR etc. these projects if selected are then given funds to develop their prototype.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1.	Android Workshop	Conducted a workshop on android for 40 students. the major outcome is that all students were able to make their own application
2	Solidworks Essential	We have started L J Design Centre with an aim to provide training on various design centres. Currently we are providing training to Mechanical & Automobile engineering students on Solidworks & Autocad software. Every month minimum 60 students are getting trained which will eventually help them in improving the quality of their projects.more than 200 students have been certified till now
3	Induced Learning sessions	We plan and execute speakers from varied industries as well as advanced academic backgrounds for three different motives. 1. Awareness and sensitization of the entrepreneurship scenario in India. 2. How to develop a working prototype 3. Commercialize & IPR aspects

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

We have been able to meet our recurring expenses as planned. Though we have supported 20 projects, we have not been utilize the entire corpus of Rs 25 lacs allocated for projects as these projects take more than 1 years time to complete.

the shortfall in non recurring expense is because our lab is under development but we are yet to release the payment to our vendors. it will be utilized by the end of january 2019.

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

1. One student innovation supported by L J I E T NewGen IEDC has started their own company and already have orders worth 5 lacs INR. they have also been approved by the Govt of Gujarat as a start-up and have been granted 20 lacs
2. Lab setup fpr facilitating a working environment for projects and aiding them to shape up their innovations to products in the pre- commercialization phase (Labs: AR/VR, Gaming, IOT and Product Development).
3. Coworking spaces for industry verticals to catalyze a symbiotic relation amongst the working projects and the industry.

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	**ADVANCE DATA MONITORING SYSTEM**	1. have set up a network of 41 unites in various rooms of l.j campus and the entire data of AC usage is being recorded on the website. 2. students are working on the next version of this device which will be powered with WIFI system	allowed students to implement their IoT device in 50+ classrooms of L J.	Work is in progress to make this project on wifi so that the major problem of wiring modificatio n is

				removed.
2	**QUICKPICK**	1. students have developed the next version of this product and have brought down their manufacturing cost 2. a simple mechanism has been worked on	Through various mentoring sessions, the design of machine was modified to make it simple and cost effective	A new prototype has been manufactured and given for user testing
3	**STAIR CLIMBING CART**	Developed two Market ready prototype. 1. one will be used for industrial weight lifter with stair climbing abilities. 2. Second one is dustbin with stair climbing abilities.	We connected them with various industries who can be their clients	They are ready with their prototypes. will now go for commercialization
4	**DIGITAL WATER METER**	1. one prototype has been developed and deployed in a 2 inch pipe for continuous monitoring of water usage. 2. the group is now working to develop indigenous design of the water sensor	they are facing a lot of competition in the market in terms of product acceptance. so we have asked them to do a complete washroom automation instead of just working on a	the prototype of washroom automation will be ready in a month.

			water meter	
5	**INSTANT WATER COOLER**	1. Developed 2 working prototypes for trial and errors. 2. Working with the industrial mentors for better and efficient development	the major problem faced is the commercialization and aesthetic design of this product for which we are consulting design firms	the students have developed a working prototype
6	**CUSTOMISED MOMENTO**	the team had the idea of making customized mementoe	continuous monitoring and improvements in design	Have developed more than 200 models of customised Momentos. And all of the designed momentos are market ready. 1. they have already started selling their products. 2. Their have also added various technologies and

				innovative ideas to their Products.
7	**DIVIDER PAINTING MACHINE**	1. An advance version of divider painting machine has been developed. 2. it is a semi automatic machine which will be converted into automatic machine very soon	the team is facing issues in automation of machine and thus we connected them with 2-3 automation companies	they are working on automatic divider panting mechanism
8	**(ATTENDANCE USING FACE DETECTION)** **TRINETRAM**	1. the group has achieved 90% accuracy in face detection. 2. the system has been deployed to mark attendance in L.J Campus for testing purpose.	getting accurate results was a major challenge and thus we connected them with relevant mentors.	they are now working on a neural network to optimize the performance of their system
9	**BOTTLE FILLING PLANT**	1. The group has started final manufacturing of the plant. 2. the plant is expected to be completed by the end of april 2018	1. The plant is complete and we have provided a platform to them for testing their machine.	The plant is currently under testing and will soon go for patent filing and

			2.They were connected with an automation industry to work on their problems of cycle timing and production	commercial ization.
10	**AUTOMATIC TISSUE DISPENSER**	1. The group is working on the final aesthetic design. 2. the group has been provided exposure in the areas of marketing, finance, human resource for overall development as a start up.	the group is facing major challenges in proper asthetic design of their mechanism. we connected them with 3 agencies but their cost of consultancy is high.	the students have order a similar product which has a problem of automatic cutting and are now working on it to arrive at their final design.
11	**ESM- a modified electric rickshaw**	1. the students have built one prototype and are working on the design of their next prototype	1. we made them analyze the current indian EV market and then. 2. we also	the students have now made their own electric rickshaw which is more efficient.

			sent them to delhi to make manufacturing contacts	
12	**Garbage collector trolley**	1. students have built a basic prototype.	we them made them to redesign their product by inputs	
13	**Gemini**	1. students had an idea of building a web portal for mass registration for huge events	we connected them to various technical and business mentors	students have built a Mass registration system and their system is ready
14	**Surface Cleaning Machine**	1. A multifunctional surface cleaning machine, which simultaneously does sweeping, mopping & drying	focused mentoring and design thinking training helped them conclude with their final design for the product	they are now manufacturing their final prototype
15	**Glass Concrete**	they had the idea and a prototype of using glass power in concrete for weight and cost saving.	initially they wanted to use it for structural member. upon mentoring they decided to use it only for non	they have registered their firm and already have orders worth 5 lacs

			structural members	
16	**Task Flow**	the students were working on an event management app	they received proper guidance on what are the current apps in the market.	they now have over 100 users and are working on automation of notes.
17	**Smart Home**	the students had the idea of home automation and also had a prototype of the same	we helped them in doing a market survey on the types of home automation switches available. they were also provided guidance on ways to automate utilities inside any home	they are now working on automation modular switches which can be operated by voice command
18	**Question paper generation**	they had the idea and a prototype of making a software for automatic question paper generation	mentoring was a key in finalizing the layout of their software	the software is now ready and is currently used at various

				institutes of L J
19	**Bikes Clinic**	They had an idea of taking online bookings for vehicle service.	we then introduced them to various business mentors who guided them on the business model of such ventures	they now have a working business model and are currently working on having their own mobile garage van
20	**Exhaust Oven**	They had made a prototype using an old vehicle	we then introduced them to a design mentor who guided them on the overall design of their prototype	they are currently working on their final design of the vehicle.
21	**Blood Group Determination**	They had a raw prototype of identifying blood group. Using immobilization principle, they were able to check the blood group of patients	We connected them to various mentors and people from prathma blood bank. They have shown immense interest in taking this project ahead	They have now been able to identity blood groups with more thn 95% accuracy. They are

				now setting a benchmark with the Jhonson & Jhonson kit.

- **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.**


#27
Stair Climbing Cart
staircase team
NSTEDB


#33
Divider Painting Machine
#34
ANYTIME, ANYWHERE


#34
INNOVATION VILLAGE 2018
Memento


#147
INNOVATION VILLAGE 2018
Driven Drone
#148
INNOVATION VILLAGE 2018
Smart File


#308
Rfcl Plant
NewGen IEDC
Implemented By:
Entrepreneurship Development Institute of India
PROJECT TEAM:
PRODUCT DESCRIPTION:


23

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:

Bikes Clinic

Name of student	Role	Email ID
Pranav Adatia	Legal and Finance	pranavadatia@gmail.com
Dwikshay Mehta	Marketing and Network	dwikshaymehta11051999@gmail.com
Moiz Primuswala	Human Resource	mysteriousmoizz1998@gmail.com
Shubham Shah	Sales and Purchase	shubhamshah4236.ss@gmail.com
Mohmadhamza Ghoghabori	Operation Manager	hamza.ghoghabori@gmail.com

Bikes Clinic is a service based startup, which originated from a problem faced by almost all the two-wheeler users around the city.

These days the sales of two-wheelers is increasing. Service comes next to the sales. All the two-wheelers moving on the roads of our country needs service regularly at an interval of approximately 70 days. Due to the busy work schedule people do not have ample time to get their vehicles serviced, also all the service stations close their doors at around 5 p.m. People also face quality and originality issues in case of service

and parts respectively. In short we are trying to solve a real time problem that every individual must be facing for servicing their vehicles.

We at BIKES CLINIC provide comprehensive services to all the two-wheeler owners for their vehicles. What we do is that we pickup the vehicle from the customer's doorstep after discussing every issue faced in the vehicle by the customer. We take it to the nearest Bikes Clinic authorised Service Centre to get it serviced as per the customer's requests. As soon as it is serviced we deliver it back to the customer's doorstep. The customer could track the whole process. We provide the proofs of originality of the parts used. In short we serve as a medium between the customers and the service centres, offering convenience to the customers and business to our authorised service centres in different areas of the city.

According to the market survey done after the ideation stage, the customers could readily pay the amount that they were paying at the other service stations for our service. Some of the customers were also ready to pay some more amount if they could get the convenience (about 36%).

After the market survey, we conducted another survey for the willingness of the service stations of few areas to work with us in this model. After the survey we collaborated with 2 service stations in the areas of Paldi and Vasna initially. For gaining customers we started sending WhatsApp messages to all the friends and family circles of all the team members. We bought some parts like air filter, oil filters, oils, etc in lower quantities for regular vehicles like activa / access. We started getting customers from the mentioned areas. Initially we were able to get around 2 services per day. We started negotiations with service stations in the areas of Ellisbridge, Navrangpura & Ambawadi. The areas which were close to each other were selected so that we could operate easily within the areas. Our collaborations with the service stations increased to 8. After this the customer count per day was approximately 4 per day just by the means of WhatsApp messages. Customers face issues with the parts that are to be replaced in the vehicle. Customers could never know wether the part replaced by the service station is genuine or not. For this issue, the parts to be replaced are provided by us and to build trust factor among the customers we send proofs of the replaced parts in the form of pictures.

After all these negotiations and collaborations we started gaining customers from all the 5 areas day by day. We started asking our customers to refer us to their friends and family. This informal referral technique helped us a lot. We managed to gain customers inspite of the trust issues from the side of the customers. We also managed to retain the customers in a short period of 70 days after single service. We started facing problems as the days passed, one of them was the trust issues. The another problem was that we started losing our resources because of our policy to provide the replacement parts. The service stations working with us had to take a profit cut on every vehicle service on the replacement of parts or lubricants. We started losing the collaborations with our service stations. This led us to pause our operations. For the problem mentioned we found out a solution of introducing a labour charge on the replacement of every part which would be transferred to the service station. All the authorised service station around the city charges the labour charge, so it would not be a increase in the rates. Still the initial service charge for the vehicles remain the same.

Currently, we are trying to fix this problem with the labour charges and also we are trying

to get more collaborations in different areas.

GLASS CONCRETE

❖ ABOUT THE TEAM

No.	Name	Roles	Email Address	Contact No.
1	Yash Patel	CMD	Yashpatel9375@gmail.com	9375086227
2	Sahej Singh	Designing	Sahejsingh1410@gmail.com	9099835854
3	Harshadkumar Makwana	Manufacturing	Hkmakwana201197@gmail.com	8141281374
4	Nirmalkumar Suthar	Quality Assurance	Sutharnirmal098@gmail.com	9099171564
5	Vansh Agrawal	Marketing & Sales	V.agrawal604@gmail.com	9662551105

6	Gaurav Mer	Data Management	Gaurav.mer3998@gmail.com	8160181811

❖ **Brief Description about Startup**

Our startup is based on 3 E's which are **Economical, Eco-Friendly and Enhanced properties.** By replacing cement in certain proportions, the CO2 emission is reduced and if done at a large scale, cement industries can reduce their carbon footprints. We are using powdered waste glass which is obtained from non-recyclable glass pieces. This way the landfills in which the waste glass is dumped can be reused for something productive and the consumed space can be used as well. The properties which are obtained by adding glass powder are enhanced and also the rates are reduced than the conventional concrete.

❖ **Entrepreneurial Journey**

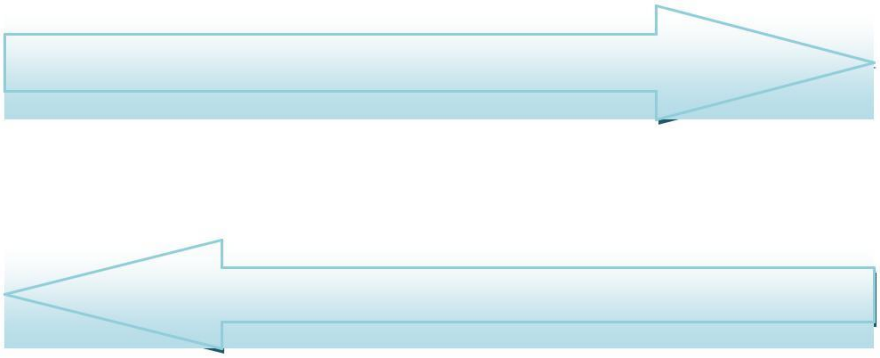
This idea came to our mind during their 6th Semester and we represented our project in L.J. Innovation Village 2018. From that point, we never looked back. We represented the project in several institutions such as Indian Institute of Technology (IIT, Gandhinagar) and Nirma University and many more. We were awarded the First prize in GTU Zonal Tech-Fest that was held at Govt. College of Engineering, Gandhinagar. We had also participated in MG Motors Innovation Challenge at Vadodara being the only Civil engineering background team among the 27 other teams and were the 3rd Runner-ups in competition.

After pitching our idea during the Start-up week in L J Group Of Institutes the team was selected for funding under the New Gen IEDC scheme of Rs. 2,00,000/-.

Since then the team has been indulged in further research and development of the idea. By utilizing the funds and after spending several hours in laboratories we had developed our product Paver Block which was made from Glass Concrete. For validation, we installed paver blocks in an area of 400 square feet near the Engineering building parking of L J campus. After getting successful results in all weather conditions the college gave us an order of paver blocks of about 25,000 square feet which is being installed in the parking behind the Law building.




1. Innovation 2. Product 3. Testing 4. Practicing



8.Implementation

7. Production

6. Sampling

7. Validation

❖ **Photographs**

❖ **Future Plans**

Possible innovation in the future is using the Glass concrete for many other elements such as boundary walls, hollow bricks, Kerbings, Precast walls etc.

Sr. No.	Requirements	Cost
1	Raw Materials	Rs. 1,50,000
2	Tools and Plants	Rs. 50,000
3	Laboratories	Rs. 25,000
4	Mentorship	Rs. 25,000
5	Miscellaneous	Rs. 50,000
Grand Total		**Rs. 3,00,000/-**

6. Minutes of the Advisory Board Meetings (held so far):

Minutes of Meetings

Meeting/Project Name:	**First Advisory Board meeting for NewGen IEDC**		
Date of Meeting:	06th November, 2017	**Time:**	3:00 PM to 6:00 PM
Meeting Facilitator:	Mr. Zishan Hakim	**Location:**	L. J. Placement Cell, M.B.A. Building, L. J. Campus, Sarkhej, Ahmedabad.

1. Meeting Objective

Advisory board of NewGen IEDC met for discussing projects proposed, administrative and managerial way forward.

2. Attendees

Sl.	Name	Representation
1	Dr. Naveen Vasishta	Department of Science and Technology
2	Prof. S. B. Sareen	Entrepreneurship Development Institute of India
3	Mr. Shyam Tibrewal	Industry Expert
4	Mr. Ketul Agrawal	Entrepreneur Alumni
5	Mr. Kunal Udani	Entrepreneur Alumni
6	Prof. Devang Shah	Senior Faculty
7	Prof. Harshul Bhrahmbhatt	Senior Faculty
8	Dr. Manish Shah	Vice President, L. J. Group of Institutes
9	Dr. Viral Shah	CEO, Antrapreneur – The Business Incubator
10	Mr. Sanket Shah	COO, Antrapreneur- The Business Incubator
11	Mr. Bhushan Mehta	NewGen IEDC Coordinator
12	Mr. Zishan Hakim	NewGen IEDC Coordinator

Agenda for the meeting

Sl	Particulars
A.	Presentations of the Projects
B.	Recommendation(s) of the advisory board on the projects presented
C.	Financial Guidance for the Project

D.	Utilizing Non Recurring Grant for Setting up infrastructure and labs
E.	Suggestions for strengthening Internal Ecosystem
F.	Any other agenda as suggested by the members of the board

Details about the Meeting

Welcome Address:

- Mr. Zishan Hakim, welcomed all advisory team members.
- Presented Video Film on L. J. Group
- All advisory board members were facilitated with a Tulsi Pot and Souvenir

A. Presentations, Recommendations and Funding Requirements of the Projects:

General Observations:

i. Maximum projects to be commercialized. Commercialization of projects is recommended to achieve desired target of NewGen IEDC Council working under Department of Science and Technology.

ii. Adequate Male – Female ratio is recommended.

iii. Major projects are related to existing technologies which can be learnt by approaching industries with the help of Mr. Shyam Tibrewal.

iv. Along with technical understanding, some common understanding of the businesses must be provided to the students and mentors.

Specific Observations:

Sl.	Name of the Projects	Suggestions by Advisory Board	Funds Required (Amt in Rupees)
1	*Automatic Tissue Dispenser*	- With a small difference in cost, machine is available. Hence, cost advantage of product is not achieved. - Esthetic look and Cost effective machine is required	80,000 – 90,000
2	*Quick Pick*	- Only tennis ball picker won't work. - If multipurpose unit is developed then only commercialization and sustenance will be possible. - Work towards picking up the dust.	75,000
3	*Bottle Rinsing, Filling, Capping and Labeling Plant*	- Bottle Refill points are available at Ahmedabad railway station - Focused more onto technology focused onto large institutional users.	2,50,000
4	*Desktop Cooler*	- Very good Product with a capacity of 10 Ltrs. - Power back up is needed for Table Top usage and R.O. Purifier	1,50,000 -2,00,000
5	*Advanced Data Monitoring Systems*	- Work on back end controlling device and front end RFID Controller - Adding sensors in corners of the cabin and control temperature and humidity	2,00,000

		- Highly needed in all educational and other institutions	
6	*Stair Climbing Cart*	- Effective technology to be developed	1,00,000
7	*Digital Water Meter*	- Studying the technology available in GIFT City - Same technology and devices are already available across the places. - Get connected to Prof. Devang for GIFT and other support	
8	*Divider Painting Machine*	- Precision to be managed for the work undertaken - Instead of one, two machines can be used to manage two different colors.	2,00,000 – 3,00,000
9	*Attendance Using Face Detection*	- Amazing technology which can be developed further. - High end camera systems to be brought and proof of concept to be developed. - Trial run should be more effective with accuracy beyond 95% - Additional funds are to be supported from Host Institute for implementing project	3,00,000 – 4,00,000
10	*Customized Memento*	- Additional technologies, designs and materials (like ceramics) can be explored.	1,00,000

B. <u>Important Financial and Administrative Suggestions</u>

(i) Total Grant is of Rs. 25,00,000/- (Rupees Twenty Five Lakh only) to be given to NewGen IEDC – L. J. Institute of Engineering and Technology (LJIET). In case, existing projects do not need total grant then other projects can also be supported from the amount of grant available. But minimum 10 Projects should be there as a part of NewGen IEDC scheme.

(ii) Do not repeat students every year for NewGen IEDC Projects. Give preferences to new students for promotion of innovation and entrepreneurship.

(iii) Never give cash amount to students. Instead, develop a system of directly supporting students with facilities. In the process, NewGen IEDC may develop few consumables and assets which can be utilized by upcoming batch of NewGen IEDC Participants. Utilization Certificate (UC) is to be submitted before asking for next tranche of funding from DST.

(iv) Consumables, tools, machines and other assets are owned by Department of Science and Technology which requires to be kept at NewGen IEDC. Institute has to manage asset and consumable registrar which may be subject to audit.

(v) Such machines, tools and other assets may be useful for long run for institute. DST proposes sustenance of the scheme over a period of time for which such investments would be useful.

(vi) Uniformly, decision is taken for developing NewGen IEDC Administrative Policy *or* Standard Operating Procedures (SOPs) to be vetted by all advisory board members.

(vii) Boards to be kept at 3-4 prominent places with following lines with a logo of LJIET and GOI.

L. J. Institute of Engineering and Technology

New Generation Innovation and Entrepreneurship Development Centre

Catalyzed and Supported by

National Science and Technology Entrepreneurship Development Board (NSTEDB)

Department of Science and Technology, Government of India

C. <u>Visit to proposed lab space:</u>

After overall discussions, L. J. Team along with Dr. Vasishta, Prof. Sareen and Mr. Shyam Tibrewal have visited proposed innovation lab space at L. J. Law Building.

References/Annexures

1. List of Projects with brief details
2. LJIET - Lab Requirements

Signatures of all attendees

Sl.	Name	Signature
1	Dr. Naveen Vasishta	
2	Prof. S. B. Sareen	
3	Mr. Shyam Tibrewal	
4	Mr. Rutul	

5	Mr. Kunal Udani	
6	Prof. Devang	
7	Prof. Harshul Bhrahmbhatt	
8	Dr. Manish Shah	
9	Dr. Viral Shah	
10	Mr. Sanket Shah	
11	Mr. Bhushan Mehta	
12	Mr. Zishan Hakim	

7. Progress Summary:

1.	**Total number of Student Projects supported**	**20**
2.	**Total fund provided towards supporting Student Projects**	**Rs 14,11,011**
3.	**No. of Patents filed by students**	**0**
4.	**No. of Patents Granted**	**0**
5.	**No. of companies/Starts up Set up by Students**	**2**
6.	**Social Impact Made, If any**	

05. Manav Rachna International University, Faridabad, Haryana

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NewGen IEDC [2017-22]
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report (As on October 31, 2018)

Name of the College/Institution hosting NewGen IEDC	Manav Rachna International Institute of Research and Studies, Faridabad		
Year of starting NewGen IEDC	2017		
Name of the Head/Principal of the Institution/College	Dr. N.C Wadhwa		
Name of NewGen IEDC Coordinator	Dr. Monika Goel		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	+91-9899876331 Monika.fcbs@mriu.edu.in		
Financial Details	Rs. 60 lakhs (Rs. 25 lakhs for prototype development grant, Rs. 25 lakhs as non-recurring grant and Rs. 10 lakhs for recurring grant received vide sanction order no. EDII/DST-NewGen IEDC/17-18/05 dated 15/06/2017		
		Sanction Order No.	**Sanction Order Date with Amount**
Previous Sanction Order Details	1.	EDII/DST-NewGen IEDC/17-18/05 dated 15/06/2017	60,00,000
	2.		

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	Entrepreneurial Awareness Drive (In Campus)	10 days Entrepreneurship Awareness drive was conducted across the various departments and faculties of MR. More than 500 students got an opportunity to participate in various lectures and seminars on technical aspects of entrepreneurship.	August 2017

2	The Startup Unlocked (Seminar on Key aspects of Entrepreneurship)	Students of B.tech CSE of MRIIRS were given seminar on the concept of startup unlocked by IEDC team	August 2017
3	Workshop on "how to identify a great business idea"	Team of IEDC gave an extensive workshop to the student entrepreneurs on how to identify a great business idea with the help of case studies and research reports.	August 2017
4	Talk Shows/ Discussions with Alumni and other self-made Entrepreneurs	Alumni Entrepreneurs of Manav Rachna were invited to share their experiences and stories with aspiring group of IEDC Self-made Entrepreneurs.	September 2017
5	Induction program on different forms of entrepreneurship	Students of BBA and Engineering were motivated for doing startups, the speakers various forms of entrepreneurship to the students as per their interest and needs.	September 2017
6	Watch a Movie Session	A 1999 inspirational Drama named "October Sky" was shown to the students to build positive values.	February 2018
7	E-WEEK 2018 (Wadhwani Foundation- NEN)	This was the 10th edition of this Mega event. Every year this E-Week is celebrated to promote new ventures and entrepreneurial values.	February 2018
8	Entrepreneurship Awareness Camp-I	A 3 day workshop was organized by IEDC team to spread awareness about entrepreneurship, its aspects and various opportunities for students about to graduate or already graduated of MRIIRS.	September2018

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9	Entrepreneurship Awareness Camp-II	A 3 day workshop was organised by IEDC team to spread awareness about entrepreneurship, its aspects and various opportunities for students about to graduate or already graduated of MRU.	October 2018

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

Sr. No.	Activities	Outcome/Achievements	Month
1	Business plan competition	This event was conducted by NewGen IEDC team where 10 teams presented their ideas to the team of 7 judges and best 3 ideas were awarded as winners, followed by a guest lecture.	September 2017
2	Live Product sale	Students of Entrepreneurship 3rd sem. displayed and sold innovative products as project work at the campus.	November 2017
3	Screening of startups	A total of 13 startup ideas were pitched by the students, from which best 9 were selected for the review round.	December 2017
4	Business Venture Simulation Game	All the startups and E-cell members were invited to play Business Venture Simulation Game that gave an insight about how a business is taken from scratch to scale up.	April 2018

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5	Introduction to "Cost effective means of self-marketing"	Session on Cost Effective means of self-marketing was delivered to startups, ecell members and students from engineering, BBA and commerce.	May 2018
6	Workshop on identifying a true value proposition for startup	The event was attended by all NewGen IEDC startups. The startups were detailed about ways to determine real value propositions for their respective ventures.	September 2018

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements	Month
1	Startup Jalsa	Team of 35 students attended mega event titled Startup Jalsa and the e-cell was awarded 3rd prize	December 2017
2	Off Campus FDP training on Entrepreneurship	Manav Rachna faculties got trained through 10 days FDP funded by DST at YMCA university and ITS Engineering College.	December 2017

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

The activities are carried on as per Action Plan. However, in certain cases, dates had to be rescheduled to ensure that maximum number of participants can benefit out of the activity. Activities relating to Industry-academia interaction had to be reshaped to suit the requirements of industry.

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

Sr. No.	Activities	Outcome/Achievements	Month
1	Launch of Digital Learning Program for aspiring entrepreneurs	Digital Learning Program for aspiring entrepreneurs was launched for IEDC Student Startups at Learnwise in association with NEN	September 2017
2	Road 2 Startup (2 week)	MR NewGen IEDC organized a 2 week long entrepreneurial event in association with NEN and Technoplanet Labs. Activities like DISRUPT and quiz, idea pitching etc. were conducted also intensive training was conducted by Technoplanet Labs.	October - November 2017
3	Learnwise Module 100 assessment	A final assessment was conducted by Wadhwani foundation NEN for the students of E CELL.	January 2018
4	Zing Talks	Organised by NewGen IEDC in which 2 entrepreneurs were called upon for a 2 hour talk show for motivating and sharing her experiences.	January 2018
5	Anveshan 2018	NewGen IEDC also hosted Anveshan 2018 with projects coming from across the North Region of Country.	February 2018
6	Talkshow with Mr. Gaurav Kachru	Mr. Gaurav kachru, founder – 5 ideas, was invited for a talkshow with the NewGen IEDC startups and E-cell members.	September 2018

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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	Nature's Drop	Ideation	Supported in product selection, USP identification and business model preparation.	Beta version prototype ready. Samples tested. In process for incorporation and establishing sales channels . Won various competitions.
2	Tackyon Motorsports Pvt. Ltd.	Conceptualization	Supported in concept refinement, USP identification, prototype development and business model preparation.	Beta version prototype ready. Samples tested. In process for incorporation and corporate sales pitching.
3	Aarkaya Solar Solutions Pvt. Ltd.	Conceptualization	Supported in concept refinement, USP identification, prototype development and business model preparation.	Incorporated in March 2018. Started installations for revenue generation. Solar products development under process.
4	Thap Krida	Market Research	Supported in selection of targeted market, USP identification, prototype development and business model preparation.	3 games on google playstore. In process for incorporation. Started presales for revenue generation.
5	Naturoplast	Ideation	Supported in selection of targeted market, USP identification,	Beta Version prototype developed. In process of testing

			prototype development and business model preparation.	and certifications. Also, in process of incorporation. Won various competitions.
6	Coating Wala (TFT Innovations)	Conceptualization	Supported in selection of targeted market, USP identification, prototype development and business model preparation.	Beta version prototype ready. In process for incorporation and pilot sales.
7	Campus Dock	Market research	Supported in selection of targeted market, USP identification, prototype development and business model preparation.	Beta version prototype ready. Application tested with 50 students as pilot run. In process for incorporation and sales.
8	Medlife care	Ideation	Supported in selection of targeted market, USP identification, prototype development and business model preparation.	Business model ready. Developing prototype.
9	Vagabond Brains	Conceptualization	Supported in selection of targeted market, USP identification, prototype development, business model preparation and network building.	Website ready and live. Under the process of incorporation. Started generating revenue.
10	Greenity	Ideation	Supported in selection of targeted market, USP identification,	Beta version prototype ready. Samples tested. In process for

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			prototype development and business model preparation.	incorporation. Won various competitions.
11	N2 Innovations	Ideation	Supported in product selection, USP identification, prototype development and business model preparation.	Prototype development under process.
12	Ferox Technology	Conceptualization	Supported in selection of targeted market, USP identification, prototype development and business model preparation.	Prototype development under process.
13	Night Labs	Ideation	Supported in product selection, USP identification, prototype development and business model preparation.	The project could not take off. The stipend amount is on hold and equipments purchased recovered. Consumables have lost in the process.
14	Smart Watch	Ideation	Supported in product selection, USP identification, prototype development and business model preparation.	The project could not take off. The stipend amount is on hold and equipments purchased recovered. Consumables have lost in the process.

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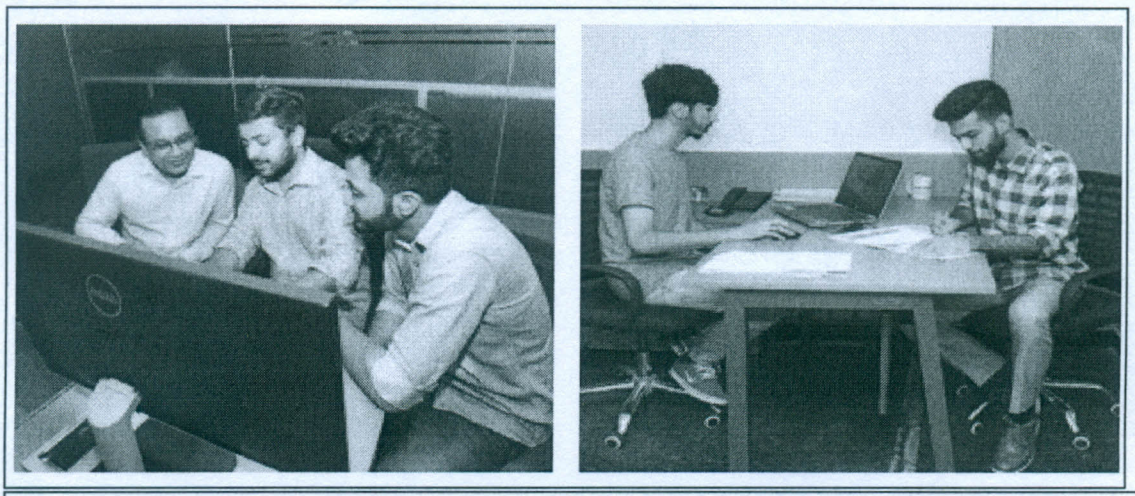
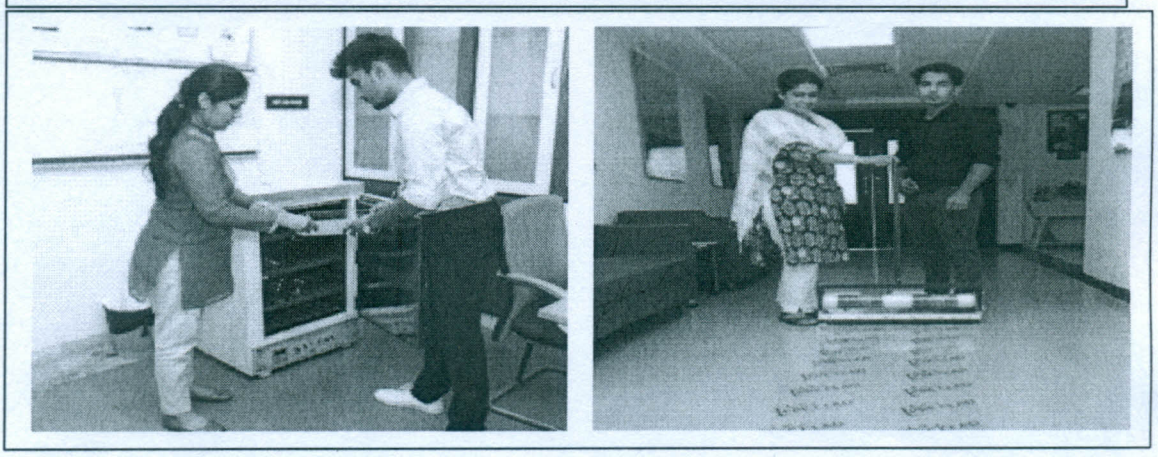
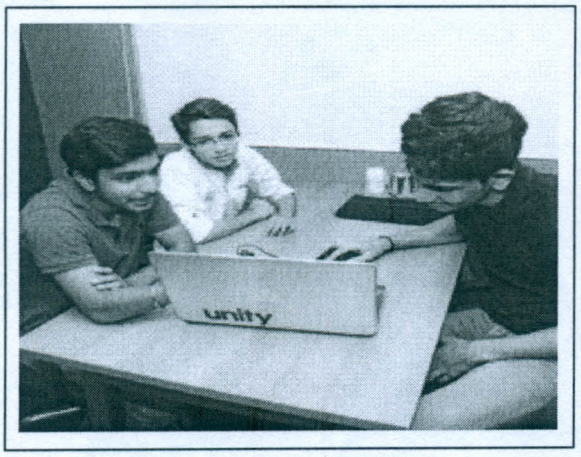
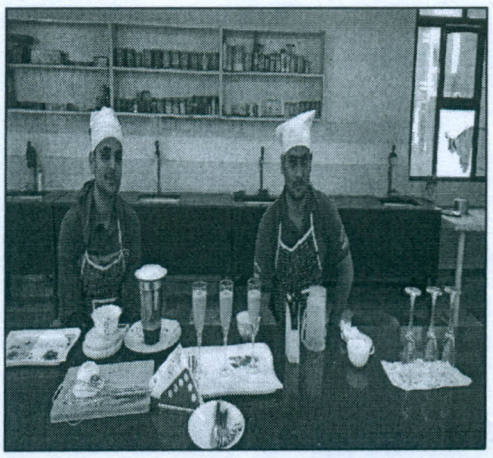
- **Please Submit three/four high resolution (at least 300 dpi) pics in jpeg format showing the prototype/product along with the students and their mentor.**









MANAV RACHNA NEWGEN INNOVATION AND ENTREPRENEURSHIP DEVELOPMENT CENTRE ★ MANAV RACHNA "vidyanatarikshat"

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. **NATUROPLAST:**

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

Mandeep Gulati (student)
Manav Rachna International Institute of Research and Studies
Mobile No- 78303446069
Email- gulatimandeep@ymail.com

Lakhvinder Kaur (Mentor and Assistant Professor)
Manav Rachna International Institute of Research and Studies
Mobile No- 9711045882
Email- lakhvinder.fas@mriu.edu.in

- **Brief description about the student start-up**

Naturoplast is an initiative to inculcate an idea of biodegradable plastics from underutilized natural resources. The newspapers and TV channels are flooded with the harms and problems the environment is facing. And one of the causes is pollution due to plastic usage. The under utilisation of the natural resources is another big problem. The production of the bananas is quite high and India ranks first among other countries in the production. Even after its usage and the export, still the bananas get underutilised. So, to reduce and curb the problem, the best possible way is the value addition. Nanowrap is one such product made from green banana. It is an innovative bioplastic wrap with improved physical and mechanical properties. Being cost effective, biodegradable, water soluble and high in mechanical strength "Nanowrap" possesses a high impact both socially and environmentally. It's an ecofriendly package and a Green Initiative to build a Swacch Bharat.

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

Starting from just an idea to till date, it's really been a long interesting and experience rich journey. It started a year back with the aim to recognise the problem and the use of already existing underutilized natural resources. With a lot of brainstorming and discussions, the major problem identified was the Plastic usage and its pollution. It's been seen that already many steps have taken which had many cons again. Even studies shows that the biodegradable plastics have few shortcomings that "Naturoplast" startup have tried to overcome with the development of nanobioplastics with improved physical and mechanical properties.

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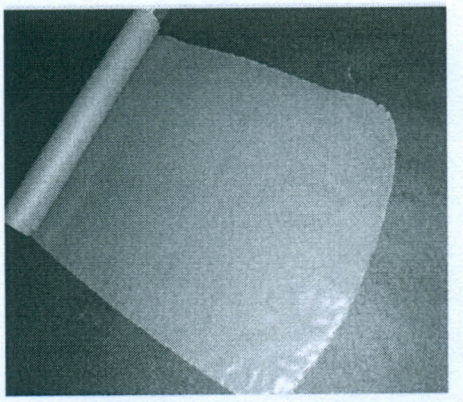

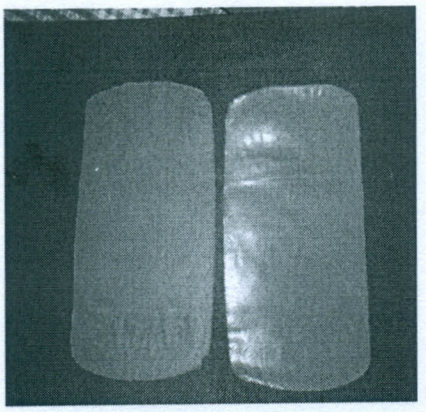

- **Contribution of NewGen IEDC in the same**

  The NewGen IEDC is the none other than back bone for us. It is the only constant support all throughout in this 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**
  - Commercialization of the Nanowraps.
  - Development of the new packaging line.
  - Clean and Green India. (Swacch Bharat Abhiyaan).
  - Benefit to both urban and rural communities.

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"vidyanatankshai"

2. THAP KRIDA:

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

Sahil Tanwar (student)
Manav Rachna University
Mobile No- 8130833056
Email- sahil.tanwar@thapkrida.com

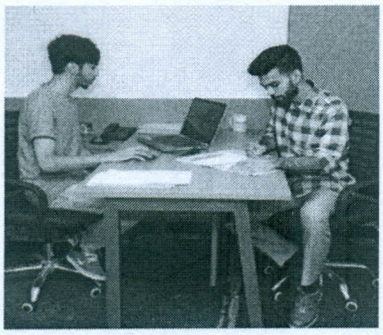
Mukul Phogaat (student)
Manav Rachna University
Mobile No- 9711166567
Email- mukul.phogaat@thapkrida.com

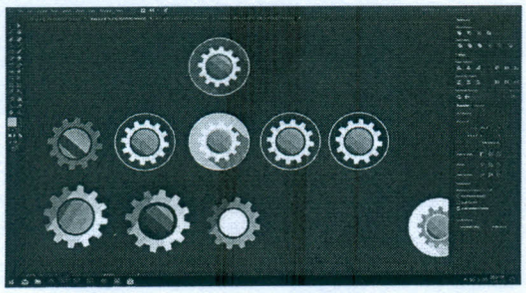
- **Brief description about the student start-up**

The team is developing hyper-casual mobile phone games.

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

The team started in January, 2018 have developed 3 games and published them on google playstore and apple appstore. The first game gave them an idea about how things work and other game mechanisms, second game(toppl) helped them reach out to customers and know what are their likes and dislikes, third one(tile surf) the most recent one is now online and the team is trying to generate revenue out of this which will help them know the areas they need to target to generate maximum revenue.





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- **Contribution of NewGen IEDC in the same**

  Thap Krida has got the best technologies as desired, that includes software license, assets, plug-ins, other equipment 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**

  Write now we are a team of two. We will be developing hyper-casual games for next one year and try to generate revenue out of it. Then will move to 3D online multiplayer mobile games by hiring people which will help us to establish name for our company and then eventually we will enter the PC gaming by making games for Steam.

3. **NATURE'S DROP:**

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

Anshu Jha (student)
Manav Rachna International Institute of Research and Studies
Mobile No- 7840019633
Email- jhaanshu2311@gmail.com

Pranaw Jha (student)
Manav Rachna International Institute of Research and Studies
Mobile No- 78303446069
Email- pranaw123jha@gmail.com

Mohit Dhariwal (student)
Manav Rachna International Institute of Research and Studies
Mobile No- 8930991996
Email- mohitdhariwal3@gmail.com

- **Brief description about the student start-up**

  Nature's Drop is a startup working in the nutritional sciences for developing nutrition based health beverage for children and teenagers. Nature's Drop is also preparing innovative moving carts to enable their customers have a taste of their beverages on-the-go.

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

  The team started 8 months ago with 1 drink and has come a long way since then, developing 3 innovative beverages (till date) with unique ingredients and compositions. Their drinks have been tested in laboratories and are soon to be commercialized.

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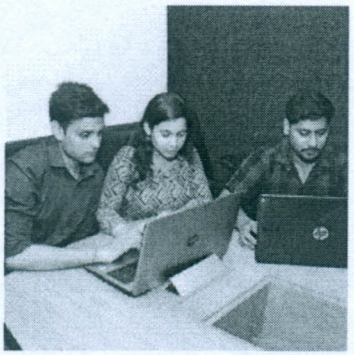
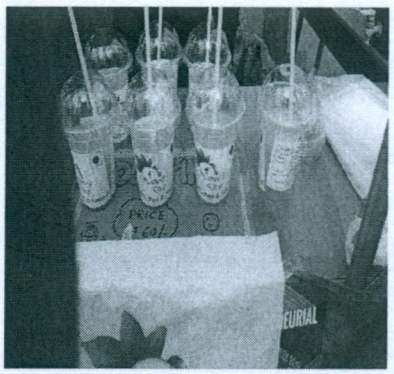
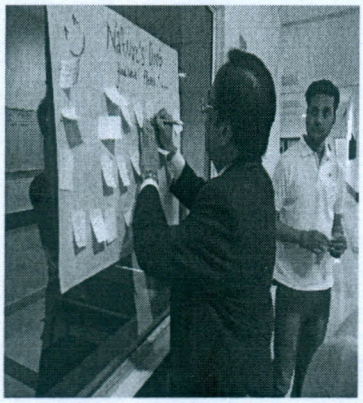
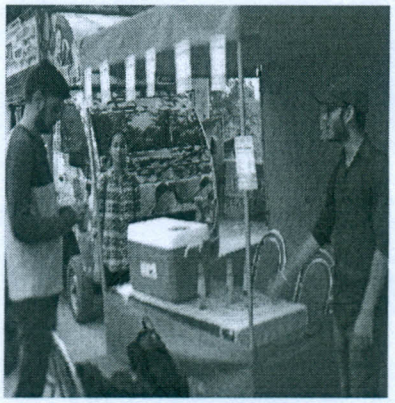








- **Contribution of NewGen IEDC in the same**

  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 aims to expand in terms of the number of beverages as well as clientage in the cities Faridabad, Gurgaon and Noida in the coming year.

MANAV RACHNA NEWGEN INNOVATION AND ENTREPRENEURSHIP DEVELOPMENT CENTRE ★ MANAV RACHNA #vidyanatankisha#

6. Minutes of the Advisory Board Meetings (held so far): Enclosed at Annexure 1

7. Progress Summary:

1.	Total number of Student Projects supported	14
2.	Total fund provided towards supporting Student Projects	2,500,000.00
3.	No. of Patents filed by students	1
4.	No. of Patents Granted	0
5.	No. of companies/Starts up Set up by Students	2
6.	Social Impact Made, If any	-

For NewGen IEDC, Manav Rachna

(Dr. Monika Goel)
Chief Coordinator

Forwarded By:

For Manav Rachna International Institute of Research and Studies

Dr. N.C Wadhwa
Vice Chancellor

Dr. N.C. WADHWA
Vice-Chancellor
Manav Rachna International
Institute for Research & Studies
(Deemed to be University)
Faridabad (Haryana)

06. B. N. M. Institute of Technology, Bengaluru, Karnataka

NewGen IEDC [2017-22]
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report (As on October 31, 2018)

Name of the College/Institution hosting NewGen IEDC	BNM 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 • Mobile Number • e-Mail ID	9980356098 vijayashreel@bnmit.in		
Financial Details	Sanction Order No./Date		Amount Sanctioned
Previous Sanction Order Details	1.	EDII/DST – NewGen IEDC/17-18/06 15/6/2017	Rs. 60 Lakhs

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 -1 (7/11/17 to 9/11/17)	V semester Electronics and Communication Engineering Students got motivated and expressed their interest in joining the Entrepreneurship Development Cell. 4 students joined ED cell in the year 2018. Report of the EAC-1 is attached as Annexure 1.
2	Entrepreneurship Awareness Camp-2 (13/11/17 to 15/11/17)	V semester Mechanical Engineering Students were happy to know about entrepreneurship and expressed their interest in joining Entrepreneurship Development Cell.4 students joined ED Cell in the year 2018. Report of the EAC-2 is attached as Annexure 2
3	Entrepreneurship Awareness Camp -3 (5/3/18 to 7/3/18)	IV semester Electronics and Communication Engineering Students got motivated and expressed their interest in joining the Entrepreneurship Development Cell. Report of the EAC-3 is attached as Annexure 3.
4	Entrepreneurship Awareness Camp-4 (12/3/18 to 14/3/18)	IV semester Electrical and Electronics Engineering Students were happy to know about entrepreneurship and expressed their interest in joining the Entrepreneurship Development Cell. Report of the EAC-4 is attached as Annexure 4.
5	Entrepreneurship Awareness Camp-5 (22/3/18 to 24/3/18)	IV semester Mechanical Engineering Students got motivated and got motivated and expressed their interest in joining for Entrepreneurship Development Cell. Report of the EAC-5 is attached as Annexure 5.

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

Sr. No.	Activities	Outcome/Achievements
1	Innovative Project Lab (IPL)- Winter 2017	**IPL Winter Competition– 10th November, 2017** IPL is a platform for the students to convert ideas in to proof of concept every semester. With the help of the IPL Competition, ED Cell BNMIT is able to find the best Proof of concept and encourage the winning teams to participate in the presentation for New Gen IEDC Funding. Amongst the IPL projects, three projects were shortlisted for the New Gen IEDC grants for the year 2018-19.
2	Idea Workshop	**Workshop in association with Visvesvaraya Trade Promotion Centre, Government of Karnataka – 11th April 2018.** Identification of problems and converting them into opportunities was the main goal of this Idea workshop. Students of various engineering streams were given the knowledge about the identification of problems around them. Interesting ideas thus got converted as projects during Innovative Project lab (IPL) sessions.
3	Business Plan Competition	**An inter college Business plan competition was organized on April 27th & 28th 2018.** Students got to know innovative ideas through this Business plan competition and were encouraged to convert their ideas as projects during Innovative Project lab (IPL) sessions.
4	Innovative Project Lab (IPL)- Summer 2018	**IPL Summer Competition– 4th May 2018** IPL is a platform for the students to convert ideas in to proof of concept every semester. With the help of the IPL Competition, ED Cell BNMIT is able to find the best Proof of concept and encourage the winning teams to participate in the presentation for New Gen IEDC Funding. Amongst the IPL projects, four projects were shortlisted for the New Gen IEDC grants for the year 2018-19.
5	Design Thinking Workshop	**Design Thinking Workshop in association with Visvesvaraya Trade Promotion Centre, Government of Karnataka, on 25th May, 2018.** This Workshop was the platform for the New Gen IEDC Students to take forward their Projects from prototype level to product. With the help of the knowledge gained from this workshop conducted by Innomantra known firm for Design Thinking, 5 student projects were able to bring out their products.

Detailed report with photos of the above programmes are attached as Annexure- 6

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	eXpress Talk	**Dr. Balaji M Sreeramulu, CEO Whatznext addressed the Entrepreneurship Development Cell students on skills and Etiquettes for Entrepreneurs on 6th October 2017.** This Talk helped the budding entrepreneurs in campus to understand the need of necessary skills and Etiquettes for a successful entrepreneur.
2	eXpress Talk	**eXpress Talk - Dr. Somdutta Singh, Co-chair, NASSCOM Product Council, Founder & Director of Unspun Group on 13th October 2017.** Dr. Somdutta Singh emphasized on the role of startups in India and the growth of entrepreneurs, especially the young entrepreneurs. Upcoming entrepreneurs were assured of support by National Skill Development Corporation (NSDC) by Dr. Somdutta Singh. She guided the students in the aspects of approaching and securing the services of NSDC and NASSCOM. Students were able to understand the nuances of startups.
3	Meet the CEO	**Meet the CEO – Mr. C.K. Kumaravel, Co-founder and CEO of Naturals on December 6, 2017.** The journey of entrepreneurship shared by Mr. Kumaravel helped the students to understand the hardships faced by any entrepreneur in his/her initial days.
4	Chai Talk	**Chai Talk by Internal Mentors on 9th March, 2018.** Dr. Mukund Sharma, Professor MBA Department delivered a Chai Talk about the importance of finance for Entrepreneurs. This Talk helped the students to understand the importance of ledger maintenance in business.
5	Round Table with Startups	**Panel Discussion on Startups was organized on 28th April 2018**. ED cell in association with Department of MBA organized panel Discussion on startups during the management fest "Aarohan 2018". Mr.Yogesh, Founder of Sywin Techno Solution, Bengaluru and Mr.Sanjay, CEO and Founder of South Kitchens, Bengaluru addressed the students of ED cell and NewGen IEDC on how to start a company and challenges faced during their entrepreneurial journey.

Detailed report with photos of the above programmes are attached as Annexure- 6

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

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

A Five Days hand on technical workshop was conducted for various Engineering departments to enhance the practical knowledge in recent technologies.

Sr. No.	Departments	Workshop Details
1	Department of Computer science and Information Science Engineering.	**Workshop on Internet of Things, Department of Computer science and Information Science Engineering (**Sponsored by NSTEDB, DST, Govt. of India , 9th- 13th July, 2018) Twenty four students from Department of Computer Science and Engineering and Twenty three students from Department of Information Science and Engineering actively participated in the workshop.
2	Departments of Electronics & Communication Engineering and Mechanical Engineering.	**Workshop on IoT in Real Life Applications from Product Development Perspective** was organized for departments of Electronics and Communication Engg. and Mechanical Engg., **(**Sponsored by NSTEDB, DST, Govt. of India , 9th- 13th July, 2018). Twenty four students of ECE and twenty four students of Mechanical engineering were present in the workshop.
3	Department of Electrical and Electronics Engineering	**Workshop on " Design & Development of Embedded Systems for Real Life Application**" from 10^{th} to 13^{th} July 2018 in association with NewGen Innovation & Entrepreneurship Development Centre sponsored by NSTEDB, DST, Govt of India. 30 students were benefitted from this programme. Twenty four students of E&E engineering were present in the workshop.

Detailed report with photos of the above programmes are attached as Annexure- 7

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	Pruthvi S Shama M S Hitesh V Haritas Sujay Jain **Virtual Eye** – The main aim of this project is to provide an effective visual platform to enhance the perception of the surroundings for a visually impaired user. This is achieved by using the concept of image processing and segmentation, along with database which consists of pre-fed data that aids in the recognition of the image captured, also keeping the financial perspective in mind.	Proof of concept	• Prototype Development • Business Analysis • Product Design	• Prototype Completed
2	ShaikMohammed Rizwan Shreyas S P Reethan D L **Indeginously built prosthetic Arm using 3D printer** – A prosthesis also called a prosthetic limb, artificial limb, or limb "replacement" – though natural limbs are irreplaceable is an artificially made substitute for a limb lost through a congenital defect present at birth, accident, illness, or wartime injury.	Proof of concept	• Prototype Development • Business Analysis • Product Design • Test Market • Commercialization	*Started company Hycube works Pvt. Ltd., *Won many competitions and approached investors for the funding. *Working with prosthetic association & Medical hospitals to examine muscle sensor side effects.
3	Abhishek B V Aniruddha B V Ganesh M Dixit Nataraj N Badiger **Easy Foot** – This will help people with a transtibial amputations.Using prosthetics a better way of walking. A more convenient and easy way of travelling around.	Ideation	• Concept Development • Prototype Development • Product Design • Test Market	*Commercialization along with Jaipur Foot Association.

4	Akshar K R **Agrotona** - Agrotona is a management device which will take care of farms and terrace gardens. It is an electronic device which calculates the amount of water required for lands which in turn adjusts to the fluctuating evaporation rates and moisture content by compensating for it by spraying water. In this system, the evaporation rate and moisture level both have been considered to make it more effective in working.	Proof of concept	• Prototype Development • Business Analysis • Product Design • Test Market • If needed change in product design • Commercialization	*Fully furnished setup has been installed in college premises & tested. *Looking out for commercial areas.
5	Ganesh Murthy V Sathvik R Bharadwaj Rakshitha A **Lazer Induced Musical Instrument** – This project aims in generating musical instruments sounds by interfering the laser beam using which songs can be played. It will have twelve notes representing once octave frequencies which can be extended to many octaves.	Ideation	• Concept Development • Prototype Development • Business Analysis • Product Design	*Functioning Prototype is ready. *Professional prototype for singers in process.
6	Sachin B Jain K Shashank Rao Monali G Pawar **Jacket for Mobility aid to Blind people** - The system is intended to provide overall measures, Artificial vision and object detection. The Jacket is enabled with 360 degree sensors for obstacle detection, which in turns convey the information into voice message.	Ideation	• Concept Development • Prototype Development • Product Design	*Functioning Prototype is ready. *Need to explore the compatibility of blind persons, in wearing the Jackets.
7	Nayana R Roshan S Sushanth Kumar **Energy Harvesting using Bicycle** – This is the best way of power generation having less environmental impact. In this project human energy is used as the source to generate power by pedalling bicycle, which in-turn	Proof of concept	• Prototype Development • Product Design	*Functioning Prototype is ready. *Applicability of the usage is been Tested in college gym.

	gives mechanical energy and this mechanical energy is converted into electricity through permanent magnet DC generator.			
8	Rakshita R Sana Anaum Ujwal S S **Design and Implementation of Oculographic System for Motor Neuron Disease Patient for Communication**- The camera focuses on the eye of the patient and records and stores the eye blinks. The algorithm is written for the same and to convert blinks to speech.	Proof of concept	• Prototype Development • Product Design	*Functioning Prototype is ready. *Testing Phase
9	Tejas C Tejashwini V **Assistive technology for intellectually disabled and physically challenged people** - The aim of this project is to access the learning capabilities of the intellectually disabled and physically challenged people and provide them a tool, which will help them to alert or inform the person in-charge about their need or necessity through SMS or alarm.	Proof of concept	• Prototype Development • Business Analysis • Product Design • Test Market • Commercialization • BNMIT sponsored the additional funding of Rs. 37,910/- for the product development as per the needs of Manonandhana-an NGO for Mentally challenged children.	*Prototype Done *Need identified and prototype is designed accordingly. *Received good feedback from the customers (Manonandhana-An NGO used the product and gave good feedback). *Won NIDHI (Rs. 10 Lakhs) start up funding for the year 2018-19.
10	Asmita Vasuki Archita Vasuki **Portable Solar charged battery and inverter unit for low power application** – The batteries are charged by flexible solar panels that can be attached to travel gear such as bag packs, car tops, and even windows exposed to sunlight. This makes it ideal for carrying around and for low power applications such as mobile and other electronics charging, backup lighting systems, etc.	Ideation	• Concept Development	*Not able to reach prototype development stage.

11	Akhil N Sridhar Harsha G Spoorthi Syeda Lubna **Brain Wave Monitoring System-** The work aim of this project is to reduce the accidents occurring in the world due to driver fatigue and drowsiness. One of the most effective methods to reduce this risk is by monitoring the driver's brainwaves and sending alerts. Brainwaves provide information about the state of mind of a person such as awake, alert, relaxation, sleep and so on.	Ideation	• Concept Development • Prototype Development	*Prototype Done
12	Sree Soundarya. C Avishek Kumar Siddhant Srivastava Keertana S **Solar Power Bicycle-** Bicycles are the cheapest, healthiest and eco-friendly but poses problem in climbing slopes. Motor cycles are not affordable to poor people and with the rising fuel prices and pollutions; it does not seem a suitable option. Electric - Bicycle is eco- friendly and comfortable but costly. It is infeasible as there is no enough provision for charging in rural India. Hence a bicycle which can be peddled as well as run on solar powered battery seems to be suitable option to solve the issues discussed above.	Ideation	• Concept Development • Prototype Development	*Prototype Done
13	Prem Kumar Vikas Kumar Vishnu Aditya Kumar Omkar Kumar **Pneumatic Bumper and Braking system-** A pneumatic system is a system that uses compressed air to transmit and control energy. Our project "Pneumatic bumper and	Ideation	• Concept Development • Prototype Development	*Prototype Done

	breaking system" is used to protect the vehicle from accident. This project consist of ultrasonic sensor, Control Unit, Pneumatic bumper system. The ultrasonic sensor is used to detect the obstacle. If there is any obstacle closer to the vehicle, the control signal is given to the bumper activation system. Vehicle speed is sensed by the proximity sensor and signal is given to the control unit and pneumatic bumper activation system.			
14	Nagarjuna T V Shravan Gupta Shashank A S Roopesh Kumar **Lifi based Blind indoor Navigation system for Visually Impaired People-** The Wi-Fi is useful for general wireless coverage within buildings while Li-Fi is ideal for high density wireless data coverage in confined areas where there are no obstacles. Since visible light is present everywhere, the main idea of our paper is to create internal navigation systems for the bigger areas to create automatic navigation for the visitors who are visually impaired using Li-Fi technology.	Ideation	• Concept Development • Prototype Development	*Prototype Done

The students' achievements are attached in Annexure -8

- **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.**

Easy Foot

Student Team: Abhishek B V, Aniruddha B V, Ganesh M Dixit, Nataraj N Badiger along with Mentor Dr. Anil Kumar.

2. Pneumatic Bumper and Braking system-

Students Team: Prem Kumar, Vikas Kumar Vishnu, Aditya Kumar, Omkar Kumar along with Mentor Prof. Madhu

3. **Solar Power Bicycle**

Student Team: Avishek Kumar , Sree Soundarya. C, , Keertana S, Siddhant Srivastava,

The photos of students along with mentors of other projects is attached in annexure -9-i and 9-ii

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:

1. **Student team details:**

Shreyas S P, Reethan D
Contact Number of Mr. Shreyas SP: 08762173696,
Email Id: shreyassp.26@gmail.com

Product: Indigenously built prosthetic Arm using 3D printer

A prosthesis also called a prosthetic limb, artificial limb, or limb "replacement" – though natural limbs are irreplaceable is an artificially made substitute for a limb lost through a congenital defect present at birth, accident, illness, or wartime injury.

Brief description about the student start-up: Hycube Works Pvt. Ltd

A company for 3D printer manufacturing services, training and also for research in health care sector.

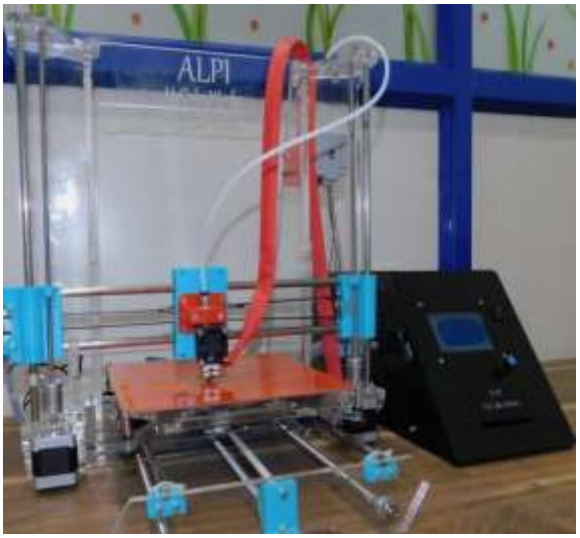
Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs:

Mr. Shreyas and Mr. Reethan founders of Hycube Works share their journey:

"Our journey at HyCube Works began as two students who were interested and who wanted to experiment with a 3D printer. We started creating and developing various structures using the 3D Printer, We also created a prosthetic arm which was a big success. As it helped us provide research at the forefront of the health care indication to change lives"

During the Training session for the students of BNMIT

Indigenously built prosthetic Arm using 3D printer



3D PRINTER manufactured by HyCube Works Pvt Ltd (Founders: Shreyas S P, Reethan D)

- **Contribution of NewGen IEDC in the same:**
    - Prototype Development
    - Business Analysis
    - Product Design
    - Test Market
    - Commercialization
    - Company Registration

- **Future plan:**

  Stage 1: To reach all the engineering colleges across Bangalore
  Stage 2: To entire Karnataka.
  Stage 3: Expansion in the field of Health Care sector.

TEAM 2:

2. Student team details:

Tejas C, Tejashwini V
Contact Number of Ms. Tejaswini V: 09482312006
Email Id: tej2051021@gmail.com

Product: Assistive technology for intellectually disabled and physically challenged people

Brief description about the student start-up:

Our student start up aims at providing the assistance to the physically and mentally challenged children by using suitable monitoring and assistive system. There is a lack of any such assistive technologies for the specially challenged people in the market. The company has developed similar software based alerting mechanisms which uses only specific light colors to indicate the need, and also addressing the needs using pictures, text messages , buzzers and audio messages.

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

Tejaswini and Tejas share their journey as "The journey started when the students visited Manonandana, a NGO near by the college and came to know their needs which paved the way for this idea. Disability Is an important public health problem especially in the developing countries like India.

This concept made us to develop a product for intellectually disabled and physically challenged people with the help of funding support from New Gen IEDC, BNMIT. We are thankful to Department of Science and technology (DST), GoI for having faith in us and in our idea for extending the support for starting up our venture in Campus in the form of NIDHI Fund".

Students with Mentors: Tejas C, Tejashwini V, Dr. Vijaya and Mr. Chandrasekar

Product: Assistive technology for intellectually disabled and physically challenged people

Contribution of NewGen IEDC in the same:

- Prototype Development
- Business Analysis
- Product Design
- Test Market
- Commercialization
- Patent Filing

Future plan:

Stage 1: To reach all the Special Schools and NGOs across Bangalore
Stage 2: To Reach out Hospitals and Old age homes in entire Karnataka.
Stage 3: Expansion in the field of Health Care services.

6. Minutes of the Advisory Board Meetings (held so far):

NewGen IEDC	NewGen IEDC /FORMAT/001	Issue: A	Page No.: 1 of 3
ABM/17-18/01	Minutes of Advisory Board Meeting	Rev: 0	Meeting Date: 17/11/2017

Proceedings of New gen IEDC Advisory Board meeting held on 17.11.2017

Chief Coordinator New gen IEDC Dr. L. Vijayashree welcomed all the advisory board members for the first board meeting of New Gen IEDC.

Agenda 1 : Progress of the purchase

(i)New gen IEDC chief coordinator presented the nonrecurring grant purchase details.
(ii) BNMIT Internal Purchase procedure was presented to the committee for approval. The details of the purchases made by BNMIT purchase committee till date were presented to the New Gen IEDC advisory board members.(Annexure 1).
Resolution: New Gen IEDC board members approved the procedures followed by BNMIT purchase committee and noted the purchases made so far under Non-Recurring grants.
The New Gen IEDC board members appreciated the effort taken by internal purchase committee headed by its Chairman Sri. Narayan Rao R Maanay, Secretary, BNMIT for procuring the equipments as per the procedures.

Agenda 2: Progress of 10 New Gen IEDC Projects

(i) The gist of 10 New gen IEDC projects for the year 2017- 18 was presented by the New gen IEDC chief coordinator.
Resolution: New Gen IEDC board members noted the highlights of the projects and asked Chief Coordinator to invite the project with their mentors for a presentation for about 5-10 minutes from each project team.

Agenda 3: Interaction and presentation by New Gen IEDC Project members (Teams with Mentors)

(i) 10 Teams of New gen IEDC 2017-18 students presented their projects highlighting technical details and future progress of their projects.
Resolution: The board noted the project details of each team and suggested some necessary interventions in one or two projects, which may be required in near future.
Board appreciated Principal and New gen IEDC coordinators for innovative, market viability projects.(Annexure 2)

Agenda 4. Future directions from the committee

(i)New gen IEDC coordinator requested the board to guide these projects in future for commercialization.
Resolution: The board members Mr. Lokesh , MD . Innomantra consulting Pvt Ltd and Mr.Srinath Badram, Incubation manager , NID informed that they will be able to help the Project Teams for future commercialisation.

Agenda 5: Any other issues with the permission of chair

(i) Chief coordinator asked for clarification with regard to Fund utilization and other related issues.

Clarification 1: Few projects need lesser amount than anticipated and some need more.

The board members Dr. Naveen Vashista, from DST and Prof. Sareen from EDI informed that the remaining funds can be used to help the other projects students apart from the 10 selected New gen IEDC projects, but not more than Rs. 2.5 Lakhs stipulated for each project.

Clarification 2: Clarity on activities that can be organized under New Gen IEDC.

Prof. Sareen said that funding from New gen IEDC can be utilized for Business plan competitions/ Innovation camps/ Hackathons, Workshops etc., to encourage Entrepreneurship and innovation among students.

Clarification 3: International conference presentations in aboard.

Prof. Sareen, Dr. Naveen Vasista said there is no provision for utilizing the funds for presenting papers in aboard from New Gen IEDC.

Clarification 4: Extension of project prototype submission dates.

Prof. Sareen and Dr. Naveen Vasista said that they can extend the deadline in unavoidable circumstances after producing the requisition letter from mentors and submitting the same in the progress report.

Clarification 5: Design changes in due course

Prof. Sareen and Dr. Naveen Vasista said that design changes in some projects are acceptable.

Clarification 6: Inclusions and deletions of students from projects.

Prof. Sareen and Dr. Naveen Vasista said that it is accepted, but need to be mentioned in progress report. Also both said that it is better to have undertaking from the students who have opted out from projects and also from whom the project idea is been sought.

Clarification 7: Submission of 2018-19 project proposals.

Both Prof. Sareen and Dr. Naveen Vasista said that next 15 projects need to be decided during the next Advisory meeting to be held in the month of March/ April.

Prof. Sareen suggested to have separate Webportal, for New gen IEDC.

Prof Sareen appreciated the good work carried out for New gen IEDC for the year 17-18.

Prof Sareen suggested issuing the funds to the vendors directly through Cheque /NEFT, when students procure the components and raw materials required for their projects.

Dr. Krishnamurthy G N , Principal BNMIT concluded the board meeting by thanking the board members for their presence and for their valuable inputs.

Advisory Board Members present

1. Dr. Krishnamurthy G N, Principal, BNMIT (Chairman)
2. Dr. Vijayashree L, Chief Co-ordinator, New Gen IEDC, BNMIT (Member Secretary)
3. Dr. Naveen Vasista, Director / Scientist, DST, New Delhi
4. Prof. Sareen S B, Project Director, New Gen IEDC, EDII, Ahmadabad
5. Mr. Lokesh V, MD Innomanthra Consulting Pvt. Ltd., Bangalore
6. Mr. Srinath Badram, Incubation Manager, NID, Bangalore
7. Mr. Prajwal Prabhath, Sasic Tec'hnologies Pvt Ltd., Alumni Entrepreneur, Bangalore
8. Mrs. Chellamma K, Co-ordinator, New Gen IEDC, BNMIT

Prepared by

Mrs. Chellamma K,
Co-ordinator, New Gen IEDC, BNMIT

Approved by

Dr. Vijayashree L,
Chief Co-ordinator,
New Gen IEDC, BNMIT (Member Secretary)

Dr. Krishnamurthy G N,
Principal, BNMIT (Chairman)

Principal
BNM Institute of Technology
P.B No.7087, 27th Cross, 12th Main
Banashankari – II stage
Bangalore – 560 070

7. Progress Summary:

1.	Total number of Student Projects supported	14
2.	Total fund provided towards supporting Student Projects	Total Fund for the students projects: Rs. 25,00,000/- Total Fund utilized for the students projects: Rs.15,62,917/-
3.	No. of Patents filed by students	02 (1- filed (**Annexure 10**) 1 in Process)
4.	No. of Patents Granted	Nil
5.	No. of companies/Starts up Set up by Students	02 (1 Registered, 1 in Process)
6.	Social Impact Made, If any	01 (As per the requirement of Manonandana, (an NGO running a special school for mentally & physically challenged children), New Gen IEDC students were able to develop a device to help them to communicate their daily needs with their assistants)

07. University of Science and Technology, Ri-Bhoi, Meghalaya

From,
Amit Choudhury, Ph.D.
Dean, School of Business Sciences, USTM
Chief Coordinator, NewGen IEDC-USTM
amich1970@gmail.com
+91 98544 53170 / +91 87610 07133

Dated 15th Dec, 2018

To,
Mr. S. B. Sareen
Faculty & Head
Centre for SMEs & Business Development Services
Entrepreneurship Development Institute of India
P.O.Bhat - 382 428
Dist. Gandhinagar, Gujarat (India)

Subject: Submission Progress Report as on 31-10-2018.

Dear Sir,
Greetings of the day from University of Science & Technology, Meghalaya and NewGen IEDC-USTM.
Please find enclosed herewith, a copy of the Progress Report as on 31st Oct, 2018.
Thanking you in anticipation.

Yours Sincerely

15/12/2018

Amit Choudhury
Chief Coordinator
New Gen IEDC-USTM

NewGen IEDC [2017-22]
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report (As on October 31, 2018)

Name of the College/Institution hosting NewGen IEDC	University of Science and Technology, Meghalaya		
Year of starting NewGen IEDC	2017		
Name of the Head/Principal of the Institution/College	Dr. P.K. GOSWAMI Vice Chancellor, USTM		
Name of NewGen IEDC Coordinator	Dr. AMIT CHOUDHURY		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	Dr. AMIT CHOUDHURY Dean, SCHOOL OF BUSINESS SCIENCES Phone : 8761007133 / 9854453170 E-mail: amich1970@gmail.com		
Financial Details	Sanction Order No./Date		Amount Sanctioned
Previous Sanction Order Details	1.	EDII/DST-NEWGEN IEDC/17-18/07 Dated 16/06/2017	2.625 Cr.

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 03/07/2018 to 05/07/2018	3 days	Total : 50 Male : 23 Female : 27
	EAC-02 14/08/2018 to 16/08/2018	3 days	Total : 50 Male : 30 Female : 20
	EAC-03 26/09/2018 to 27/09/2018	3 days	Total : 50 Male : 33 Female : 17
2.	Brainstorming amongst Faculty of USTM and others E-Club Formation at USTM	August - 2018	11 Student Projects were identified
		September - 2018	14 Student Projects were identified

3.	**Industrial Visit**	3 Industrial Visit were conducted with total 140 students participations namely in the industries of CG Products, Repose, Bitchem Industries, CIPET.
4.	**Motivational Talk by Successful Entrepreneurs**	Mr. Paraag Phukan Former Vice President Reliance Defense Miss C. Tapsey GM, HR, Zaloni Technologies Mr. Rupankar Kalita Entrepreneur

[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	25 project groups shortlisted

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
	Establishing MoU & Association with BitChem, Progressive Fertilizer, Red Lemons, FINER	MoU established.

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

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

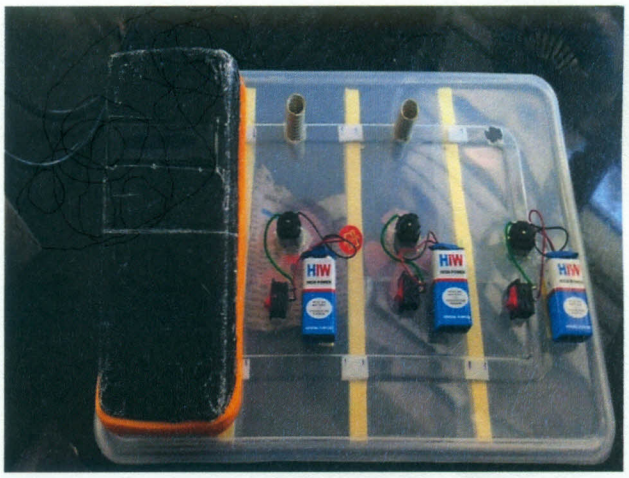
STUDENT PROJECT IDENTIFIED FOR NEXT ACADEMIC YEAR 2018-19

Sl. No.	Name of Project
1.	Development of leaf manure for organic cultivation
2.	Development of noble herbal antifungal formulation from selected medicinal plants of North East India
3.	Blending of biocomposites from bamboo and nanomaterials for manufacture of building decor materials
4.	Herbal tea by Agrowaste infusion
5.	Zero energy cooling chamber construction for storage of fruits and vegetables and comparative analysis of product quality from other cold storage method
6.	BIOFEEDS: The use of food waste as a source for animal feed
7.	Self- Check in and Check out by the Users Applying QR Code: Replacement of Barcode And Kiosk System
8.	Development of prebiotic-probiotic health drinks from seasonal fruits, vegetables and herbs of North East India
9.	NOVEL HERBAL MOSQUITO REPELLENT
10.	Designing cost-effective transition metal catalysts for the alcohol oxidation reactions
11.	Low cost dry pellet fish feed formulation using discarded slaughterhouse left-out
12.	DEVELOPMENT OF FRUIT LEATHER FROM LOCALLY AVAILABLE FRUITS OF NORTH EAST INDIA
13.	Development of biodegradable and bioresorbable plastic from organic waste
14.	Biosurfactant/bioemulsifier producing bacteria
15.	Automated four-probe device for determination of energy bandgap of semiconductors and pellets of powdered sample
16.	ARCEA NUT
17.	DEVELOPMENT OF BROAD-SPECTRUM ANTIMICROBIAL GEL INCORPORATED WITH BIOSYNTHESIZED SILVER NANOPARTICLES
18.	Algal bio fertilizer can accelerate sustainable agriculture: A remedy for Eutrophication
19.	STANDERIZATION OF TISSUE CULTURE & LOW COST SAPLING PRODUCTION OF ASSAM *Musa* (*MULBHUG)* BANANA.
20.	Smart blind stick for visually impaired person
21.	Development of leaf manure for organic cultivation

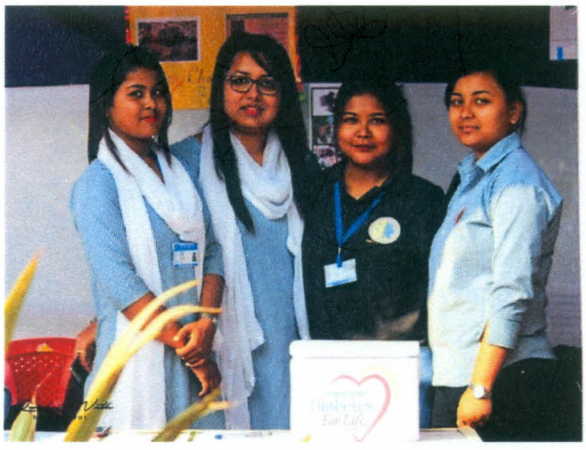
4. Student Projects (Please provide the following details for each student project)

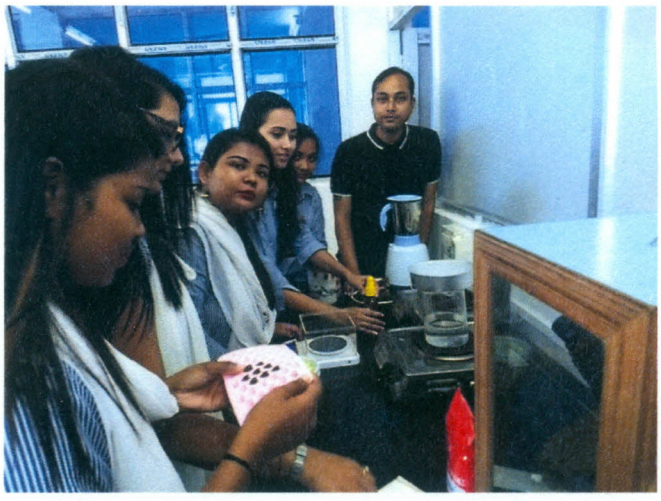
Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
1	**Low-cost filtration system for coal mine impacted waste using algae** **Project Mentor:** **Dr. MAUTUSHI DAS** **Project Team:** **Mercillia Sangma** **Rekharani Bodo** **Aparajita Kalita** **Silga M. Sangma** **Baijhitha Sangma**	In the beginning of the year, literature survey was carried out, source material was identified for preparing the filter bed.	No Intervention counted. Progress in accordance to the Objectives	**Project Completed** **Commercialization initiated**

2	**Aroma biosensor for detection and protection from spoilage of marketable raw materials** **Project Mentor:** **Dr. Anup Kr. Bordoloi** **Mr. Debasish Bora** **Project Team:** **Aksh Nath** **Madhurjya Kalita** **Pranami Sarma** **Mayuri Nath** **Parashmoni Goswami**	In the beginning of the year, literature survey was carried out, source material was identified with Project Lay out Design	No Intervention counted. Progress in accordance to the Objectives	Project Completed



3	**Development of an anti - diabetic herbal chocolate** **Project Mentor:** **Dr. Akan Das** **Mr. Satyakam Agarwala** **Project Team:** **Sharvanee Borah** **Suhasinee Sandilya** **Ipsita Dutta** **Mobina Ahmed** **Sangita Borgohain**	Collection of raw materials was done initially and right after that formulation of protocol was carried over with different sweetening agents to check its stability and taste.	Intervention of the project was to find out the combination of natural sweetener with herbal extract and it's stability of it's taste and it's texture at different room temperature.	**Project Completed** **FSSAI registration & certification Completed**

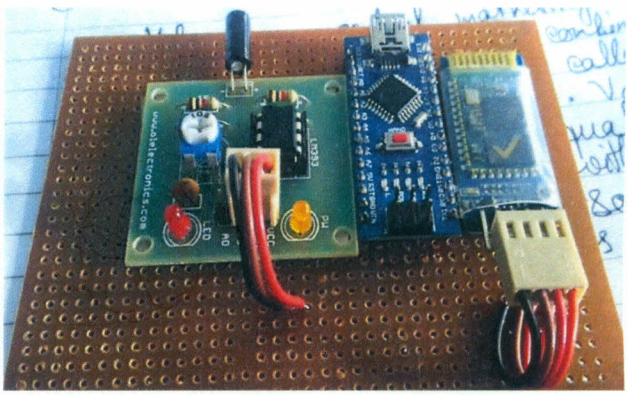


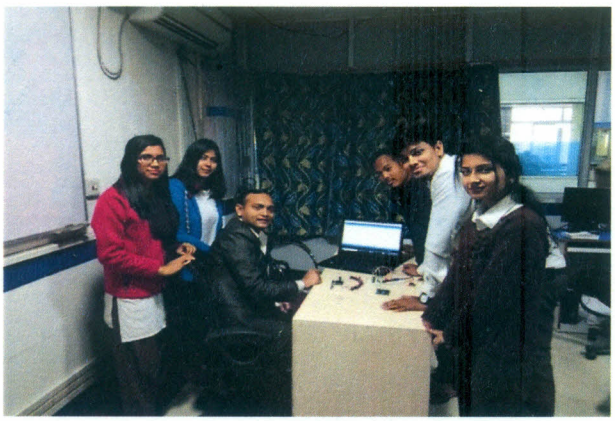


4	**Technology development for the production of value added spices from laboratory scale to industrial scale** **Project Mentor:** **Dr. Deboja Sharma** **Ms. Ninja Begum** **Project Team:** **Rosy Bora** **Shahidul Islam** **Pratikshya Dutta** **Madhusmita Malakar** **Pill Ayin**	Initially 3-4months raw materials we're collected from various places of N.E.	Prototype we're prepared and it was further modified ND tested with various food items	**Project Completed** **Commercialization initiated** **FSSAI registration & certification Completed** **Process technology transfer initiated**

5	**Removal of Pollutants from contaminants water by nanoporous materials and other adsorbents** **Project Mentor:** **Dr. Durlov Saikia** **Project Team:** **Sazzadur Rahman** **Rohida Amin Hoque** **Pratik Jyoti Lahan** **Bijuj Jahan S. Begum** **Silpi Shikha Sarma**	Firstly we collect the natural zeolite such as mango tree bark, arjua tree bark, rice husk from different places of Assam. After drying the samples those were grinded to get powder of the respective samples.	Preparation of Natural adsorbent 10 ppm solution of $ZN(NO_S)_2$ $Pb(No_3)_2$ and $Co(No_3)_2$ was prepared	Project Completed

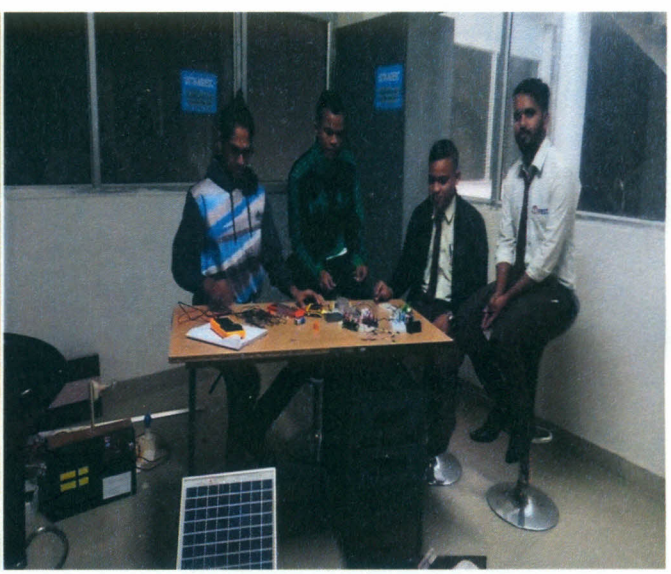
6	**Low-cost Accident Detection System** **Project Mentor:** **MD. Jainul Abudin** **Project Team:** **Anamika Talukdar** **Chengrang R. Marak** **Debleena Bhattacharjee** **Yogesh Kumar Mallick** **Wahida Khanam Laskar**	In the beginning of the year, literature survey was carried with project layout for wired base windows system	The intervention made through the work carried out was to include wireless base for android system	Project Completed





7	**Pedal powered washing machine** **Project Mentor:** **Mr. Matiur Rahman** **Project Team:** **Kash Jyoti Khound** **Parikhit Gogoi** **Smriti Chand** **Chujanglung Gangmei** **Tanzim Ahmed Barlaskar**	In the beginning of the year, literature survey and Comparison study was carried out between various type of pedal powered Washing machines.	The intervention made through the work carried out was 1. Reduction of Overall size of the Machine 2. the Standard washing dram is introduced instead of Plain sheet 3. A Comfortable sitting arrangement was made.	Project Completed

8	**Solar Powered Irrigation System** **Project Mentor:** **Mrs. Tabassum Rasul** **Project Team:** **Denis Mackdonal Kharnaior** **Glaryson Thongni** **Pynsuklang Mawkon** **Parmanand Pathak** **Sagar Tiwari**	In the beginning of the year, literature survey was carried out and project layout is made.	The concept of using soil moisture sensors to check the condition of soil and run a pump on requirement using solar power was proposed and was duly accepted	**Project Completed** **Commercialization initiated** **Orders secured from COMPELO** **START-UP formed & company registered by the name Tosinindra Pvt. Ltd.**



9	**Development of A Water Purifying Filter Based On Cellulose and Its Derivatives** **Project Mentor:** **Dr. Ranjan Dutta Kalita** **Project Team:** **Ms Esther Jamir,** **Ms Rwirup Basumatary,** **Mr Rinku Barman,** **Mr Nipu Nath,** **Mr Dibakar Sarkar**	In the beginning of the year, literature survey was carried out, source material was identified for preparing the filter bed.	The intervention made through the work carried out was to include the cellulose based derivatives along with the traditional filter assembly contents and to determine their ability to filter the polluted water during flood. Also we wanted to see if the bacterial load in the filtered water is reduced.	Project Completed Commercialization process initiated

10	**Production of Energy Drink Fortified with OMEGA 3 Fatty Acids** **Project Mentor:** **Mrs. Ranjana Deka** **Mr. Asish Choudhury** **Project Team:** **Daffodil Bharali** **Tauhida Khan** **Yash Raj Gupta** **Nidipta Dev Nath** **Manju Moirangthem**	In the beginning of the year, literature survey and comparison study was carried out between various types	Testing and certification of the product Market Linkage	**Project Completed** **FSSAI registration & certification Completed**

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

Solar Powered Irrigation System.

Faculty Mentors:

Mrs. Tabassum Rasul

Team Members:

Name
Denis Mackdonal Kharnaior
Glaryson Thongni
Pynsuklang Mawkon
Parmanand Pathak
Sagar Tiwari

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

• Irrigation is a vital input in the agricultural productivity and agricultural growth. More than 80% of available water resources worldwide as well as in India are being presently utilized for irrigation purposes. However, in India, the average water use efficiency of Irrigation Projects is assessed to be only of the order of 30-35%. The continuous extraction of water from earth reduces the water level causing a lot of land to get in the zone of un-irrigated land. Also the unplanned use of water results in a significant amount of water getting wasted.

There is no doubt that modernization of irrigation system like concrete lining to the inner surface of the open channel; canal automation etc. will save water significantly. But these techniques require huge capital investment, hence uneasy to adopt. On this background it is appropriate to know the innovative, simple, low cost, easy to adopt, water conveyance techniques. The challenge is how to incorporate innovative technologies in irrigation methods and long term water conservation. The project suggests an efficient method of irrigation.

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 workshop facilities and facilitated meaningful interaction with design teams and consultants in the field of solar energy. Further, NGIEDC introduced the conceptual design in different forums, wherein, the group bagged two orders from Consortium for Micro Planning and Enhancing Livelihood Opportunities (**COMPELO**) which is associated with the Joint Forest Management Committee under Department of Forestry, Govt. of Assam.

Necessary support were also provided to get the start-up registered under 'Advantage Assam' and the entity got registered as Tosinindra Pvt. Ltd.

Further scope:

- GSM may be added for sending SMS to concerned person in case of any problem.
- Pesticides and fertilizers may be added automatically in the water which is required for irrigation.
- Sun tracking solar panel may be used.
- Other parameters such as ambient temperature, light intensity and humidity can be measured. Can be implemented using weather report

The Project involved primarily the following steps:

A smart watering system can be used to save water. The system derives water from solar energy through photovoltaic cells. The solar power is absolutely perfect for use with irrigation systems. Using solar panel, the sun energy is converted to electrical power and saves in to batteries. Soil moisture sensor is placed inside soil to sense the moisture conditions of the soil. Based on moisture sensor values, the water pump is switched on and off automatically. When moisture level of the soil is reaches to low, the soil moisture sensor is sending the signal to microcontroller to start the pump by using stored solar energy. The microcontroller completes the above job as it receives signals from the soil moisture sensors, and these signals function as per program stored in ROM of the microcontroller. Thus in the auto irrigation system water used for irrigation is optimum and hence saving considerable amount of water with trouble free irrigation management.

Achievements

1. **Project Completed and also Commercialization initiated**
2. **Orders secured from COMPELO**
3. **START-UP formed & company registered by the name Tosinindra Pvt. Ltd.**

Future Plans

• To secure a niche in the rural development front looking into the opportunities in Ne India.

• To explore export market

Caselet-2

TECHNOLOGY DEVELOPMENT FOR THE PRODUCTION OF VALUE ADDED SPICES FROM LABORATORY SCALE TO INDUSTRIAL SCALE

Faculty Mentors:

Dr. Deboja Sharma

Ms Ninza Begum

Team Members:

Name	Ph.No.	Email Id
Madhusmita Malakar	9678132001	madhusmitamalakar123@gmail.com
Shahidul Islam	7002668177	shahidmalsi 1991@gmai1.com
Rosy Bora	8812039862	rosvborabs@gmail.com
PratikshyaDutta	8486889153	pratikshyamails@gmail.com
Pill Ayin	7085424660	Pillayin0708@gmail.com

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

• The idea of the present study is to collect the raw materials from the various states of North eastern region and to develop processed (fermented) bamboo shoot product. Processed bamboo shoot product includes spices like bamboo shoot powder and bamboo shoot powder added with flavor. Flavors include King chilli, Garlic, Naga aromatic ginger, lakadong turmeric, Burma dhania, dry fish paste, naga garlic powder, aniseed etc in various combination and proportion.

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 FST, USTM and supported the team all throughout from ideation to test production to test marketing.

Objectives of the Proposed work:

The broader objective of this project was to harness the local/traditional knowledge and food habits of the rich ethnic diversities of NE India and mainstream the same. In doing so, value addition to the local herbs and spices were of paramount importance.

The Project involved primarily the following steps:

1) Collection of raw materials from various states of N.E India.

2) Cutting, drying, grinding is done in lab scale.

3) Optimization of the product with various combinations to enhance the taste and flavor and production of prototype.

4) Trial with various vegetarian and non vegetarian dishes to obtain the final output.

5) Test Production and Test Marketing.

6) Testing of the product in a food testing laboratory to get certified.

7) Marketing.

8) Application for Patent.

Future Scope

- Registration of "Start Up" - "Flavours of NorthEast"
- Collaboration with local industries.
- To explore export market
- To diversify into other organic spices (traditional)

6. Minutes of the Advisory Board Meetings (held so far):

USTM-NGIEDC

New Gen Innovation and Entrepreneurship Development Center –USTM
Implemented, Coordinated and Managed by:
Entrepreneurship Development Institute of India (EDII), Ahmedabad
Under the aegis of:
National Science & Technology Entrepreneurship Development Board (NSTEDB), DST, Govt of India

Minutes of the 1st Meeting of the Advisory Board Meeting

Held on April 20, 2018

Time: 2:30 pm **Venue: Conference Hall, USTM**

Advisory Board Members:

Sl. No	Name of Member	Designation and Organizations
1.	Mr. M. Hoque	Chancellor, USTM
2.	Dr. R. K.Sharma	Vice Chancellor, USTM
3.	Dr. Naveen Vasistha	Director, Scientist E (NEB Division), DST
4.	Mr. S. B. Sareen	EDII, Ahmedabad.
5.	Dr. Enamul Karim	Dean of Applied Sciences, USTM
6.	Mr. Amit Jain	Member, FINER
7.	Mr. Sandeep Janghu	Head, Incubation Center, Indian Institute of Food Processing Technology
8.	Mr. Manash Phukan	Manager, Axis Bank , Khanapara Branch
9.	Dr. Amit Choudhury	Chief Coordinator, NGIEDC, USTM

The First Advisory Board Meeting of NGIEDC-USTM was conducted on the 20th of April, 2018 at the Conference hall, USTM in presence of the above members. The events are minuted hereunder:

- The Chief Coordinator of NGIEDC-USTM introduced all the members present in the meeting and briefed the members about the initiatives taken by NGIEDC-USTM. All student project group members were also introduced alongside and a brief note about their respective projects were presented by the Chief Coordinator.

- The project teams under NGIEDC-USTM (a total of 10) presented their respective projects in details, and the advisory board members interacted with the students on their project details. Valuable suggestions were offered by Dr. Naveen Vasistha, Mr. S B Sareen and Mr. Sandeep Janghu which were noted by the respective student groups.
- The following suggestions were noted
    - On Project 1, it was advised to check for the removal of heavy metal and pesticides. Also provisions for filters to remove charged particles were recommended.
    - On Project 4, check on anti-nutritional factors/ toxic content in final product was recommended. Optimization of mix process was also suggested for better taste.
    - On Project 6, clarifications were sought on the response system of the accident detection system.
    - On Project 3, it was advised to go for animal and human trial, and also check was recommended for the glycemic index.
    - On Project 10, calculation of the energy value was recommended and addition of CO_2 to the health drink was advised.
- The projects were well appreciated by all members of the Advisory Board especially Dr. Naveen Vasistha and S. B Sareen emphasizing upon the fact that all the project groups identified local problems and looked for providing solutions to the same.

After the interaction were made on the student group presentations, the Advisory Board members discussed on the process followed/ to be adopted at NGIEDC-USTM on administrative procedures. The following points were discussed:

- Book of Accounts – It was emphasized that proper book of accounts should be maintained with all supporting vouchers. The process is duly followed at NGIEDC-USTM.
- Purchase – To ensure transparency in purchases and related matters appropriate processes for approval must be in place. At NGIEDC-USTM, the same is being looked by a purchase committee, and all decisions are taken by the committee.
- Payments – All payments are advised to be made on the digital mode.
- Progress Report – Utilization certificates to be made as per GFR-12A and audited statement of expenditure, and the same will be forwarded from EDII, Ahmedabad.
- Funds – unutilized funds to be shown as committed expenditure and the same to be spent before the completion of one year.
- Sustainability – of NGIEDC-USTM should be given prime importance and to this the members suggested about initiating Industry-Academia Linkages, Consultancies, Training and capacity building exercises etc.
- Portal – www.NewGeniedc-edii.in was shared with the members for regular updates on information etc. Also the same platform can be used to initiate joint developments of projects with NGIEDCs from other parts of India.

The Advisory Board members were taken to visit the facilities created under NGIEDC-USTM and the team witnessed the demonstration of prototypes developed by all ten student groups.

The Chief Coordinator thanks all members for their valuable presence, support and guidance to all student groups under NGIEDC-USTM.

Sl. No	Name of Members
01	M. Hoque
02	Dr. R. K. Sharma
03	Dr. Naveen Vasistha
04	Mr. S. B. Sareen
05	Dr. Enamul Karim
06	Mr. Amit Jain
07	Mr. Sandeep Janghu
08	Mr. Manash Phukan
09	Dr. Amit Choudhury

Amit Choudhury
Chief Coordinator
NewGen IEDC-USTM

7. Progress Summary:

1.	Total number of Student Projects supported	10
2.	Total fund provided towards supporting Student Projects	25 Lakhs
3.	No. of Patents filed by students	Nil
4.	No. of Patents Granted	Nil
5.	No. of companies/Starts up Set up by Students	01
6.	Social Impact Made, If any	Yes Project enlisted with name bellow a. **Removal of Pollutants from contaminants water by nanoporous materials and other adsorbents.** b. **Solar Powered Irrigation System** c. **Production of Energy Drink Fortified with OMEGA 3 Fatty Acids** d. **Technology Development for the Production of Value Added Spices from Laboratory Scale to Industrial Scale**

Chief Co-ordinator
New Gen IEDC-USTM

08. College of Technology & Engineering, Udaipur, Rajasthan

NewGen IEDC

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

Progress Report

(upto 31st Oct 2018)

COLLEGE OF TECHNOLOGY AND ENGINEERING
Maharana Pratap University of Agriculture and Technolgy
UDAIPUR 313001

NewGen IEDC [2017-18]
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

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, sjindals@gmail.com	
Year of starting of project	2017	
Name of the Head/Principal of the Institution/College	Prof. (Dr.) Ajay kumar Sharma 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. Sudhakar Jindal 2. Dr. Sunil Joshi	
Contact Details of IEDC Coordinator including phone numbers	1. Prof. Deptt of Mecha*n*ical Engineering and , Administrative Coordinator NewGen IEDC, CTAE, Udaipur, Mobile: 9414164420. Email: sjindals@gmail.com 2. Professor Deptt. of Electronics & Communication Engineering & Coordinator NewGen IEDC , Mobile: 09414279222, Email: suniljoshi7@gmail.com	
Mobile Number	9414164420 9414279222	
e-Mail ID	sjindals@gmail.com suniljoshi7@gmail.com	
Financial Details		
Previous Sanction Orders details	Sanction Order No.	Sanction Order Date with Amount
	EDII/DST-NewGen IEDC/17-18/RLS-I/08	Dated 11-8-2017 Rs.25 lakh –Non-rec Rs.35 lakh –Rec Total Rs.60 lakh

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 all the 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.	Idea storms	Analysis of various ideas and helping the students to evaluate their ideas.
3.	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) July, Aug, Sept. Oct. Nov. and Dec. 2017 At TBIC, CTAE, Udaip
4.	Participation in Digifest and Hackthon-2017	More than 25 students have turned up and participated in Hackathon-2017 and Digifest. A total of Nine teams participated from CTAE out of which 3 qualified for final round. All three teams got cash prize/appreciation certificate/appreciation.
5.	Participation in Smart India Hackthon-2018	19 teams (around 100 students) participated in Smart India Hackethon-2018 and 4 of these cleared first round.
6.	Stupreneur	Divisional Finale of the student startup program 'Stupreneurs' which was focused on innovation. State level Finale for Stupreneurs finale held on 3rd and 4th of November 2017, at Jaipur where team PS blocks and team eco-friendly water retention polymer took part and stood 1st and 3rd respectively and team tazoop stood in top 10 of the competition.

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

Sr. No.	Activities	Outcome/Achievements
1.	Organising innovative idea competition	Created awareness and enthusiasm among students about out of box thinking
2.	Presentation of shortlisted ideas to experts	Opportunity to present concept in front of experts, who can identify innovative and commercial potential of idea
3.	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 commercialisation.

		• The team of Mr. Narayan Lal Gurjar won national awards for innovative product 'Eco-friendly water retention polymer' including: (i) Best Innovator, (ii) AICTE Award to most Promising student Innovator, (iii) i3-KLU-CIIE i3 Awards for Best Student Inovators (iv) i3 – SIDBI Start-up Mitra Award for Most Promising Innovators. (v) i3 – UNIDO ITPO Bahrain Award at Innovation Initiative 2017 • Another team lead by Ms. Anoosha got selected for 'Startup NIDHI-2018' Award
4.	Support in development of business plans	One of the team developed the business plan and acting accordingly started own start-up for commercial production and marketing of the product

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1.	Linkages established with Institutions in the regions: • Udaipur Chamber of Commerce and Industries (UCCI) • 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 at TBIC	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
2.	Talks of entrepreneurs: Success stories	• Understanding organisation 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 Quitz, 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:

Most of the proposed action plan activities were organized / conducted during the year without deviations.

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

Mr. Narayan lal Gujar & Team, NewGen IEDC Innovators receiving the award in Rashtrapati Bhawan on March 19, 2018

4. Student Projects:

S.No.	Team/Project Description	Project status at beginning of the Year	Interventions	Current Status
1.	***Title:*** Eco-Friendly water Retention Polymer ***Team leader:*** Mr. N.L. Gurjar ***Mentor:*** Dr. S. M. Mathur	Proof of concept was prepared.	• Mentored for product development and its processes; • testing in lab and field; • Preparing pilot level quantity of polymer; • Motivation and assistance for participation in various competitions and events	• Won appreciation and awards at national level • Product commercialized
2.	***Title:*** Design and development of Solar cum Biomass Powered Hybrid Dryer. ***Team leader:*** Ms. Katakam Anoosha ***Mentor:*** Dr. Sudhir Jain	Proof of concept was prepared.	• 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	• Won appreciation and awards at national level • Prototype completed, ready for commercialization • Got selected in 'Startup-NIDHI 2018' and going for startup.
3.	***Title:*** Design and development of screw press dewatering machine for biogas slurry. ***Team leader:*** Ms. Maduri Mohan More ***Mentor:*** Dr. Deepak Sharma	Proof of concept was prepared	• 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. • Ready for commercialization

4.	***Title:*** Development of Quinoa polisher. ***Team leader:*** Mr. Sagar Madhukar Chavan ***Mentor:*** Dr. N.K. Jain	Proof of concept was prepared. Few engineering properties of the quinoa grains have been determined.	• 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. • Ready for commercialization
5	***Title:*** Development of portable low cost compound cattle Feed pelletizing machine. ***Team leader:*** Mr. Shrinivasa D.J. ***Mentor:*** Dr. S.M. Mathur	Proof of concept was prepared	• 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. • Ready for commercialization
6.	***Title:*** Development of Multi-Crop Power Weeder. ***Team leader:*** Mr. Jinukala Srinivas ***Mentor:*** Er. S.S. Meena	Proof of concept was prepared	• 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. • Ready for commercialization
7.	***Title:*** Design and Development of a Portable Corn Roaster cum Boiler for Indian Street Vendors.	Proof of concept was prepared	• Mentored for product development, design and selection of equipment, • Hiring fabricator and procurement of raw materials;	• Prototype completed. • Ready for commercialization

	Team leader: Mr. Mandala Tanmay ***Mentor:*** Dr. P.S. Champawat		• Field testing of developed technology; • Motivation and assistance for participation in various competitions and events	
8.	***Title:*** Development of Watermelon Peeler cum Pulper for Value Addition. ***Team leader:*** Mr. Vishal Kumar ***Mentor:*** Dr. S.K. Jain	Proof of concept was prepared The design of the unit comprising of a peeling unit, chopper and pulper has been completed.	• 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. • Ready for commercialization
9.	***Title:*** Innovative mini E-solar energy inventions/products. ***Team leader:*** Mr. Sujit Kumar ***Mentor:*** Dr. V. Dave	Proof of concept was prepared	• 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. • Ready for commercialization
10.	***Title:*** Farm Power and Machinery Management Through Android Application. ***Team leader:*** Mr. Amit Kumar ***Mentor:*** Dr. Ajay K. Sharma	• Proof of concept was prepared • Data collection completed		Project dropped by innovators

Solar Cum Biomass Powered Hybrid Dryer

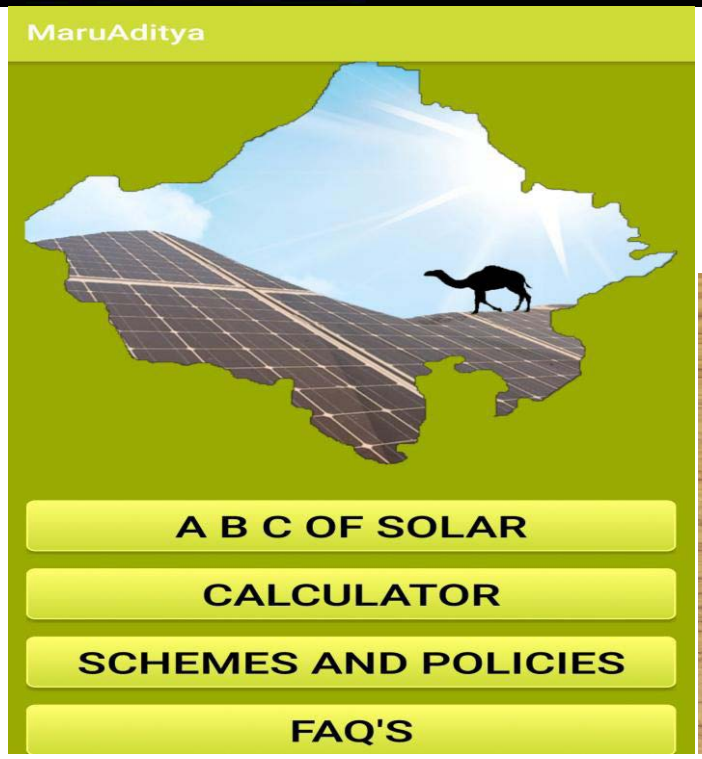
Screw Press Dewatering Unit

Quinoa (Chenopodium Quinoa) Polisher

Portable Corn Roaster Cum Boiler

Watermelon Peeler Cum Pulper

Eco-Friendly Water Retention Natural Polymer



Innovative Mini E – Solar Energy Inventions/Products

Cattle feed pelletizing machine

Multi-crop Power Weeder

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

Attached (Annexure I(a) and I(b))

6. Minutes of the Advisory Board Meetings (held so far):

Attached (Annexure-II)

7. Progress Summary:

1.	Total number of Student Projects supported	10 Numbers
2.	Total fund provided towards supporting Student Projects	25 Lakhs (one time grant) 10 Lakhs (Recurring) 25 Lakhs support for projects
3.	No. of Patents filed by students	Nil
4.	No. of Patents Granted	Nil
5.	No. of companies/Starts up Set up by Students	one
6.	Social Impact Made, If any	

(Dr. Sunil Joshi)
Coordinator

(Dr. S. Jindal)
Coordinator &
Member Secretary

(Dr. Ajay K. Sharma)
DEAN

Annexure-I(a)

Design and development of solar cum biomass powered hybrid dryer

1. Name & address of the student/students along with e-mail, telephone no. etc.

(a)	Name	:	Katakam Anoosha
(b)	Degree	:	M.Tech. (Ag.)- II Yr.
(c)	Nationality	:	Indian
(d)	Address	:	H-No. 5-126, Near railway gate, Alair, Dist- Yadadri Bhuwanagiri, Telangana 508101
(e)	Email	:	anoosha.katakam@gmail.com
(f)	Contact No.	:	9030496788, 9490399618
(g)	Aadhar No.	:	549572497589
(h)	Mentor	:	Dr. Sudhir Jain

2. Brief Summary of the project :

Many farmers in rural India face loss or deterioration of crop both qualitatively and quantitatively after harvesting it. This problem is prevalent mainly due to not performing proper post-harvest operations on the produce. One such ill-performed operation is drying. The drying of agricultural produce after harvesting reduces its moisture content considerably, thereby decreasing the risk of fungal and microbial contamination. The drying operation also increases the storage life of the grain bulk.

Solar cum biomass powered hybrid dryer can be used in unfavorable weather condition and also it is used in night time. The currently existing solar-biomass hybrid dryers are not trapping enough thermal energy as their absorber plates are flat plate collectors. Providing obstructions such as protrusions or fins on the absorber plates of the dryers would create turbulent flow which encourages heat transfer, unlike the existing dryers in which laminar flow is predominant. As a result, the efficiency of the dryer and the rate of drying would increase. There is immense scope of using the solar cum biomass powered hybrid dryer by farmers in rural areas along with promoting drying technologies through the services of Custom Hiring Centers, NGOs and SHGs so as to get commercial benefits and enhance the income.

3. Product/technology details developed through the project:

The developed dryer consists of 3 main parts:

a) Drying chamber
b) Flat plate Solar collector and
c) Biomass combustion chamber

Drying chamber: The drying chamber was fabricated to hous 4 trays. Each drying tray was fabricated with food grade perforated aluminum sheet to carry 2.5 kg of the material to be dried.

Flat plate solar collector: Solar collector consists of three principal parts: absorber plate which absorbs solar radiation and transfers it to the working fluid, transparent cover which allows short wave radiation to pass and prevents them from exiting, and

insulation which resists back and rear side heat losses. The absorber surface is a 1.5 mm thick black painted MS sheet. The collector surface area was covered with two 4 mm thick toughened glass slabs with 5 mm gap between them. The solar collector was mounted at an inclination of 25°. The upper end of the solar collector terminated into a hot air duct leading into the drying chamber.

Biomass combustion chamber: Combustion chamber is situated at left side of drying chamber. It has sufficient space to burn relatively larger size of biomass. It houses a heating chamber and air flow was controlled by an electric blower was placed at one end of the heating chamber while its other end terminates into the hot air duct leading into the drying chamber. The flow rate was controlled by the regulator through an annular gap of kept between drying chamber and outer surface of the dryer on three sides of dryer (except the opening side). This gap helps in the circulation of flue gases around the drying chamber which provides additional heat for drying. The flue gases circulate and travel upward through this gap and exit from the flue gas outlet.

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

An agricultural dryer that can dry 10 kg of agri-produce within 13 hours using solar and biomass energy conjunctively.

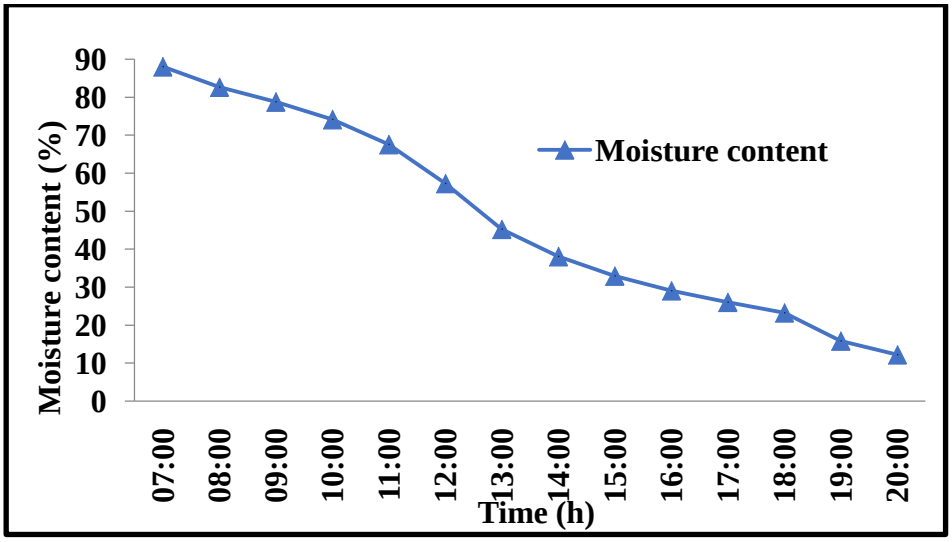
Fabricated solar cum biomass powered hybrid dryer

5. Details of Testing and Demonstration with Photographs

Performance of system was evaluated by loading the dryer with 10 kg of tomato slices. The drying process was carried out for 13 hours by using both solar and biomass energy during which 13 kg of wood was used for combustion.

Fresh tomato slices

Dried tomatoes



Variation of moisture content with time

6. Details of the Awards received if any:

Recipient of "Startup NIDHI 2018" award.

7. Workshop/Seminar Participated if any :

a) Presented the developed dryer on the occasion of Engineer's Day at Vigyan Samiti, Udaipur on May 11th, 2018.

b) Participated in Student start up NIDHI Award – 2018 competition at EDII, Ahmedabad on June 18th, 2018.

c) Presented the developed dryer in the lecture, 'Benefits of Dried Organic Foods' at ESIC Medical College, Hyderabad on July 21st, 2018.

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

S. N.	Economics	Unit
1)	**Capital cost of the system (A)**	**Rs. 60000**
2)	Life of the system	10 years
3)	Operating day in a year	300 days
4)	**Cost of production per year (B):** Recurring cost (per year) for 10 kg tomato per day- (raw material+ wood+ electricity+ labour+ Repair and maintenance)	Rs. 96,000 per year
5)	**Revenue from selling dried tomatoes (C)**	**Rs. 1,66,800** per year
6)	**Total Net profit per year (C-B)**	**Rs. 70,800** per year
7)	**Benefit cost ratio (B/A)**	**1.58**
8)	**Payback period**	**0.86 year**
10)	**Internal rate of return**	**118 %**

9. Name of Prospective Buyer of the technology/product:

Custom Hiring Centers, NGOs and SHGs

10. Export potential of the product/process developed:

Developing and under-developed nations

11. Employment generation potential, if any:

There is immense scope of using the solar cum biomass powered hybrid dryer by farmers in rural areas along with promoting drying technologies through the services of Custom Hiring Centers, NGOs and SHGs so as to get commercial benefits and enhance the income.

12. Whether technology developed holds promise for development at Pilot Plant/Commercial level:

YES

13. Contribution of NewGen IEDC in the same:

NewGen provided motivation, resource and financial support for the converting Idea to product for commercialization.

14. Future plan:

To upgrade, innovate the product as per the feedback of the customers and also to make it more cost effective.

Annexure-I(b)

Eco-Friendly Water Retention Natural Polymer

1. Name & address of the student/students along with e-mail, telephone no. etc.

(a)	Name	:	Narayan Lal Gurjar
(b)	Degree	:	B.Tech. (Agriculture Engineering, V-Semester)
(c)	Nationality	:	Indian
(d)	Address	:	8 VrindaVihar, Kalka Mata Road, Law College Gate, Near Deepi di Thadi, Udaipur, Rajasthan 313001
(e)	Email	:	narayanlalgurjar98@gmail.com
(f)	Contact No.	:	+91-9694911583
(g)	Aadhar No.	:	9316 6859 3100
(h)	Mentor	:	Dr. S.M. Mathur

2. Brief Summary of the project :

India is agricultural dependent economy and a big part of our economy depends on the farming. But scarcity and unavailability of water cause too many losses.

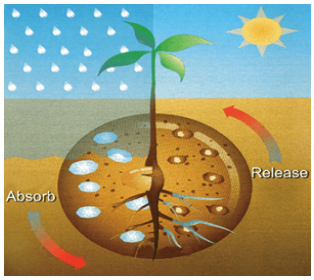
So we tried to create low cost polymer named “Eco-Friendly Water Retention Natural Polymer” to retain water for a long time.

Eco-Friendly Water Retention Natural Polymer is working on properties of Super Absorbent Polymers (SAP) to absorb water of quantities higher than their own weight. On testing of our product, we found it may retain water for 4 to 6 weeks that means crops irrigated at intervals of 2 to 4 days are now can be irrigated at 7 to 8 days with less water consumption.

Our natural polymer is developed using waste material like fruit peels, vegetable waste and *peepal* barks with gel. As the entire ingredient used are biodegradable, so the designed product is also biodegradable and completely pollution free and harmless to crops, soil, and farmers. Also, after its full utilization it helps as fertilizer for the crop.

3. Product/technology details developed through the project:

Working- EFP is just like a dry powder (same as SAP) which makes it easy to mix with the soil. Whenever the water reaches the root zone the product starts to absorb it, it swells and stores the water for a long time. The plant absorbs water as per requirement through its roots.



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

The end product developed absorbed water 17 times than its own mass. It is made from Organic raw materials only; thus, also improves soil fertility by acting as an organic fertilizer. The water absorbed is retained for 8 days in the fields under test.

5. Details of Testing and Demonstration with Photographs

- Testing done at farms at CTAE, Udaipur
- Testing under Department of Forestry at Gugla, Udaipur.




6. Details of the Awards and Appreciations received:

- Gandhian Young Technology Award 2018 by "President of India" at President House.
- Winner ECONOMIC TIMES and FACEBOOK COMPETITION "Power of Ideas" 2018, Getting Award by Cabinet Minister Mr. Suresh Prabhu.
- Winner Asia Level Competition Elixir Ideate Event at IIT Bombay.
- Raj Singh Award: State Level Award and Appreciation by Maharana Mewar Foundation.
- i3 2017 – Grand Award: i3 Silver Award for Best Innovator (Third Level).
- AICTE Award Winner For INDIA Most Promising Student Innovator.
- i3 – Klu – CIIE i3 Award for Best Student Innovator.
- i3 – Symbiosis International (Deemed University) Award.
- i3 – Sidbi Startup Mitra Award for Most Promising Innovator.
- i3 – Unido ITPO Bahrain Award.
- Jan Jagran Event: Selected for National Level, Organized by Jan Jagran Newspaper and Start-up Oasis.

- Rajasthan Education Festival: Winner Award by CM Mrs. Vasundhara RajeSindhiya.
- Stupreneur: Organized by Startup Oasis TiE, Rajasthan, CIIE, Startup-Jalsa: National Level Selected, Organized by CIIE, Ahmedabad.
- Indigram Labs: Selected in Top 10 Agriculture Startup at India Level.
- National Youth Conference: Winner of Event, Organized by G.B. pant University, Uttarakhand.
- IIT Kanpur: Winner in Techkriti Event of Pitch Pitching
- IIT Mandi: Winner in Exodia in Event Engineer Emporium.
- Winner National Level Youth Parliament Debate Competition at Parliament, Delhi.
- Selected National Level Science Fair Competition.
- 15 Times Winner in Debate Extempore Essay Competition at College and School Level.
- EXHIBIT Project at GLOBAL RAJASTHAN AGRICULTURE MEET.

7. Workshop/Seminar Participated

- Attended 7 Days Startup and Business Development Workshop at IIM Ahmedabad.
- 3 Days Student Entrepreneurship Meeting with the Secretary of the President of India, Cabinet Agriculture Minister, Ayush Minister, and NIF Founder at President House.
- 2 days B-Plan workshop at symbiosis institute.

8. Studies on techno-economic viability undertaken for the commercialization of result of the project & plans for commercialization:

A. IIM Ahmedabad Case Study 1 (Copy Enclosed)

B. IIM Ahmedabad Case Study 2 (Copy Enclosed)

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

We can sell our product to/for the Farmers, Vertical Agriculture, Vertical Gardening, Horticulture and for the nurseries, as nurseries require good water management methods to cure their plants. People who do gardening can also use this product.

10. Export potential of the product/process developed:

We recently got order from the following countries: -

1. 200 kg Order from South-Korea.
2. 250 kg Order from USA.

11. Employment generation potential:

This project can generate employment from the transport of the raw material and the manufacturing of the product in bulk, because, only the bulk production can generate a reasonable amount of revenue to generate employment.

12. Whether technology developed holds promise for development at Pilot Plant/Commercial level.

Yes, the technology has been already commercialized.

13. Contribution of NewGen IEDC in the same:

NewGen provided motivation, resource and financial support for the converting Idea to product for commercialization.

14. Future plan:

To upgrade, innovate the product as per the feedback of the customers and also to make it more cost effective.

Annexure-II

NewGen IEDC, CTAE, Udaipur
College of Technology and Engineering
University Campus, Udaipur

Minutes of the Advisory Board meeting of NewGen IEDC, CTAE, Udaipur (Set up under the aegis of NSTEDB, DST, Govt. of India, New Delhi), held at College of Technology & Engineering, MPUAT, Udaipur on 5.01.2018 at 3.30 PM.

The first meeting of Advisory Board of NewGen IEDC, CTAE, Udaipur (Set up under the aegis of NSTEDB, DST, Govt. of India, New Delhi), was held at the Office of the Dean, College of Technology & Engineering, MPUAT, Udaipur on 5.01.2018. The following members were present:

1. Dr. S. S. Rathore, DEAN, CTAE	Chairman
2. Prof. Naveen Vasistha, DST, New Delhi	Member
3. Prof.. S.B. Sareen, EDII, Ahmedabad	Member
4. Dr. Deepak Sharma, Professor, Admin Officer, CTAE	Member
5. Dr. Sunil Joshi, Professor & Coordinator, CTAE	Member
6. Sh Hansraj Coudhary, President UCCI	Member
7. Sh. Puneet Sahlot, Director Ideabox Creations	Member
8. MR. Puneet Dutta, TBIC, Manager	Member
9. Dr. S.M. Mathur, Prof & Coordinator NewGen IEDC, CTAE	Member Secretary

Other members of the advisory committee could not attend the meeting due to their personal reasons. At the onset the Chairman welcomed the members of the committee and highlighted various technical activities of the institution pertaining to Innovation and Entrepreneurship development of the students. Dr S. M. Mathur, Coordinator and Member Secretary of New Gen IEDC, CTAE has made a power point presentation to elaborate the progress so far made under the project.

The Chairman and members of the advisory board have appreciated the efforts made by the project team at CTAE and expressed their satisfaction on the progress of the project. Prof Naveen Vasistha has elaborated the

importance of NewGen project and highlighted other similar schemes of Govt of India. Prof S.B. Sareen has insisted upon the strengthening of the measures to improve the quality of project outcome and also to develop commercially viable technologies under the project.

The detailed presentation on ten projects funded by NewGen IEDC, CTAE, were made by respective student of CTAE, describing progress made so far and laid down the details of technical and the financial achievements made on the project. The mentors of all the projects were also present during the presentation and clarify the doubts of advisory board. Prof. Sarean and Mr. Naveen Vasthita was of the opinion that from next year in a project group of students should be involved instead of individual one and preference should be given to undergraduate students. Dr. Mathur assured for the same. Prof. Sarean and Mr. Vasthita also informed that more than ten proposals can be supported if they can be accommodated in the stipulated budget of Rs. 25 lakhs for the projects. The advisory board members also visited the operational Technology Business Incubation Centre, Centre for Promoting Innovations in Individuals, start-ups and MSMEs and NewGen IEDC Centre in CTAE Udaipur. Prof. Sarean and Mr. Naveen Vashistha guided the coordinators of NewGen IEDC regarding their future work, procurement of various items and further improvement in the operation of NewGen IEDC at CTAE Udaipur.

Meeting ended with vote of thanks to the Chair.

(Dr. S.M. Mathur)	(Dr. Sunil Joshi)	(Dr. S S Rathore)
Coordinator	Coordinator	Chairman

09. Dr. M. G. R. Educational and Research Institute, Chennai, Tamil Nadu

NewGen IEDC [2017-22]
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report (As on October 31, 2018)

Name of the College/Institution hosting NewGen IEDC	Dr. MGR Educational and Research Institute		
Year of starting NewGen IEDC	2017		
Name of the Head/Principal of the Institution/College	Dr. C. B. Palanivelu Regisrar		
Name of NewGen IEDC Coordinator	Dr. Rama Vaidyanathan		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	Director (R & D) Dr. MGR Educational and Research Institute +91 98410 02846 ramavaidyanathan@drmgrdu.ac.in		
Financial Details	Sanction Order No./ Date		Amount Sanctioned
Previous Sanction Order Details	1.	EDII/DST-NewGen IEDC/17-18/RLS-I/09, dated 19/7/2017	Rs.60,00,000/-
	2.		

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 Entrepreneurship to B.P.T. students (20, 21, 23 and 25th June 2018)	215 students from Department of Physiotherapy were given an orientation to innovation and entrepreneurship. This has lead to students ideating and participating with innovative ideas in the NewGenIEDC call for new projects.

2	A workshop on Innovation and Data analysis was conducted for the students of B.Pharm on 19, 25th and 27th Aug 2018	145 students studying B.Pharm were given an orientation to the need of Innovation and the projects funded by NewGenIEDC. This will lead to generation of ideas for the next Call from NewGenIEDC
3	An eye opener on the Innovation and Entrepreneurship Activities was conducted for students of B.Tech. I year of all branches on 28th, 29th, 30th, 31st Aug 2018	For a group of 40-50 students, a 2 hour session introducing them to Innovation, Entrepreneurship and the projects funded by NewGenIEDC.

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

Sr. No.	Activities	Outcome/Achievements
	DISRUPT – a method to think innovatively was conducted on 24, 25th, 27th 28th September 2018; 3rd, 4th, 8th Oct 2108	A total of 550+ First year students participated. And within a period of 2 hours, more than 325 innovative ideas were collected.
	DISRUPT for E-Cell Members on 21-09-2018	All the e-leaders participated and came up with innovative ideas
	Design thinking workshop for E Cell Students on 18th August	16 E-leaders participated. A mélange of students from different departments were able to come up with innovative methods and ideas.
	Design thinking workshop for Students on 2nd Aug 2018	A total number of 73 students participated. Students actively participated and thought out of the box. They made beautiful des organizers with full innovations and creativity.
	Thirst for Technology workshop, 30th – 31st Oct 2018	89 students of B.Tech. I yr participated. The students were excited with the hands on session. The students were given basic electronic circuits with guidelines. At the end of the event students created basic PoC of electronic circuits.

	E Cell Meetings (13-08-2018, 1-09-2018, 8-09-2018, 12-09-2018, 17-09-2018, 25-09-2018, 25-10-2018)	In the month of August, September and October the planning for the upcoming month's events were listed and the respective event coordinators were allotted.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
	Interaction with Angel investor with Student Incubatees on 20th April 2018	Mr. R. Narayanan, Angel investor and former President of "The Indus Entrepreneur" (TIE) interacted with the students and gave them points for improvement.
	I – Summit – Showcasing of Student prototypes on 2nd Aug 2018	The 10 projects funded by NewGen IEDC was showcased to the entire University and to alumni. The feedback from alumni was very useful in developing the projects.
	Entrepreneur Panel Discussion on 2nd Aug 2018	Campus, alumni and other entrepreneurs participated in the panel discussion moderated by Ms. Vishnu Priya, Wadhwani Foundation. The real life struggles of their Entrepreneurial journey were shared and the crowd were super motivated.

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

The Call for NewGen IEDC Call for 2nd round of Projects was planned for November 2018. The Call will be sent and projects are being invited. In the first week of December, screening of the projects will be done in the presence of the board members and nearby industrialists.

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

1. Two Projects were selected for Start-up Nidhi and the students presented at Ahmedabad on 19th June 2018.

2. Graduation of students from B.Tech. I year who completed WFNEN101 on 18th April 2018. The program Chief Guest was Entrepreneur Dr. Ranjini Manian.

2. Signing of MoU with NEN

3. 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	**EVO Object Tracker:** Custom made tracking devices have multiple uses In inventory management and tracking lost objects. It utilizes a Wi-Fi module so that the range can be controlled.	Preparation and testing of the sample products was under process.	The boards planned for making the demo is changed	The casing for the product is being prepared.
2	**Automated Water Purification tank:** A water purification system which uses flocculation and a series of purification cartirdges. It will capture the quality of water continuously and send it to a common server.	The development of the sensor based tank was in process.	The order of the filters used is being finalized with the design of the material box.	The filters are being tested with the content of different chemical deposits in the water.
3	**Accident Monitoring Box:** A data collection device located in a two wheeler can collect data on a trigger such as a vibration or jolt. The device will collect GPS location, snapshots and other data which will be useful in times of analysis of cause of accident.	The team was trying to include the navigation system.		The prototype is ready with the demo The team is trying to incorporate a mobile application.
4	**SOLVED (Solar Operated Low Cost VOC Eliminating Device):** The device features next generation technology, capturing 99.97% of harmful particles from the air down and releasing pure air outside vehicle, with an added layer of filters. Fortified with a blend of filters and sensors, the device traps odors, tobacco smoke, and dangerous VOCs.	The team was working on optimization of filter component. Market survey and market attractive survey were made	The demo and working PoC is ready. The filter used has a composition of different materials.	The team is trying to update with an automatic system using a mobile application and sensors

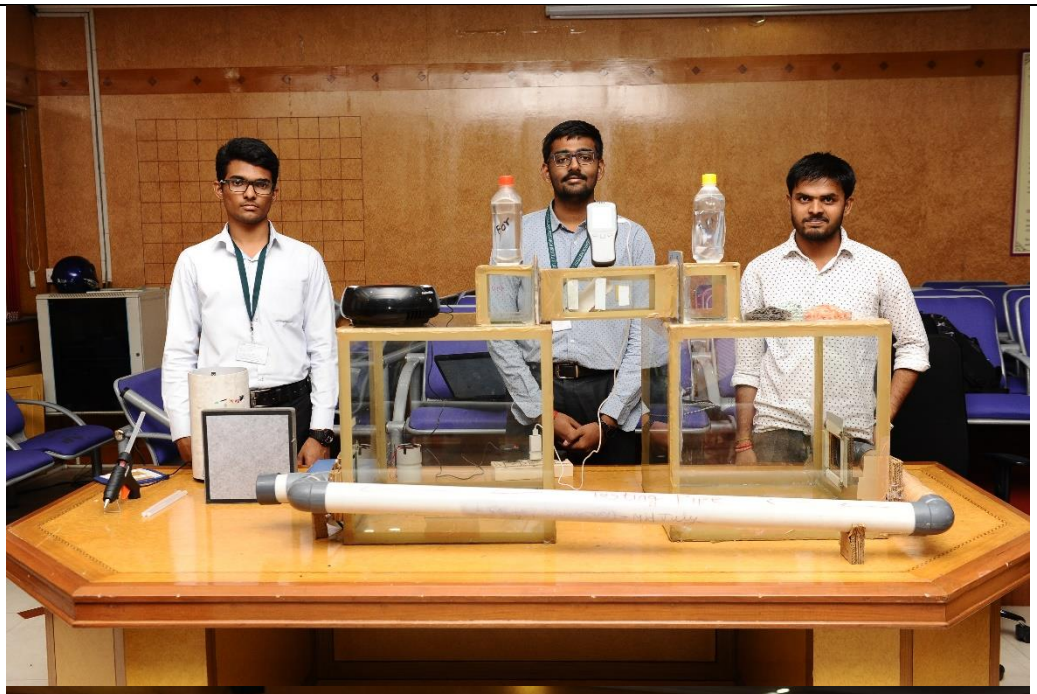
5	**CRAB (Clog Removing Autonomous Bot):** A semi-automatic robot that can be controlled by a joystick that can flex its body to fit into a cylindrical sewer pipe and use its rotating sharp blades to clear blocks in the pipe.	The model prepared was being tested for pipes with different diameters.	The working model is ready. The ports for adjusting according to the diameter of the pipe has been incorporated. The Casing has been prepared.	The prototype is ready. The power supply for the system is being arranged.
6	**Green Box:** An exhaust emission control device that converts toxic gases and pollutants in exhaust gas from an internal combustion engine into less-toxic pollutants by using the principle of electrostatic precipitation. The dust components thus produced can be removed once in a month	New source of high voltage was being fabricated.	The high voltage transformer has been fabricated.	A model in NI Lab VIEW is being designed for giving a virtual view of the model.
7	**Coir Acoustic Panel:** Coir waste made Acoustic Panels that are perfect for using on walls ceilings doors windows etc. Anywhere to help block sound and prevent echoes inside the room with high sound absorption co-efficient.	The panel with the highest absorption coefficient was being further developed. Second meeting with the Travancore meeting was scheduled.	The team got selected for in Start-up Nidhi fund. Second meeting with the Travancore Pvt. Ltd. done successfully. A demo room is being prepared	Preparation of a demo room in our institute with the coir acoustic panel is being done. Students are registering them as a company.
8	**Herbal Tooth Paste:** 100% Herbal toothpaste specially formulated to treat most common dental problems like dental Hypersensitivity, Gingivitis and Halitosis.	The preparation of the tooth powder in 100 numbers was on process. The request for the testing of the samples in Rumi Herbals has been accepted. The clinical testing has been approved by Directorate of Indian Medicine and Homeopathy.	The launch of Dhantvarshini was successfully done in I-Summit on 2nd August 2018 and successfully sold 17 toothpastes.	Further modifications and testing are being carried out.
9	**Millet based Products:** Millet based cookies, cakes and drink with high nutritive value with no added preservatives and colours and	Millet cookies, muffins and drink had already been sold in events. The team was setting up a mini kitchen for selling	SunRise foods sold their new smoothies and cookies at Innovation	Few more students are joining for supporting Sunrise Foods.

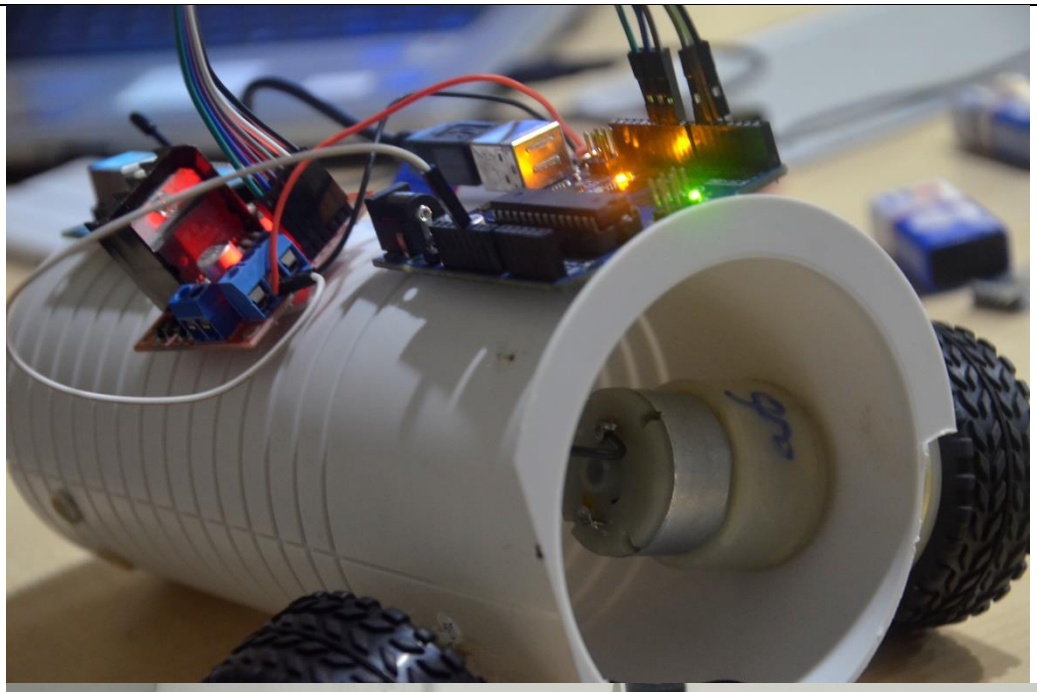
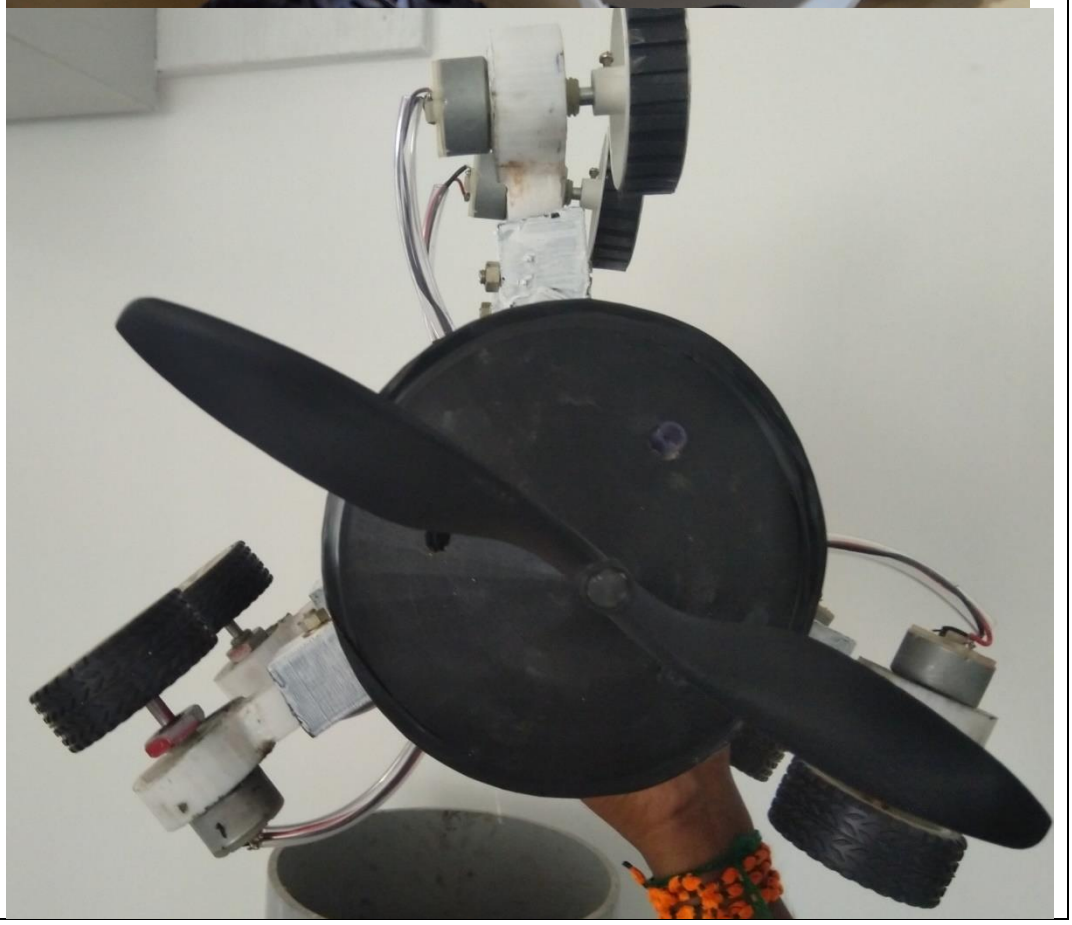
	that are always ready to drink and can be easily digested. This helps to reduce the risk of cardiac arrest and blood pressure.	their product in the market.	Summit on 2nd August	Students are planning to sell the smoothies at the campus mess.
10	**Gesture control Robot:** A robot that can be controlled by gesture movement with the help of hand gloves, which will enact the movement of the hand. This enables a handicapped person to control his or her wheelchair and can also lift and bring objects needed.	The team was working on the software. The team was trying to come up with the latest technology – Raspberry pi.	PoC has been made	The prototype is ready and now the students are trying to make a self-billing trolley.

P 001	EVO Object Tracker
	
	

P002	Automatic Purification Tank
	

P003	Accident Monitoring Box
	 

P004	SOLVED
	 

P005	CRAB
	
	

P006	Green Box
	 

P007	Coir Acoustic Panel
	 

P008	Herbal Toothpaste
	 

P009	Millet Based Products
	 

P010	Gesture Controlled Robot
	 

5. **Two Page Caselet on two selected projects**

HERBAL TOOTHPASTE:

Sl.no.	Name	Age	Branch	Contact (+91)	Mail - Id
1.	Dr. C. Aravind	22yrs	B.D.S.	7845 182 772	Message4aravind@gmail.com
2	Dr. Ayesha Tabassum	23yrs	B.D.S.	8056 030 177	Ayesha15tabasssum@gmail.com
3	Dr. Dharini P	23yrs	B.D.S.	9176 001 303	Ramya.dharini95@gmail.com

BRIEF DESCRIPTION ABOUT THE START-UP:

We are living in a period where the chemical is consumed abundantly by the humans in everyday life, whereas the first thing the man consumes every morning is the toothpaste which almost contains high chemical components. Though we have varieties of toothpaste in the society, still we see multiple and severe dental problems, such as Dentinal Hypersensitivity, Gingivitis, Bad-breath, each have different toothpastes as remedies, which contains high chemical ingredients which causes adverse side-effects upon health. Therefore an idea ignited to prepare a toothpaste containing less chemical ingredients and high herbal properties, which will be a remedy for Overall Dental problems

The specific problem identified in the society is Dentinal Hypersensitivity, gingivitis, Halitosis. Dental Hypersensitivity is a common dental condition usually associated with exposed dentinal tubules. Gingivitis is an inflammation of gums that progress to affect the periodontium which surrounds and supports the teeth. Halitosis is a condition of unpleasant offensive odor. A study was conducted across the south Indian where it shows that 32% of public was affected by Dentinal Hypersensitivity (only adults), and 57% were affected from gingivitis (seen among people of low socio-economic background), 47% of people complain about Halitosis (Bad Breath) with no systemic conditions. The above mentioned problems do not have a common toothpaste as remedy and have separate toothpaste for each problem that too with high chemical contents in it. Therefore we decided to prepare a product of phyto therapeutic which will have less chemical and high natural herbal components free from causing side effects and it will be single product for all common dental problems.

Our product is phyto therapeutic. Our toothpaste is specially formulated to treat most common dental problems like Dentinal Hypersensitivity, Gingivitis and Halotisis. To overcome from the effects of chemotherapeutic toothpastes, our product is phyto therapeutic. The chemotherapeutic toothpastes is like a double ended knife, where it cures one problem and gives birth to another problem. Our tooth is specially formulated to treat all the dental problems like Dentinal Hypersensitivity, Gingivitis and Halotisis at the same time.

OUR ENTREPRENEURIAL JOURNEY

A path started with just a conversation, and now here we are talking about our products and startups. The usual problem that we came across among the patients was the usage of chemicals due to which they faced dental problems. Especially in the kids aged between 6 -10 the chocolate consumption is higher and consequent flossing of teeth and rinsing of mouth is not into good practice. Nevertheless, the adults are no exception to this. Our idea was to concentrate on oral hygiene.

Empathizing was our initial step. To know what the exact problem patients are facing, we had to spend the whole day with patients. We started interviewing the patients and understood their needs. Most of the patients were complaining on the synthetic flavours and chemicals that were used in the paste. So we came up with idea of making 100% herbal toothpaste. However implementing such an idea needs a good platform which can provide us the space and financial support.

The notification from Dr. A.P.J. Abdul Kalam centre of excellence on the NewGen IEDC projects interested us and we applied for it. We were overwhelmed by the support given by them and right away started our experiments by isolating the extracts from herbs. Our aim was

to create a toothpaste that removes the bad breath and avoid the formation of plaques. Each of the extract we used has a particular function such as inhibiting the growth of bacteria, removal of plaque and cavity, avoiding the bad breath. The difficult part was to determine the concentration to be used for different extracts.

Nonetheless, the efforts we took led us to a good product which could sustain and fight the issues which the patients have mentioned. The synergism of the extracts had quite a good effect on the tooth models. Subsequently, our next target was on the packaging of the material. With the help of funding we bought a sealer and crimper machine which made it easy to distribute the samples to the students and faculty of our campus.

With the feedback of the students and faculty members we went for slight alteration of the consistency of the paste and we are very happy that our products will be out in the market very soon.

CONTRIBUTION OF NewGen IEDC

Being from a department where we always concentrated on pursuing the degree and graduating as a dentist we never knew that we could anytime do anything innovative or do any research and create our own formulation. NewGen IEDC gave us a platform to work on some innovations rather continuing our routine.

Being doctors and empathizing each and every day with our patients we know what actual problem they face. NewGen IEDC picked us when we got to know that we had the caliber to bring in a change to our patients.

NewGen IEDC was like a home for us which provided a shelter to our idea, gave us the seed funding, showed us contacts and leads, made us see the entrepreneurial world around.

We are obliged and honoured for giving us an opportunity to experience our entrepreneurial journey. The trigger given by Dr. APJ Abdul Kalam Centre of Excellence in Innovation and

Entrepreneurship has entirely changed a routine life to a life where we see the world with different perspectives.

Future plan:

Now that we have completed our prototype and also launched our toothpaste, we are now trying to enter the real market. Do our production in mass numbers and register our team as a company.

Further we are planning to patent our formulation within a month. And after which we are also planning to solve few of the oral problems faced by the patients.

CLOG REMOVING AUTONOMOUS BOT (CRAB):

Sl.no.	Name	Age	Branch	Year	Contact(+91)	Mail - id
1.	L Madheshwaran	21 yrs	B. Tech/ EEE	IIIyr	7010 371 265	waran.pathy@gmail.com

BRIEF DESCRIPTION ABOUT THE START-UP:

We are bringing a unique mechanism of semi – automated scavenging behalf of manual scavenging which could be used by every common people easily. Now, we are bringing it in service criteria to create a standard platform for our product. We collect the database of the under – water pipelines of a specific area for the requirement in the further development stages. We also give a good plan for under-ground pipelines for huge residence which would not give any damages or malfunction in future.

We are targeting the problem of common people with residence who wanted to have their life with ease of comfort and we don't want people to die or affect due to this manual scavenging. So, we give our new product to solve the problems in the sewage system. We also solve the problems for the workers working for further development in under-ground i.e., we give our data as blue print on under-ground sewage pipes which has been built, this could help the workers for who are working in under-water pipelines or vice versa. We give new and best plans for under-ground sewage pipelines for huge residence, IT parks and areas. So, this could solve the future problems without any malfunctions or rebuilt.

OUR ENTREPRENEURIAL JOURNEY

Journey from a regular student to NewGen IEDC incubatee and from here to start a new firm is not just a journey but a path that I followed but something that I actually believed and achieved. Choosing a platform where I could excel and can help others with employment was something I always wanted to do. But having a supportive team has helped me to think in broad verticals and made me choose the right problem and coming out with a perfect solution.

I come from an area where the drainage system is very poor and empathizing with my society I felt that the right problem to be solved would be to deal with the real problems which are being skipped by others. Witnessing one accident and one death due to problem of cleaning the manholes and the difficulties that one undergoes while cleaning was the thought that I wanted to help our people with something that would mae the process easy without any loss of life.

Then interviewing the people and their family we thought to make a change and so did we. The available systems could only clean the manholes we wanted to look into the problem further and planned of creating a system which could clean from one manhole to the next one. The journey from idea generation to the date today where we have almost completed with the casing and the testing was the time to be engraved and becomes the history for

Now that we have solved one single problem, we are trying to replicate the model and if possible update it. And further see if we are able to start other social problems.Electronics becoming the new oxygen for almost all the problems, we are planning to use the same principles to give out different applications. One thing for sure we are will be introducing new ways to solve problems.

CONTRIBUTION OF NewGen IEDC

Having a solution to a problem and then searching for somebody to help us with the proper guidance and provide us space to work, is something that most of the startups would have faced. Support and guidance being the key for developing a product was so hand delivered for us as we were a part of Dr. MGR DST NewGen IEDC.

A hearty gratitude to the Dr. APJ Abdul Kalam Centre of Excellence in Innovation and Entrepreneurship who gave us an opportunity to prove that we could bring a change and contribute to the development of our country. Right from providing space to the equipment and funding, right from the recognition to the networking and exposure, we were blessed to be a part of NewGen.

Not just about learning but experiencing and implementing is what we actually cherished. We have been trained right from idea generation to do team work, smart work, networking and pitching. NewGen IEDC has been the stepping stone for us to complete this prototype and definitely we would achieve a milestone and put a benchmark.

Future plan:

Here, we are working on to the B to C services which will give us a standard platform for our brand or product or it could create a sample marketing platform. We are also working hardly to make the plan to a B to B services.

Now, we are bringing our product or service to the customer segment to get proper reviews and satisfaction from them. We hope this could give us the exact expectation of the customer and also would create a sample marketing opportunity for the next stage or B to B services.

6. Minutes of the Advisory Board Meetings (held so far):

Annual Board Meeting : 24th Nov 2017

Dr. MGR NewGen Review Meeting is held every month.

Next meeting is due in January 2019.

7. Progress Summary:

1.	**Total number of Student Projects supported**	**10**
2.	**Total fund provided towards supporting Student Projects**	**Rs. 25 lakhs**
3.	**No. of Patents filed by students**	**Under process**
4.	**No. of Patents Granted**	**2 under preparation**
5.	**No. of companies/Starts up Set up by Students**	**1 registered with MSME And other 2 in process**
6.	**Social Impact Made, If any**	**Sewage cleaning robot will have a social impact in helping in keeping the city clean**

10. National Engineering College, Kovilpatti, Tamil Nadu

NATIONAL ENGINEERING COLLEGE – NEWGEN IEDC

PROGRESS REPORT

(as on October 31, 2018)

NEW GENERATION INNOVATION AND ENTREPRENEURSHIP DEVELOPMENT CENTRE (NewGen IEDC); 2017

Implemented, Coordinated and Managed by:
Entrepreneurship Development Institute of India (EDII), Ahmedabad

Under the aegis of:
National Science & Technology Entrepreneurship Development Board (NSTEDB)
Department of Science & Technology (DST), Govt of India, New Delhi

Established at:
National Engineering College,
K.R.Nagar, Kovilpatti – 628503

PROGRESS REPORT

(as on October 30, 2018)

INDEX

NewGen IEDC [2017-22]
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report (As on October 31, 2018)

Name of the College/Institution hosting NewGen IEDC	**NATIONAL ENGINEERING COLLEGE,** K.R.NAGAR, KOVILPATTI – 628503		
Year of starting NewGen IEDC	2017		
Name of the Head/Principal of the Institution/College	Dr.S.SHANMUGAVEL Ph.D.,		
Name of NewGen IEDC Coordinator	Dr.K.SHANKAR Ph.D.,		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	Mobile No. : 9443257441, 8870525684 E-mail id : edcell@nec.edu.in, kseie@nec.edu.in		
Financial Details	Sanction Order No./ Date		Amount Sanctioned
Previous Sanction Order Details	1.	EDII / DST-NewGen IEDC / 17-18 / 10 Dated 15.06.2017	Rs.60,00,000/-
	2.	-	-

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	**DST-NSTEDB-EDI sponsored *Entrepreneurship Awareness camp I*** 12th to 14th July 2017 Experts from entrepreneurship related institutions including host institution, DIC, financial institutions, successful alumni entrepreneurs handled the sessions in addition to the factory (MSME) visit.	✓ Aspiring Entrepreneurship students (79 + 80 Nos.) obtained awareness about business and now they will be able to • distinguish the type of business • conduct the technical, financial and market analysis for their business • analyze and overcome the threats and challenges in the business to earn profit • contact the business related people with project details ✓ Few students submitted project proposal to NewGEN IEDC for funding.
2	**DST-NSTEDB-EDI sponsored *Entrepreneurship Awareness camp II*** 8th to 10th August 2017 -Do -	

3	***Orientation Programme*** - 1st year students 23rd October 2017 ED Cell coordinators conducted the programme	✓ All the 1st year (650 Nos.) students participated in the orientation programme and now they will be able to understand and describe about the following. • Activities of NewGen IEDC and ED cell, start-up policy and IPR policy of our Institute. • Role of NSTEDB-DST, Govt. of India, New Delhi and EDII, Ahmedabad, in initiating the Entrepreneurial activities among science and technology back ground students in order to establish a start-up / technology driven business in near future and in providing the financial support for the same.
4	***Entrepreneurship Lecture Series (ELS) – A Success Story*** 27th September 2017 Success story delivered by Mr.Thomas A Antony Managing Director NOVA Carbons India Private Limited, Thirunelveli	✓ 55 Nos. of interested students from all Engineering disciplines of our institute actively participated, interacted with the guest, got motivated and received all know how's. Now, they will be able to • Distinguish the Dos and Don'ts in business. • Choose right business at right place and at right time.
5	***DST-NSTEDB-EDII sponsored Faculty Development Programme*** 4th to 16th December 2017	✓ Trained the trainers on "Entrepreneurship" • 18 Faculty members including 4 faculty members of our college got trained. • Impart knowledge and skill on "Entrepreneurship for the faculty and in turn transform the same to their students and also to inculcate entrepreneurial culture among the students in and around our college inside Tamilnadu.
6	***Entrepreneurship Lecture Series (ELS) – A Success Story*** 3rd October 2017	✓ 54 Nos. of interested students from all Engineering disciplines of our institute actively participated, interacted with the guest, got motivated and received all

	Success story delivered by Mr.A.Anantha Sekar Managing Director Kasianantha Cooking Ranges Private Limited, Pettai, Thirunelveli	know how's. Now, they will be able to • Distinguish the Dos and Don'ts in business. ✓ Choose right business at right place and at right time.
7	***"Bazaar"*** 28th February & 1st March 2018	✓ About 120 students of host institution put 35 stalls in this event. ✓ Provided opportunities to sell the products of both technical and non-technical ideas. ✓ The participants of this event will be able to • Feel the spirit of innovation and entrepreneurship. • Market / commercialize their ideas to the customers
8	***"Shoppers Corner"***	✓ 03 shops have been made ready and students are encouraged to utilize the facility in order to feel the taste of being an entrepreneur. ✓ It is expected that the students will engage the shops fully to put up their stalls from the forthcoming semester.
9.	***"How to Productize your Idea?: A thought from an Entrepreneur"*** 28th September 2018 The session was handled by **Mr.Ganesh Rajmohan** Associate Vice President - Head of Platform Engineering, Delivery & Operations, Sutherland, Chennai. & Co Founder & Director of Vednar InfoTech Pvt. Ltd., Chennai	✓ 25 interested students from various departments participated in this programme. ✓ By attending this programme, the students would be able to • Get more insights about Product development (Where to start – How to proceed – Where to end) • Know the DOs and DON'Ts of entrepreneurship

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

Sr. No.	Activities	Outcome/Achievements

1	***Orientation Programme*** - 2nd and 3rd year students 29th July 2017 NewGen IEDC coordinators conducted the programme	✓ All the 2nd year (710 Nos.) and 3rd year (705 Nos.) students participated in the orientation programme and now they will be able to understand and describe the following. • Roles and responsibilities of NewGen IEDC in implementing students innovative and commercially viable projects, ED cell, start-up policy and IPR policy of our Institute. • Role of NSTEDB-DST, Govt. of India, New Delhi and EDII, Ahmedabad, in initiating the Entrepreneurial activities among science and technology back ground students in order to establish a start-up / technology driven business in near future and in providing the financial support for the same.
2	***Talk the People - Plan a Business*** – A Business Idea Exploration Competition 11th – 13th August 2017	✓ A 05 groups of students participated and now they will be able to • Identify a problem for business and provide technical solution for the same • conduct technical and market analysis for the business • conduct literature review
3	First ***Advisory Board meeting*** - Approval of Projects and action plan of NewGen IEDC - 2017-18 16th September 2017	✓ **RESOLVED TO APPROVE** the activities of NewGen IEDC for the year 2017 – 2018 ✓ **RESOLVED TO APPROVE** the students' project of NewGen IEDC to be implemented for the year 2017 – 2018 • Salient points were discussed and suggestions were given by the members regarding the action plan and students' projects of NewGen IEDC
4	***Potential Project for Product Competition (P3C)*** - III year students - inviting the innovative business viable ideas	✓ Innovative and commercially viable projects were submitted by the III year students to Newgen IEDC for implementation, in the year 2018-2019

	21st September & 6th October 2017	
5	***Put your Idea Get our Approval (PIGA)*** - selecting the right projects – 2018-2019 30th October 2017	✓ Selection process is over ✓ 15 projects were identified through conducting 3 review meetings with internal experts and 1 review meeting with external experts.
6	Second ***Advisory Board meeting*** - review of projects - 2017-2018 – approval of projects 2018-2019 - monitoring the activities of NewGen IEDC 17th February 2018	✓ As per the suggestion given by the Project Director, EDII, Ahmedabad vide the email dated 6th March, 2018, the meeting was not conducted as per the schedule; NEC - NewGen IEDC has started functioning recently - too early to have the second Advisory Board Meeting as per the schedule.
7	***Business Plan Competition*** 18th January 2018	✓ The submitted business plans were reviewed and the selected teams were given opportunities to sell their ideas and products in the event "Bazaar". The students were able to • select the products by understanding the needs of customers in particular locality. • Advertise the products to the buying community • Fix the price for their product • Calculate the profit and loss of their sales. • Sell their ideas which would be developed as products based on the customer needs.
8	***Periodical review meetings*** - to monitor the progress of the projects 16th September 2017, 13th October 2017, 18th Nov 2017, 16th Dec 2017, 20th Jan 2018, 17th Feb 2018 & 17th March 2018	✓ Quality and status of the projects were improved after fruitful discussions made in the meetings. ✓ The students' teams were appropriately given suggestions to complete the prototype model for commercialization. ✓ The students' teams were educated to procure the components / devices of different specifications / configurations for

		necessities related with development of different versions of products.
9	***Patent application filling –*** the students teams of 2017-2018 were educated through their respective mentors about IPR (Need, Significance and "How to?") at different occasions.	✓ The mentors and the students were able to • Know the significance of being an inventor of the product • Fill the Patent application form ✓ 08 products of 2017-2018 academic year were patent filed.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	**One day Workshop / Seminar – students** (Host and other institutions) – Experts from Industries, CII, MSME, DIC, TIIC and Trade Associations.	✓ As the duration of this semester is short these two programs were not conducted as scheduled. However, the students' teams with mentors of present year and other proposed to be supported students' teams with mentors were given chances to talk with experts for the development of products. ✓ These two workshops are scheduled to be organized during next academic year with the approval of Advisory Board.
2	**One day Workshop / Seminar – faculty members** (Host and other institutions) – Experts from Industries, CII, MSME, DIC, TIIC and Trade Associations.	
3	**Meet the Mentors** (academicians, industrialists, financial experts, relevant Government officials and successful entrepreneurs) for development and commercialization – throughout the year.	✓ Students obtained new insights in their projects. ✓ A group of students with two faculty mentors visited Empresario – A startup summit 2018, held at EDI India, Ahmedabad on 10th March 2018. The students (individual and team) participated in the events and they have learned to ✓ Choose the way and means to approach the investors for developing their ideas in to product. ✓ Explore the opportunities to commercialize their ideas / products.
4	**Participation of the students –**	✓ After finishing the 10 products we will

	Exhibit the students' products / ideas - buyers-sellers meet organized by MSME and Trade Associations in Tamilnadu As per the organizer's schedule	make arrangements for the expo and buyers-sellers meet. ✓ One of the products (Partial Cocount Dehusker) was exhibited in Agri Product Expo, Coimbatore ✓ One another product (Coconut Qualifier), developed by our students' team, has won the first prize in Falling Walls Lab India 2018 contest. Further the student has been invited to present his idea at Falling Walls Global Conference 2018 at Berlyn, Germany during November 2018.

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

The scheduled dates of few activities conducted have been slightly changed depending upon the availability of the participating students, resource persons and experts.

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

NIL

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

Sr. No.	Student Team/ Project Description	Project status at beginning of the Year	Interventions made	Current status
1	**PROJECT TITLE** : Partial Coconut Dehusker **STUDENTS' DETAILS** Mr. R.Rajith, Mr. K.Sankar Ganesh, Mr. G.Ponmullai Narayanan, Mr.S.Rakul & Mr. P. Sarathkumar **MENTORS' DETAILS** Mr. S. Pandiaraj, Adjunct Faculty /Mech. Mr. M.Karuppaiah Rajkumar, AP/Mech. **DESCRIPTION** For increased self life of	• Identification of the design gap • Concept design is achieved • Aesthetic of the machine is planned • Planned for dehusking any size of the coconut	• Brainstorming on design gap issue during concept development process • Referred the relevant books and standard data	• Completed the product development process and the product is ready for commercialization.

	matured coconut, the outer skin will be peeled off instead of complete dehusking. Till now, there is no machine for this purpose and it was done manually. In the proposed equipment the outer skin is rolled out after pierced by a set of opposite knives. The piercing, rolling and releasing will be performed by a cam mechanism. It will need four to six roll out for one coconut partial dehusking.			
2	**PROJECT TITLE** : Water Tank Cleaning Device **STUDENTS' DETAILS** Mr.G.Ramaiah, Mr.A.Selvakumar, Mr.M.Prabukannan, Mr.S.Sankarakumar & Mr.K.Rakesh **MENTORS' DETAILS** Mr. S. Pandiaraj, Adjunct Faculty / Mech. Mr.P.Harihara sakthisudhan, AP / Mech. **DESCRIPTION** In all houses, it is a tedious task of removing the few inches of water left over due to foot valve of pumps in sump and clearance below the pipe outlets in Over Head Tanks. One person has to get into the tank for cleaning, which is sometimes a safety hazard. Normally, the left over water will be shuffled to collect the sediment dust and to clean. After rinsed, the sludge water will be evacuated manually by two persons. By considering the risk, in many houses the tanks are not cleaned which will produce lot of waterborne diseases in long run. This project solves this problem with a special	• Initial Design of centrifugal pump based on special requirements • Design of impeller and housing	• Brainstorming on design gap issue during concept development process • Referred the relevant books and standard data	• Completed the product development process and the product is ready for real time testing and commercialisation. Patent filed • Patent Application Number: 201841037676 • Filed on: 05-10-2018

	pump which will suck the water like Vacuum Cleaner and lift the water like a pump. It also has a feature to churn the dirt water by directing the pumped water inside the tank.			
3	**PROJECT TITLE** : Multipurpose Domestic cleaner **STUDENTS' DETAILS** Mr. Shunmuga sundaram.S & Mr. Ayyapparaja.K **MENTORS' DETAILS** Dr.D.Ravindran, Professor / Mech.Engg. **DESCRIPTION** **Problem Identification:** Indian food preparation and serving needs variety of vessels in different sizes and shapes. Cleaning of such vessels after use is a cumbersome task and it is performed manually with lot of time and effort. The commercially available dishwashers are costly and cannot effectively clean all types of vessels. At this juncture, it is proposed to design a handy device which is power operated, reducing the manual effort and time. This device is suitable for cleaning all types vessels after use. The device can be used for all other types of cleaning domestic items such as fans, windows, floor etc., **Product Description:** The proposed product is equipped with a rotating spindle and provision to attach various types of brushes and extension rods. The speed of spindle will be adjustable according to purpose of use. The	• Existing Product survey has been carried out. • The CAD model has been developed for the product. • The initial working model has been developed. • The additional attachment for the supply of water and soap oil has been planned. .	• The developed design concept was slightly modified to accommodate the water and soap oil tanks. • The modified concept was modelled and tested.	• Completed the product development process and the prototype model of three different versions are made. The functionality of each model has been tested real-time in the hostel mess. Patent filed • Patent Application Number: 201841037690 • Filed on: 05-10-2018

	supply of water and soap oil will be effected when the cleaner is used as vessel cleaning. The device will be designed as overhanging type or hand operated type. The device can be dismantled and all the components (Driver unit, different brushes and extension rods) will be placed in a box to occupy less space. **Multiple usage:** • Dry or wet operation. • Ceiling mounted or hand held operation. • Cleaning of ceiling fan, windows, doors, grills, bath rooms, etc., • Less power consumption. • Easy of operation • Dismantled and safely stored in a box. • Shoe polishing, car cleaning • Marble and floor polishing. Can be used in hotels and hostels also			
4	**PROJECT TITLE** : Humanless Monitoring for Hydroponic Plants **STUDENTS' DETAILS** Mr.ArunKumar H.R, Mr.Balasubramani.M & Ms. Meenakshi murugappan **MENTORS' DETAILS** Mr.Prasanna Venkatesan K J, AP(SG) / ECE **DESCRIPTION** Farmer suicides account for 11.2% of all suicides in India. In 2014, the National Crime Records Bureau	• A thorough literature survey about the project was made. • Software tool was identified, learned and software programming for the project was developed and debugged.	• Hardware components for developing the project were chosen. • Low precision, Low cost sensors, multipurpose board and other components for prototype development were	• The developed automated monitoring system for Hydroponic plants is tested with in-house hydroponic plants shelter. • The system works well and this system could be implemented at any hydroponic plant growing environment based on the customers'

	of India reported 5,650 farmer suicides. Increasing ANTHROPOGENIC ACTIVITIES (growing industries, mushrooming population, ruthless exploitation of natural resources) on land have made it unfit for agriculture. Increasing demand and decreasing agricultural lands. **Idea Promises**: Quick, qualitative and quantitative yield with a small piece of land with minimized labour and modernized methods in an economical rate. **Project Idea** : This project is to create a hydroponic system that allows anyone to have the ability to farm their own hydroponic plants in a greenhouse using a simple automated system. This system will relieve the user from a lengthy setup and daily maintenance. The user will be able to specify the plants wanting to be grown through a web interface which is connected to the microcontroller running the system. The plant specific settings will be loaded and thresholds for each sensor calibrated into the microcontroller, thus eliminating any research the user needs to do on their own. This system will perform all necessary daily testing , adjust system levels (pH, nutrients, water) as per requirements, notify the user about a problem requiring action and log all testing data for analysis.		purchased. • Circuit board was made for the prototype and the board was tested. • Hardware and software were interfaced and the prototype model was tested.	requirement. Patent filed • Patent Application Number: 201841037700 • Filed on: 05-10-2018

5	**PROJECT TITLE** : Reflectometry Based Noninvasive Diab-Nosis (RND) Device **STUDENTS' DETAILS** Ms. S. AnnaLakshmi, Ms. M.Anugraha, Mr.S.Sundar Rajan, Mr.P.Ramprasath & Mr. M.Vishnu **MENTORS' DETAILS** Ms. S.D.Jayavathi, Asso. Prof. ECE Mr.B.Ganapathy Ram, AP / ECE **DESCRIPTION** Diabetes is a foremost challenging disease in many countries due to aging populations, unhealthy diets, sedentary lifestyles, and obesity. Fortunately, it can be cured by reducing glucose level in blood with therapeutic process based on periodic diagnosis. Invasive glucose measurement causes painful pricking experience, blood loss, risk of infection and damage to finger tissue. It is also costly, since it requires diagnostic stripes for each diagnosis. Noninvasive blood glucose measurement overcomes those problems. Various noninvasive techniques available are bio-impedance spectroscopy, electromagnetic sensing, fluorescence technology, infrared spectroscopy etc. In all techniques blood thickness is analyzed to measure the blood glucose level. Even though there are plausible advantages in each method, the measurement is affected by temperature, body water content,	• Literature survey, patent survey and market survey were completed. • Components were identified.	• Software coding has been developed to interface display device, GPRS connectivity with the available components in the department. • Experimental setup has been created to interface Infra red sensor with embedded development board. • Ultrasonic sensor for reflectometry has been identified.	• Infra Red sensor based non invasive diabetics measuring device has been developed. • The developed device was tested with 100 persons of diabetic and non-diabetic health conditions. • The performance of the device is validated with presently available invasive device. • The performance of the newly developed device is yet to be improved. Patent filed • Patent Application Number: 201841037694 • Filed on: 05-10-2018

	blood dielectric parameters and sensor's short lifetimes which inherently suffer the accuracy of the measurement. Hence, ultrasonic reflectometry is proposed. The key idea behind Reflectometry Noninvasive Diab-nosis (RND) Device method is to measure the blood glucose level by measuring thickness of blood using transmittance and reflectance of ultrasonic waves. This device consists of ultrasonic sensor, signal conditioning unit and embedded processor with external connectivity. The ultrasonic sensor is placed in different parts of a body such as hand, ear, shoulder and leg at certain interval of time. The ultrasonic sound wave is transmitted from the sensor to the above mentioned parts. The reflected wave is given to the signal conditioning unit in order to make the reflected signal suitable for the processing unit. Based on the blood glucose level, the reflected signal is varied. The conditioned analog signals from the sensors are converted into digital value for processing. The digital values for the various observations are given to the neural network in order to get the optimised output. Then the blood glucose value is displayed in display unit. The blood glucose value is also connected to the GPRS, Bluetooth, UART / USB for future reference.			
6	**PROJECT TITLE** : Design of Braille Print Studio Suite for Visually impaired People	• Mobile Application for Braille Translation was	• Implementation of printer driver has compatibility	• A complete voice enabled Graphical User Interface (GUI) has been

	STUDENTS' DETAILS Ms.S.Vaishnavi, Ms.S.Venkateshwara packya Janeefa, Mr.T.Lakshmi Naarayanan & Mr.R.Raja Lakshmanan **MENTORS' DETAILS** Dr.B.Paramasivan, Prof. & Head / CSE Ms.M.Bhuvaneswari, AP(SG)/CSE **DESCRIPTION** The proposed project is to develop complete print studio suite for visually impaired people. The main objectives of the proposed project are, a) To design and develop a print studio software package to blind or visually impaired peoples. b) To revamp the existing Dot Matrix Printers to support in printing Braille documents. c) To translate the Braille keyboard inputs with its equivalent English alphabets. d) d. To convert the Text documents into audio file format using Text to Speech Conversion process.	created using Android • Development Tool Kit and Eclipse SDK were identified. • Graphical User Interface (GUI) for print suite software package was designed in java platform using.Net beans IDE, Eclipse SDK. • The existing printer head of dot matrix printer was analysed and the feasibility of revamping the three pin based printer head was checked. • Preparation of Software Specification and Design document according to IEEE standard was in progress.	issue on customizing COM interface. • Configuration and compatibility issue in Printer head revamping process. • Installing version control software. • Adaptation of code reuse in GUI development	designed. • The normal user can access the software by the mode of event handling. • Printing solution is also provided for Braille document and English document. • The GUI is interfaced with special artefact called 14 pin Braille keyboard with reader to feed the Braille input. • Now the developed software package (product) is ready for commercialization. • Process is in progress to file for Copyright
7	**PROJECT TITLE** : Smart Theft Prevention System Using GSM and CLOUD **STUDENTS' DETAILS** Mr. PRABHU.S, Mr. PRAKASH.P. R, Mr. NARAIN KRISHNA.R &	• Various components such as the microcontroller , sensors and GSM module were studied	• During the initial stages of development and integration of the product, the problems such as size of	• The three different versions of product have been developed and tested real-time. • All the three versions are ready

	Mr. MATHANAGOPAL.B **MENTORS' DETAILS** Mr.VENKATASAMY. B, AP/EEE **DESCRIPTION** This project product makes use of a motion sensor interfaced with a microcontroller and some additional devices which makes smart theft prevention system for Shop/ House/ building. When the thief enters into the Shop/House/Building where our product is installed, ○ Phone call is made to the owner whose number is initially coded in the micro controller ○ Photos of the thief is taken at regular intervals of time using a high resolution camera module and these photos are sent as an email to the mail I'd of the owner using Internet Of Things(IOT). Provisions are made to control the equipments such as Lights (ON and OFF) and Siren (ON and OFF) through text messages or by using emails of secret code words	and analyzed. • A complete literature survey of the components to be used for the project was made. • The mechanisms of interfacing the components were studied and the software that has to be used for coding the microcontroller was studied.	uninterrupted power supply, accuracy and reliability of the product have been noticed and solved. • The working of the product at different angles has been studied to find the best angle of placement for the most reliable operation.	to implement based on customer need. Patent filed • Patent Application Number: 201841037699 • Filed on: 05-10-2018

8	**PROJECT TITLE** : Coconut Qualifier **STUDENTS' DETAILS** Mr. G.S. Rahul & Mr. M. Veera Shanthi Ram **MENTORS' DETAILS** Mr.I.Jackson Daniel Asso. Prof / EIE Mr.R.Raghul, AP / EIE **DESCRIPTION** The idea behind the proposed product is kindled from the traditional method of checking the quality of coconut by tapping on it. This method works on the principle that the natural frequency of the defected coconut will change, if it is tapped on the outer shell. Some characteristic features such as mass, density, volume etc., of the defected coconuts will vary. If the coconuts are knocked by hammer or by a mechanical means so as to generate the impulse sound waves, the magnitude and frequency of the waves will vary. These sound signals are picked by the microphone. The frequency and amplitude analysis can be made to evaluate the quality of the coconut. Since the frequency component signal having wide range of frequencies, to predict the exact hit frequency component the Fast Fourier Transformation (FFT) is used. The Linear Prediction Coefficient (LPC) technique is also used to estimate the accurate frequency component which leads to increase the reliability of the information analyzed through FFT techniques even though subjected to external environmental noise and other factors such as varying size of the coconuts.	• The concept design was ready.	• Miniature prototype model for the impact hammer has been designed and tested. • The sound signal was acquired using microphone.	• The product which comprises the holding and striking module, sound signal acquisition module and signal processing module has been developed and tested. Patent filed • Patent Application Number: 201841037695 • Filed on: 05-10-2018

9	**PROJECT TITLE** : **SMART DEVICE FOR BLIND** **STUDENTS' DETAILS** Ms. R.Aruna, Ms. A.Divya Lakshmi & Ms. K.Priya Mohana Valli **MENTORS' DETAILS** Ms.M.CARMEL SOBIA, AP(SG) / EIE **DESCRIPTION** The objective of the device is to identify the person in front of the blind. The smart device incorporates facial recognition technology to alert the user when they are approaching a relative or friend. The device recognize the face of the people by capturing image and compared it with the previously stored images in the SD card and indicate their names using ear piece and audio feedback unit, with this the information is being relayed through Bluetooth technology.	• Had discussion with blind school people regarding product development. • The key aspects of the existing experiment were observed and analysed. • Literature survey regarding face detection and face recognition was made.	• The specific components such as higher end router support camera, SD card and Bluetooth module have been chosen. • Optimizing the Camera position, calculating the required memory space and identifying other required items for the product development have been in progress.	• The product development process is over and the product is made ready for usage. • The product could be customized and configured for the requirement of customer (visually challenged person) Patent filed • Patent Application Number: 201841037693 • Filed on: 05-10-2018
10	**PROJECT TITLE** : Aerated Cellular Concrete (ACC) **STUDENTS' DETAILS** Ms. P.Nishanthi, Ms. S.Angammal & Ms. R.C.Sharru Preethi **MENTORS' DETAILS** Mr. Naufal Rizwan P.S., AP/Civil **DESCRIPTION** Nowadays there is an increased demand for cement and sand in the field of construction. This project aims at reducing the consumption of cement and sand in the concrete without altering its strength. The usage of aluminium powder which highly reduces the	• Literature study has been carried out. • Discussions have been made with Creative industries, manufacturer of Fly ash Bricks. • The technology behind the manufacturing of Fly ash	• Specific material properties have been found out with the facilities available in our college. • Casting of small prototypes has been carried out with the facilities available	• The aerated cellular concrete blocks have been manufactured. • The manufactured blocks were tested in laboratory condition. Patent filed • Patent Application Number: 201841037689 • Filed on: 05-10-2018

	dead weight of the concrete thereby increases the compressive strength. Aerated concrete has been widely used only as partition walls in our country. It can be used as a structural member. This project focuses on the usage of Aerated cellular concrete as a structural member. The compressive strength of the brick is more or less similar to the compressive strength of the aerated concrete. Hence it can be used to reduce the dead weight of the structure.	bricks has been made. • Raw material collection was made.	locally. • Experimental studies have been completed for the partial replacement of cement and the experimental results were compared with the existing bricks. • Development and testing of the prototype models have been done.	

- **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.**

The Photographs of The Prototype / Product Along With The Students And Mentors

1. **PARTIAL COCONUT DEHUSKER**

Left to Right: Student members: K.Sankar Ganesh, R.Rajith, (Mentors: M.Karuppaiah Rajkumar,
Mr.S.Pandiaraj), S.Rakul, P.SarathKumar, G.Ponmullai Narayanan

2. WATER TANK CLEANING DEVICE

Left to right: Mr. Ramaiah G, Mr. Selvakumar A, (Mentors: Mr P Hariharasakthsudhan, Mr S Pandiaraj), Mr.Rakesh K, Mr.Sankarakumar S, Mr.Prabukannan M

3. MULTI PURPOSE DOMESTIC CLEANER

Left to Right: Mr.K.Ayyapparaja student; Dr.D.Ravindran , Mentor;
Mr.S.Shunmuga sundaram, Student.

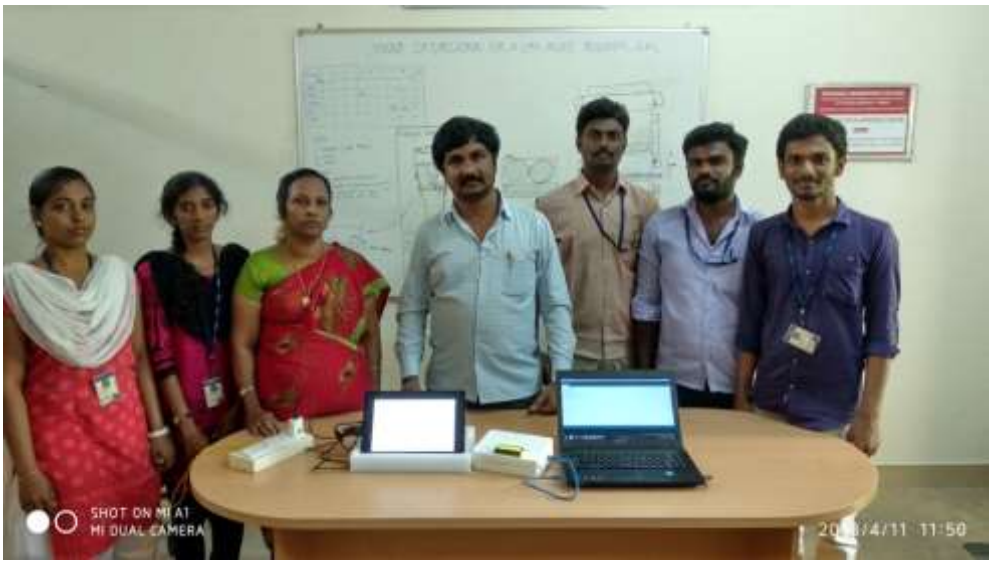
4. HUMAN-LESS MONITORING FOR HYDROPONIC PLANTS

A Polyhouse Setup consisting of Hydroponic Plants, setup within our College Premises

A Polyhouse with our product " H^3 " installed within it.

H^3 Product installed within a polyhouse, along with its Mentor & Student Members. Left to Right Clockwise:- Project Mentor: Mr. K.J.Prasanna Venkatesan (AP (ECE)/(SG)), Students Members: Mr.Balasubramani. M, Mr.Arun Kumar. H.R, Ms. Meenakshi Murugappan

5. REFLECTOMETRY BASED NON-INVASIVE DIABNOSIS DEVICE



Left to right : Ms.M.Anugraha, Ms.S.Anna Lakshmi, (Mentors Mrs.S.D.Jayavathi, Mr.B.Ganapathy Ram), Mr.M.Vishnu, Mr.P.Ramprasath, Mr.S.Sundar Rajan

6. DESIGN OF BRAILLE PRINT STUDIO SUITE FOR VISUALLY IMPAIRED PEOPLE

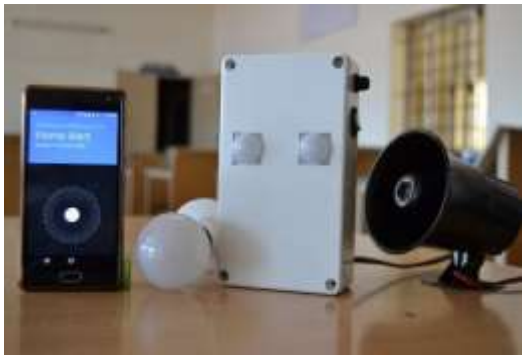
Product Prototype

Product Prototype with Students Team

Product Prototype with Mentors and Students Team

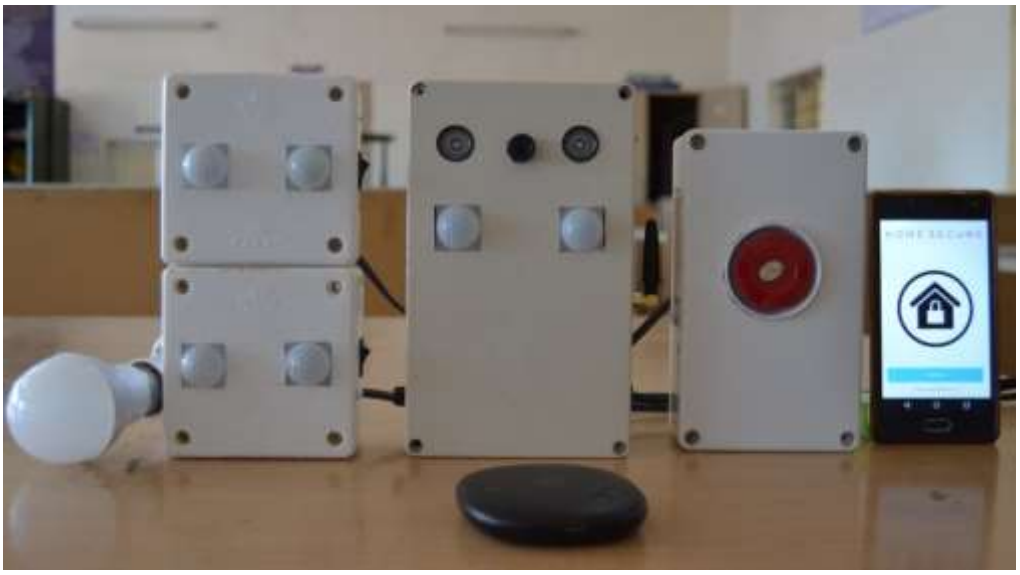
(From Left to Right – M.Bhuvaneswari, C.Sankavee, S.Venkateshwara Packya Janeefa, Dr.B.Paramasivan, R.Raja Lakshmanan, T.Lakshminaarayanan)

7. SMART THEFT PREVENTION SYSTEM USING GSM AND CLOUD



Model 1

Model 2



Model 3

8. COCONUT QUALIFIER

Front View of the developed prototype of the product

Side View

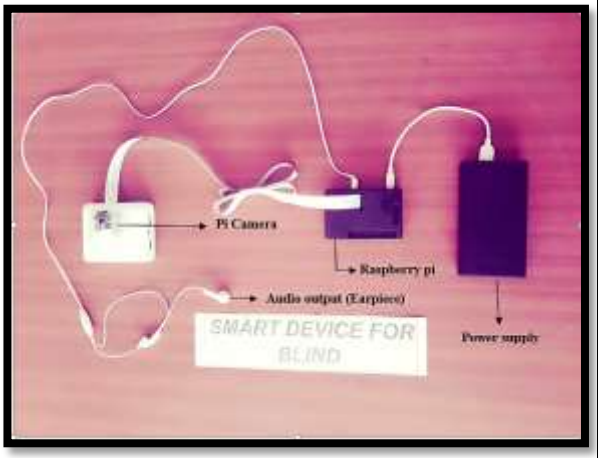
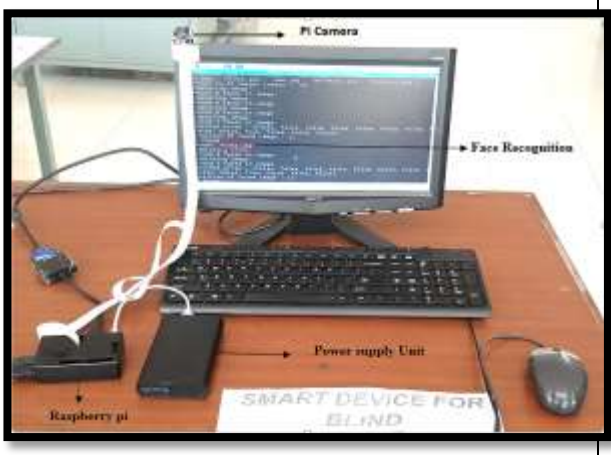
Top View

With students and mentors

(Left to Right) M. Veera Shanthi Ram (Student Member), G.S Rahul (Student Member),

I. Jackson Daniel (Faculty Mentor) and R. Raghul (Faculty Mentor).

9. SMART DEVICE FOR BLIND

Complete setup	Students and mentors
	 ***Left to right: student members Ms.A.Divya Lakshmi, Ms.R.Aruna Ms.K.Priya Mohana Valli and Mentor Ms.M.Carmel Sobia***
Experimental setup	**Product wearable by the person**
	

10. AERATED CELLULAR CONCRETE BLOCKS

Students and mentor along with Product

From Left to Right : Mentor:Naufal Rizwan,

Students: Angammal S, Sharru Preethi RC, Nishanthi P

Heat Curing Process

Aeration Process

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. MULTIPURPOE DOMESTIC CLEANER

STUDENT TEAM DETAILS (with contact information):

SL No.	Name of Student	Branch	Mobile No.	e-mail id
1	Mr.S.Shunmugasundaram	Mechanical Engg.	9943377114	autowelkin009@gmail.com
2	Mr.K.Ayyapparaja	Mechanical Engg.	9629203573	ayyapparaja.ak@gmail.com

BRIEF DESCRIPTION ABOUT THE STUDENT START-UP:

Mr.S.Shanmuga Sundaram, has applied for funding to DST's Start-up NIDHI scheme to commercialize the developed product and expecting clearance positively. The product has been given for customer use and obtained positive feedback. With little modification, the product design can be freezed and the manufacturing can be initiated. The student has aptitude for business and already started online trade of used auto spares as an incubate of our Institution.

STARTUPS ENTREPRENEURIAL JOURNEY FROM IDEATION TO PROTOTYPE OR COMMERCIALIZATION ALONG-WITH 2-3 HIGH RESOLUTION PHOTOGRAPHS:

This team has approached NewGen IEDC of our institution with this product idea "Multipurpose Domestic Cleaner" for development funding. Now, with the technical expertise of his mentor and other supports from NewGen IEDC, the team has developed four different prototypes of same product. These all models have been tested real-time and these products perform well. However, there are few modifications to be done in order to make the product with fullest efficiency.

The developed prototype model is equipped with a rotating spindle and provision to attach various types of brushes and extension rod. The product is expected to serve the following domestic task which is performed by manual effort presently.

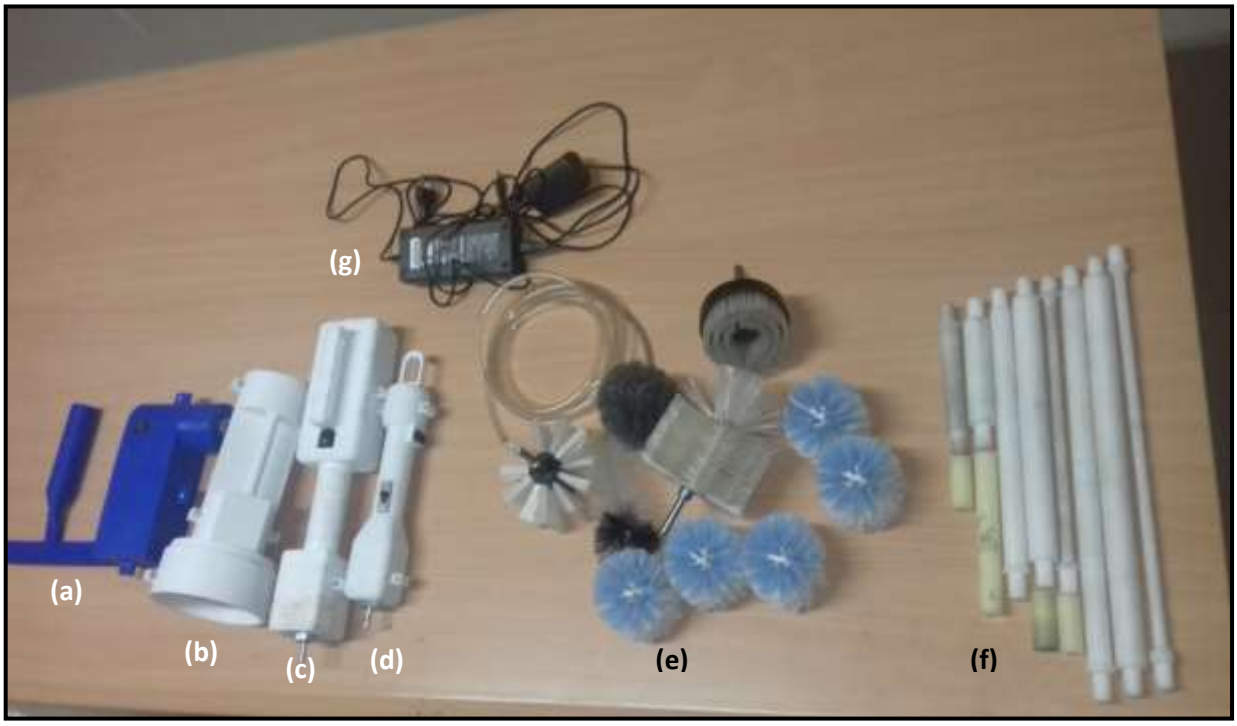
- The product is equipped with the supply of soap oil and water while it is used as a vessel cleaning device. The handy device will be used to clean any type of vessels with brush and extension rod. It can be hanged over the roof or hand held to use effectively.
- The extension rods can be used for cleaning roof ceiling and ceiling fans, windows, door panels, grills and any kind of parts that needs cleaning either by wet or dry.

- The device has been designed to occupy less space (mostly in suit case with all attachments) which could be operated by battery or domestic electrical power supply.

Now, this member, for the further development towards establishing a start-up in manufacturing sector, has applied for funding to DST's Start-up NIDHI scheme.

Photograph 1 The developed Prototype model cleaning the cobweb on wall

Photograph 2 : The developed Prototype model cleaning the utensil in kitchen



Photograph 3 :The four different Prototype models (a,b,c,d) with brushes (e), connecting rods (f) and adaptor (g)

CONTRIBUTION OF NEWGEN IEDC IN THE SAME:

The NewGen IEDC of our institution has supported this team in bringing up this idea to the level of prototyping / commercialization in the following ways in addition to funding the project for product development.

- The arrangements have been made to meet the technical experts and business consultants through the mentor, whenever the meeting was required.
    - The additional support in confirming the design of prototype models has been obtained from M/s Impresso 3D, Coimbatore
    - Mr.Shanmuga sundaram accompanied by Dr. Vinoth, Start-up consultant visited Empresario 2018 at EDII, Ahmedabad with the financial support of NEC-NewGen IEDC.
    - The NewGen IEDC has greatly motivated and supported the team to apply for Start-up NIDHI scheme of DST for further funding to establish Start-up in manufacturing and commercialization of the product.

FUTURE PLAN:

- Application has been sent, to start-up NIDIHI scheme through NewGen IEDC of National Engineering College and it is under process, for requesting the financial support to start an Industry for manufacture of the product in commercial scale.
- The Industry that comes forward to fabricate the product will be identified and the product will be launched in the market. The product will be handed over to them after applying for the patent of the product.
- The District Industries Centre will be contacted for getting financial assistance to start an Industrial unit to fabricate the product and market the same.

2. Smart Theft Prevention System using GSM and Cloud

STUDENT TEAM DETAILS (with contact information):

Sl No.	Name of Student	Branch	Mobile No.	e-mail id
1	S.Prabhu	B.E. Electrical and Electronics Engg.	9944372263	prabhu032597@gmail.com
2	P.R.Prakash	B.E. Electrical and Electronics Engg.	8300489347	prakashrajuperumal@gmail.com
3	R.Narain Krishna	B.E. Electrical and Electronics Engg.	8807782280	nsrnk.kvp@gmail.com

4	B.Mathana Gopal	B.E. Electrical and Electronics Engg.	8300224249	matgopalhana@gmail.com

BRIEF DESCRIPTION ABOUT THE STUDENT START-UP:

This proposed idea has been developed as prototype models (3 different models with different specifications) for customers of different walks of life. These individual models have to be manufactured for commercialization at different selling cost. In order to improve the performance of the developed models, these models have been already demonstrated at customers' place for their feedback and the team has obtained sufficient and relevant feedback. It is understood from the discussion made with the members that this team is not in position to initiate establishing a start-up right now, as the members badly need to satisfy their immediate family requirements. However, the steps have been taken to commercialize this product by motivating the other student(s) by establishing a start-up in immediate future.

STARTUPS ENTREPRENEURIAL JOURNEY FROM IDEATION TO PROTOTYPE OR COMMERCIALIZATION ALONG-WITH 2-3 HIGH RESOLUTION PHOTOGRAPHS:

This team has approached NewGen IEDC of our institution with this product idea "Smart Theft Prevention System using GSM and Cloud" for development funding. Now, with the technical expertise of his mentor and other supports from NewGen IEDC, the team has developed three different prototypes of same product. These all models have been tested real-time and these products perform well. However, there are few modifications to be done in order to make the product with fullest efficiency.

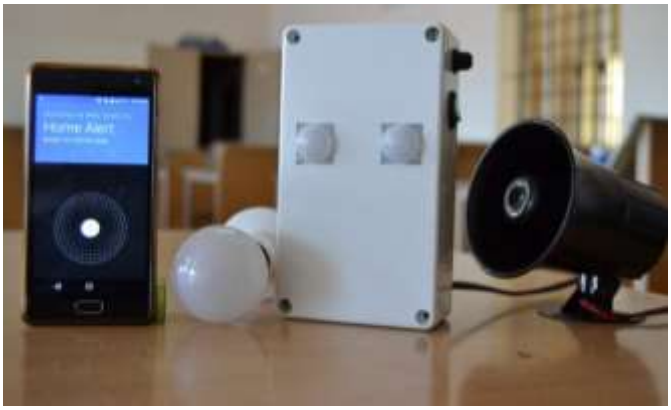
This product is to provide a smart security system to the society by interfacing a large number of electrical and electronic gadgets. This product makes use of a Motion Sensor interfaced with a microcontroller chip and some additional devices to alert the owner of the Shop/ House/ Building to be secured. When the thief enters into the Shop/House/Building where our product is installed,

- Phone call is made to the owner using GSM technology whose number is initially coded in the microcontroller.
- Videos of the intruder is taken at the time of intrusion and these videos are sent to the cloud server and it can be viewed using our own mobile Application

- Provisions are made to control the equipment such as Lights (ON and OFF) and Siren (ON and OFF) that are connected to the product by the Mobile Application by means of cloud.

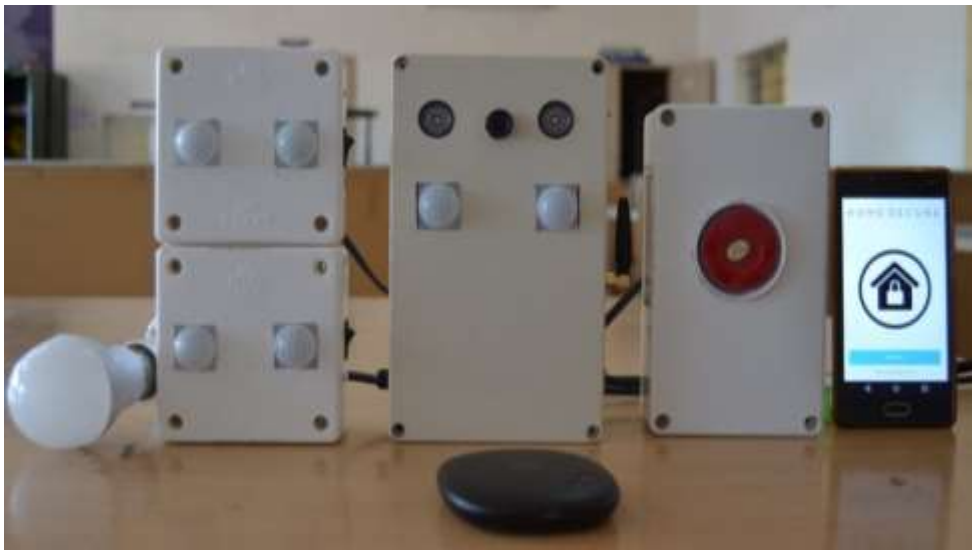
The entire setup has been built with long-lasting battery backup so that the security of the Shop/House/Building is completely independent of the power supply from Electricity Board.

Now, the steps have been taken for the further development towards establishing a start-up in manufacturing sector.



Model 1: capable of making a phone call to alert the owner

Model 2: capable of making a phone call, shoot a video - mobile app enabled



Model 3: Capable of monitoring two or more rooms with master and slave technology video of the place is recorded and sent to the cloud

CONTRIBUTION OF NEWGEN IEDC IN THE SAME:

The NewGen IEDC of our institution has supported this team in bringing up this idea to the level of prototyping / commercialization in addition to funding the project for product development.

- The arrangements have been made to meet the technical experts and business consultants through the mentor, whenever the meeting was required.
- The additional support in confirming the design of prototype models has been provided.

FUTURE PLAN:

The NewGen IEDC will take special measures to commercialize the product in following ways:

- The suitable Industry/Investor will be identified for the manufacturing and marketing of the product.
- The District Industries Centre will be contacted for getting financial assistance to start an Industrial unit to fabricate the product and market the same

6. Minutes of the Advisory Board Meetings (held so far):

First Advisory Board meeting of NewGen IEDC of our institute is held on 16.09.2017 at our college. The minutes of the meeting is enclosed herewith.

MINUTES OF THE 1st ADVISORY BOARD MEETING

MINUTES OF THE FIRST ADVISORY BOARD MEETING HELD ON **16.09.2017** AT **10.00 a.m.** IN THE CONFERENCE HALL OF ADMINISTRATIVE BLOCK, NATIONAL ENGINEERING COLLEGE, KOVILPATTI UNDER THE CHAIRMANSHIP OF **Dr.S.SHANMUGAVEL**, PRINCIPAL

The following are the members of Advisory Board:

Head of the Host Institute	
Dr.S.Shanmugavel	Principal, National Engineering College (Chairman) – NewGen IEDC
Representative of NSTEDB, Govt. of India	
Dr.Naveen Vasishta	Director/Scientist ' E' NEB Division, Department of Science and Technology, New Delhi – 110016

Representative of EDII, Ahmedabad	
Mr.S.B.Sareen	Sr Faculty & Project Director DST - NewGen IEDC Entrepreneurship Development Institute of India, Ahmedabad
Senior faculty members from HI with experience in entrepreneurship / industry	
Dr.K.Manisekar	Professor / Mech Manager – Business Incubator National Engineering College
Mr.K.Shankar	Asso. Prof / EIE Coordinator – NewGen IEDC National Engineering College
Representative of a nearby Incubator	
Dr.V.Abhai Kumar	Principal Thiagarajar College of Engg., Madurai – 625 015
Representative of SIDBI / NABARD / Lead Bank or Local bank	
Mr.G.Rajasekar	Senior Manager, Indian Overseas Bank, K.R.Nagar, Kovilpatti – 628 503
Representative of Industry Association	
Mr.G.Sanjay	Secretary, Nellai District Small and Tiny Industries Association – NELSTIA C/O. Bell Pins (P) Ltd, Bell Industrial Estate, Thiruchendur Road, Palayamkottai
Alumni Entrepreneurs from HI	
Mr.R.Muthiah Pillai	Proprietor, Bits Computer Systems, Tirunelveli
Mr.Sushil Sivanesh	Proprietor, IMPRESSO 3D, Coimbatore – 641 045
Chief Coordinator of NewGen IEDC	

Mr.G.Esakkimuthu	Asso. Prof (SG) / Mech Engg (Member Secretary) – NewGen IEDC National Engineering College
Special Invitee	
Dr.Kn.K.S.K.Chockalingam	Director, National Engineering College

The representative of nearby incubator **Dr.V.Abhai Kumar**, Principal, Thiagarajar College of Engineering, Madurai, could not attend the meeting due to his prior commitments and unavoidable circumstances.

The meeting began with the Principal's (Head of the Host Institute, National Engineering College & Chairman - NewGen IEDC) welcome address. He outlined briefly about the functioning of Entrepreneurship Development cell and the initiatives taken to receive fund to establish NewGen IEDC at our college for the benefit of our students through the ED cell. He also described about the various agenda items to be presented at the meeting. After the formal welcome and self introduction of the members, the Chairman of the Advisory Board handed over the proceedings of the meeting to the Chief coordinator of NewGen IEDC.

The following agenda items were considered and approved by the 1st Advisory Board meeting

ABM 01.01 TO CONSIDER AND APPROVE THE ACTIVITIES OF NEWGEN IEDC FOR THE YEAR 2017 – 2018

RESOLVED TO APPROVE THE ACTIVITIES OF NEWGEN IEDC FOR THE YEAR 2017 – 2018

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

Sl. No.	Activities	Duration
1	DST-NSTEDB-EDII sponsored ***Entrepreneurship Awareness camp I***	3 Days
2	DST-NSTEDB-EDII sponsored ***Entrepreneurship Awareness camp II***	3 Days
3	***Orientation Programme*** - I year students	1 Day
4	***Entrepreneurship Lecture Series (ELS) – A Success Story***	1 Day

5	DST-NSTEDB-EDII sponsored ***Faculty Development Programme***	Two weeks
6	***Entrepreneurship Lecture Series (ELS) – A Success Story***	1 Day
7	***"Bazaar"*** – To inculcate the spirit of innovation and entrepreneurship among the students of host institution by displaying technology driven product ideas - Preference to technology driven entrepreneurs	2 Days
8	***Shoppers Corner*** – A place to sell students' innovative products Students can book the shop to display and sell their products on any working days	throughout the year

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

Sl. No.	Activities	Duration
1	***Orientation Programme*** – NewGen IEDC and its functions – II and III year students	1 Day
2	***Talk the People - Plan a Business*** – A Business Idea Exploration Competition	3 Days
3	First ***Advisory Board meeting*** - Approval of Projects - 2017-18	1 Day
4	***Potential Project for Product Competition (P3C)*** - III year students - inviting the innovative business viable ideas	1 Day
5	***Put your Idea Get our Approval (PIGA)*** - selecting the right projects – 2018-2019	3 Days
6	Second ***Advisory Board meeting*** - review of projects - 2017-2018 – approval of projects 2018-2019 - monitoring the activities of NewGen IEDC	1 Day
7	***Business Plan Competition***	1 Day
8	***Periodical review meetings*** - to monitor the progress of the projects	7 Days (3rd Saturday of every month)

[C] To enhance Industry-Academia interaction

Sl. No.	Activities	Duration
1	**One day Workshop / Seminar – students** (Host and other institutions) – Experts from Industries, CII, MSME, DIC, TIIC and Trade Associations.	1 Day
2	**One day Workshop / Seminar – faculty members** (Host and other institutions) – Experts from Industries, CII, MSME, DIC, TIIC and Trade Associations.	1 Day

3	**Meet the Mentors** (academicians, industrialists, financial experts, relevant Government officials and successful entrepreneurs) – development and commercialization Based on the students' needs and outcome of the review meetings	throughout the year
4	**Participation of the students – Exhibit t**he students' products / ideas - buyers-sellers meet organized by MSME and Trade Associations in Tamilnadu As per the organizer's schedule	1 Day

ABM 01.02 TO CONSIDER AND APPROVE THE STUDENTS' PROJECT OF NEWGEN IEDC TO BE IMPLEMENTED FOR THE YEAR 2017 – 2018

RESOLVED TO APPROVE THE STUDENTS' PROJECT OF NEWGEN IEDC TO BE IMPLEMENTED FOR THE YEAR 2017 – 2018

Sl. No.	Title of NewGen IEDC Projects	Name of the Dept.	Name of the students	Name of the Mentor(s) with Designation
1	Coconut Partial Dehusker	Mech. Engg.	1.R.Rajith 2.K.Sankar Ganesh 3.G.Ponmullai Narayanan 4.S.Rakul, 5.P.Sarathkumar	1. Mr.S.Pandiaraj, Adjunct Professor / Mech. 2. Mr. M.Karuppaiah Rajkumar, AP / Mech. Engg.
2	Water Tank Cleaning Device	Mech. Engg.	1.G.Ramaiah 2.A.Selvakumar 3.M.Prabukannan 4.S.Sankarakumar 5.K.Rakesh	1.Mr.S.Pandiaraj, Adjunct Professor / Mech. 2.Mr.Harihara sakthi sudan, AP/Mech
3	Multi Purpose Domestic Cleaner	Mech. Engg.	1.S.Shunmugasundaram 2. K.Ayyapparaja	1.Dr.D.Ravindran, Professor / Mech. Engg.
4	Humanless Monitoring of Hydroponic plants	ECE	1.H.R.Arun Kumar 2.M.Balasubramani 3.Meenakshi Murugappan	1.Mr. K.J Prasanna Venkatesan AP (SG) / ECE
5	Reflectometry Based Noninvasive Diab-Nosis (RND) Device	ECE	1.S. Anna Lakshmi 2.M. Anugraha 3.S.Sundar Rajan 4.P.Ramprasath 5. M.Vishnu	1.Mrs.S.D.Jayavathi, Associate Professor / ECE 2.Mr. B. Ganapathy Ram, AP / ECE
6	Design of Braille Print Studio Suite for visually impaired people	CSE	1S.Vaishnavi, 2.S.Venkateshwara packya Janeefa 3.T.Lakshmi Narayanan	1.Dr.B.Paramasivan, Professor & Head - CSE 2.Ms.M.Bhuvaneswari,

Sl. No.	Title of NewGen IEDC Projects	Name of the Dept.	Name of the students	Name of the Mentor(s) with Designation
			4.R.Raja Lakshmanan	AP (SG) / CSE
7	Smart theft prevention system using GSM and CLOUD	EEE	1.S.Prabhu 2.P.R.Prakash 3. R.Narain Krishna 4.B.Mathana Gopal	B.Venkatasamy, AP / EEE
8	Coconut Qualifier	EIE	1.G.S.Rahul 2.M.Veera Shanthi Ram	1.Mr.I.Jackson Daniel Asso. Prof. / EIE 2.Mr.R.Raghul, AP/EIE
9	Smart Device for Blind	EIE	1.R.Aruna 2.A.Divya Lakshmi 3.K.Priya MohanaValli	Mrs.M.Carmel Sobia AP (SG) / EIE
10	Aerated Cellular Concrete(ACC)	Civil Engg.	1.P.Nishanthi 2.S.Angammal 3.R.C.Sharru Preethi	Mr.P.S.Naufal Rizwan, AP / Civil Engg

ABM 01.03 SALIENT POINTS DISCUSSED AND SUGGESTED BY THE MEMBERS OF THE ADVISORY BOARD

ABM 01.03.01 SUGGESTIONS ON ACTION PLAN OF NEWGEN IEDC

The members have given the following suggestions regarding the action plan of NEC – NewGen IEDC for the year 2017-2018 and other related matters.

1. All the bills regarding the NewGen IEDC expenses should be obtained in the name of "**National Engineering College – NewGen IEDC**".
2. All the items purchased by using the NEC-NewGen IEDC fund should be maintained as assets for NEC - NewGen IEDC.
3. Separate books of accounts and stock register for the assets created should be maintained.
4. FDP on "Entrepreneurship" is not to be included in the action plan for the NewGen IEDC activity.
5. Proposal for conducting Entrepreneurship Awareness Camp for the students can also be prepared on behalf of NEC-NewGen IEDC and sent to EDII, Ahmedabad.
6. Through NEC-NewGen IEDC, fund can be raised for the sustainment of the NewGen IEDC by sending the new proposals for the new schemes to be implemented by DST-NSTEDB, New Delhi and EDII, Ahmedabad. For this, the college has to prepare the action plan well in advance.

7. The Alumni member of this Advisory Board expressed his willingness on behalf of Alumni Association to provide financial assistance for the sustainment of NewGen IEDC. This was appreciated by the other members of Advisory Board.
8. The Representatives of NSTEDB - DST, New Delhi and EDII, Ahmedabad briefed about the Start up-NIDHI project. In his explanation, Prof.S.B.Sareen said that the scheme would be very much useful to the student teams of HI who have received fund for the implementation of their innovative and commercially viable projects from NewGEN IEDC of respective HI. He asked the NewGEN IEDC to nominate the best student teams for this programme after one year completion of existence of NewGEN IEDC. He also informed that 100 shortlisted student teams would be called for presentation at EDII, Ahmedabad and based on the performance in presentation session 20 student teams would be selected and awarded with Rs 10 Lakhs to develop their startups. The student teams will be given TA and DA for the visit to EDII, Ahmedabad for the project presentation.

ABM 01.03.02 SUGGESTIONS ON STUDENTS PROJECTS OF NEWGEN IEDC

The students have presented their projects to the members along with their mentors. The members have given the following suggestions regarding the suitability of the projects for NewGen IEDC scheme and also to improve the quality of the projects.

1. **Coconut Partial Dehusker:** the members suggested to design a hybrid machine; it can also be operated manually and electrically. The members have given good comment on this project.
2. **Water Tank Cleaning Device:** the members suggested providing adequate arrangements for cleaning side walls of the tank and taking care of the electrical hazards.
3. **Multi Purpose Domestic Cleaner:** the members suggested to check the novelty in design and fabrication part in order to improve the efficiency of this project.
4. **Human less Monitoring of Hydroponic Plants:** the members expressed their opinion that as this project is an automation project, it will be useful for improving the quality of the hydroponic plants. The members have also given good comment on this project. They suggested to establish this unit in the college campus.

5. **Reflectometry Based Noninvasive Diab-nosis (RND) Device:** the members suggested designing this product as a smart and wearable one in order to have a good impact in the market. The members also suggested to rework on the cost of the final product, as the mentioned cost is lower than the worth and work involved.
6. **Design of Braille Print studio Suite for Visually Impaired People:** the members have given very good comment on this project, as this project would be useful to the visually impaired people.
7. **Smart Theft prevention System Using GSM and Cloud:** the members suggested to check and improve the novelty and efficiency of this project by comparing the similar kind available in the market now a days.
8. **Coconut Qualifier:** the members appreciated the project by mentioning that high level of innovation is existing in this project. The members have given very good comment on this project.
9. **Smart Device for Blind:** the members suggested to incorporate the recording facility of the person's face for future references. The members have given very good comment on this project.
10. **Aerated Cellular Concrete (ACC):** the members suggested the students to consult with Central Building Research Institute **(CBRI**) at Roorkee, Uttarakhand, India, to know the properties of materials. The members have given good comment on this project.
11. The members suggested that if the NEC-NewGen IEDC feels some selected projects would have spent lesser amount than the sanctioned amount, the unspent amount could be sanctioned to develop a new student product by following the usual procedures in the same year. Otherwise, the unspent amount should be sent back to EDII, Ahmedabad.
12. The members suggested to constitute the internal project selection committee for selecting the student's projects with the members from DIC, industry, venture capitalist and angel investors. As the faculty of HI will be the mentors for the students' projects, their participation in the selection committee may be avoided.
13. The members mentioned that there is no restriction in the number of students and mentors in a single project.

The members had a brainstorming discussion and interaction among themselves. After discussion, fruitful suggestions were incorporated appropriately in the activities and

students projects of NewGen IEDC. Mr.K.Shankar thanked all the members for their kind cooperation and the meeting came to an end.

Members Present

Head of the Host Institute	
Dr.S.Shanmugavel Principal, National Engineering College (Chairman) – NewGen IEDC	
Representative of NSTEDB, Govt. of India	
Dr.Naveen Vasishta Director/Scientist ' E', NEB Division, Department of Science and Technology, New Delhi – 110016	
Representative of EDII, Ahmedabad	
Mr.S.B.Sareen Sr. Faculty & Project Director, DST - NewGen IEDC, Entrepreneurship Development Institute, Ahmedabad	
Senior faculty members from HI with experience in entrepreneurship / industry	
Dr.K.Manisekar Professor / Mech Manager – Business Incubator National Engineering College	
Mr.K.Shankar Asso. Prof / EIE Coordinator – NewGen IEDC National Engineering College	
Representative of SIDBI / NABARD / Lead Bank or Local bank	
Mr.G.Rajasekar Senior Manager, Indian Overseas Bank, K.R.Nagar, Kovilpatti – 628 503	
Representative of Industry Association	
Mr.G.Sanjay Secretary, Nellai District Small and Tiny Industries Association – NELSTIA	

C/O. Bell Pins (P) Ltd, Bell Industrial Estate, Thiruchendur Road, Palayamkottai	
Alumni Entrepreneurs from HI	
Mr.R.Muthiah Pillai Proprietor, Bits Computer Systems, Tirunelveli	
Mr.Sushil Sivanesh Proprietor, IMPRESSO 3D, Coimbatore – 641 045	
Chief Coordinator of NewGen IEDC	
Mr.G.Esakkimuthu Asso. Prof (SG) / Mech Engg (Member Secretary) – NewGen IEDC National Engineering College	
Special Invitee	
Dr.Kn.K.S.K.Chockalingam	

CHAIRMAN
ADVISORY BOARD

7. Progress Summary:

1.	**Total number of Student Projects supported**	**10**
2.	**Total fund provided towards supporting Student Projects**	**Rs.25 Lakhs**
3.	**No. of Patents filed by students**	**08**
4.	**No. of Patents Granted**	**NIL**
5.	**No. of companies/Starts up Set up by Students**	**01**
6.	**Social Impact Made, If any**	**One of the students of NewGen IEDC projects of the year 2017-2018, Mr.S.Shanmuga Sundaram, has established a Start-up – "Autowelkin" and put up his office at National Engineering College, Kovilpatti. He provides employment to 06 persons and caters his employees' needs to the extent possible.**

11. Velammal Engineering College, Chennai, Tamil Nadu

NewGen IEDC [2017-22]
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report (As on October 31, 2018)

Name of the College/Institution hosting NewGen IEDC	VELAMMAL ENGINEERING COLLEGE		
Year of starting NewGen IEDC	2017		
Name of the Head/Principal of the Institution/College	Dr.N.Duraipandian		
Name of NewGen IEDC Coordinator	Dr.Jeeva Kathiravan Dr.K.Rajamani		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	Dr.Jeeva Kathiravan, Head, Department of Information Technology, Mobile No: 9840659486 Email Id: hod.it@velammal.edu.in Dr.K.Rajamani, Assistant Professor, Department of Management Sciences, Mobile No: 9443544243 Email Id: rajamani@velammal.edu.in		
Financial Details	Sanction Order No./Date		Amount Sanctioned
Previous Sanction Order Details	1.	EDII/DST-NewGen IEDC/ 17-18/11	Rs.60,00,000 – 15/06/2017

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
2017-18		
1.	Join the movement – Awareness camp	Enhanced knowledge and kindled the skills of the young minds aspiring to be successful entrepreneurs.
2.	Idea to Market Place	The students were able to understand the struggles and organisational problems while putting up any start-up. This exercise made the students to understand and work towards it to prepare themselves for their Future start-ups.
3.	Project report for New Business	The students were able to understand the viability

		assessment of the proposed new business ideas with regards to technical feasibility, marketability, financing, and regulatory regulations and how to prepare a relevant business plan.
4.	Managing your Balance Sheet	Developed a deep understanding to the students about analyzing the financial statements.
2018 - 19		
1.	Join the movement – Awareness camp (5 Camps)	Enhanced knowledge and kindled the skills of the young minds aspiring to be successful entrepreneurs.
2.	Project report for New Business	The students were able to understand the viability assessment of the proposed new business ideas with regards to technical feasibility, marketability, financing, and regulatory regulations and how to prepare a relevant business plan.
3.	Workshop on Patent Writing	Students will be able to protect his/her idea before start of their work simply by filing a provisional application and the participant was also made aware of the step by step procedure for obtaining patents in India, different types of forms to be used, fee schedule etc.

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

Sr. No.	Activities	Outcome/Achievements
2017 - 18		
1.	Rs. 100 Exercise (Two days business activity with investment of Rs.100)	The students were able to understand the struggles and organisational problems while putting up any start-up. This exercise made the students to understand and work towards it to prepare themselves for their Future start-ups.
2.	Pitch Fest (Business Plan Competition)	Kindled the innovative skills of the young minds aspiring to be successful entrepreneurs.
3.	Showcase your idea at Demo Booth	Kindled the innovative skills of the young minds aspiring to be successful entrepreneurs.

2018 - 19		
1.	Rs. 100 Exercise (Two days business activity with investment of Rs.100)	The students were able to understand the struggles and organisational problems while putting up any start-up. This exercise made the students to understand and work towards it to prepare themselves for their Future start-ups.
2.	Technology Based Entrepreneurship Development Programme on Entrepreneurial Opportunities in IoT	The students are exposed to technical knowledge about the I oT and are enabled to develop their skills at the lab of the technology provider. Students are encouraged to take up innovative projects with possibility of commercialization.

[C] To enhance Industry-Academia interaction

Sr. No.	**Activities**	**Outcome/Achievements**
2017 - 18		
1.	Industrial Visit (Nutech CNC - Plastic Mould Manufacturing company, Prasad Corp - film and video post production, Toshniwal Instruments (Madras) Pvt. Ltd.)	Inculcated the innovative entrepreneurial spirit among the students
2.	Mingle with Founders (Panel Discussion on local community Entrepreneurs issues)	Inculcated the innovative entrepreneurial spirit among the students
3.	Varthaga - Entrepreneurs Meet	Inculcated the innovative entrepreneurial spirit among the students
2018 - 19		
1.	Industrial Visit	Inculcated the entrepreneurial spirit among the students

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

- Remaining proposed activities in the action plan 2018 – 19 will be conducted in the Even Semester.

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

Sr. No.	Activities	Outcome/Achievements
2017 - 18		
1.	Workshop on Art of Patent Writing & Registration	Students will be able to protect his/her idea before start of their work simply by filing a provisional application and the participant was also made aware of the step by step procedure for obtaining patents in India, different types of forms to be used, fee schedule etc.
2.	Unleash 2018 (Idea Presentation, Problem Solving, Illogical Poster Presentation, Maze Solving, Contraption, Project Display)	Inculcated the innovative entrepreneurial spirit among the students
2018 - 19		
1.	Faculty Development Programme on Intellectual Property Rights (IPR)- Emphasis on Patent Drafting, Searching and Filing	Faculty members will be able to protect his/her idea before start of their work simply by filing a provisional application and the participant was also made aware of the step by step procedure for obtaining patents in India, different types of forms to be used, fee schedule etc.

- Proposed to conduct Workshop on Applying Machine Learning to Internet of Things (IoT) Data during 21st January to 25th January, 2019.
- Proposed to conduct National Level Project Competition during February 2019.
- Proposed to establish an Incubator setup in the month of January, 2019.

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

Student Projects 2017 - 2018

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
1	IoT enabled Smart powered wheelchair	• Design Layout has been prepared	• Wheel chair has been fabricated with required Embedded	To be ready for patent filing

		• Components have been identified • Required software algorithms have started programming in LabVIEW	system, Motors, sensors, Battery and Motor Drivers • Required programme has been developed in LabVIEW • Wheelchair movement has tested.	
2	Efficient Areca nut Tree Climbing Machine	• Design Layout has been prepared • Components have been identified • Required software algorithms have started programming in Python	• Arecanut Tree climbing machine has been designed in AutoCAD • Arecanut Tree climbing machine has been Fabricated • Testing trials have been carried out several times	Patent Filing is in Progress
3	Meat Freshness Analyser	1. Designed the proposed system along with optical and electronic components 2. Quotation raised for chemicals and optical components	1. Fabricated Fiber Bragg Grating CO_2Sensor 2. Checked the working of entire setup 3. Programming done using Lab VIEW to display the freshness 4. Samples are tested for Freshness.	Prototype Ready
4	Flower Garland Intelligent Machine	Designing of concept, final design approval and preparing bill of materials.	New mechanism developed for holding a flower and tie the flowers.	Patent search prior art work completed. Filing of complete patent

				in progress.
5	Hearing Impaired – HI	Few Samples of American Sign Language symbols were converted to English language and vice versa	1.Application is developed as a platform independent software 2.Both whitebox and blacbox testing was done 3.Time to retrieve any ASL symbol is reduced to less than 30 seconds	1.American Sign Language was completely translated to English and sentence pattern was also added 2.HI application was developed as a complete software which can be downloaded using play store on any mobile platform
6	Active Vacuum Suspension System	1. Development of design. 2. Material purchase	1. Fixing the suspension in the vehicle. 2. Test drive	Patent search result came, document preparing for the novelty from similar patent.
7	Solar Desalination Power Plant - Hybrid system	• System Design • Quotation filing • Material purchase	• Changes in system design. • Installing the project. • Quality checking was done.	Patent Filing in Progress
8	Development of hybrid flexible loop heat pipe for satellite cooling applications	All the components are fabricated and assembled and the initial testing is completed.	Approaching the potential customers and explaining the product functionality and benefits compared to existing products.	Initial testing of the product is completed. Some minor modifications needed to be done for

				performance enhancement. All the supporting documents for patent filing have been submitted.
9	Solar Based Portable Water Purifier Cum Solar Light	1. Circuit Layout has been prepared. 2. Components purchase initiated.	1. 3 D modelling of Prototype completed. 2. Components assembly completed 3. RO & UV elements fitted 4. Working of all the elements Checked. 5. Testing and Lab report acquired.	Patent Filing in Progress
10	Design of Interoperable and secure firmware for personal healthcare devices	Design of personal healthcare device prototype	Sensor identification methodology	Redesign of prototype

Student Projects 2018 - 2019

Sr. No	Team/Project Description	Project status at beginning of the Year	Interventions made	Current status
11	Aerodynamic Drag Reduction In Rear Body of Heavy Vehicles(Trucks) To Enhance Fuel Savings	Choosing the required type of heavy vehicle by comparing the vehicle make and their specifications with respect to updation of drag reduction.	Designing the vehicle using catia software also to fabricate or to by the same scale model vehicle	Quotation collected and submitted to by the scale model of the vehicle.

			planning.	
12	Generation of Electricity From Automobile Turbocharger	Design and components finalized.	Quotations obtained and Comparative statements prepared.	Components to be purchased.
13	Exterior Wall Painting System Assisted With Wall Climbing Robot	Design and components finalized.	Quotations obtained and Comparative statements prepared.	Components to be purchased.
14	LPG Stove 2.0	Study of various issues in conventional LPG gasstoves. Development of new LPG stove to rectify the above issues.	New Design burner for better combustion and thermal efficiency. Safetyalarm, LPG level indicator.	Quotations to e raised for new LPG stove. Prior art work in progress and provisional patent to be filed.
15	Low Cost Commercial CNC Router	CNC Router Conceptual Design & Layout completed	Detailed Design to be prepared after purchasing electronic components	Quotation and comparative statement submitted
16	Guardian Helmet	Layout and components finalized.	Quotations obtained and Comparative statements prepared.	Components to be purchased.

17	Non-Invasive Measurement of Total Haemoglobin	Study of the current methodologies completed. Hardware components identified.	Comparative statement prepared for all the hardware components. Quotation procured from the companies.	Purchase order submitted and waiting for approval.
18	Smart Blower Unit For Cars	Idea conceptualised, Block Diagram, Design.	Conducted test to validate theconcept, plotted working graph (temperature vs time).	Quotation and comparitive statements prepared,components to be purchased
19	Smart Wrist Control For Home Automation	Design and components finalized.	Quotations obtained and Comparative statements prepared.	Components to be purchased.
20	Emotional Intelligence adapting AI techniques	Design and components finalized.	Quotations obtained and Comparative statements prepared.	Components to be purchased.
21	Green House Monitoring Using Virtual/Augmented Reality	Layout and Components finalized	Quotation and comparative statement prepared.	1.Assembly of sensors in process. 2.Components to be purchased. 3.App

				development in process.
22	Calories/Workout Balance Alert System	1.Layout diagram has been prepared. 2.Components has been finalized.	1.Quotations Obtained and Comparative statements Prepared. 2.Code for Image processing has been Completed.	Components to be Purchased.
23	Development of Tensile Fabrics And Flexible Sheeting For Emergency Shelters From Recycled Plastic Waste And Jute	Process Flow Chart Finalized	• Modeling of Spraying & Rolling done • Weight Reduction of Components achieved • Electricity Free operations developed	Quotations obtained Purchase process in progress
24	IoT Gateway Supported Self-Organized Wireless Sensor Nodes For Environmental Monitoring Applications	Overall layout of the project has been ready	Quotation and comparative statements have been submitted in order to proceed the project.	Proceed to purchase the components
25	Muscle Strain Activity Alert System Using Body Sensor Network	Design and components finalized.	Quotations obtained and Comparative statements	Components to be purchased.

			prepared.	

The prototype/product along with the students and their mentor (2017-2018 Projects)

HYBRID SOLAR DESALINATION SYSTEM

MEAT FRESHNESS ANALYSER

SOLAR BASED WATER PURIFIER CUM SOLAR LIGHT

IOT ENABLED SMART POWERED WHEELCHAIR

EFFICIENT ARECA NUT TREE CLIMBING

FLOWER GARLAND INTELLIGENT MACHINE

ACTIVE VACUUM SUSPENSION SYSTEM

HYBRID SOLAR DESALINATION SYSTEM

SOLAR BASED WATER PURIFIER CUM SOLAR LIGHT

EFFICIENT ARECA NUT TREE CLIMBING

5. Case-let :1

EFFICIENT ARECANUT TREE CLIMBING MACHINE

Mentor	Student Team
Dr.V.R.Ravi Prof. & Head Department of EIE	S. SURYA BABU S. JABEZ L. LIONEL (III Year EIE) A. ARAVIND (III Year Mech)

INTRODUCTION:

Need Identification

World production of 49.74% of Areca nut are produced by India. Major states growing Areca nut crop in India are Karnataka, Kerala, Assam, Tamil Nadu, Meghalaya and West Bengal. Arecanut tree is generally 60 to 90 feet tall. Only skilled labour can climb (5 times in a year) for harvesting Arecanuts and spraying pesticides. Currently, Injury / death rate is also increases due to shortage of skilled labours. Labour cost is also very high due to shortage of skilled labours. In order to reduce injury / death rate, improve the effectiveness of Arecanuts harvesting & spraying of pesticides and reduce the labour cost, we have come up with a novel powered Arecanut tree climbing machine which can be easily operated by farmer using smart phone.

S&T Needs in Proposed Area of Intervention

- **12V 90 RPM Planetary Gear DC Motors** will help the machine to climb the Arecanut tree efficiently and also help the machine to stop at any time at any place of the tree. The machine will not slip down due to gravity even the battery power fails.
- **Camera** will give the live picture of the ripeness of Arecanut and the place of the crown which is affected by insects. The farmer can see the camera image on the smart phone screen from the ground. Using smart phone & Android APP, the farmer can cut the ripped Arecanut bunch and spray insecticides over affected crown.
- **User-friendly Android Mobile APP** will helps the farmer to operate the machine very easily from the ground. With the help of Smart Phone , the former can perform various operations such as climb-up, climb-down, rotate feed assembly clockwise or anticlockwise, cut the Arecanut bunch using motorized cutter, spray insecticides over infected area using spray gun and view the entire operations using camera.

OBJECTIVES: (AS APPROVED IN THE PROEJCT)

The fundamental objectives of Areca Nut Tree Climbing Machine are stated below

- Design an efficient and powered Areca Nut Tree Climbing Machine for effortless operation of harvesting Areca nut and spraying insecticides

- Design a Seamless control using Smart phone & Android APP which former can operate from ground.

METHODOLOGY FOLLOWED:

First we have collected various data about Arecanut tree from agricultural department.

- Then we have conducted market survey to know about various types of tree climbing machines, cost, customer category, customer satisfaction and strength & weakness of the products.
- We have identified that only skilled labourers can climb Arecanut tree. They have to climb the trees using muscle power. As this involves real hard, physical exertion, unsafe climbing, younger generations of labourers are losing interest, with potentially harsh implications for Arecanut cultivation.
- There are no 100% safe Arecanut harvesting device currently in the market. There is a need to invent a machine to address both efficiency and safety. The design of such device has to be simple enough for farmers to operate, yet work efficiently to appeal to the majority.
- We have identified following technologies to design an efficient Arecanut tree climbing machine
    - **Embedded system** for interface between Arecanut Tree Climbing Machine and Smart Phone (operating device)
    - **12V 90 RPM Planetary Gear DC Motors** will help the machine to climb the Arecanut tree efficiently
    - **IGBT based H-Bridge** for precise control of DC motors
    - **Smart phone & Android APP** for easier operation of Arecanut Tree climbing machine from ground by farmer
- We have procured Raspberry PI 3 (Embedded system), 4 X 12V 90 RPM Planetary Gear DC Motors, 4 X IGBT based H-Bridge, 1 X USB HD Camera, 5 X Ultrasonic sensors, 4 X 12 V Li-Ion Batteries, and a charger. We have constructed the Arecanut tree climbing machine.
- Various testing have been carried out and required corrections are incorporated.

SCIENCE & TECHNOLOGY COMPONENT:

Functionality:

The various functionalities of Areca Nut Tree Climbing Machine are

- Efficient tree climbing mechanism powered by DC motors and battery
- Monitor live arboreal environment using camera
- Effective cutting of areca nut bunch
- Capable of spraying insecticides over infected area

- All operations are controlled from ground by farmer using smartphone
- Maintenance of Arecanut tree Database

Improvisation:

Our product is distinctive from any other products that are commercially utilized due to the following aspects.

- Battery-operated machine in which the operator controls the machine using smart phone. The operator need not climb along with machine.
- Highly portable and easy to fix it with Arecanut tree.
- Gives a real-time visual feed of the arboreal environment using high-resolution camera.
- 12V BLDC motorized cutter is used to cut the Arecanut bunch.
- 12V DC motorized spray gun is used to spray insecticides over affected area.
- User-friendly GUI developed using Android helps the operator to climb-up, climb-down, rotate feed assembly clockwise or anticlockwise, cut the Arecanut bunch using motorized cutter, spray insecticides over infected area using spray gun and view the entire operations using camera.
- Zero-emission and echo-friendly product.
- High torque geared-motors helps to climb the tree at rate of 60 feet / min.
- Battery and charger unit are built-in

State of the art:

The hexagonal shape of the main frame is the distinctive feature proposed and the feed assembly controlled by the rail motor-driven sprocket and chain mechanism adds value to our product making it patentable. The joints of the frame are held together using hinges, which binds all the sides of the machine firmly. Moreover, the locking mechanism consists of a latch kind of arrangement to hold the frame to the tree's trunk rigidly. It helps the former to fix it with Arecanut tree quickly and easily. Four motors are fixed projecting inwards, so that it automatically adjusts its position using a spring-rod arrangement to encounter the unevenness of the tree's thickness. Ball-bearing is placed on the spring-rod to promote the spring's movement as it compresses and expands. Rugged wheels are coupled to the motors shaft, so that the high torque geared motors leads to high torque movement, which increases the load capability. A 12V DC motorized spray gun is used to spray pesticides and a 12V BLDC motorized cutter to shear the branches containing nuts. The feed assembly and cutter movement is controlled by 12V DC servo motors. The entire setup is controlled by 4 core 64 bit ARM microcontroller based embedded system which operates at 1.2GHz clock speed.

Since smart phone is a state of art technology, we are utilizing its maximum potential by developing an Android application which consists of simple GUI for effortless control of our product. The database regarding tree number, date of operation, operation completed and operation to be completed in future can be stored in the smart phone.

Because of the various features, our machine improves the overall Arecanut production. Because of the easy operation by former, demand in skilled labours does not affect the production of Arecanuts. The cost of the machine and operating cost is lower than labour cost/acre and saves labour cost from second year onwards.

Overall features that has been stated above makes our product stand-alone and efficient compared to existing tree climbing machines for palm & coconut tree. Since there are no contemporary products which satisfies Arecanut former needs, our proposal becomes first of its kind and we strongly believe that it fulfils the conditions to make it patentable.

SPECIAL FEATURES:

Arecanut harvester is a battery operated climbing machine which can climb up or down using four 12V DC planetary motors. This machine is useful for harvesting and spraying insecticides. The farmer can operate this machine using Android Mobile APP. The camera used in this machine will give the live picture of the ripeness of Arecanut and the place of the crown which is affected by insects. The farmer sees the camera image on the smartphone screen from the ground. Using Smart phone, the farmer can cut the ripped Arecanut bunch and spray insecticides over affected crown using 12V DC servo motor operated cutter and 12V DC operated pump respectively. The machine can climb 60 feet in one minute. Four numbers of 12V, 10A Li-Ion batteries (Light weight & over 2000 cycle time) are used in this machine. The camera unit, cutter and spray gun are fixed over a feed assembly unit which can rotate 360 degree over the climbing.

Labor cost = Rs 30/climb * 5 climb in a tree/year *1200 tree in 2 acres land = Rs 1,80,000/- but the machine cost is Rs 1,60,000/-. So the former can get back his machine cost within one year. From the next year onward, he can save Rs 1,80,000/- per year. It differs from the current traditional technique. Since our unique proposed idea uses smarte phone, motorized machine with built-in battery and camera to operate the machine effectively for harvesting and spraying insecticides. This novel motorized climbing machine will have following advantages: Reduce the deaths occurring due to the fall from the trees, reduce labor cost, increase speed of harvest and improve better investigation of crown of the Arecanut tree from disinfection of insects. Easy operation by using smartphone camera will help effective harvesting and spraying insecticides. Automatic remainder / status about Arecanut harvesting and spraying pesticides details about each tree. The Arecanut Tree Climbing Machine have very good replicability potential. This machine can be used in other trees like Coconut tree, Palm tree etc.

PATENT STATUS

The Patent for Arecanut Tree Climbing Machine will be filed during first week of May 2018.

Because of the various features, our machine improves the overall Arecanut production. Because of the easy operation by former, demand in skilled labours does not affect the

production of Arecanuts. The cost of the machine and operating cost is lower than labour cost/acre and saves labour cost from second year onwards.

Since our unique proposed idea uses smart phone, motorized machine with built-in battery and camera to operate the machine effectively for harvesting and spraying insecticides. This novel motorized climbing machine will have following advantages: Reduce the deaths occurring due to the fall from the trees, reduce labor cost, increase speed of harvest and improve better investigation of crown of the Arecanut tree from disinfection of insects.

Overall features that has been stated above makes our product stand-alone and efficient compared to existing tree climbing machines for palm & coconut tree. Since there are no contemporary products which satisfies Arecanut former needs, our proposal becomes first of its kind and we strongly believe that it fulfils the conditions to make it patentable.

COMMERCIALIZATION PLAN:

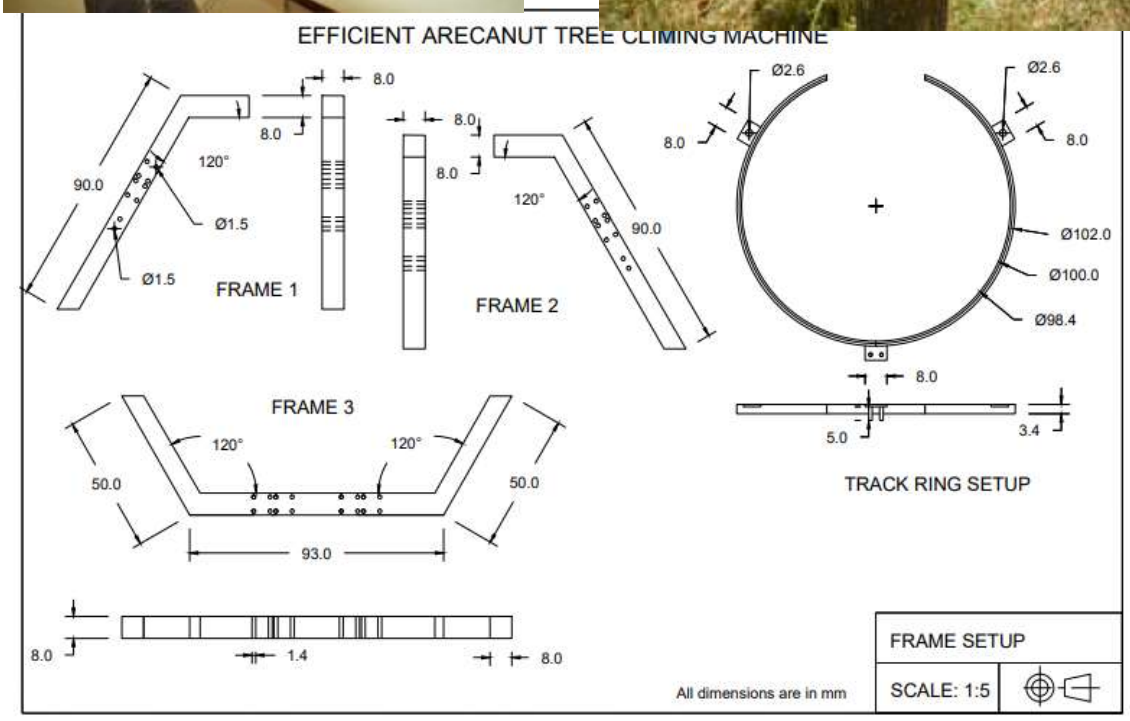
One of the team member Mr. S. Surya Babu is interested to start Startup in Chennai. For the startup, he is interested to spend Rs 6.0 Lakh initially. He is also submitted an application for **Student Startup Nidhi Programme** to get additional fund of Rs 10.0 Lakh. Once he has been awarded with funds under Student Startup Nidhi Programme, he will start the Startup in an office space provided by NewGen IEDC, Velammal Engineering College, Chennai.

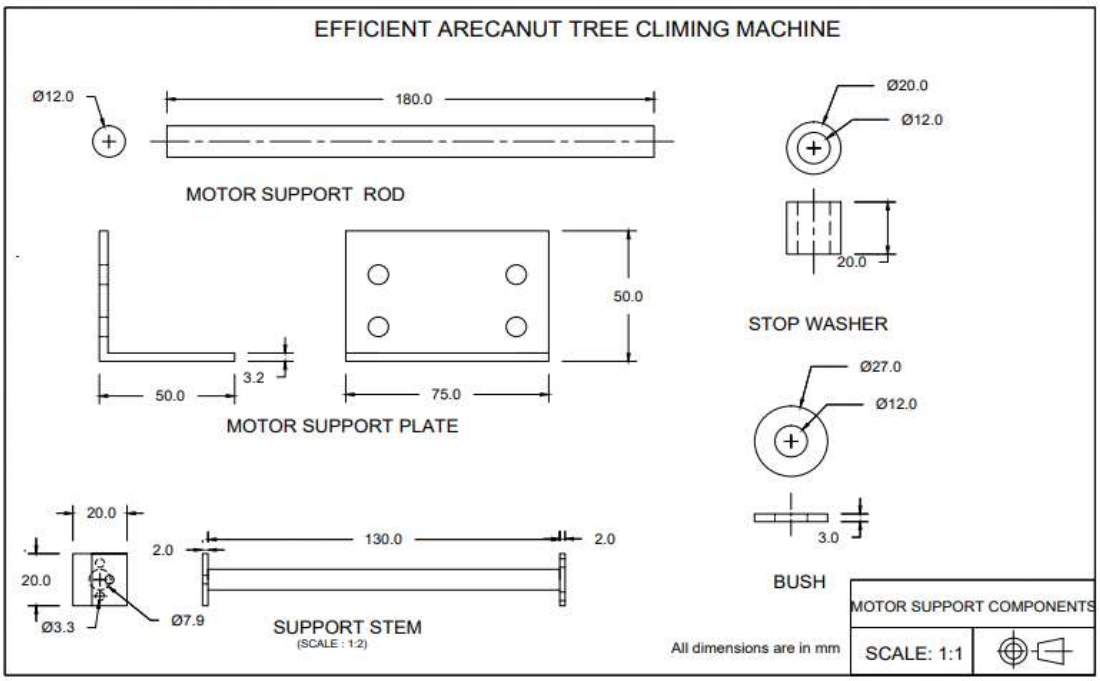
BRIEF DESCRIPTION ABOUT THE STUDENT STARTUPS:

- Arecanut tree is generally 60 to 90 feet tall. Only skilled labour can climb (5 times in a year) for harvesting Arecanuts (3 times in a year) and spraying pesticides (2 times in a year). Currently, Injury / death rate is also increases due to shortage of skilled labours. Labour cost is also very high due to shortage of skilled labours. In order to reduce injury / death rate, improve the effectiveness of Arecanuts harvesting & spraying of pesticides and reduce the labour cost, we have come up with a novel motorised Arecanut tree climbing machine which can be easily operated by farmer using smartphone from ground.
- There is no such a motorized machine for palm tree or coconut tree.
- We have used Raspberry PI 3 as an Embedded Controller. The USB Camera, Ultrasonic Sensors, H-Bridge Controllers, Cutter and Spray Gun are interfaced with this Embedded Controller.
- Climbing – UP or Climbing – DOWN of the machine is achieved by 4 Nos of 12V planetary Gear DC Motors. These motors are controlled by 4 Nos of H-Bridge controllers from Embedded Controller. These motors are powered by 4 Nos of 12V 10A Li-Ion Batteries.
- This machine is very useful for harvesting Arecanuts and spraying insecticides.
- The farmer can operate this machine using Android Mobile APP. The camera used in this machine will give the live picture of the ripeness of Arecanut and the place

of the crown which is affected by insects. The farmer sees the camera image on the smart phone screen from the ground. Using smart phone, the farmer can cut the ripped Arecanut bunch and spray insecticides over affected crown.

- Using 12V DC servo motor operated cutter, the farmer can cut the Arecanut bunch.
- Using 12V DC operated pump, the farmer can spray pesticides.
- This machine can climb 60 feet in one minute.
- The camera unit, cutter and spray gun are fixed on an feed assembly unit which can rotate 360 degree around the tree.
- During the night time the farmer can charge the batteries using charger.
- This machine can be stopped at any height. The machine will not slip due to gravity or due to battery failure.
- The ultrasonic sensors placed over and under the machine will protect the machine from colloiding with top of the tree or with ground.





Drawings for Motor Support Components

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 Mr. S. Surya Babu is interested to start Startup in Chennai. For the startup purpose,

- He is interested to spend Rs 6.0 Lakh initially.
- He is also submitted an application for **Student Startup Nidhi Programme** to get additional fund of Rs 10.0 Lakh.
- Once he has been awarded with funds under Student Startup Nidhi Programme, he will start the Startup in an office space provided by NewGen IEDC, Velammal Engineering College, Chennai.

- Using the above said fund, he will appoint one sales cum service engineer to take care sales and service operation in Tamilnadu. He will also develop two Arecanut Tree Climbing Machine for marketing purpose.
- He will tie-up with existing coconut tree climbing machine manufacture in Coimbatore.
- He will develop an exclusive web site for business promotion.

Case-let : 2

SOLAR BASED PORTABLE WATER PURIFIER CUM SOLAR LIGHT

Mentor	Student Team
Dr.M.Arun Bhaskar	V.Ramamoorthy
Assistant Professor	S.B.Abishek
Department of EEE	C.D.Karthikeyan
	(III year EEE B)

INTRODUCTION:

Drinking water which are present in most of the areas were contaminated by sewage lines in the city. Industries such as chemical and other industries which are eliminating a large amount of waste where directed towards the rivers which are the major cause of contamination. Humans were also a major cause since they dispose waste materials like plastic covers, clothes, papers etc will contaminate the water body.

In the case of India, one-third of the population, amounting to 450 million people, have no access to electricity. Furthermore, about 1.9 million children die in India every year; with 20% of the deaths due to gastro-intestinal disease, usually caused by unsafe drinking water. Globally, more than one billion people lack access to clean drinking water. Unsafe water and poor sanitation cause 80% of all diseases in the developing world.

Pure drinking water is naturally unavailable.Since we can conclude that water filter water plays a vital role in the purification purpose and very important too. There are n number of filters which are readily available in the market. Water filters which are commercially available in market today use different kinds of water purifying techniques. Some techniques are not legit and cannot be trusted, that it can cause danger to the people. Some filters only suspended particles which cannot make the the water fit for drinking purpose. Some purification techniques remove many types of minerals such as calcium, magnesium, potassium and sodium which are necessary for our human body.

Cheap filters provide unsatisfactory results as they will wipe out all mineral contents necessary for our body. Goodfilters are very costly and consumes a large amount of power which is not affordable for most of the people. Selection of a proper water filter and purification technique plays a key role now a days. To solve above mentioned problems - a smart solar based low cost portable water filter with lighting is proposed

OBJECTIVES:

In India people living in small villages and at remote locations does not have access to purified drinking water. The main objective is to design a portable water purifier which comprises of Sediment Filter, RO Filter and UV Filtration. Solar PV cell is used to power the filter. It also comprises a LED light for illumination purpose.

METHODOLOGY FOLLOWED

Literature Survey

A new concept for a hybrid solar water purification and photovoltaic system for meeting the needs for clean water and electricity in one integrated, autonomous, and cost-effective system is presented by M.vivar et.al.

Yanchao Jin et.a. proposed a new hybrid system that integrated a photovoltaic (PV) panel with a solar photo-Fenton (SPF) reactor was constructed to treat wastewater and generate electricity for the first time. The decolorization and photovoltaic performances of the hybrid system were tested outdoors by discoloring three dyes: Acid Red 26 (AR26), Malachite Green (MG) and Reactive Blue 4 (RB4). Lab scale experiments also had been done to confirm the impact of temperature on the SPF process. The lab scale results show that SPF process was more efficiency for decoloring the different dyes, compared with dark Fenton.

M.Vivar et al demonstrated a series of initial experiments to demonstrate the feasibility of hybrid photocatalytic–photovoltaic systems for simultaneous water purification and electricity generation have been conducted. Commercial TiO2 (Aeroxide P25) suspended nano particles have been used as a photo catalyst and an organic dye (Methylene Blue) as a pollutant. The photo voltaic output of the hybrid system was observed to be related to MB dye photodegradation, where by as the pollutant degraded the optical transmission to the cell improved. When the dye decolourisation was complete,the increase in photo voltaic output was between 32 and 37% depending on the initial dye concentration. The findings indicate both technologies can work simultaneously, producing drinking water and generating electricity to feed a pump, which establishes the path for a complete autonomous system.

TECHNOLOGY IDENTIFICATION

The four most common methods for solar water purification:

Solar Water Disinfection (SODIS)

Solar water disinfection is a low technology, simple process of purifying water using solar energy and solar radiation. SODIS as a technology was first introduced in 1980 by Aftim Acra et al. from the American University of Beirut. The process involves contaminated water being filled in transparent PET or glass bottles which are then exposed to the sun for approximately 6 hours. The UV rays of sun eliminate the diarrhoea-causing pathogens, thereby making the water fit for consumption.

Solar Water Distillation

Solar water distillation uses a solar still to condense pure water vapour and settle out harmful substances to make clean, pure drinking water. This process is used when the water is brackish containing harmful bacteria, or for settling out heavy metals and also for desalination of sea water.

Solar Water Pasteurization

Solar water pasteurization involves the use of moderate heat or radiation to kill disease - causing microbes. This heat is provided from cookers that trap solar energy. This method has proven to kill bacteria, viruses, worms and protozoa.

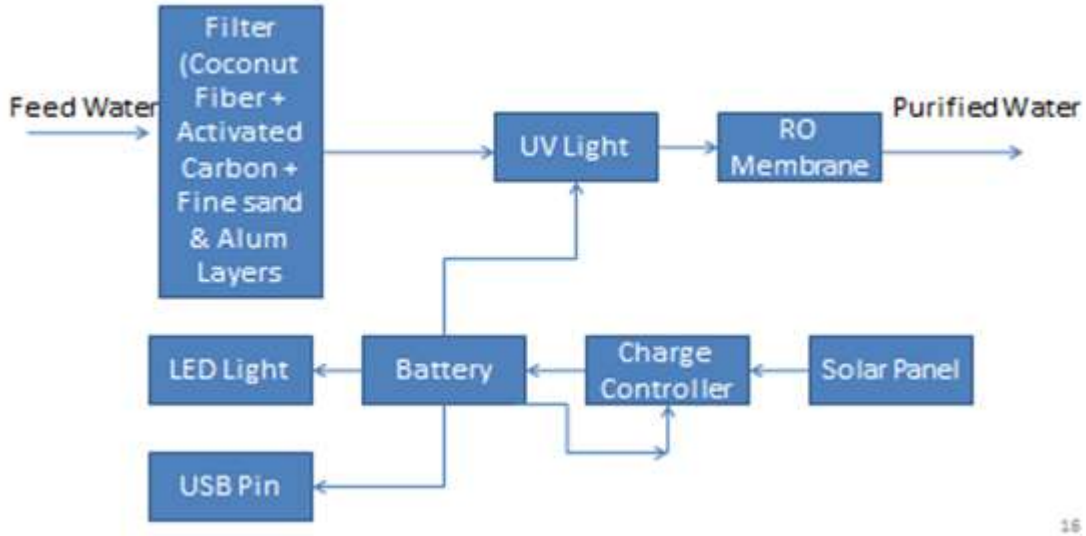
Solar Water Purification

This method integrates electricity generated from solar energy for water purification. Solar panels generate power for a battery which is used for filtration and purification systems. These structures are generally mobile and are immensely helpful for disaster - relief efforts. They also come in various sizes meant for small scale use to commercial/community supply.
Solar water purification has been implemented here as it can be portable and commercialization will also be easier.

Transfer and Adoption

Solar water purification has been implemented with the help of 20 Watts solar panel. The voltage rating of the solar panel is 20V and it can be used to charge batteries.
The RO filtration comprises of a flat sheet RO membrane. It is fixed to a straw to drink the water from the bottle straightaway.

The charge stored in the battery can be utilized to power the UV light to kill viruses and bacteria in the water. Also a LED lamp is connected to the battery which can be used as a light source. An USB port is also provided to charge any electronic gadgets. All these have been implemented so that the portable water purifier can be used in remote villages, long trips and in natural calamity hit areas.



Demonstration

The primary filter comprises of coconut fibres, tamarind seeds and carbon for filtering the turbidity. Coconut fibres prevent the fungal formation, Tamarind seed reduces the Ph content of water and Carbon removes the bad odour from the water. Since all the materials are natural and readily available, it can be replenished easily.

The secondary filter comprises of three sections. First section comprises of nylon filter, second section comprises of Flat sheet RO membrane and the third section comprises of a spout to suck water from the water bottle.

An UV lamp is also included to further remove the bacteria and viruses from the water.

This product is mainly targeted to rural areas. For illumination a LED lamp is also included and an USB port is also provided for charging mobile phones. Solar panel will produce power which can be stored in a battery and can be used later. On one single charge, it can filter 40 litres of water.

SPECIAL FEATURES:

- Portable and easy to install and operate .
- Uses solar energy as primary source for water filtration

- Used to purify water from stream, pond, well, lake, any fresh water source or in flooded areas.
- Ideal for both rural and urban areas .
- Filters comprises of Coconut fibres (prevents fungal formation), tamarind seeds (Removes fluoride content), activated carbon, sand and Alum. – Readily available.
- Combines both Reverse osmosis membrane and UV filtration for improved protection of drinking water.
- Powered by 50W PV Module and 12V Battery
- Optimal control of battery charging using charge controller
- Apart from water purifier a 2 W LED light is used for lighting purpose.
- An USB pin for charging Mobile phones.
- The cost of the final product will be around 3000 Rs

PATENT STATUS:

The product will be patented for the incorporation of all the filtration systems in a portable water purifier. It contains Natural sediment filter which can be changed by the user itself as it is simple construction and the materials namely coconut fibres, Tamarind seeds and alum which are readily available in all homes. The RO filter is also using flat sheet membrane. As the filter is mounted in a straw of about 3-4 cm diameter, a few number of RO filters can also added along with the filter for future use. The filter changing mechanism is also simple so that the users can change the RO filter by themselves. The product utilizes the solar energy to power all the components in the system. It powers the UV lamp for water filtration, LED light for illumination and an USB port to charge the electronic gadgets. It also contains a battery backup for using during night times.

The filter has a filtering capacity of 1 litre of water for one filtration. On a single full charge of battery it can filter up to 40 litres of water and 48 hours of LED illumination. Hence this can also be sufficient for a family of four to get filtered water for 2 days.

Considering all these merits and the design to accommodate all these components in a single unit, a patent document is prepared. Patent document has been prepared and has been given for cross checking before submission to IPR office.

COMMERCIALIZATION PLAN:

1. Next Generation Solar Solutions, Coimbatore.

Proposal has been made on 05/12/2017. They accepted our proposal and further talk may be done after the completion of the entire product

2. NuTech Solar System Pvt. Ltd, Bangalore.

Proposal has been made and we are waiting for their reply.

CONTRIBUTION OF NEWGEN IEDC IN THE SAME

NewGen IEDC has contributed in the following ways

1. Space provision to design the product and testing.
2. Training to write patent.
3. Seminar to convert idea to prototype.

FUTURE PLAN:

1. To obtain patent.
2. To demonstrate the product with both the companies and get suggestions to improvise.
3. To commercialize the product through technology transfer.

PICTURES:

VELAMMAL ENGINEERING COLLEGE
NEWGEN INNOVATION &
ENTREPRENEURSHIP DEVELOPMENT CENTRE
(NEWGEN IEDC)

MINUTES OF THE ADVISORY BOARD MEETING

Friday, 24th November, 2017

The Advisory Board Meeting of the Velammal Engineering College NewGen Innovation & Entrepreneurship Development Centre was held on Friday, 24th November 2017 at Board Room, Admin Office and the following members were present.

S.No.	Board Members	Position in Advisory Board of NewGen IEDC
1.	Dr.N.Duraipandian Principal, Velammal Engineering College Chennai	Chairman
2.	Mr. S. B. Sareen Faculty & Head Centre for SMEs & Business Development Services Entrepreneurship Development Institute of India Gujarat	Representative of EDII
3.	Dr. Naveen Vasishta Director/Scientist ' E' NEB Division, Department of Science and Technology New Delhi	Representative of NSTEDB
4.	Dr. L. Mahesh Kumar Chief Executive Officer Technology Business Incubator, St. Peter's University, Chennai	Representative of Nearby Incubator
5.	Mr.R. Ramchander General Secretary Ambattur Industrial Estate Manufacturers Association (AIEMA) Ambattur, Chennai	Representative of Industry Association
6.	Mr.Selvam Co-Founder Dot Architecture & Design Studios Chennai	Alumini Entrepreneurs from Host Institution
7.	Mr. R. Vikram Ravi Director, Operations & Client Services Unmetric Chennai	Alumini Entrepreneurs from Host Institution
8.	Dr. Jeeva Kathiraven HOD / Information Technology Velammal Engineering College Chennai	Co-ordinator – NewGen IEDC
9.	Dr. A.Nirmalraj HOD / Management Sciences	Co-ordinator – NewGen IEDC

	Velammal Engineering College Chennai	
10.	Dr. A. Balaji Ganesh Professor / Electrical & Electronics Engineering Velammal Engineering College Chennai	Project Co-ordinator – NewGen IEDC
11.	Dr. K.Rajamani Assistant Professor / Management Sciences Velammal Engineering College Chennai	Project Co-ordinator – NewGen IEDC

The following had requested for leave

1.	Mr.V. *Sridhar* General Manager Small Industries Development Bank of India Chennai	Representative of SIDBI

Dr.B.Venkatalakshmi, Vice Principal and Dr.B.D Raghavan, Head - HR also attended the meeting.

Dr. N. Duraipandian, Principal welcomed the Members of the Advisory Board. He also gave a brief introduction about the college and its achievement.

Followed by Welcome address all the Board members introduced themselves.

Opening note was given by Mr. S. B. Sareen, Faculty & Head, Centre for SMEs & Business Development Services, Entrepreneurship Development Institute of India, Gujarat. In his address he stated that the NewGen IEDC was basically given to ignite innovative ideas of the students. He was happy about the alumni based on the representative of alumni entrepreneurs and asked to strengthen it further. Millions of students passing out every year without any job opportunities, the objective of the programme is to create job providers than job seekers. Let us encourage youth towards start thinking about becoming an entrepreneurs. Help youth to setup knowledge based entrepreneurship. (Innovative thinking).

All the schemes floated by DST to help student at large. NewGen IEDC not given to VEC, they have earned it. 200 applications received though out India, 14 institutions considered based on resources, expertise, faculty strength, sincerity and commitment of the faculty.

Congratulated VEC for earning it. Asked VEC to flourish, grow and strengthen over the period of time. This mechanism must become self sustainable and asked to function in a better way year after year. Velammal should be an example for all other college. Congratulated the co-ordinators.

Dr. Naveen Vasishta, Director/Scientist ' E', NEB Division, Department of Science and Technology, New Delhi in his opening note pointed out about DST support towards Innovation. Department of Science & Technology (DST), Government of India is successfully implementing 'Innovation in Science Pursuit for Inspired Research (INSPIRE) scheme since 2010. The scheme covers students in the age group of 10-32 years and has five components. The first component, INSPIRE Award aims to motivate students, in the age group of 10-15 years and studying in classes 6 to 10, to pursue Science and a career in Research. Short listing of top 1,00,000 (one lakh) ideas, with potential to address societal needs through Science & Technology, by National Innovation Foundation (NIF). Disbursement of INSPIRE Award of INR 10,000 into bank accounts of students through Direct Benefit Transfer (DBT) scheme. DST has introduced several new schemes namely National Initiative for Developing and Harnessing Innovations (NIDHI) – EIR scheme supports Engineering Students projects. Many TBIs were upgraded to Centre of Excellence to support many innovative entrepreneurs. He asked the college to produce 30% innovative entrepreneurs among the students and congratulated everyone for the efforts towards NewGen IEDC.

Dr. A.Nirmalraj, Co-ordinator – NewGen IEDC, HOD / Management Sciences, Velammal Engineering College, Chennai presented the progress and activities of Velammal NewGen IEDC He also promised and assured the officials about the functioning and the efforts to make the centre sustainable. He also presented about the efforts and the support extended by the Management to make the NewGen IEDC centre full fledged and sustainable.

Project mentors along with students presented their projects. Advisory Board Members recommended the following suggestions.

PROJECT NO. 1: EFFICIENT ARECA NUT TREE CLIMBING MACHINE

1. How many number of axis for cutter?

The cutter is a 3 axis manipulator.

2. **What is the type of cutter?**

Rotary cutter driven by 12V DC Motor

Suggestion:

Advised to add running cost in product cost

PROJECT NO. 2: DEVELOPMENT OF HYBRID FLEXIBLE LOOP HEAT PIPE FOR SATELLITE COOLING APPLICATIONS.

1. **Electronics devices other than satellite should be focused:**

The research is focused on processor cooling of laptops, servers and smart TVs.

2. **Use of environmental friendly chemicals:**

Ammonia has been replaced with water and environment friendly bio-surfactants.

3. **Economic analysis:**

Cost optimization is performed based on the material cost and weight reduction benefits. Overall cost of the new cooling system will be lesser than the conventional ones.

PROJECT NO. 3: IOT ENABLED SMART POWERED WHEELCHAIR

Suggestions given by Experts:

- To change the project title as elderly assistive device for wheelchair as its major application is to help the elderly people to be independent.
- To implement autonomous indoor movement of wheelchair
- To expand the wheelchair application for quadriplegic people by using eye ball control or by some other methods

PROJECT NO. 4: ACTIVE VACUUM SUSPENSION SYSTEM

Suggestions:

- To change the title of the project
- Absolute vacuum is not inside the cylinder so as to change the project name as relevant to exact function of the project

Comments:

- Literatures about the project
- Design aspects related to the suspension
- How your new suspension system affect the other parts of the car

PROJECT NO. 5: SOLAR BASED PORTABLE WATER PURIFIER CUM SOLAR LIGHT

1. How the product is different from the products existing in Market?

It is portable and will purify water from all resources like lake, pond, borewell, Flood water and rivers. It consists of all forms of Filter (Sediment filter, UV filter and RO Filter). It is less weight and can be carried anywhere on the go. It is made up of steel. It also contains a LED light and USB port for charging smart gadgets. It consists of natural sediment filter.

2. What is the cost of the Product?

Between Rs. 2500 – Rs.3000

3. Is it affordable for a family of four as they require to buy 4 separate products?

Mass production will reduce the cost. For a family of four they need not buy four separate products as the filtration time is less, one product will be sufficient for a family of four.

4. What is the filtration time?

Between 6-8 minutes depending upon the sediment content.

5. What is the thickness of Solar panel?

2-3 cm Thick and 60cm X 20 cm dimensions.

6. Is it necessary to buy this product as the cost of 1 liter of water is Rs.10 and available everywhere?

It is designed for usage in remote villages where there is no available resources for purified drinking water.

PROJECT NO. 6: FLOWER GARLAND MAKING MACHINE

1. In your flower garland machine, which flower you are going to select for making garland?

For its long pedicel and easy handling, we are going to use rose and marigold.

2. What type of rose you have selected, because there are different types of rose available in the market?

We are going to use hybrid rose.

3. How to arrange to provide the flower feeder in uniform? Because flowers are different profile and different position.

We explained that the hopper will be designed in such a way that all the flowers entering to the mechanism should be in same position for knotting. They suggested that instead of hopper design and modification, “you may choose the color detection sensors to pick the

flower's pedicel instead of flower's petal". Also they suggested that to utilize the technology to improve the performance of our machine and they advised to go for patent, there is high potential for applying patent for this product.

PROJECT NO. 7: MEAT FRESHNESS ANALYSER

1. What is the rate of the commercial product available in market?

FOOD SNIFFER: 129 DOLLAR

2. If meat sample is sliced at top which is spoiled and checked for freshness, whether it will show it as fresh (like ripe Mango)?

As meat get spoiled Co2 is released from all sides of the tissues of sample, so even if top portion is removed, it will show it as "Spoiled".

PROJECT NO. 8: SOLAR DESALINATION POWER PLANT - HYBRID SYSTEM

1. What is the life time of the transparent solar panel?

12 years to 15 years

2. What is insulation material?

Thermocol and wood

3. What is the cost of the product to be sold?

Rs. 45000/-

4. Which material will be contacted with saline water in basin?

Stainless steel

5. At what rate 1litre of water will be provided?

Rs. 2/- litre

Suggestions given by Experts:

1. To visit any solar power plant in India
2. To choose the material, which will not be easily corroded, when it is in contacted with saline water in the basin

PROJECT NO. 9: DESIGN OF INTEROPERABLE AND SECURE FIRMWARE FOR PERSONAL HEALTHCARE DEVICES

1.What are all the sensors identified?

a. Body temperature sensor

b. Pulse oximeter sensor
c. ECG sensor
d. Accelerometer
e. Pressure sensor

Note: it may change based on the need and devices availability in the market.

2.What is the power consumption of each module and what will be the power rating of the battery in the wearable device and how frequently will the device need charging?

The power consumption of the module is yet to be studied; initially we will design our wearable device with linkit as a base. We study the power consumption and design our own device with low power consuming circuitry.

Future work: Energy harvested from the body such as from body heat or motion, or from the environment such as ambient light yields only microwatts to milliwatts - not enough to power something like a smart watch. Texas Instruments (TI) has a device, the bq25570 , which can take the 300 to 400 milli volts that is collected by energy harvesters and boost this power to 3 to 5 volts, which is enough to charge a battery.

PROJECT NO. 10: HEARING IMPAIRED – HI

Suggestions:

Give the application to the deaf and dumb person and test the application based on this make changes to the application.

Questions:

Identify similar products in the market and find its price

After Project Presentation the team went on to Inaugurate the Velammal NewGen IEDC Centre. Mr. S. B. Sareen, Faculty & Head, Centre for SMEs & Business Development Services, Entrepreneurship Development Institute of India, Gujarat and Dr. Naveen Vasishta, Director/Scientist ' E', NEB Division, Department of Science and Technology, New Delhi inaugurated the Velammal NewGen Innovation and Entrepreneurship Development Centre. The team appreciated the effort of the Velammal IEDC co-ordinators for establishing the spacious, furnished IEDC centre as per the requirements of the DST NewGen requirements. The team suggested to equip the lab with basic equipments pertaining to respective sciences,

communication devices like wifi facility and to conduct programs, seminars, skill oriented courses that would generate revenue for the sustainability of NewGen IEDC.

Dr. Jeevaa Katiravan, Co-ordinator – NewGen IEDC, HOD / Information Technology, Velammal Engineering College, Chennai proposed the Vote of Thanks and concluded the meeting.

7. Progress Summary:

1.	**Total number of Student Projects supported**	**25**
2.	**Total fund provided towards supporting Student Projects**	**Rs. 21,21,760**
3.	**No. of Patents filed by students**	**6 Projects (In Process)**
4.	**No. of Patents Granted**	**-**
5.	**No. of companies/Starts up Set up by Students**	**Nil**
6.	**Social Impact Made, If any**	**Nil**

12. Sphoorthy Engineering College, Hyderabad, Telangana

NewGen IEDC [2017-22]
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi
Progress Report (As on October 31, 2018)

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. K.S Shaji**		
Name of NewGen IEDC Coordinator	**R. Ashok Kumar**		
Contact Details of NewGen IEDC Coordinator • **Mobile Number** • **e-Mail ID**	**9849105691, 9392118884** **head.ce@sphoorthyengg.ac.in**		
Financial Details	**Sanction Order No./Date**		**Amount Sanctioned**
Previous Sanction Order Details	**1.**	**EDII/DST-NewGen IEDC/17-18/ 12 & 15/06/2017**	**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	a) Entrepreneurship Awareness Camp(EAC) b) Entrepreneurship Awareness Program by Sphoorthy NewGen IEDC	Created Awareness for the students in the campus on importance of entrepreneurship and innovation Students were informed on entrepreneurship as an alternative career choice and the value an entrepreneur can bring to the ecosystem. Awareness was created on phase wise entrepreneurial journey and the personality required for a successful entrepreneur.
2	IDEATHON- Innovative Idea competition	The core objective of the event is to inspire students towards out of box thinking and come up with feasible Ideas.

		A total of 110 student ideas were received at the start. After doing multi-level scrutiny by the subject matter experts, 10 ideas were considered for implementation in NewGen IEDC2018-19.
3	Chinna Shodana Yatra in Association with PalleSrujana	This initiative has given tremendous boost in the way student thinks and their view point towards societal problems especially understanding the grassroots innovations. Students are made to visit various villages around and conduct survey in knowing the problems that they and analyze ways to support them.
4	Awareness program by NEN Mentors	Created Awareness for the students in the campus on entrepreneurship and innovation.
5	Project Expo by Sphoorthy Engineering College Students	Students are made to exhibit their innovative project prototypes. About 25 prototypes from individual department were presented during the expo conducted on the Engineers Day. Students were able to come up with a road map for further development of the prototypes under the guidance of advisory of subject matter experts.
6	Summer training programs on Advanced technologies (IOT, DRONES, ROBOTICS , ANDROID ,3D PRINTING)	Students were trained on advanced technologies IOT sensors and its application, Drones functionality and its possible application in various industries, Scope of 3D printing in the manufacturing industry and methods of building their own 3D printing mechanism for various applications and further on Android technology for building their own applications.

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

Sr. No.	Activities	Outcome/Achievements
1	Sending the students for EXCITE JNTU PRODUCT ENGINEERNG WORK SHOP	3 Student teams (12 students) were selected for the EXCITE program. They developed prototypes on the advanced topics such as machine learning and IOT during the event.
2	Sending Students for DISHA program in IIIT Hyderabad	20 Students undergone 45 days acceleration program on Augmented and Virtual Reality.
3	Sending the students for TEP–ISB (Indian school of Business Hyderabad) Program.	8 students completed TEP-ISB 1- year Technology entrepreneurship program.
4	Inviting the industry and successful startup representatives to Project Expos	Students are mentored on product development. Emphasis was given on the research and its importance in collecting the right data before product development.
5	Sending the student projects to IEDC BEST PROJECT Competition.	Students were trained to make an effective business plan documents and adding to this, soft skill training was conducted, to refine their presentation skills.
6	Sending Internships to work in Startups & facilitating students for DST /DSIR/Innovation challenges innovations prototype funding.	Student teams were given opportunity to do their internships in startup companies across Hyderabad. This helped them in understanding the operational hustles in startups and ways to handle them and more importantly the importance of team in success of any project or product.
7	Sending The students for CISCO HACKATHON.	CISCO HACKATHON helped students teams to work together students of various disciplines, by knowing multiple perspective of the same project. It made them realise importance of Learning by Doing. Our college selected final round to present their ideas on IOT

[C] To enhance Industry-Academia interaction.

Sr. No.	Activities	Outcome/Achievements
1	JCELL organized by JHUB JNTU Hyderabad	JCELL has taken initiatives in Creating innovation , incubation, hackathon culture in campus
2	Appointing A Person from Industry relations to interact with Industries.	To network and maintain strong relationships with industries and help in product development. Providing industry experience.
3	Through the support of Sphoorthy Training & Placement cell, EDC Cell, Center for excellence	Our training and Placements cell has been active in identifying skill gaps in the students and coming up with various initiatives in providing the required training to the students and further helping the students with the internship opportunities. Core team of various cells has always played a key role in successful implementation of various events. They are always in lookout in the handpicking students with entrepreneurial inclination.
4	Support of ORACLE Academy, CISCO Academy	Training and Certifications on emerging technologies such as database, programming,iot,cyber security etc.
5	Support of TASK- Telangana Academy of Skill and Knowledge	Industry visits, collaborations, soft skills training etc.

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

- MOU'S not done with local Industries as per the action plan. We are in the process to MOU with industries.

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

- Established Institution Innovation Cell (IIC) as per the Norms of Innovation cell, Ministry of HRD, Govt. of India.
- Two of our Students Projects got selected for AICTE-ECI-ISTE Vishwa Karma Awards 2018.

- Two Students are selected for student start-up mentorship India workshop on 25th and 26th June 2018 as a part of CANADA-INDIA acceleration program for women entrepreneurs by AICTE and Carleton University- CANADA.

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

Sr. No	Team	Project Description	Project status at beginning	Interventions made	Current status
1	1) CH.SWAMI,III-DIPLOMA-MECHANICALENGG 2) SHIVARAMAMURTHI III-DIPLOMA-MECHANICAL ENGG 3) SAIKIRAN REDDY III-B.TECH MECHANICAL ENGG	**Design and Manufacturing of Flexible silk worm food (Mulberry plants) cutter.** Silk worm formers were suffering to gather food in a consist of time and it has more risk to cut the leaves of mulberry tree. Mulberry leaves are major food for silk worms. And we designed Mulberry leaves cutter it consists of two blades. Plant leaves holder, fuel engine. The cutter gives two cuts of the plant one is upper cut and another is lower cut after holding the leaves. The proposed Plant Cutter is the time saver and perfect accuracy cutting level is maintained with movable cutter.	IDEA Validated and Mentor assigned. Prototype under development.	Completing prototype. Showcasing the prototypes in project expos and hackathons. Supporting in commercialization.	Prototype developed
2	1)G Gnaneshwar III-B. TECH ECE 2)G Vamshi Prasad Reddy III-B. TECH ECE 3)B.S. Sravya III-B. TECH ECE 4)MallepalliNavya III-B. TECH ECE	**An Integrated Design and implementation of FPGA based health monitoring System** Our product is designed of health monitoring system by alerting user by giving the information about the blood pressure (BP or hypertension), body temperature etc. and integrating Predictive modelling and API'S to notify the information about nearest hospitals in case of emergency .	IDEA Validated and mentor assigned. prototype under development.	Completing the product and making the system error free. With the support of Advisory board to contact the market segment for commercialization.	Prototype developed

3	1)Karthik .N IV-B. TECH CSE 2)A.Priyanka IV-B. TECH CSE 3)P.Kavya Reddy III-B. TECH CSE 4)D.Sravani III-B. TECH CSE	**Design & Implementation of E-Suit for Parking of Vehicles Under Abnormal/Emergency Condition.** Idea is to design and implement car parking facility under abnormal conditions. This is a portable car cover acting as portable E-suit. E-Suit is made up of the UV plastic which protects it from sunlight and from being scratched. E-Suit also has the security features built in it, when someone tries to lift the cover then the alarm is turned on and it even notifies on your mobile.	Completed the Survey and collected the information from various Industry mentors and auto mobiles. prototype under development.	Investigations to be made are how to overcome the balancing of aerodynamics of the vehicles.	Prototype developed
4	1)Yamini III-B. TECH CSE 2)K.Rohit IV-B. TECH CSE 3)A Shiva Reddy IV-B. TECH CSE 4)M.Krishna III-B. TECH CSE	**Community based Home Security for Independent Houses using IOT with enhanced version** Surveillance camera kit embedding with few sensors such as motion detector and Making use of the IOT and Cloud technology using image processing, data processing techniques to find the unauthorized event. Using the Cloud computing This information can be sent to the mobile phone and the nearest police staion.	IDEA Validated and mentor assigned. prototype under development.	Completing prototype. Showcasing the prototypes in project expos and hackathons.	Prototype developed
5	1)M. Ram Mohan Reddy IV-B. TECH CSE 2)A .Likitha IV-B. TECH CSE 3)K.Ramesh Kumar III-B. TECH CSE 4)A.Sreenitha III-B. TECH CSE	**Design & Implementation of Way Map for Finding the Exact Location of the Bus Custom Based** Idea is to design and implement the product in such a way that, people can know the exact location of the bus currently running whenever they need. That is whenever device receives message “trap” it replies the location values to user who requires it.	IDEA Validated and mentor assigned. prototype under development.	Completing prototype. Showcasing the prototypes in project expos and hackathons.	Prototype developed

6	1)Visla Krishna III-B.TECH ECE 2)L Praveen Kumar III-B.TECH ECE 3)P Sai Teja Varma III-B.TECH ECE	**Automated Grass cutter** The idea is to design a fully automated solar grass cutter is a robotic vehicle powered by solar energy that also avoids obstacles and is capable of fully automated grass cutting without the need of any human interaction. A solar panel is used to charge the battery so that there is no need of charging it externally.	IDEA Validated and mentor assigned. prototype under development.	Completing prototype. Showcasing the prototypes in project expos and hackathons.	Prototype developed
7	1) V Naga Sai Durga III-B.TECH ECE 2)C Satish Kumar III-B.TECH ECE 3) Hrudaynath III-B.TECH ECE	**Safe kitchen** The idea is to design a smart notification system using raspberry pi for the safety in kitchen. The project triggers an event through various sensors and sends notifications & images to our Smartphone. Security systems of this system offer features for fire alarms, gas leakage detection, current status of the kitchen through image etc.	IDEA Validated and mentor assigned. prototype under development.	Completing prototype. Showcasing the prototypes in project expos and hackathons. Supporting in commercialization.	Prototype developed
8	1)L.Geetika III-B.TECH CSE 2)Aishwarya III-B.TECH CSE 3)Sai Pratyusha III-B.TECH CSE 4)Swapna III-B.TECH CSE	**DO NOT MISS** An Authenticated and secured IOT Based smart Dropbox and fixed outside of the house near the door, which ensures the delivery of courier or any other important thing even in the absence of respective customer or house owner.	Designed structure of the drop box. Required to add features using IOT.	Completing prototype. Showcasing the prototypes in project expos and hackathons. Supporting in commercialization.	Prototype developed
9	1) Abhishek Pratap Singh III-B.TECH ECE 2)KommidiNavya Sai III-B.TECH ECE 3)Rishika Rao	**Low cost Convertible Wheel Chair cum stretcher for patients and physically handicapped people:** Our Idea is to design a Wheel chair which can be easily converted to Stretcher. This includes a low cost design implementation with a purpose to make it easily available to all the private and Government	IDEA Validated and mentor assigned. prototype under development.	Completing prototype. Showcasing the prototypes in project expos and hackathons. Supporting in commercialization.	Prototype developed

	III-B.TECH ECE	hospitals. This design can be Automated and manually controlled using Smart phone or using the Switching system on chair. This system provides comfort zone to the severe patients.			
10	1)K Narendra III-B. TECH Mechanical Engineering 2)T Kalyan Kumar. III-B. TECH Mechanical Engineering. 3)K Praveen III-B. TECH Mechanical Engineering	**Low cost Traditional Agriculture Spray:** Farmers are using solar sprays and fuel based sprays for pesticides. So the cost of this equipment are very high. In India 90% farmers are poor and they are using solar sprays and fuel spraysfor rent based. We decided to traditional pesticides spray for farmers the cost is very less and repair also done by farmers. The main working principle of our project rotary motion will be converted into to and fro motion. The Pressure will create in the pump by with motions. Then the chemical (Pesticides) will sprinkle through the nozzles in to fields.	IDEA Validated and mentor assigned. prototype under development.	Completing prototype. Showcasing the prototypes in project expos and hackathons. Supporting in commercialization.	Prototype developed
11	1)Swetha III-B. TECH Mechanical Engineering 2)Bhanu III-B. TECH Mechanical Engineering 3)Ramya III-B. TECH Mechanical Engineering 4)Pranay III-B. TECH Mechanical Engineering	**Compressed Air CAR:** Compressed air car is a utility vehicle for short distance, compressed air used as fuel. This type of vehicles are non-emission vehicles. This vehicle available in low cost compared to petrol and diesel engine vehicle. No battery, no acids, no engine oil and no heating problems arise in this car.	IDEA Validated and mentor assigned. prototype under development.	Completing prototype. Showcasing the prototypes in project expos and hackathons. Supporting in commercialization.	Prototype developed

12	1)Pranathi IV-B.TECH Electronics Communication Engineering 2)bhargav IV-B.TECH Electronics Communication Engineering	**RC COPTER(Road cum Arial Vehicle)** This is rc drone cum car. This is a prototype vehicle for future. It can drive like a car and fly like a drone. In future travelling will be very easy from one place to another. No extra motor or engine are used and we have used tilt mechanism as servos tilt the motor as soon as we tilt the motor propellers also tilt so these make change the direction of vehicle .	IDEA Validated and mentor assigned. prototype under development.	Completing prototype. Showcasing the prototypes in project expos and hackathons. Supporting in commercialization.	Prototype developed


MULBERRY TREE CUTTER


SPHOORTHY ENGINEERING COLLEGE
21ST CENTURY
ENGINEERING CHALLENGES
SHOT ON REDMI NOTE5 PRO
MI DUAL CAMERA
COMPRESSED
AIR CAR

COMPRESSED AIR CAR

HEALTH MONITERING SYSTEM

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:

5.1 Project Name : VOICE CONTROLLED WHEEL CHAIR

5.1.1 Student team details (with contact information)\

1. K. NAVYA REDDY
2. J. RISHIKA.
3. ABHISHEK PRATAP SINGH.

5.1.2 Brief description about the student start-up.

In medical sector generally, physically incapacitated persons like handicap and paralysis patients use wheel chair which doesn't provide mobility. The wheel chairs which are available in market can't be converted into the stretcher automatically and they are not x-ray compatible. They neither provide medicine draw nor lavatory box. In order to eschew these quandaries voice controlled wheel chair will provide the mobility to the patient, it can be controlled by utilizing joystick or voice commands at a time, it can withal be converted into a stretcher in desired angles. It is x-ray compatible and provides medicines and removable lavatory box. Voice controlled wheel chair will make the life of the physically incapacitated patient heavenly.

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

Technical Field of the Invention

The present invention relates generally to physically challenged people, and in particular to handicap and paralysis patients. The wheel chair uses screw jack mechanism and voice control technology to convertible wheelchair into stretcher and for its movements.

Background of the Invention

According to the prior art, the people who are physically challenged, especially handicap and paralysis persons face quandary to peregrinate from one place to another place, they are dependent on another person in order to do their circadian works, sitting on the chair in same

angle for longer time may cause some rigorous skin infections and brawny quandary, to reduce that quandary the patient is shifted from wheel chair to bed with the avail of another person. Accidents may occur while shifting the person. In market we can find the wheel chairs which can be converted into stretcher but they are not automatic and are needed to be controlled by another person, as the paralysis person don't have vigor to covert it in to stretcher this type of products are not utilizable.

When a person is met with contingency or when the physically handicap person is suggested to take x-ray, shifting a person from stretcher to the x-ray compatible bed may make the situation of the patient worse.

To surmount the above quandaries the present invention has a joystick with which the person can move in all the directions and convert a wheel chair into stretcher with desired comfort levels. Wheel chair moments can additionally be controlled with voice commands such as (forward, reverse, left, right, stretcher on, stretcher off). It is x-ray compatible and lavatory system is present under the chair. In order to place the medicines a separate draw is present. A stand is provided to place the glucose bottles if needed. With the avail of switches a person can utilize either joystick or his voice commands at one time just to evade accidents. The kit is trained in such a way that only the patient voice commands will work for the chair moment.

Brief Summary of the Invention

The following presents a simplified summary of the disclosure in order to provide a basic understanding to the reader. This summary is not an extensive overview of the disclosure and it does not identify key/critical elements of the invention or delineate the scope of the invention. Its sole purpose is to present some concepts disclosed herein in a simplified form as a prelude to the more detailed description that is presented later.

Exemplary embodiments of the present invention are the provision of an ameliorated wheel chair and method for utilizing same which is economical to manufacture, durable in utilization, and efficient in operation.

In accordance with first aspect of the invention, there is provided wheel chair which can be converted into stretcher at any desired angles utilizing screw jack mechanism for the movement of the physically challenged patients and make them independent.

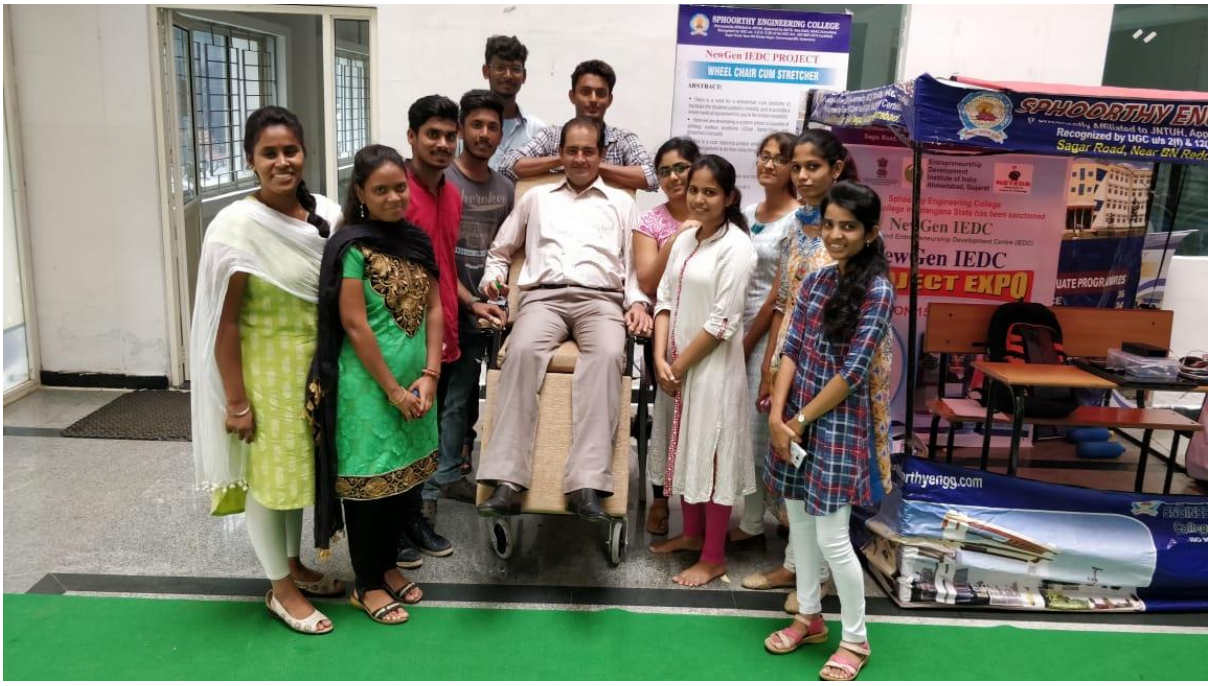
In accordance with second aspect of the invention, there is provided a wheel chair with a joystick near the hand rest and a mike near the head rest. With the avail of ecstasy-stick the person can move in all the directions, two buttons are provided for the stretcher conversion in desired angles. Utilizing mike the patient can give his voice commands for the wheel chair moment (forward, rearward, right, left, stretcher on, stretcher off). The wheel chair is provided with two switches, one switch is to on/off the potency supply and one more switch is to transmute the mode of controlling i.e., joystick/mike. Only the patients voice commands/voice of wheel chair's owner are accepted which is the main advantage of this system.

In accordance with third aspect of the invention, there is provided a lead sheet under the cushions of the wheel chair so that the rays emanating from the x-ray machine passes through the body of the patient and then get reflected back by the lead sheet to make the wheel chair x-ray compatible.

In accordance with fourth aspect of the invention, there is provided a stand, a medicine drawer and a lavatory box, stand is on the left side of the wheel chair which can be habituated to hang the glucose bottles. Medicine draws and a lavatory box are provided under the wheel chair. Medicine box is utilized to store the medicines, lavatory is removable and replaceable**.**

In accordance with fifth aspect of the invention, It is provided with **safe road mode** in which the wheel chair detects the objects in the range of one feet and stops the movement of the vehicle. The **Safe Road Mode** has to be activated by the user/patient operating the Wheelchair on road.

In accordance with sixth aspect of the invention, there is provided with two rechargeable batteries (12v each). It takes 3hours to charge the batteries and works for about 14km**.**


SPHOORTHY ENGINEERING COLLEGE
NewGen IEDC PROJECT
WHEEL CHAIR CUM STRETCHER
ABSTRACT
SPHOORTHY EN
Recognized by UGC u/s 2(f) & 12(
Sagar Road, Near BN Reddy
Entrepreneurship Development Institute of India Ahmedabad, Gujarat
NewGen IEDC
NewGen IEDC
JECT EXPO
rthyengg.com

5.1.4 Contribution of NewGen IEDC in the same

NewGen IEDC provided funding for the development of the project and provided necessary mentoring in the development of prototype. Good guidance is provided to develop business plan. Encouraged to exhibit in different platforms such as project expos and hackathans.

Students have got enough financial backup and bandwidth in trying best possible solutions in the building an optimal and efficient multifunctional wheel chair. More importantly, the recognition students received as a NewGen IEDC team has given them true motivation and complete support from various stakeholder.

Currently, representing NewGen IEDC they are trying to validate and push the prototype building process in the faster pace across the stake holders.

5.1.5 Future plan

To develop working model to test the product. By approaching the stake holders to commercialize the product. Initially product validation is being done at Various NGO's with the physically challenged community. Perfectly function prototype is planned with the high-quality material standards. It is planned to test the best possible prototype in the market, since the customer segment is very sensitive. Commercialization road map will be built after successful trails in about10 NGO's, testing it with at least 10 samples users in each NGO of various physical challenges.

5.2 Project Name : AGRO CHEMICAL SPRAYER

5.2.1 Student team details (with contact information)

1. K.NARENDAR.
2. T.KALYAN KUMAR.
3. N.VINOD KUMAR.
4. K.PRAVEEN KUMAR.

5.2.2 Brief description about the student start-up

In agricultural sector generally farmer uses traditional way for pesticide spraying i.e., spray carried on backpack and spraying crop. This becomes time consuming, costly and human fatigue is major concern, these problems can be overcome by using agricultural sprayer that facilitates uniform spread of the chemicals, capable of throwing chemicals at the desired level, precision made nozzle tip for adjustable height and capable for different heights of various plant sizes. The sprayer that allows spray depending on requirement of the farm. The Sprayer that uses crank mechanism to convert rotary motion into reciprocating motion to operate the pump, thus the pesticide is spread through the nozzle and ensures continuously flow of pesticide at required pressure and height. A special arrangement is implemented to adjust the pressure as high or low.

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

Identification of problem:

Farmers in rural areas are using heavy loaded backpack chemical pesticides sprayers they find it as very tough and difficult to carry heavy loaded backpack which is about 20 kgs. And the major problem is to operate the piston by hand to create the pressure in the tank so that liquid pesticides can be sprayed effectively to the crop in the cultivated field. The main crops are cotton, vegetables etc. Farmers are using these old techniques like hand operated sprays with petrol and battery sprayers and finding difficulty in operating the same units.

We are all (students working for this project) came from an agricultural background and we often have faced problems in using the current agricultural sprays in the fields. Whenever our parents spraying the pesticides in the cultivated farm, they find it tough carrying heavy loaded backpack. Further they also find it difficult to create a pressure variation and to spray it at different working conditions. We as a team have decided to do something for our parents and so for all farmers, that could help them reduce their effort and time.

Technical Field of the Invention

The present invention relates generally to spraying and in particular to agricultural spraying. The Sprayer using crank and lever mechanism to spray at various location(s) of the farm that will be adjusted as per the requirement of the plants height in the farm.

Background of the Invention

Now a day's spraying of pesticides is very inconvenient because concentration of chemical is very high. For many years, the research on agricultural pesticides spraying still remains in the traditional hand held way for spraying. In the current market, vehicles are used to spray the agricultural fields by carry large volumes of diluted active ingredients in sprayers because it is difficult to spray more concentrated forms of the active ingredient and may be outfitted with a high pressure source of air and/or fluid requiring one or more relatively large pumps to spray the liquid. One reason for diluting the active ingredient is because existing spray equipment used in agriculture cannot spray viscous material with the desired size drops and drop distribution and accurate low volume equipment is not economically available in the market and it is not only inefficient but also not energy efficient, a large amount of manual labour and labour intensity, low spray quality, high cost, farmers faced many problems while spraying pesticides in the farm. Further important that the artificial spraying pesticides prone to accidents causes great risk to the safety of life of farmers, there are tens of thousands are affected from the spraying of pesticide poisoning every year. Although they are using old

techniques like hand operated sprayers, petrol and battery operated sprayers, farmers who use conventional backpack sprayer faces many problems like fatigue, tiredness, pain in spinal cord and muscles etc.

Spray pumps that are used in farm spraying are generally fuel operated spray pumps, which are heavier than hand operated backpack pumps. This type of pumps run on petrol engine and thus is not economical, since petrol is one of the costly fuels in the market. Also the pump produces more vibrations which is hazardous to users back muscles. Further this pump makes unwanted noise causing disturbances. The sprayers are currently available in the market uses the single wheel mechanism, which runs on the movement of the wheels to create pump pressure in the spray vessels which intern helps spray mechanism. Farmer(s) carry these sprayers on wheels, whenever it moves creates pressure difference and due to the pressures difference there is less possibility to control the spray as expected, and hence this mechanism will lead to failure of expected pressure control as required by the farmer to spray at a particular location.

To overcome the above problems the present invention helps to minimize human effort and scarce labour through design and development of the equipment which will be beneficial to the farmer for the spraying purposes. One of the objectives of the invention is development of parallel spray rod that is connected to the pressure pipe and the pressurized chemical will be supplied from the tank through peddling mechanism where the wheel is mounted on rotating shaft and it is connected to crank and lever mechanism by a metallic chain. While the four wheeled vehicle moves in the forward direction the crank and lever mechanism will be operated and pressure creates in the pesticide tank. Height of the sprayer will be adjusted as per the requirement of the plants height.

Brief Summary of the Invention

The following presents a simplified summary of the disclosure in order to provide a basic understanding to the reader. This summary is not an extensive overview of the disclosure and it does not identify key/critical elements of the invention or delineate the scope of the invention. Its sole purpose is to present some concepts disclosed herein in a simplified form as a prelude to the more detailed description that is presented later.

Exemplary embodiments of the present invention are the provision of an improved sprayer control system and method for using same which is economical to manufacture, durable in use, and efficient in operation.

In accordance with first aspect of the invention, there is provided a sprayer for pumping and directing a mixture of pesticides in the cultivated field at the different heights of various plant size.,

In accordance with second aspect of the invention, there is provided a sprayer horizontal and parallel spray rod that is connected to the pressure pipe and the pressurized chemical will be supplied from the tank through peddling mechanism where the wheel is mounted on rotating shaft and it is connected to crank and lever mechanism by a metallic chain. While the four wheeled vehicle moves in the forward direction the crank and lever mechanism will be operated and the pressure created in the pesticide tank. The rotating shaft is mounted to rotate with peddling mechanism, with a driven sprocket wheel attached to the rotating shaft wheel. The crank and lever mechanism converts motion of the rotating shaft into vertically reciprocating motion of the spray rod. The counter pressure is raised as the spray rod is lowered and as the Spray rod is raised. The pedal is also mounted to rotate with pedalling mechanism, with a driving sprocket attached to the pedal. The chain extends between the driving sprockets, engaging these sprockets so that rotation of the driving sprocket causes rotation of the driven sprocket.

In accordance with third aspect of the invention, there is provided an agro sprayer system and method for using pumping and directing a mixture of pesticides in the cultivated field at the different heights of various plant sizes, a crank and lever mechanism, discharge pipe, a distribution pipe, and a peddling mechanism, crank is an arm attached at right angles to a rotating shaft by which reciprocating motion is imparted to or received from the shaft. It is used to convert circular motion into reciprocating motion, or vice versa. The arm may be a bent portion of the shaft, or a separate arm or disk attached to it. Attached to the end of the crank by a pivot is a rod, usually called a connecting rod. The end of the rod attached to the crank moves in a circular motion, while the other end is usually constrained to move in a linear sliding motion.

In accordance with fourth aspect of the invention, there is provided an agro sprayer system and method for using pumping and directing a mixture of pesticides in the cultivated field at the different heights of various plant sizes, farmer grabs the handle and pushes the

cycle forward as cycle moves forward, with the wheel rotating. When the wheels rotate then the gear sprocket mounted on wheel is also rotate at same speed. The chain drive transfers the motion of gear sprocket wheel to pinion sprocket wheel. The pinion sprocket and crank is mounted on either side of same shaft, the rotary motion of shaft is converted into the reciprocating motion with the help of crank and connecting rod mechanism. The connecting rod is also connected with lever and then the lever oscillates at fulcrum. The piston connected at fulcrum produce reciprocating motion in cylinder and the required pressure is achieved. The pesticide from tank sucks in cylinder and piston forced the pesticide through pressure. We can adjust the pressure, which is required for spraying with the help of special arrangement is to change the length of crank by providing slot on crank. By providing some adjustment at joint of connecting rod and lever free rotation of crank or neutral position can be achieved. Using these adjustments pumping is stop and the wheel rotate freely when you need not spray pesticide. Height, position and angle of the nozzle can be adjustable.

In accordance with fifth aspect of the invention, there is provided an agro sprayer system and method for using pumping and directing a mixture of pesticides in the cultivated field at the different heights of various plant sizes, distance and height of the crop. Hand control is provided for the ease of operation to the farmer to supply the pesticides whenever the height adjustment is not possible at narrow and corner areas.


Following are the qualities of an
engineering student after completing his/her graduation.
1.The Student should be able to implement the subject knowledge
which he/she has learnt in the classroom to real life situation.
2.The student should be able to do experiment on his/her own
based on the knowledge acquired.
3.The Student should be capable to design innovative systems/
procedures/processes.
4.The Student should have multi-faceted or multi-disciplinary
approach rather than restricting himself to a single subject.
5.The Student should be able to identify problems and to find
suitable solutions.
6.The Student should have good communication
7.The Student should be competent
/ Social problems and give soluti
8.The Student should have the
issues apart from the subject
COLLEGE
ROGRAMMES

5.2.4 Contribution of NewGen IEDC in the same

Various mentoring and training initiatives under NewGen IEDC helped students to validate their Idea with various subject matter experts and mentors. Especially feasibility analysis and research study traning helped the team to understand the practical and financial feasibility of the product in the farming fields. 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

Team would build the initial prototype and test it in the farming fields. Based on the inputs received from the farmers, they will improve the product design. Agile product development methodology will be applied in the product revisions and taking it to the market. They have already initiated discussion with various organization to test the product representing the NewGen IEDC. Phase wise product development and commercialization is further planned with the support of various stakeholders.

6. Minutes of the Advisory Board Meetings (held so far):

AGENDA

Sphoorthy Engineering College, Hyderabad is sanctioned for setting up New Generation Innovation and Entrepreneurship Development Centre (NewGenIEDC) under the agies of NSTEDB under Ministry of Department of Science and Technology-DST, the activities for the implementation of the project have been started since June 2017. To make this initiative purposeful and result-oriented, and as per the directions given for implementing the New Gen IEDC (The Committee is scheduled to meet twice a year), first Advisory Board Meeting is scheduled on 12/12/2017at Sphoorthy Engineering College, Hyderabad.

MINUTES OF THE MEETING:

Sphoorthy NewGen IEDC Advisory Board Meeting conducted in Board Room of M V Block Sphoorthy Engineering college at 02:00 PM on 12th December, 2017.

The following points have been discussed:

1. The Meeting started with Introduction of the Advisory Members by Chairman of the committee Dr.K.S.Shaji Principal of Sphoorthy Engineering college.

2. Mr. R Ashok Kumar Chief Coordinator Sphoorthy NewGen IEDC presented the Innovation and Entrepreneurship Activities held in the College during April, 2017 to till date.

3. The members appreciated the Students' Innovative Projects presentation, Mentors, Sphoorthy Engineering College Advisory Board Members and the Chief Coordinator – Mr. R Ashok Kumar for the efforts towards the Innovation.

4. Dr S B SAREEN, EDII explained the guidelines and suggestions for the execution of NewGen IEDC Program.

5. Dr. NAVEEN VASISTHA- DST given the feedback of the student presentations and suggestions for further implementations.

6. The Members gave the following Recommendations:

    a. To include a General Manager of District Industrial Council or Joint Director of Innovation Council as a Member of NewGen IEDC Board
    b. The students need to develop a Business Plan and focus on Commercialization of Projects and a strong Mentorship is required in this perspective.
    c. Prof Sareen EDII explained the STARTUP-NIDHI Program for NewGen IEDC students.
    d. The Commitment of the Institution was highly appreciated, but a realistic thinking is needed.
    e. The Performance of any NewGen IEDC depends on:
        i. No. of Ideas commercialized
        ii. The ideas which are Practical, Doeable, Workable and Achievable
    f. Proper Networking is required. The Students and Mentors can contact nearby Institutions who obtained NewGen IEDC Projects.
    g. The Institution can exchange facilities and extend the facilities to the other Institutions working on the same line (with nominal amount of Rent / lease for usage of Facilities)
    h. The students and mentors need to participate in Trade Fairs, Seminars and Lectures on Entrepreneurship and Innovation.

i. The fund provided by NewGEN IEDC cannot be transferred to a Student / Mentor directly for the purchase of any Consumable / Non-consumable:
    i. The student need to raise the requirements and put a requisition to the Mentor
    ii. The requisition has to be put forward in a Committee and approval of the Committee is required
j. All the Fixed Assets purchased for/with NewGen IEDC Fund are the property of the NewGen IEDC (DST, GOI)
k. The Students/Mentors need to interact with Industrialists, Industrial Bodies and also need to identify local problems
l. Proper Media Coverage is required for NewGen IEDC in order to attract Incubatees.
m. The projects need to be applied for IPR and for IPR support, the Institution can approach CII, NIMSME, NORM-TBI, ICRISAT where they get subsidized.
n. The Students can work on ideas related to Service Sector also.
o. As some of the Innovative Projects are from Girl Students, they need to network with Women's Innovation Club / International Women's Organization.

7. The Principal proposed Vote of Thanks to all the Members.
8. The Meeting was concluded with Thanks to the Chair.

7. Progress Summary:

1.	**Total number of Student Projects supported**	**12**
2.	**Total fund provided towards supporting Student Projects**	**Rs.21,18,862/-**
3.	**No. of Patents filed by students**	**6**
4.	**No. of Patents Granted**	**0**
5.	**No. of companies/Starts up Set up by Students**	**0**
6.	**Social Impact Made, If any**	**0**

13. GLA University, Mathura, Uttar Pradesh

NewGen IEDC [2017-22]
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report (As on October 31, 2018)

Name of the College/Institution hosting NewGen IEDC	GLA University, Mathura	
Year of starting NewGen IEDC	August 2017	
Name of the Head/Principal of the Institution/College	Prof. D. S. Chauhan, Vice-Chancellor, GLA University, Mathura, U.P. - 281406	
Name of NewGen IEDC Coordinator	Dr. Manoj Kumar	
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	8171624769, 9568342363 manoj.kumar@gla.ac.in newgeniedc@gla.ac.in	
Financial Details	Sanction Order No./Date	Amount Sanctioned
Previous Sanction Order Details	**Order No**: EDII/DST-NewGen IEDC/17-18/13 **Date**: 15/06/2017	Rs 60 Lakhs

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	**Lay of the Land (Orientation Session)** Date: August 08, 2017	Freshers were introduced to Entrepreneurship Cell and NewGen IEDC of GLA University, Mathura and its functioning and How they can be benefited after associating themselves with NewGen IEDC & E – Cell – GLAU.
02	**Wonder Women** Date: October 07, 2017	Empowering women through invited women entrepreneurs. Four women entrepreneur were invited. • Ms. Nabomita Mazumdar (Founder and Director of Nabomita.com, From Mumbai) • Ms. Vishwapriya Kochhar (Co-founder and Director of Blew Minds Consulting) • Ms. Samira Gupta (Founder and Director of Aura Image Mgmt and Consulting, from Gurugram) • Ms. Rashmi Chaddha (Founder of Voyage.com, and women backpackers)
03	**WF - NEN Orientation** Date : November 11, 2017	WF - NEN (National Entrepreneurship Network)100 course was launched by Ms. Shruti Sinha (North Regional Manager NEN)
04	**How I met my idea** Date: December 02, 2017	"Idea Evaluation" Workshop was organized to know about many aspects that you need to know to start a start-up.

05	**Saturday Eve with E-Cell** Date: December 03, 2017	"Exam" movie was screened with the motive of publicity & entertainment.
06	**Rs. 50 Venture** Date: February 16 – 17, 2017	Participants started their venture within the campus with just Rs. 50 & earned a good amount from it.
07	**Social Challenge Competition** Date : February 18, 2018	Participants presented a social problem along with its solution followed by solving a case study.
08	**Ad-Mad Show** Date: February 18, 2018	Students have prepared a short advertisement for their product/service. Top performers were awarded.
09	**Corporate Ready Workshop** Date: February 16 – 17, 2018	The workshop helped students to improve their Interpersonal and communication skills effectively. Ms. Samira Gupta had taken this session.
10	**Business of Good** Date: February 16 – 17, 2018	Workshop described "how to make a business by solving the problems that exist in society". Mr. Deepak Gadhia (Solar Man) had taken this session.
11	**Let the Game Begin** Date: February 18, 2018	This workshop was based on Fun Based activities that enhance the thinking capability with an entrepreneurial outlook
12	**Music-Com** Date: February 18, 2018	Music-Com was the closing ceremony of E-Conclave. Mr. Rishabh Seen(Sitar vadak) & Mr. Amit Sharma (comedian) performed in it.
13	**Movie Night with E-Cell** Date: August 28, 2018	Some short edutainment movies were shown to the freshers.
14	**Orientation Session** Date : August 30, 2018	The orientation session was organized for the freshers.
15	**Digital Marketing Workshop** Date: August 13, 2018	Moving business online is very important in today's era; with this aim, a workshop is organized. Mr. Amitabh Verma (Ex-Googler) had taken this session
16	**Portrait of Success** Date : August 15, 2018	Portrait of success (POS) is a platform where the Success holders motivate by sharing their story and ideology that how they are able to achieve their goals that may help everyone to resolve their hurdles.
17	**Seminar in Kanha Makhan Public School** Date : September 07, 2018	Team E-Cell visited KMP school for organizing a session on 'Entrepreneurship'.
18	**Billion Dollar Idea** Date : December 02, 2018	This session was conducted with the aim of polishing and refining the ideas of Entrepreneurial aspirants in an innovative way.

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

Sr. No.	Activities	Outcome/Achievements
01	**Idea Generation Workshop** Date: August 08, 2017	A student-friendly session was completed. The students raised their doubt/questions regarding the idea generation. Out of 22 shortlisted ideas finally, four were selected to pitch in the second advisory board meeting.
02	**GLAU NewGen IEDC Inauguration** Date: January 30, 2018	NewGen IEDC was inaugurated in the presence of Chancellor Mr. Narayan Das Agrawal, VC - Prof. Durg Singh Chauhan, PVC - Prof. Anand Mohan Agrawal, Dean Academics - Prof. Anoop Gupta, Mentor to E-Cell GLAU Mr. Pramod Joshi, and Chief Coordinator of E-Cell GLAU Dr. Manoj Kumar (Chaubey) with the aim of mentoring & funding Ideas.
03	**B-Plan Competition** Date: February 18, 2018	In this event, we had received 28 entries out of which we have selected three ideas for further support and mentoring with a sum of Rs. 2.25 Lakhs.
04	**First Idea Progress Review** Date: April 21, 2018	Mr. Satyendra Kumar, Mr. Pramod Kumar Joshi & Dr. Manoj Kumar reviewed the progress of different recommended ongoing prototypes.
05	**IPR Meet** Date: April 26, 2018	Ms. Suchi Agarwal, Patent Consultant from IP NEETI had taken a session. The outcome of this session was that two ideas of 2017-18 were patented.
06	**Meet & Greet Session** Date: October 16, 2018	This session is organized specially for all the running startups in GLAU, their problems were discussed with mentors & solutions were founded.
07	**Second Idea Progress Review** Date: September 08, 2018	Mr. Satyendra Kumar, Mr. Pramod Kumar Joshi & Dr. Manoj Kumar reviewed the progress of different recommended ongoing prototypes.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
01	**Visit by Dr. R. Raghunandan** (Executive Director of ISBA)	He visited GLAU to guide us in setting up of Incubation Centre.

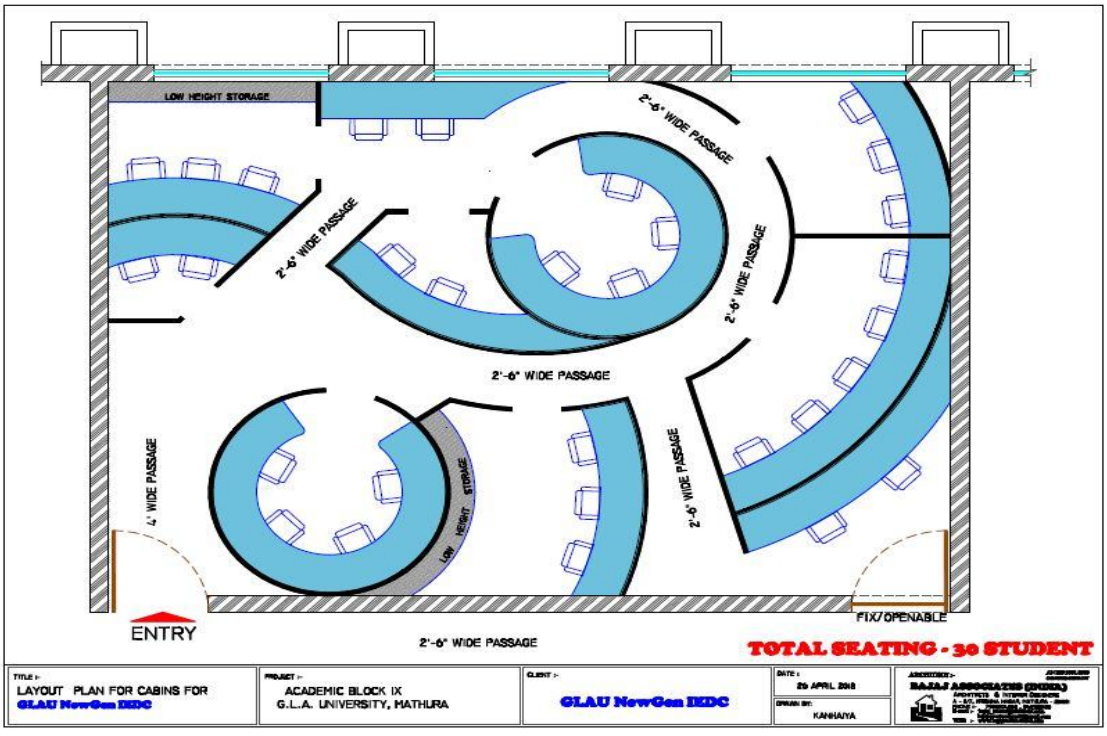
02	**Session with Madhuban Kumar & Paras Loomba**	Paras Loomba is the Founder of the Global Himalayan Expedition. He is working in the field of renewable energy and sustainable rural development & has brought smiles on the faces of thousands of people of hundreds of villages in Ladakh by bringing electricity to their houses.
03	**Start-Up Expo Visit**	Some council members visited Start-Up Expo at Gurugram.
04	**NENE – Week Award ceremony**	Team E-Cell visited NEN E-Week Award show 2018 at Siri Fort, Delhi.
05	**A session with Mrs. Shikha Katiyar** (Business Development Executive at Jaro education)	Mrs. Sikha visited for promoting the "Hunar 2.0) a B-Plan competition organized by Jaro Education.

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

We were not able to conduct Hackathon due to unavoidable circumstances in previous session of 2017-18, but we are planning to conduct this event in the near future.

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

GLA University management has given support of Rs 7 Lacs to NewGen IEDC for incubation Support. 50% work of construction has been already completed (as on October 31st, 2018) and rest will be done by the end of March. It will start function by the start of April – 2019. Here is the layout and aerial view of Incubation Space.



GLA University has already started five different startups under the aegis of NewGen IEDC**.**

1. **Company Name**: **Merchant Saheb**

    a. **Company Logo:**

    b. **Objective:** Merchant Saheb is a platform for renting & lending different products. Merchant Saheb is started with the aim to minimize the expenditure of customer by providing him the same product on rent.

    c. **Services:**

        i. At Merchant Saheb we strongly believe sharing helps us own less and experience more. So why Buy items you need for a couple of hours or days. At the same time, we have tons of items lying unused around the house.

        ii. Our statistics shows that an average Indian house has Rs. 20,000 worth of items lying used. So why not rent these out and earn the price you like. We are taking sharing is caring to the next level by making it Sharing is Rewarding

2. **Company Name: Photoholics Media**

    a. Company Logo:

    b. **Objective:** Photoholics Media is a creative agency helping businesses grow in this competing world. Since 2016, our team of brilliant creative, technical and perspicacious minds have been helping our clients grow their sales, solve

their problems and connect with their customers using the power of the web and tech. We are committed to our clients and our community

c. Services:

i. At Web Development
ii. Digital Marketing
iii. Software Development
iv. App Development
v. Graphic Design
vi. Photography

d. Notable clients:

3. Company Name: **E-Bibil**

a. Company Logo:

b. Objective: We are going to be the major manufacturers for smart products in India. It will be the start of the smart revolution. We are visioned towards being the first smart manufacturers in India.

c. Services:

i. Smart Mirrors
ii. Smart Bag
iii. Smart Lock
iv. Smart ORVM
v. Android Tablet

4. **Company Name**: **Heptism Consultancy Services**

   a. Company Logo:

   b. Objective: It is an IT service provider offering programmes like web development, mobile app development, graphic designing and digital marketing challenging well established companies in terms of its creativity, consulting and delivery records. This pocket caring, emerging company is well known for its 'Perfect programming solution' guaranteeing customers to a great level of satisfaction.

   c. Services:

      i. Internet of Things (IoT)
      ii. Business Analytics
      iii. Branding
      iv. Digital Marketing

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	**Digilab** An online portal where a student can solve and submit their solutions online without any extra requirements in their systems, correspondingly mentor can track the performance of the student in the real time. It reduces the use of paper.	An idea need to be implemented.	Design Prototype	Required features have been implemented and tested successfully. Extending its scope for further improvements.
2	**Intellipremises** A Home Automation System based onIOT (NodeMCU). Leaving the traditional systems behind, its algorithm is based on the Google distance matrix to save electricity & implement Accurate automation.	Android Application & Hardware Circuit is done.	Design & Prototype	Only partial hardware programming is left (i.e. approx 100 LOC)

3	**Smart Bag-** This module is an intelligent product that connects physical objects to a mobile app which helps the end user to keep a track of their items.	An idea which was well thought of after several brainstorming sessions and hence, planned to be executed.	Designing of Prototype.	Integration of modules is completed. Mobile App integration with the module is under process.
4	**Smart Bike Security System** This module makes the bike smart enough to remove traditional key with a digital key, send alerts at the time of need.	An idea which was well thought of after several brainstorming sessions and hence, planned to be executed.	Designing of Prototype.	The fingerprint scanner and identification module have been developed.
5	**Onyoursix** This is automatic water(liquid) filling system, that will automate the process of liquid filling in homes and industry as well.	The prototype has been completed	Modifications in prototype	The prototype has been completed
6	**Fingerprint** This is an advanced locking system that will require a fingerprint to get unlocked. The level of security will be increased with the help of an App.	An idea which was to be implemented.	Designing of prototype along with the App.	The prototype is completed and has been checked with the App.
7	**Eleodoro** This is a controller based car in which all the controls of a car will be provided on the controller and it can be controlled by using hands only. This will help the differently abled people and the old age people to make their life easy.	An idea which was well thought of and needs to be implemented.	Designing of the prototype with an android app.	The hardware of the Prototype is completed an Android app is under process.
8	**Asfaleia** An IOT based home security system, which is made to provide the features of a high-end security system, and yet fit within the budget of an Indian common man.	An idea which was to be implemented.	Started building prototype	Prototype completed
9	**Solar Thermal Energy Storage In Buildings-** It is a macro-encapsulation method in which PCM (OM 37) is filled that is Phase Change Material which is used in buildings to reduce the temperature at peak time and delay the temperature ratio in the building	An idea which was well thought of after several brainstorming and planning hence planned to be executed.	Started building prototype	Prototype and analysis are completed. The desired result is obtained and the result holds good.

	and also space cooling and heating energy consumption are reduced.			
10	**Antitheft-** It is a security-based system which can be used to prevent theft. It is different from other product as it is preventing the theft by taking strict actions against robber or thieves.	An idea which was to be implemented.	Started building a prototype.	Completed. Successfully.
11	**Tred-E-cycle:** A cycle which can be used for multipurpose and it is fully focused to a healthy life. One can use it as a treadmill, E-Bike as well as a different type of cycle (i.e. treadmill and E-bike both at a single time).	An idea which is to be implemented	Designing and manufacturing of working model.	Completed. Successfully.
12	**Travel Smart** Improvisation of the bus system in which a number of entries and exit will be counted and the location of the bus and will be indicated to the passenger through an app.	An idea which is to be implemented	Started building software part	Hardware did, Prototype Completed. successfully.
13	**WacKey-** Weight Automatic Cut Key (WACKEY) is a project accomplished by GLA University students and faculty to minimize accidents and terminate triple riding from the nation. WACKEY has features of turning off the power when the weight on the machine is more than the weight specified by the company. This specified weight is the safest weight set by the industry in order to keep bike riding safely. WACKY technology cuts off the ignition when more than 2 people are seated on a bike or the weight of the people seated is more than the weight specified for a safe ride.	In Scrap	Virtual Simulations and Advice	80% Completed
14	**Amy** a self-connecting loop of various automation and cloud-enabled devices for complete automation services	Project development midway under development phase	Module interconnects protocol configured	Hardware to be uploaded with software

- **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.**

Project Name: Smart Bike

Project Name: Smart Bag

Project Name: Wackey

Project Name: Antitheft

Project Name: Tred – E – Cycle

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:

First Commercialized Product – Fingerprint Locks & Smart Bag Module
Company Name: E – Bibil Technologies Pvt. Ltd.

Student Team Details:

a. Anindya Singh - CEO, Contact No: +91 - 9807707073 E-Mail: anindya.singh@outlook.com
b. Jay Kattyayan - COO, Contact No: 8126110545, E-Mail: jaykattyayan009@gmail.com
c. Siddhartha Bajpai - CTO, Contact No: 8052912313 E-Mail: sidbajpai9807346747@gmail.com
d. Shalini Sharma - CAO, Contact No: 7388092405 E-Mail: 24.shalini.sharma1995@gmail.com
e. Daanish Ahmad - CFO, Contact No: 8707555918 E-Mail: danish.a0007@gmail.com

Description about Start-Up:

E-Bible Technologies Pvt. Ltd. focuses on developing both product and service-based business. We are working on bilateral platforms wherein we are not only creating physical devices but also online platforms for our service based idea. So given below is a complete description of our product range which our company intends to do business within a stipulated time-frame for the coming years.

Products:

1. **Fingerprint Locks**: Fingerprint locks will revolutionize the security purpose by eliminating the use of keys as in all types of conventional locking systems. It will be operated by using fingerprints which will increase the security level up a notch using a dedicated app that will also allow unlocking through PIN protection. The fingerprint lock will be available for different applications and the most common form will be padlocked. To operate the lock, the user has to place his/her finger on the fingerprint sensor on the front face of the lock. This concept greatly reduces the chances of losing keys or getting duplicated. Our company has taken it as a mission to bring this keyless revolution to all households and commercials.

2. **Smart Bag Module:** Smart Bag Module is a device that fits on any luggage carrying product like bags, rucksacks, suitcases, etc. This module uses a mobile application and RFID sensing, which allows the user to make a list of items which are put inside a bag and helps by reminding him/her to keep the items through simple push notifications. This will be a modular device which will also be equipped not only with GPS tracking system but also have USB ports for charging devices and attaching other add-on modules provided by us like air pollution sensor, temperature sensor, etc.

Entrepreneurial Journey:

The journey which initiated from hostel rooms of GLA University in 2017 got the initial support from E-Cell GLA University and subsequently IEDC which helps the journey to move a step forward and reach to prototype stage by early 2018. Patents are also received during 2018. Now, the future plans will be to take them on the floor in 2019.

The contribution of IEDC:

IEDC was very helpful in taking these products from ideation to prototype stage. They provided an ecosystem which is helpful in developing prototypes and funds which played an important role in this development. For a startup like us which are still in Ideation stages, this help provides a lot of support.

Future Plan:

Future plans are clear as we are eager to take both of these products to the production stage. For which initial level work is done. Like, finalization of product developer and other necessary work are done. Within next year, we are dedicated to taking them on the floor.

Second Commercialized Product: Tred – E – Cycle
Company Name: Tred – E

Student Team Details:

a. Sachin Singh Sengar - CEO, Contact No: 9456881057 E-Mail: sachin.sengar25.12@gmail.com
b. Ravi Kumar Shukla - COO, Contact No: 9455779169, E-Mail: ravi.shukla2507@gmail.com
c. Tejas Singh - CTO, Contact No: 7054918655 E-Mail: tejassingh39@gmail.com
d. Gaurav Verma - CAO, Contact No: 9532726497 E-Mail: gauravwego16@gmail.com
e. Himanshu Mishra - CFO, Contact No: 8979646135 E-Mail: himanshumishra7921@gmail.com
f. Karanjeet Singh Randhawa – CFO – Contact: 8755801310 E- Mail: randhawa.karna4@gmail.com

Description about Start-Up:

The present invention relates to exercise equipment having the features of a treadmill, bicycle, and e-bike. More particularly, a treadmill-electric-cycle that works on a chain arrangement through which it functions in three different ways. It is basically designed on THREE in ONE concept. It is an assembly of a treadmill and a bicycle which is governed by the motor. People may use it as a treadmill, bicycle & e-bike. You have to simply walk over it & it starts to move in a forward direction. The whole mechanism is governed by a motor which helps to multiply your speed. It is basically designed for the women, youth & for fitness flicks.

Entrepreneurial Journey:

The journey Exercise is an activity that improves health and reduces the risk of many diseases in the human body. But in the present scenario, people are too busy and they don't have time to perform exercises. There are many exercising equipment's in the market, among which bicycles and treadmills are very common and widely used for exercise to stay fit and healthy. Through normal bicycles, one can only exercise the muscles of the legs and lower torso and exercise through treadmill increases the strength of the heart, reduces weight, and decreased insulin resistance. To perform exercise through such equipment's one have to purchase different equipment's. From this, the concept of this product arises and the manufacturing of this product was started. After the manufacturing of the product due to the demand of this product, this product is going to be launched in the market for the benefit of the society.

The contribution of IEDC:

Newgen IEDC has provided us the funds for the manufacturing of the prototype after knowing about our idea and benefits of this product to the society and environment also. NewGen Iedc is also helping in the commercialization of this product also.

Future Plan:

- Profitability and growth.
- Adding up new innovative ideas.
- Usability for every class of the society.

6. Minutes of the Advisory Board Meetings (held so far):

First Advisory Board Meeting
Date: December 1, 2017

Agenda: The Meeting of the Board of members was conducted so as to make the Board members aware of the milestones achieved and the problems incurred.

About the Session: The session was not only knowledgeable but was also a source of ideation for all the other projects that had come to get the valuable recommendation and improvisations that can be done in their projects.

In the session, all the different projects showcased the work done by them with the stipulated time and resources. The mentors not only judged the credibility of their idea but also helped them know the future scope and depth upto which they can penetrate in the market.

The session began with the lamp lighting ceremony which was followed by the Chairperson addressing the Advisory Board and the student body. Then, a PowerPoint presentation by Dr. Manoj Kumar, Coordinator NewGen IEDC which was a brief of NewGen IEDC, the scope they share, the role of the Institute and the future perspective.

Present Advisory Board Members

Sr. No.	Name	Designation	Institute
1.	Prof D. S. Chauhan	Vice – Chancellor	GLA University
2.	Naveen Vashishtha	Representative of NSTEDB	Government of India
3.	Dr. S. B. Sareen	Representative of EDII	EDII, Ahmedabad
4.	Dr. Anirudha Pradhan	Dean- Research, Institute of Applied Science & Humanities	GLA University
5.	Dr. Vijay Kumar Dwivedi	Associate Professor, Institute of Engineering and Technology	GLA University
6.	Mr. Satendra Kumar	Representative of the Incubator	KIET Group Of Institutions
7.	Mr. Sanjeev Nikore	Representative of the Industry Association	President, Strategic Initiatives at Tech Mahindra
8.	Mr. Vishal Vasudeo	Alumni Entrepreneurs	GLA University
9.	Mr. Piyush Agrawal	Alumni Entrepreneurs	GLA University
10.	Dr. Manoj Kumar	Associate Professor, Institute of Engineering and Technology.	GLA University

Schedule of the Day

1. Lamp lighting ceremony by the Respected Dignitaries.
2. The Chairman addressed the Board Members.
3. Dr. Manoj Kumar initiated the meet by a presentation.
4. Each of the ten teams presented a presentation of their respective projects along with the milestones achieved.
5. Sessions of the questionnaire by the respective dignitaries regarding the projects.
6. The Vote of Thanks was presented to the Board.
7. Distribution of Mementos to the Respected Guest dignitaries.
8. Visit to the NewGen IEDC workspace constructed for the selected projects.

Details of other Meeting conducted for the smooth conduction of NewGen IEDC Projects:

First Meeting: Mentor Meeting
Date: March 22, 2018

Agenda: Meeting was called to check the status of the approved project with the mentors.

Attendees:

1. Mr. Pramod Joshi – Chairmen Nomine – GLA University, Mathura
2. Prof (Dr) Kamal Sharma – Mentor – Finger Print Lock
3. Mr. Ajitesh Kumar – Mentor – On-Your-Six
4. Mr. Puspendra Singh Rathore – Mentor – Solar Thermal Energy Storage In Buildings
5. Mr. Palash Jain – Mentor – Antitheft
6. Mr. Toshit Jain – Mentor – Wackey
7. Mr. Manoj Kumar – Chief Coordinator – NewGen IEDC, GLA University, Mathura.
8. Mr. Nitin Kukreja - Coordinator – NewGen IEDC, GLA University, Mathura

Discussed Points:

1. Chief Coordinator was advised to check the project status on a regular basis.
2. Advised was given by Chairmen Nomine - Mr. Pramod Joshi to the entire mentors to start thinking about the commercialization of these prototypes**.**

3. An impact was given by the Chief Coordinator and Chairmen Nomine to get started thinking about Patent and opening of respective companies.

The meeting was ended with a positive note that all mentors will guide the student in all suggested direction by their all possible manner.

Second Meeting: Review Meeting of Projects student and their mentors
Date: September 12, 2018


Agenda: Meeting was called to review project of Session 2017 – 18 with the mentors.

Attendees:

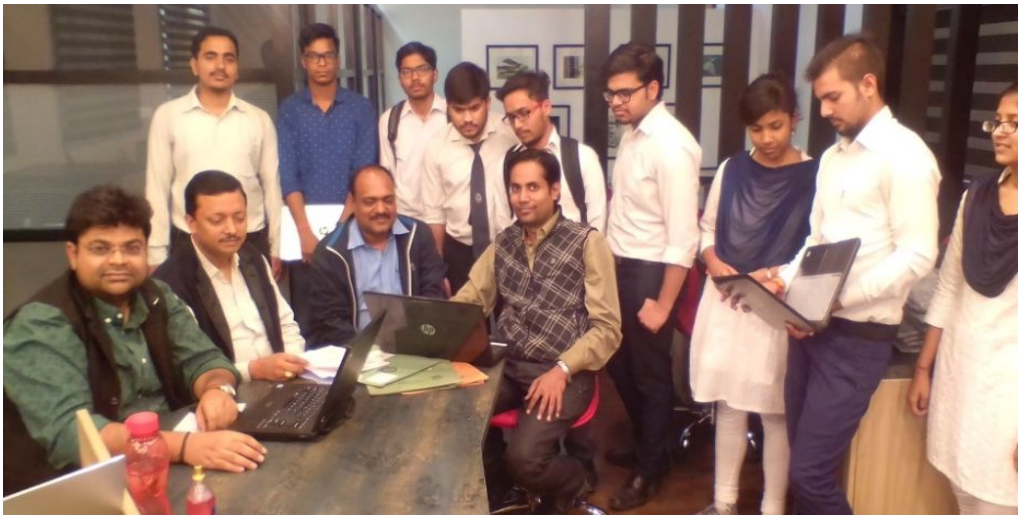
1. Mr. Pramod Joshi – Chairmen Nomine – GLA University, Mathura
2. Prof. (Dr.) Kamal Sharma – Mentor – Finger Print Lock
3. Mr. Ajitesh Kumar – Mentor – On-Your-Six
4. Mr. Toshit Jain – Mentor – Wackey
5. Mr. Manoj Kumar – Chief Coordinator – NewGen IEDC, GLA University, Mathura.
6. Mr. Nitin Kukreja - Coordinator – NewGen IEDC, GLA University, Mathura

Discussed Points:

1. As suggested in the last meeting about patent work, Mr. Satyendra and Dr. Manoj congratulate two teams who got patented of their project.
    a. Tred – E – Cycle.
    b. Finger Print Lock.
2. Mr. Satyendra Kumar advised to all students' teams that their project work should look like industry ready prototypes.
3. Emphasis was given to think about the social and industrial need of today's era and then start thinking in the same orientation.

The meeting was ended with a positive note that all student will start thinking to resolve social and industrial need of today's era.

Third Meeting: Progress Meeting with Students
Date: November 14, 2018



Agenda: Meeting was called to check the progress of Session 2017 – 18 Projects

Attendees:

1. Mr. Pramod Joshi – Chairmen Nomine – GLA University, Mathura.
2. Prof (Dr) Kamal Sharma – Mentor – Finger Print Lock
3. Mr. Ajitesh Kumar – Mentor – On-Your-Six
4. Mr. Saurabh Singhal – Mentor – Asfaleia
5. Mr. Deepak Mangal – Mentor – Intellipremises
6. Mr. Toshit Jain – Mentor – Wackey
7. Mr. Manoj Kumar – Chief Coordinator – NewGen IEDC, GLA University, Mathura.
8. Mr. Nitin Kukreja - Coordinator – NewGen IEDC, GLA University, Mathura

Discussed Points:

1. Chief Coordinator advised completing the project of the last session i.e. 2017 – 18 as soon as possible.
2. Advised was given by Chief Coordinator & Coordinator of NewGen IEDC to start thinking about the commercialization of these prototypes**.**
3. Emphasis was given by the Chief Coordinator to get more patent and commercialization.

The meeting was ended with a positive note with all students and mentor that they are now ready to submit and showcase their prototypes in 2nd Advisory Board Meeting.

7. Progress Summary:

1.	**Total number of Student Projects supported**	14
2.	**The total fund provided for supporting Student Projects**	22.5 Lacs
3.	**No. of Patents filed by students**	03
4.	**No. of Patents Granted**	02 (Provisional)
5.	**No. of companies/Starts up Set up by Students**	02
6.	**Social Impact Made, If any**	Annexure – I

Annexure – I

1. We have developed a prototype namely – DigiLab, through which we can save a lot of papers by Digitalizing the documentation of different Labs.

2. We have sponsored a Digital Marketing Workshop for the university students and created awareness around how they can market their product/service on the internet.

3. By creating prototype namely – Tred – E – Cycle, we are aiming to save fossil fuels and create awareness for general fitness in the public.

4. We have sponsored Women Empowerment and Entrepreneurship Programmes in the University, named “Ameya – 2018” & “Wonder Women – 2017”.

14. University of Kashmir, Srinagar, Jammu & Kashmir

No Progress Reported So far