

Annexure - IV


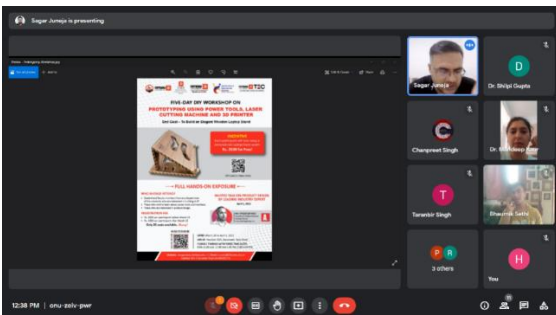
**NewGenIEDC
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi**

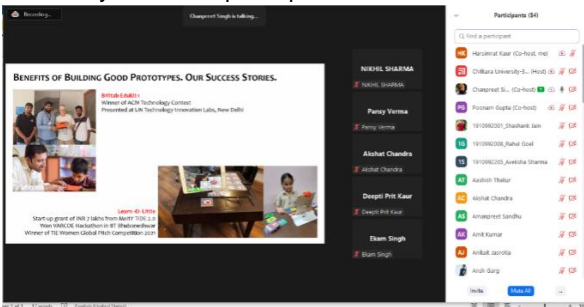
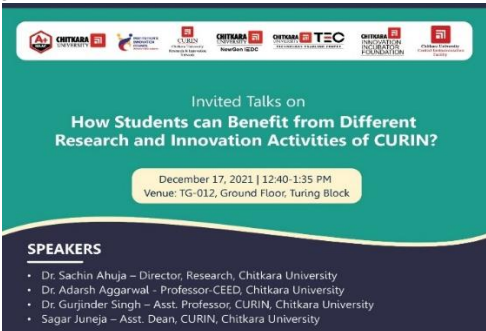


PROFORMA FOR SUBMISSION OF PROGRESS REPORT




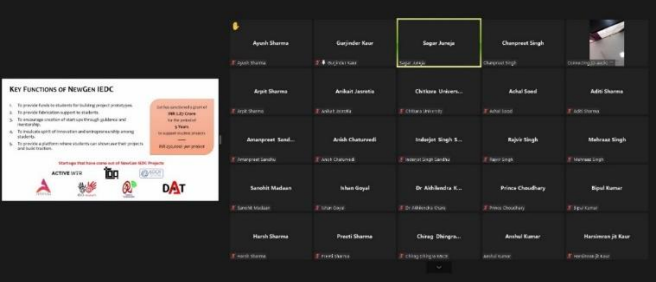
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| Name of the College/Institution hosting NewGen IEDC | Chitkara University, Punjab Chandigarh-Patiala National Highway (NH- 64), Village- Jansla, Rajpura, Punjab 140401 | |
| Year of starting NewGen IEDC | 2019 | |
| Name of the Head/Principal of the Institution/College | Dr. Archana Mantri Vice Chancellor, Chitkara University, Punjab | |
| Name of NewGenIEDC Coordinator | Sagar Juneja | |
| Contact Details of NewGenIEDC Coordinator • Mobile Number • E-Mail ID | 9625441043 sagar.juneja@chitkarauniversity.edu.in | |
| Financial Details | Sanction Order No./ Date | Amount Sanctioned |
| Previous Sanction Order Details | 1. EDII/DST-NewGen-IEDC/18-19/05 | 6,000,000 (First Year) |
| | 2. dated 13/11/2018 | 4,750,000 (Second Year) |
| | 3. | 60,00,000 (Third Year) |


Initiatives/Activities Undertaken as per the Action Plan Submitted:

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



| # | Activities | Outcome/Achievements |
|----|---|---|
| 1. | Five-day DIY Workshop on Prototyping | <ul style="list-style-type: none"> A five-day hands-on workshop on prototyping was conducted from March 28 to April 1, 2022. A total of 20 participants including students, and faculty members attended and obtained hands-on experience on working with different prototyping tools available at NewGen IEDC. Mr. Chanpreet Singh and Mr. Krishna Das from Chitkara University were the resource persons.  |
| 2. | Webinar on 'Importance of Prototyping and Prototyping Techniques' | <p>A webinar on 'Importance of Prototyping and Prototyping Techniques' was organized for the students as well as faculty members to emphasize on the importance of doing hardware prototyping. It was held in March 2022 and was delivered by Mr. Sagar Juneja – Coordinator, NewGen IEDC. Close to 50 participants attended the session.</p>  |
| 3. | Awareness Session about Funding Opportunities | <ul style="list-style-type: none"> On February 26, 2022, an awareness session was conducted on procedure of submitting projects and winning prototyping funding for project development and it was titled 'Know How to Receive Funds for Building Your Projects'. |




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| | | <ul style="list-style-type: none"> In this session Mr. Sagar Juneja – Coordinator, NewGenIEDC talked about the facilities available at NewGen IEDC for prototyping support. Close to 60 students and faculty members participated in it.  |
| 4. | Awareness Session for Students | <ul style="list-style-type: none"> On Dec 17, 2021, an awareness session was conducted for students on the topic 'How Students can benefit from Different Research and Innovation Activities of CURIN'. In this session Mr. Sagar Juneja – Coordinator, NewGenIEDC talked about various opportunities available for students under NewGenIEDC scheme. Close to 150 engineering students participated in it.  |
| 5. | Five-day Hands-on Workshop on Woodwork Up-Skilling | <ul style="list-style-type: none"> This workshop was organized with an objective to teach students elements of product design and it was held during December 13-17, 2021. Students built a 'laptop stand' in this workshop which they took away with them for personal use. They learned to use power-tools, hand-tools, and laser cutting machine in this workshop. 9 students participated in this workshop that was delivered by Mr. Chanpreet Singh – Co-ordinator, NewGenIEDC.  |
| 6. | Idea-Thon Finals: 5 Minute Project Pitch | <ul style="list-style-type: none"> CURIN organized Idea-Thon to provide a platform for students to bring forth their most innovative ideas that have good commercial potential. The objective of the competition was to nurture those ideas and bring them to a level where they can be pitched for prototyping funding from NewGenIEDC. 50 ideas were received and 26 were shortlisted for final pitch that was held during Dec 6 and 7, 2021. Jury panel included Dr H.K.Mittal (Chairman-SISF Committee), Dr Jagdish Lal Raheja (Former Chief Scientist, CEERI) and Mr. Brijesh Aggarwal (Serial Entrepreneur)  |
| 7. | Awareness Sessions on the | <ul style="list-style-type: none"> An orientation session on how to win funding for innovative projects was conducted for first year engineering students on Nov 30, 2021. |

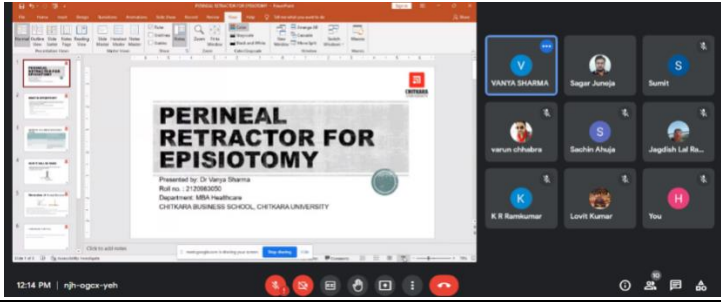



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| | <p>Funding Opportunities for Student Projects</p> | <ul style="list-style-type: none"> • Four talks were held, in which different speakers talked about different types of funding opportunities available in the University for Student Projects. • Sagar Juneja – Coordinator, NewGenIEDC spoke about NewGenIEDC scheme • The session was attended by more than 500 students.  |
| 8. | <p>Five-day Rapid Prototyping Workshop</p> | <ul style="list-style-type: none"> • Chitkara University NewGenIEDC conducted a five-day hands-on workshop on 'Design Techniques and Laser Cutting Operations' during Oct 11-15, 2021. • The objective as to train students to how to build good quality prototypes using rapid prototyping technique. • Mr. Chanpreet Singh – Co-Coordinator, NewGenIEDC and Mr. Gurpreet Singh – AP, Mechatronics delivered the sessions.  |
| 9. | <p>NewGenIEDC Awareness Drive</p> | <ul style="list-style-type: none"> • When the university re-opened for students after the lockdown, our team conducted a three-day awareness drive to showcase about NewGenIEDC and its activities to the students. • We witnessed a footfall of about 750 students who expressed interest in our activities. • The idea was to encourage students to submit projects to NewGenIEDC and use central fabrication facility at the University for prototype development.  |
| 10. | <p>Awareness Session for Mentors</p> | <ul style="list-style-type: none"> • Mentors (faculty members) play a very important role in encouraging students to carry out innovative projects. • We conducted an awareness session for faculty members to showcase them the NewGenIEDC activities, funding support and other initiatives. • It was held on Sep 22, attended by close 100 faculty members and was delivered by Mr. Sagar Juneja from NewGenIEDC.  |
| 11. | <p>Workshops on contemporary technologies</p> | <ul style="list-style-type: none"> • During May-June 2021, three different workshops were organized for the students on contemporary technologies under STEAM School Program. Students from first year engineering courses |




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| | | <p>participated in them.</p> <ul style="list-style-type: none"> • Topics of these workshops were - Make your first Android Chat-Bot, Machine Learning and Deep Learning for Real-time Applications, and Make Your First AR Application.  |
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[B] To identify, develop & commercialize students' innovative ideas

| # | Activities | Outcome/Achievements |
|----|---|---|
| 1. | Annual Progress Review of Sanctioned Projects | <ul style="list-style-type: none"> • Progress of 20 NewGenIEDC sanctioned projects was reviewed over a course of three days (Feb 11, 14 and 15, 2022). • These review sessions were chaired by Dr. Archana Mantri – Vice Chancellor, Chitkara University, Punjab. • Beneficiaries were asked to present current status of their project, future plans, discuss challenges. Emphasis was made on commercialization and IP protection of these projects. • Jury panel gave valuable feedback and also gave direction to some of these projects.  |
| 2. | Webinar on Innovation to IPR | <ul style="list-style-type: none"> • A webinar was organized for students to educate them on how to convert innovative ideas into intellectual properties with great commercial potential. It was held on Feb 17, 2022 • Dr. B. Balamurugan from Galgotia University was invited to deliver this webinar, which was attended by close to 150 students and faculty members.  |


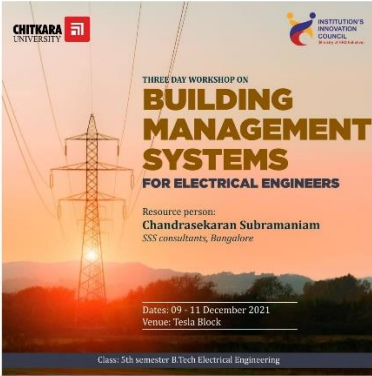
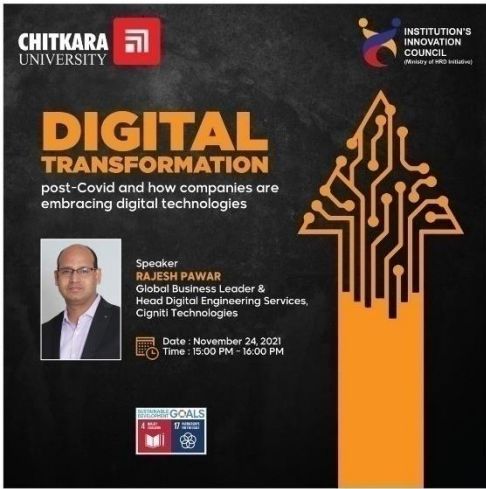
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| 3. | Webinar on Innovation and IPR | <ul style="list-style-type: none"> • A webinar on Innovation and IPR was delivered by Dr. Sachin Ahuja – Director, Research, Chitkara University, Punjab on Feb 4, 2022. • The objective was to educate students on importance of IPR and how students should protect IPs of their projects. • It was attended by close to 90 students.  |
| 4. | Expert Talk on Entrepreneurship | <ul style="list-style-type: none"> • On Jan 28, 2022, webinar titled Entrepreneurship Myths Demystified was conducted by Mr. Harmeet Kelley (Entrepreneur and Growth Strategist) for the students. • The session was attended by students of different departments of engineering, and management. There were about 250 participants in the session.  |
| 5. | Expert Talk on Commercialization of Ideas | <ul style="list-style-type: none"> • Dr. Nitin Saluja – Associate Director (CURIN) delivered an expert talk on the topic Process of Innovation Development &TRL& Commercialization of Lab Technologies & Tech-Transfer on January 25, 2022. • Participants learned about various processes involved in innovation development, and the need for the continuous measurement of the maturity level of a technology throughout its research. • It was attended by close to 100 students and faculty members.  |
| 6. | Project Pitches for Funding Support from NewGenIEDC | <ul style="list-style-type: none"> • Four project ideas after a preliminary round were given an opportunity to pitch to a jury panel • Jury comprised of four seasoned researcher and innovators from the university • Three ideas were awarded funding from NewGenIEDC • The event was held on Jan 20, 2022 |

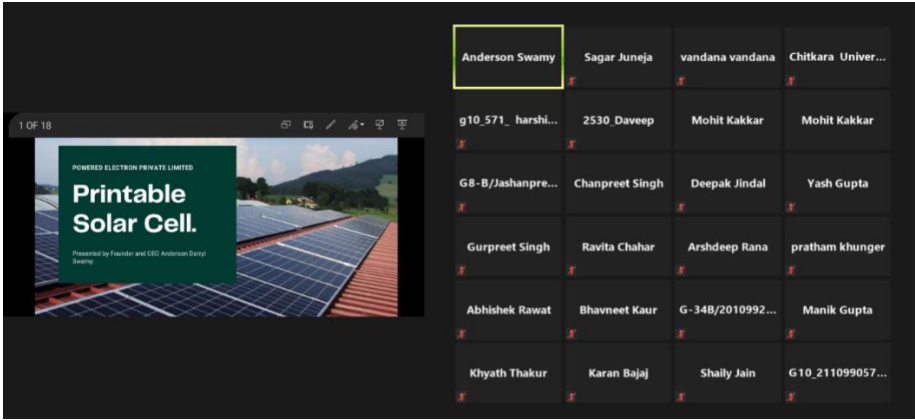

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| 7. | Five-day workshop on IoT | <ul style="list-style-type: none"> Carrying out IoT projects is a big craze among students, therefore to give them a good direction a five-day workshop was conducted Two open-source platforms namely Arduino and Raspberry PI were used in this workshop for building IoT applications. The workshop was held during Dec 13-17 and was attended by 30 CSE students. Dr. Pinaki Ghosh – Associate Professor, CSE was the resource person.  |
| 8. | Five-day workshop on MATLAB | <ul style="list-style-type: none"> MATLAB is one tool that is used for students in a variety of projects ranging for image processing, AI, ML etc. In order to students a hands-on exposure on MATLAB, a five day symposium was conducted during 15-19 Nov 2021 and 64 students attended it.  |
| 9. | Webinar by Alumnus Entrepreneur | <ul style="list-style-type: none"> In order to motivate students to convert their projects into start-ups, a webinar was conducted for which alumnus entrepreneur was invited to share his experience. Mr. Akshay Ahuja who is Co-founder of two start-ups delivered a talk on 'Zero Budget Entrepreneurship'. The session was attended by 50 budding entrepreneurs, which was held on November 17.  |

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| 10. | Entrepreneurship Awareness Camp | <ul style="list-style-type: none"> • A three-day Entrepreneurship Awareness Camp was organized during October 28-30, 2021 wherein industry experts and entrepreneurs were invited to share their expertise with the budding entrepreneurs. • Close to 70 student entrepreneurs from the university attended the camp.  |
| 11. | Grand Finale of Toycathon 2021 | <ul style="list-style-type: none"> • Chitkara University had a proud privilege to organize the Grand-Finale of Toycathon 2021 that was held during June 22-24, 2021 and 20 teams participated in it. • Toycathon-2021 provided a unique opportunity for students, teachers, start-ups, and toy experts/professionalism India to showcase their innovative and creative toys/games designs and compete for prizes worth Rs. 50 lakhs.  |
| 12. | Annual Flagship Event | <ul style="list-style-type: none"> • NOVATE+ 2021 was organized during Jan – May 2021 with a theme ‘Confluence of Industry and Academia to Address Real World Problems’. • 79 entries were received, 22 for shortlisted for final pitch round that was held on April 16-17, 2021. Each of these projects was joint project of industry and academia. • Jury members in the final round were Dr. Shivraj Dhaka (Counselor, Indian Green Building Council) and Mr. Sachin Bharadwaj (DGM, Sigma Electric Manufacturing Corporation). • 10 projects were shortlisted that received funding support from NewGenIEDC.  |

[C] To enhance Industry-Academia interaction

| # | Activities | Outcome/Achievements |
|----|---|--|
| 1. | IndustryEngagem ent Session | <ul style="list-style-type: none"> Mr. Akshay Dolas, Principal Engineer, ADD WORKS, Mumbai delivered a session on the Real-time challenges while translating prototypes into end products. The talk was attended by 116 students & faculty members and it was held on March 16, 2022. The session included case studies of two innovative products designed by ADD WORKS - Mileage air filter and Ka'an binaural microphone. The objective of the session was to converted idea into actual product.  |
| 2. | Participation in Exhibition (external) | <ul style="list-style-type: none"> A team from Chitkara University was invited to participate in the 11th edition of the annual exhibition MACHAUTO EXPO 2022 on March 11, 2022 in Ludhiana, Punjab. It was organized to provide a platform for the MSMEs units and academic organizations across the country to showcase their technologies & innovations. Our team showcased students projects done under NewGen IEDC in this exhibition.  |
| 3. | Expert Talk on AI and Robotics | <ul style="list-style-type: none"> An expert talk was delivered by an industry expert on the topic 'AI and Robotics: Latest Trends in Technologies' and it was attended by about 100 students and faculty members. The resource person was Mr. Amit Kumar – AddverbTechnologies Pvt. Ltd. and it was held on Feb 21, 2022.  |
| 4. | One-day Workshop with Automotive Industries | <ul style="list-style-type: none"> A team from Chitkara University attended a one-day workshop on 'Future Technologies in Automotive Domain for Sustainable Mobility' Held on Jan 28, 2022, in this workshop 10 different automotive manufacturing industries of the region discussed their problem statements. We participated to learn different industry problems of automotive sector, and to form |

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| | <p>collaborations with these industries for joint projects.</p> |
| <p>5. Industry-Academia Connect Series (Webinar)</p> | <ul style="list-style-type: none"> • Topic - Design of a Filter to Separate Carbon and Hydrogen from Gaseous Mixture • Dr. J.P. Kundra from Cheema Boilers, Mohali shared a problem statement on the need of a filter for their industry. • Talks a going on for the joint project with a team from the university. • The session was held on Jan 24, 2022  |
| <p>6. Workshop in collaboration with industry</p> | <ul style="list-style-type: none"> • Three-day workshop was conducted in collaboration with SSS Consultants, Bengaluru for Electrical Engineering students on the topic Building Management System. • Students learned about innovation in building management system, how various devices work together to make smart buildings. • It was held during December 9-11, 2021  |
| <p>7. Webinar on Digital Transformation</p> | <ul style="list-style-type: none"> • Mr. Rajesh Pawar – Cigniti Technologies was invited on Nov 24, 2021 to deliver a talk on the topic 'How Companies are Embracing Digital Technologies'. The talk was attended by many student start-ups. • The main objective was to educate young start-ups to remain always ready for transformation in order to do well in any scenario.  |
| <p>8. Industry-Academia Connect Series (Webinar)</p> | <ul style="list-style-type: none"> • On Oct 23, 2021, Mr. Anderson Swamy founder of a start-up Powered Electron was invited to discuss a problem statement on the topic 'Printable Solar Cells'. • The session was attended by about 70 students and faculty members to explore to possibility of carrying joint project with this start-up in the area of printable solar cells. |

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| 9. Collaboration with CDAC Mohali | <ul style="list-style-type: none"> On May 10, 2021 Chitkara University got into formal association with CDAC Mohali to work on joint projects in the area of CyberSecurity, Healthcare Technologies, Agriculture Technologies, Artificial Intelligence and Embedded Systems.  |

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

None

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

- As evident from our activity list for the FY 21-22, we made conscious efforts on training our students and faculty members on prototyping techniques and product designing skills. To further this effort, we developed a product in NewGen IEDC – A mobile phone stand (*its design has been registered*). It is now one of the corporate gifts that we give to university guests. Close to 1000 mobile stands have been manufactured in our facility in the last 6 months.



- We are building a strong industry connect with the regional industries for mentoring and doing joint projects. Currently, more than 10 joint projects with regional MSME industries have been supported under NewGen IEDC. We have industry mentors, reviewers as well as investors on board.
- One of the NewGen IEDC prototyping funding grantee won 'Women Entrepreneur of the Year 2022' award – A project titled **Learn-o-Little** by **Neha Tuli** was one the first projects that was sanctioned by Chitkara University NewGen IEDC in 2019. She later founded an EdTech start-up - 6DOF Solutions Pvt. Ltd. that is currently incubated at Chitkara University. In April 2022, she won 'Women Entrepreneur of the Year' award at Annual STPI Awards 2022 organized by Software Technology Parks of India, Mohali & TIECON 2022.

**Founder of Chitkara's incubated
EdTech startup Dr. Neha Tuli,
felicitated with STPI's Women
Entrepreneur of the year award at
TIECON**

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Dr. Neha Tuli, Founder of 6DOF Solutions Pvt. Ltd. (an EdTech start-up) incubated by Chitkara University, Punjab, was honoured with the prestigious 'Women Entrepreneur of the year' award by Software Technology Parks of India, Mohali & TIECON 2022 at its Annual STPI Awards 2022. TIECON is the world's largest

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

20 projects were supported by Chitkara University NewGen IEDC in the third year. The list of projects is given below. Detailed information about each project in the prescribed format along with photographs is given in **Annexure A** toward the end of this document.

| Sr. No | Team/Project Description |
|--------|---|
| 1. | Conversion of Waste Leaves to Biofuel |
| 2. | Agro waste Management – Dev. of Multipurpose Chemically Stable, Thermal & Ion-conducting Membrane |
| 3. | Fully Automatic Bottle Labeling Machine for Pharma Industries |
| 4. | High Temperature Erosion / Corrosion Behavior of Alloy Powder Coatings on Boiler Steels |
| 5. | Wind Turbine Driven Generator for Vehicles |
| 6. | Design of Nano-bubbles Generator for STP |
| 7. | Development of a Novel, Low Cost & Compact Total Organic Carbon Analyzer |
| 8. | Development of Hybrid Pulse Power Device Using 3D-Graphitic Carbon |
| 9. | Micronized Formulation of Ivermectin-Doxycycline: A Promising Anti-Viral Approach |
| 10. | Hybrid T Brewer |
| 11. | Agronic Culture: Bin Farming for Healthy Beings |
| 12. | Electrochemically Deposited Magnetic Bio-Conjugate MOF for Biosensors |
| 13. | Dequani – Counterfeit Detector |
| 14. | Homeotropic Alignment of LC Molecules Induced by Quantum Dot for Flexible Display and Device Applications |
| 15. | Injector Driver Circuit for Diesel Engines |
| 16. | Liquid Filling and Sealing of Polymeric Capsules |
| 17. | Vidyut_AR |
| 18. | Adsorbent Shoe Pads: Eliminates Sweat and Foul Odor |
| 19. | Energy Saving Based Smart Classroom: A System |
| 20. | Swayam Khaad |

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

Please see Annexure A

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

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

Case Studies of projects have been added as Annexure - B.

6. Minutes of the Advisory Board Meetings:

Chitkara University NewGen IEDC Board Meeting was held on February 25, 2022 in virtual mode.

Members present:

1. Dr. Naveen Vasishtha (*Scientist F, NEB Division, DST*)
2. Mr. S B Sareen (*Director, Department of Projects, EDII*)
3. Dr. Archana Mantri (*Vice Chancellor, Chitkara University, Punjab*)
4. Mr. Sagar Juneja (*Assistant Dean, CURIN*)
5. Mr. Vishal Khanna (*Senior Assistant, Director, FICCI*)
6. Dr. Adarsh Aggarwal (*Head & Professor, CIIF, Chitkara University*)
7. Mr. Vishal Khanna (*Senior Assistant, Director, FICCI*)

Below are the minutes of the meeting:

Overall Remarks by the Board Members

- Dr. Vasishtha appreciated the tangible outcomes in terms of number of patents, number of projects supported, diversity in projects etc. He specifically mentioned that out of 80 projects supported, 40 have patents filed for them and this is a good achievement.
- Mr. Sareen also endorsed Dr. Vasishtha's remarks, and he also mentioned about the number of events the Chitkara University NewGen IEDC has been able to conduct. He congratulated Chitkara University NewGen IEDC for this progress.

Key Technical Suggestions/Feedback Received

1. The focus should be more on commercializing the projects
2. More focus on projects in line with GoI schemes like for example Food Processing Sector, Innovative Projects under AtmaNirbhar Bharat etc.
3. Projects focusing on local problems like stubble burning which is a big problem in Punjab should be targeted.

Key Non-Technical Points Discussed

1. Dr. Vasishtha has agreed to personally look into our issue of the PFMS portal.
2. We have been allowed to claim the expenditure done in patent filing of NewGen IEDC projects from NewGen IEDC funds.
3. While the funds from NewGen IEDC were awaited, we made all expenditure from the University funds. We have been allowed to claim the reimbursement of this expenditure from NewGen IEDC funds.
4. Since funds from NewGen IEDC were received only in the month of February 2022, we will not be in a position to utilize all the funds within this FY. We have been advised to book all the expenditure for the grant that has been sanctioned for the current FY and unspent amount should be shown as committed expenditure in the UC. We have been allowed to utilize the unspent amount by June 2022 and submit a separate UC for this amount.

7. Progress Summary:

| S.No. | Particulars | FY 21-22 | Up to March-2022* |
|-------|---|---|--|
| 1. | Total number of Student Projects supported | 20 | 60 Projects have been supported so far and 20 more have already been approved |
| 2. | Total fund provided towards supporting Student Projects | INR 3,499,274 | INR 9,759,053 |
| 3. | No. of Patents filed by students Details in Annexure C | 9 | 40 |
| 4. | No. of Patents Granted Details in Annexure C | 0 | 8 |
| 5. | No. of companies/Starts up Set up by Students Annexure D | 1 | 10 (total of 12 NewGen IEDC projects have start-ups) |
| 6. | No. of enterprise/Business commercialized Details to be attached as per Annexure D | 0 | 3 |
| 7. | Social Impact Made, If any | <p>In third year there were 8 projects that were carried out to solve some of the society related problems and all these projects have made significant social impact. The list of these 8 projects is as follows –</p> <p><u>Alternate Energy as well as Energy Conservation Related Projects -</u></p> <ol style="list-style-type: none"> 1. Wind Turbine Driven Generator for Vehicles 2. Conversion of Waste Leaves to Biofuel 3. Injector Driver Circuit for Diesel Engines to Improve the Performance of Engines 4. Development of Hybrid Pulse Power Device Using Semiconductor 3D-Graphitic Carbon as an Alternate to Conventional Batteries <p><u>Waste Management Related Projects -</u></p> <ol style="list-style-type: none"> 1. An Agrowaste Management - Development of Multipurpose Chemically Stable, Thermal and Ion-conducting Membrane 2. Swayam Khaad - decomposition of organic waste using iron (III) based catalyst in the presence of UV light <p><u>Water Purification Related Projects -</u></p> <ol style="list-style-type: none"> 1. Design of Nano-bubbles Generator for STP to Improve the DO Levels in Water 2. Development of a Novel, Low Cost & Compact Total Organic Carbon Analyzer to Measure the Organic Content in Water | <p>Total 15 projects</p> <p>In second year there were four projects that were carried out to solve some of the COVID-19 related problems.</p> <ol style="list-style-type: none"> 1. PregAura – Smart non-contact distant maternal care for pregnant women during COVID times 2. Formulation development of freeze dried inhalable micro particles of Hydroxychloroquine and surfactants for pulmonary delivery for management of ARDS in COVID & SARS diseases 3. Portable Virus-Sniffing-Device Against Newly Emerging Viruses 4. UV Rakshak - A smart robot to sanitize large indoor wards in hospitals <p>In the first year 3 projects carried out by our students have good societal impact -</p> <ol style="list-style-type: none"> 1. Black Carbon Battery – Battery made up of bio and metallic waste. It can be helpful in controlling environmental pollution. 2. Brittab Edukit-1 - A learning kit for visually impaired kids and students. 3. Swach Neer - Water purification system based on earthen pot. Ideal for those who cannot afford costly water purifiers. |

ANNEXURE A

Student projects carried out in third year, with details in prescribed format –

1. Team / Project Description

Title – Conversion of Waste Leaves to Biofuel

Student Member – Ankita Rani

Mentors – Dr. Nitin Saluja

Description–In the global scenario, the trend is shifting from conventional sources of energy to non-conventional. Thus, the demand for the bio-fuel is increasing continuously. The project involves the conversion of waste leaves to the biofuel which can be easily burnt in the bio-burners of industries and home-chuhlaas. The leaves are form of biomass which has the potential of generating energy equivalent to wood i.e. 18MJ/kg. Based on the project procedure, leaves are processed non-thermally to increase its calorific value, and convert it into compact form.

Project status at beginning of the Year: The idea was ready with the prototype design.

Interventions made:

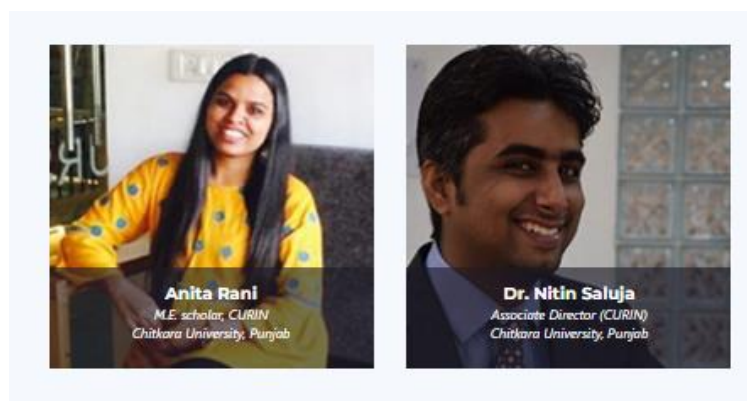
- Provided support in making full-fledged product.
- NewGen IEDC provided grant to the project
- Identification of the vendors
- Procurement of components
- Support in 3D designing, fabrication of metal frame etc.

Current status:

- The dryer has been designed and the fabrication has been done. The major components include magnetron, transformer, capacitor, thimbles and diodes.
- Initial testing of the prototype is done; optimization is going on to reduce the drying time.

Video and Photographs:





2. Team / Project Description

Title – Agro waste Management – Dev. of Multipurpose Chemically Stable, Thermal & Ion-conducting Membrane

Student Member – Lata Rani

Mentors – Dr. Jyotsana Kaushal

Description—The idea is to provide clean water and sufficient energy to the coming generation as it is the primary challenge for the scientific community. To develop clean water production systems, efficient energy storage devices and many other technological or biotechnological devices, nano-porous architecture or precisely membranes are playing a dynamic role. Therefore, membrane technology and its developments come up as a solution. India has world’s largest agro economic system, where rice and rice-husk are produced in large amount. Due to improper management, burnt rice-husk, which consist of silicon compounds, are randomly scattered in field, resulting the reduction of fertility. The bio-produced silicon based compounds are highly effective for membrane preparation. In the present proposal the Nafion-silicon oxide based compounds will be developed for water purification and ion exchange membrane. During the extraction of silica from rice husk ash, water dissolvable alkaline silicate will help to form Nafion-silica porous membrane which will produce clean water.

Project status at beginning of the Year:It was well researched idea and team was ready with the framework.

Interventions made:

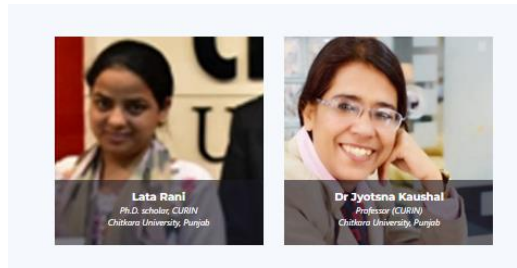
- Funding provided by NewGen IEDC
- Identification of vendors for procurement of components
- Support in mechanical design of the product

Current status:

- In this project, rice husk has been used for the production of a bio-sorbent membrane.
- Several experiments have been conducted for the production of a stable membrane using optimization of different materials.
- Currently, the testing of the developed membrane is going on.

Video and Photographs:





3. Team / Project Description

Title – Fully Automatic Bottle Labeling Machine for Pharma Industries

Student Member – Sahil Thakur

Mentors –Mr. Sumit Kumar, Dr. Prateek Srivastava

Industry Partner -Mr. Sumit Saini

Description– In Micro Small and Medium Enterprises (MSMEs) automation is not implemented of its full and as a result, there are various machines that operate at low efficiency and slow processing speeds. The problems such as less flexibility, less accuracy, high rejection rate, and slow processing speed need to be addressed to bring MSMEs at par with the large industries in terms of adoption of the latest automation technologies which offer various benefits to the users. In Pharmaceutical MSMEs, semi-automatic machine operation is mostly used for the product labeling. We are developing a technical solution to fully automate this machine. Thus it will help the MSMEs to enable flexible operations like a variety of products to be labeled, improve accuracy, reduce the current rejection rate and increase the labeling speed. Additional advantages of the proposed technical solution include ease in troubleshooting, high-quality production, efficient operation, and digital interface to the operator.

Project status at beginning of the Year: It was well research idea, with a basic prototype ready

Interventions made:

- Funding provided by NewGen IEDC
- Support in procurement of components

Current status:

- Studied the existing machines and carrying out following modifications – incorporating servo motors, variable frequency drives, high speed PLC and HMI
- Panel engineering is complete, PLC and HMI programming is under process.
- Industry partner – SA Automation Pvt. Ltd., Mohali

Video and Photographs: <https://youtu.be/ijwxxhRU8Xo>



4. Team / Project Description

Title –High Temperature Erosion / Corrosion Behavior of Alloy Powder Coatings on Boiler Steels

Student Member –Hemender Yadav, Hitesh Singla and Himakshi Gupta

Mentors –Dr. Rakesh Goyal, Dr. Rupesh Gupta, Dr. Sheifali Gupta and Dr. Punam

Description –Various industries are facing a critical problem of hot corrosion and wear degradation of metals in the boilers (for generating high pressure steam) under high temperature environment. This corrosion in the boiler is caused by flue gases generated after burning of coal and biomass fuel. The boiler components are subjected to high rate of wear and corrosion by chlorides (NaCl, KCl), sulfides (Na₂SO₄, K₂SO₄) at such an elevated temperature. To withstand the high rate of wear and corrosion in harsh environment, the components should possess excellent high temperature corrosion and wear resistance. To address the above said problem, we are here to propose a solution which shall include the development of novel materials solutions. Such solutions are further used for the coating of boiler components and ultimately shall provide a protection against the high rate of wear and corrosion. These coating technologies are very effective and economical as well to achieve the desired results. It has also been experimentally proven in previous literature reviews that coating is probably the only effective solution to provide the protection. These kind of coating on the metal components is also termed as surface technology treatment. One of such famous and efficient surface technology treatment used is known as thermal spraying. Coatings containing hard phases like Cr₃C₂ and nano powders like CNT, CeO₂ on the components provide better protection. So we shall work in the development of thermal spraying powders containing hard phases. With the help of this type of spraying the tube steels can be coated with thermal spraying powders containing hard phases and their working life may be enhanced.

Project status at beginning of the Year: It was a well-researched idea and team had all the theoretical background needed for implementation

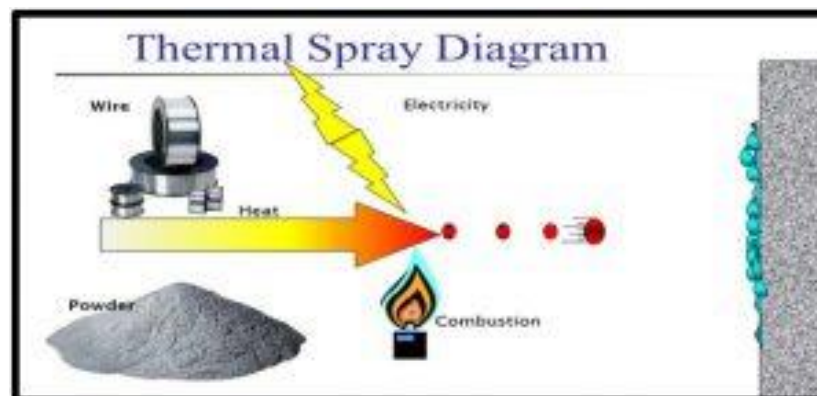
Interventions made:

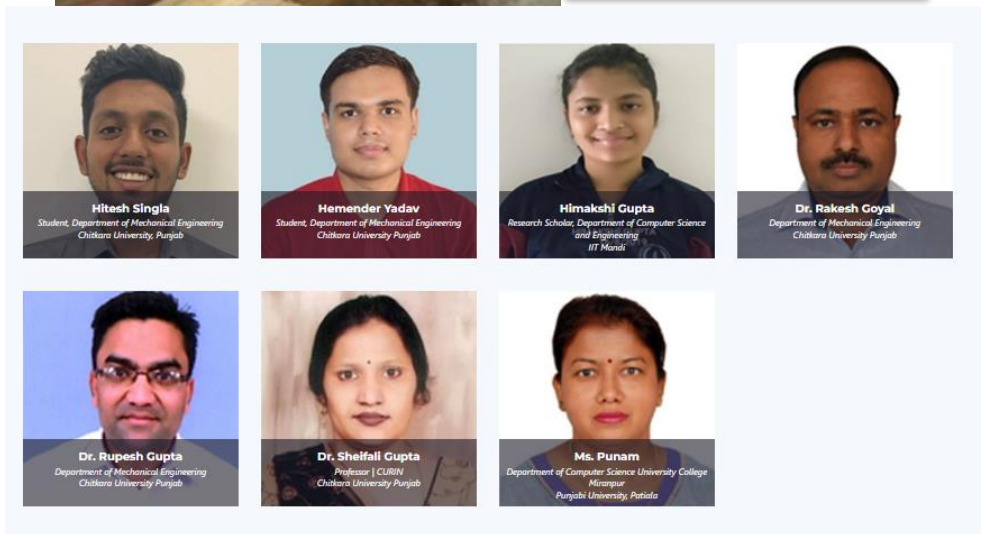
- Provided support in making full-fledged product.
- Provided grant from NewGen IEDC.
- Support in identification component manufacturer

Current status:

- Industry Tie-up – Karan Boilers, Ambala
- Spectro-analysis of the material of the boiler tube done and sample preparation done.
- Coating powder procured and compositions are being prepared.

Video and Photographs: https://youtu.be/PiBUphuj_2o





5. Team / Project Description

Title– Wind Turbine Driven Generator for Vehicles

Student Member –Yash, Utkarsh Upadhyay, Arjun Singh, Pavneet Singh and Prashant Kashyap

Mentors. – Dr. Prabhjot Singh

Description- The automakers still need to overcome the challenges before the adoption of these vehicles in market. Most of the electric vehicle models have improved significantly in just few years, a limited driving range does present a challenge to many drivers. This project relates to self-sustaining equipment for the generation of electricity, and more specifically, it relates to wind turbine-driven generators for vehicles. This device is used for the generation of electricity to charge the any type of vehicle batteries, provided vehicle is in motion. The motion of the vehicle will lead air to travel over the body of the vehicle, which will force the air into the nozzle, thus increasing the speed of air flowing. This will exert force on multiple turbines, rotating them and producing electricity that can be used to charge the batteries, and hence increase the distance traveled by the electric vehicles. No extra energy input is required to operate wind turbines. As the vehicle moves, the air around the vehicle will rotate turbines for the production of electricity. The whole process is self-charging and continuously recharges the vehicles with wind energy while moving. The invention relates to a method for generating electrical energy using high wind pressure generated by moving vehicles, thereby not disturbing the aerodynamics of the air and utilizing maximum air. The air is compressed by using the nozzles which are fitted into the conical-shaped partitions, which will cause the turbine to rotate, and thus the electrical energy produced will be used by the vehicle.

Project status at beginning of the Year: It was well researched idea and the design of the turbine was projected.

Interventions made:

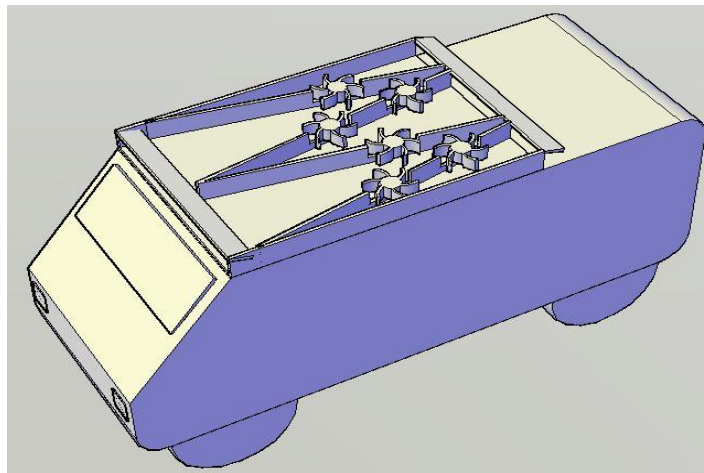
- Provided grant from NewGen IEDC.

- Supported in procurement of all the components.
- Fabrication facility was provided

Current status:

- The design of the turbine has been made. It is tested to various parameters in the simulation environment. Hardware implementation is going-on
- Patent filed - 1962/DEL/2015

Video and Photographs: <https://youtu.be/DCTiu5WWZUs>



6. Team / Project Description

Title – Design of Nano-bubbles Generator for STP

Student Member – Shivam Sahani

Mentors –Dr. Jyotsna Kaushal

Description–Nano bubble generator is a disruptive technology having a potential for reducing water crisis globally. Nano bubble increases Dissolved Oxygen (DO) in large-scale waste water treatments to improve waste water quality. A well-designed system integrating nano bubbler with STP will improve the aeration efficiency in STP by improving DO levels to reduce the BOD and COD efficiently.

Project status at beginning of the Year: The team had well researched theoretical idea

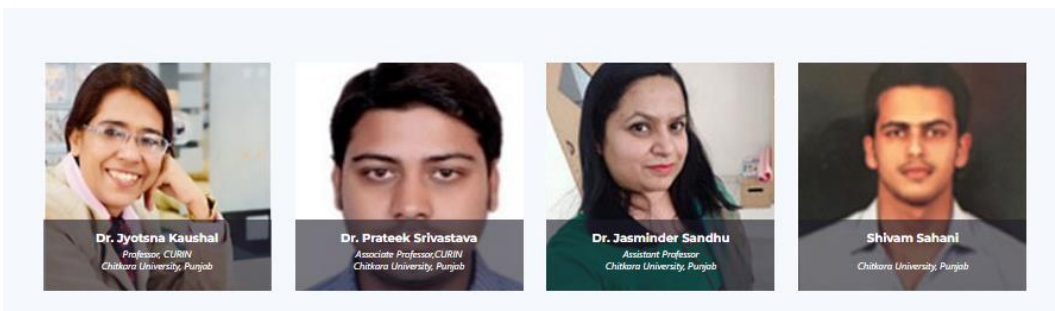
Interventions made:

- NewGen IEDC provided grant to project

Current status:

- A system is developed in this project to integrate the nano-bubbles generator with the STP
- Schematic design ready, hardware components procured, working on the implementation
- Industry partner – ECO Paryavaran Ltd., Mohali

Video and Photographs:<https://youtu.be/q2DGRPNBEhM>



7. Team / Project Description

Title – Development of a Novel, Low Cost & Compact Total Organic Carbon Analyzer

Student Member – Akhil Shetty

Mentors – Dr. Ajay Goel

Industry Partner -Mr. S. K. Rana

Description–Total organic carbon (TOC) analysis is a well-recognized technical approach that presents a valuable insight about water quality for process control and regulatory compliance. If properly configured and applied, TOC analyzers offer a unique capability to support a wide range of applications. Commercially available combustion-type and membrane-based TOC analyzers are expensive and require costly maintenance. Significant cost savings can be derived from a novel and simplified approach to oxidize organic carbon and detection of Carbon dioxide. Based on detailed literature review and industry recommendations, we decided to work on development of a novel, low-cost TOC analyzer with UV oxidation & conductivity as a parameter to measure organic content in water. The analyzer will be automatic and will continuously measure TOC in pure and high purity water.

Project status at beginning of the Year: It was a theoretical idea to initiate the process.

Interventions made:

- Provided grant from NewGen IEDC.

Current status:

- Conductivity measurement will measure the water purity.

- Conductivity cells of required sensitivity developed and UV oxidation chamber fabricated.
- Industry partner - Bio - Age Equipment & Services, Mohali

Video and Photographs: https://youtu.be/q8zIXVOt7_g



8. Team / Project Description

Title – Development of Hybrid Pulse Power Device Using 3D-Graphitic Carbon

Student Member – Shagun Sharma

Mentors – Dr. Pankaj Kumar

Description—The rapid depletion of fossil fuels and increasing demand of portable energy-storage devices paves a new research field to store harvested energy. The development of efficient portable energy storage devices for portable electronic circuits becomes a major research interest. The batteries are suffering from cyclic stability and high safety risk-factors. The electrochemical capacitor or super-capacitor, that has the features of high surface-to-volume ratio, carbon/or metal compounds-based electrode, and solid-polymer/or ionic-liquid based electrolytes. The carbon- and carbon-based allotropes are adequate to make super capacitors because of its high chemical stability, good electrical conductivity and abundant availability. Among the carbon allotropes, graphene is a unique material, due its excellent physicochemical properties, such as high surface-to-volume ratio, metal-like electrical conductivity, good thermal conductivity, tremendous mechanical and chemical stability etc. Therefore, the present proposal is based on 3D-graphene like a network of doped hetero atoms. Interestingly, depending on the doped atoms the graphene can behave like p-type or n-type semiconductor. Herein, both type of semi-conductors will be produced, whereas p-type semiconductor graphene will be used as cathode and n-type semiconductor will be used as anode electrode. Additionally, non-aqueous electrolytes with specific ionic liquid will be applied to construct the pouch cell, whereas expected outcome voltage is 2.8 V from every cell with outstanding power density and power deliverable capability. Many pioneer industries in India are making huge research efforts for constructing the carbon or graphene-based super-capacitors. Through the present methodology, mass production and industrialization are targeted.

Project status at beginning of the Year: It was a well-researched idea and team had a basic prototype ready.

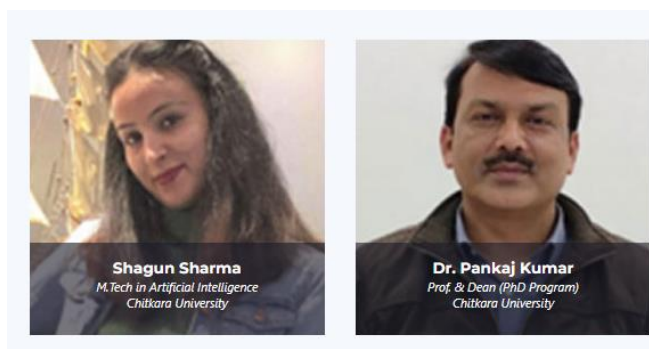
Interventions made:

- Provided funding support & identify vendor for the procurement of components.

Current status:

- 3D graphene based electrode material has been produced
- Testing of the electrode material is going on to get the desired properties
- Coin cells will be made out of this material
- Patent filed – 202011043463

Video and Photographs: <https://youtu.be/gl8coxGKbKY>



9. Team / Project Description

Title – Micronized Formulation of Ivermectin-Doxycycline: A Promising Anti-Viral Approach

Student Member –Ms. Malkiet Kaur

Mentors. –Dr. Manju Nagpal

Description–Ivermectin has been reported in recent studies, a miracle drug in the treatment of COVID-19 along with doxycycline, but efficacious only at higher doses (12mg/day) and this higher dose is also accompanied with several side effects such as cardiac toxicity. Since, COVID-19 mainly affects the respiratory system especially Lungs, therefore current proposal emphasizes the development of carrier system of Ivermectin targeting lungs directly so that maximum drug reaches the target site. Drug delivery system composed of combination of both drugs helps in reducing the dose and thereby dose related toxicity issue can be resolved. To reduce the dose related toxicity and increase the efficacy, combination of Ivermectin and doxycycline carrier system in micron size range can be helpful in the treatment of COVID-19. For this, a combination of polymers PLGA and PEG has been selected. Both these polymers can be conjugated chemically in the presence of EDC/NHS. PLGA will be helpful in showing better penetration from the epithelial layers and will show high drug bioavailability. The mechanistic approaches will be evaluated and validated using in silico and in vivo biological interventions. In conclusion, Combination of 2 drugs: Ivermectin and doxycycline can be used for the treatment of COVID 2019 via lung targeting.

Project status at beginning of the Year: It was well researched idea inspired by COVID-19related problems

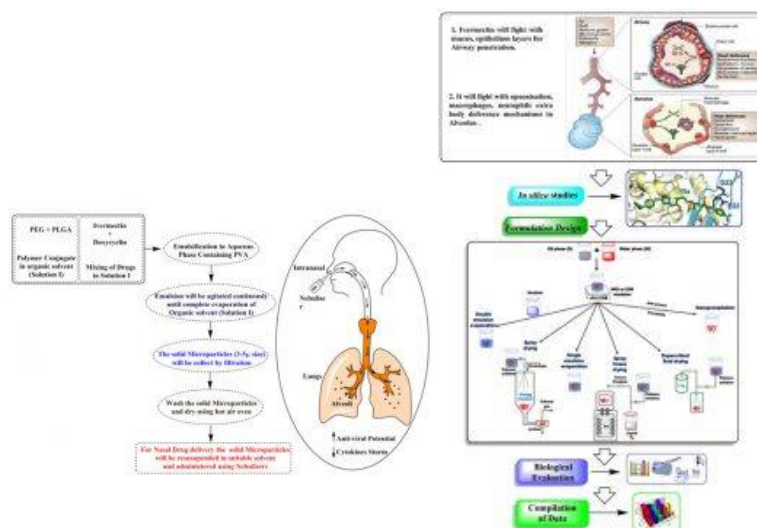
Interventions made:

- NewGen IEDC Provided funding support

Current status:

- Polymers have been selected and pre-formulation studies have been carried out on drugs and polymers.
- Optimization of the formulation is being done.
- This will be followed by evaluation of optimized batch.
- Patent filed – 202111054543

Video and Photographs: <https://youtu.be/qnwwxArciEQ>



10. Team / Project Description

Title – Hybrid T Brewer

Student Member –Ms. Aina Mehta

Mentors. –Dr. Prateek Srivastava

Description - Tea is one of the most traditionally followed beverages in India. This hot beverage is a regular entertainer, a source of living, a refreshing drink, an excuse for discussions, a part of Indian culture and a household hospitality tradition. Now the tea has many flavors based on addition of Indian herbs while its preparation. In India there is no machine available which can provide tasty and hygienic brewed tea. We are developing a Smart tea/coffee brewer which work on both electrical energy and solar energy.

Project status at beginning of the Year: It was theoretically researched idea and inspired from similar product. The team was one of the winners of Novate+ 2021.

Interventions made:

- Procurement of the components

Current status:

- The mechanical part of the project is complete. Work is going to start on electronics and panel design
- Team plans to make it IoT based, and run it using solar thermal for high efficiency
- Start-up -Sustainergic Tech Private Limited

Video and Photographs: https://youtu.be/hpAiXeOpM_A



Ms. Aina Mehta
Student
Chitkara University,
Punjab



Dr. Prateek Srivastava
Associate
Professor, CURIN
Chitkara University,
Punjab

11. Team / Project Description

Title – Agronic Culture: Bin Farming for Healthy Beings

Student Member – Arryan Madhu Chitkara

Mentors – Ms. Shalini Somra and Mr. Gautam Malik

Description - Agronic Culture – Bin Farming for Healthy Beings essentially promotes and entails barrel and bin farming for producing organic and superlative food products. The main idea behind this setup is to promote healthy culture through organic food, build a repository of herbs and medicinal plants, take a step closer to Sustainable Development Goals, to be in sync with the 3Rs—Recycle, Reduce, and Reuse and to create a

portable and compact farming system in less space. The old unused or already used barrels can be recycled in the process and thus, contribute to the increase in the rate of recycling. The setup of Agronic culture is easy, as it occupies less space and not relies on non-renewable resources for its energy requirements. Moreover, Agronic culture entails a proactive approach towards countering crop failures that occur due to various environmental issues and ensures minimum wastage. Furthermore, the wastage can be greatly minimized as the manure used for barrel farming is produced from the kitchen waste. Barrel farming done under the culture veritably improves water aeration, makes the soil more porous, and eradicates the need for chemical fertilizers (as it itself acts like a vermin composting pit).

Project status at beginning of the Year: It was a theoretical idea to begin.

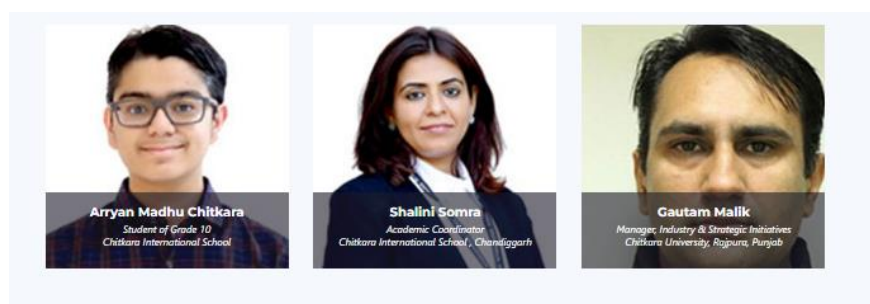
Interventions made:

- Funding support from NewGen IEDC
- Identification of vendors for procurement of components
- Fabrication support

Current status:

- Barrel farming done under the culture veritably improves water aeration, makes the soil more porous, and eradicates the need for chemical fertilizers
- Industrial Design Registered - 347073-001

Video and Photographs: <https://youtu.be/yYWVp2hhIrM>



12. Team / Project Description

Title – Electrochemically Deposited Magnetic Bio-Conjugate MOF for Biosensors

Student Member –Baljinder Kaur

Mentors. –Dr. Meenakshi Dhiman

Description - Biosensors technology has witnessed a slow rate of commercialization in recent years due to the high price of biosensors and demand emanating from the healthcare industry. Nowadays, the major interest in sensor research is the detection and quantification of several low-molecular weight organic compounds, as well as (bio) macromolecules, widely applied in daily life. Efforts during the past two decades focused on three aspects: establishment of new synthesis methods, construction of new MOF structures and exploration of their applications. These three aspects complement each other. Therefore, in present proposal we are synthesizing the magnetic iron oxide polyaniline based MOF using electrochemical deposition method.

Project status at beginning of the Year: It was a well-researched topic by the team

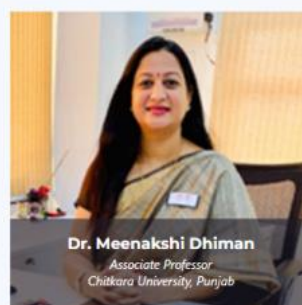
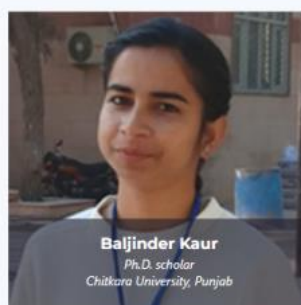
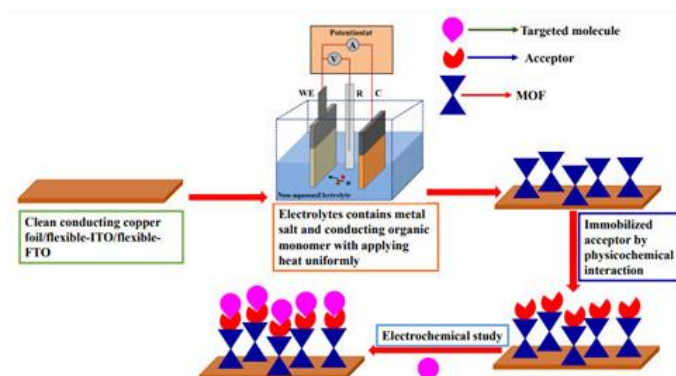
Interventions made:

- Provided grant from NewGen IEDC.
- Support in product design and identification of various components.

Current status:

- Iron oxide based nano-magnetic materials are synthesized using sol-gel methods are used
- XRD analysis has been performed and good results have been obtained.
- Lab level prototype to be taken to MVP level
- Patent filed – 202111047993

Video and Photographs:



13. Team / Project Description

Title – Dequani – Counterfeit Detector

Student Member –Mohit Chachra, Ishika Garg and Sujeet Yadav

Mentors. –Dr.Ramkumar Ketti

Description - Counterfeiting is the biggest problem for the business and enterprises in the world. Sale of pirated goods increase \$1.7 trillion per year, which is more than drugs and human trafficking. It is expected to grow to \$2.8 trillion, and cost 5.4 million jobs by 2022. As a consumer how can you differentiate between the original and the fake product? Think of a solution where in just a single click one can detect the bogus product through an app. We have built an app that will detect the counterfeit product by simply scanning the QR code. The QR code is to be placed on products, which is generated with an Algorithm and has a double layer of security. We are also providing the functionality in our website to scan the product's originality online before buying.

Project status at beginning of the Year: It was a well-researched idea supported by complete theoretical background.

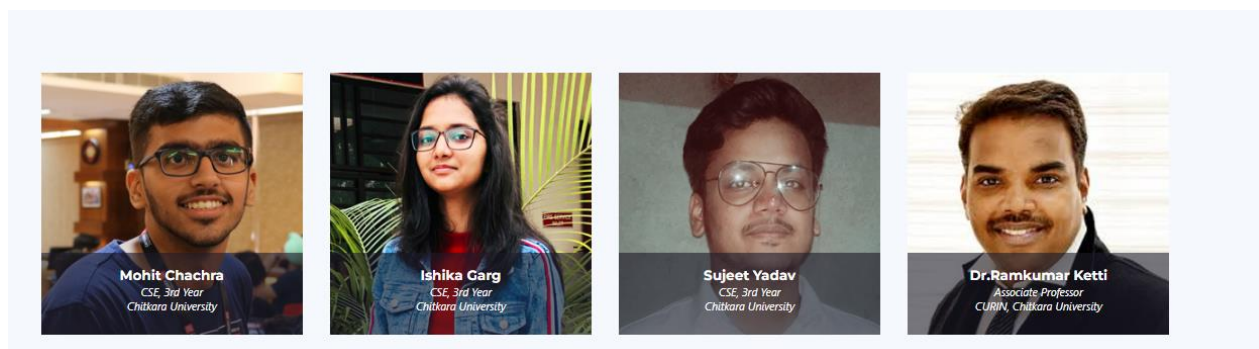
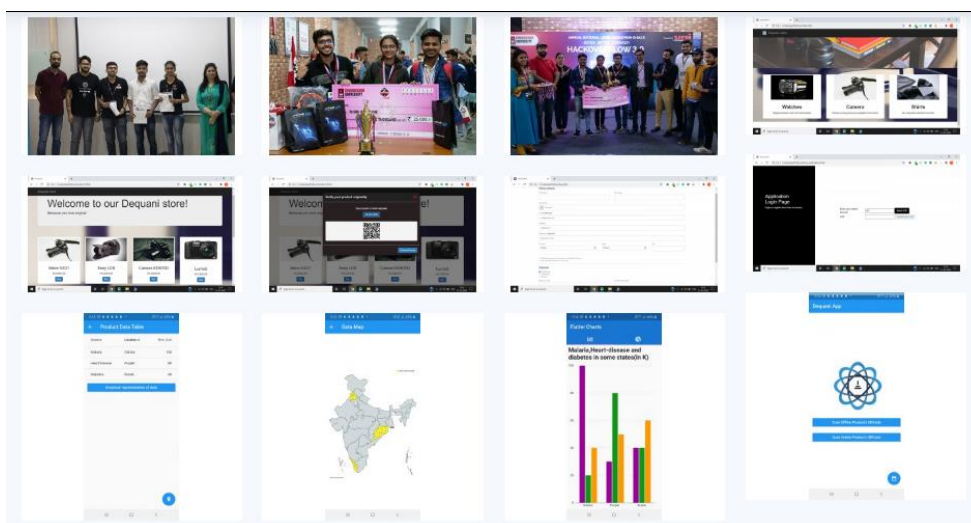
Interventions made:

- Provided grant from NewGen IEDC
- Supported in identifying vendors and procurement of the components

Current status:

- Project is completed. QR code is placed on each product, generated by an encrypted algorithm and has a double layer of security.
- Buyers can check the originality of the products, online before procuring them.
- Team has won several Hackathon in the region with this product
- Patent filed – 201711040525

Video and Photographs: https://youtu.be/w_qbgsBm6zQ



14. Team / Project Description

Title –Homeotropic Alignment of LC Molecules Induced byQuantum Dot for Flexible Display and Device Applications

Student Member – Ankit Rai Dogra

Mentors. –Dr. Vandana Sharma

Description – Homeotropically aligned LC displays are widely used in televisions, monitors, and mobile devices. Consequently, these displays have developed into one of the most dominant devices in the international market. Thus with a view to develop high contrast display, the purpose of the research is to develop and analyze the homeotropically aligned LC display cell induced by quantum dot/nanoscale particles dispersed in LC host, specifically suitable for producing flexible plastic LC displays. The proposed method is the most suitable for producing flexible plastic LC displays requiring a low temperature process, and potentially contribute to the high performance as well as low power consumption display devices.

Project status at beginning of the Year: It was the idea inspired from similar product and research work on the product was completed.

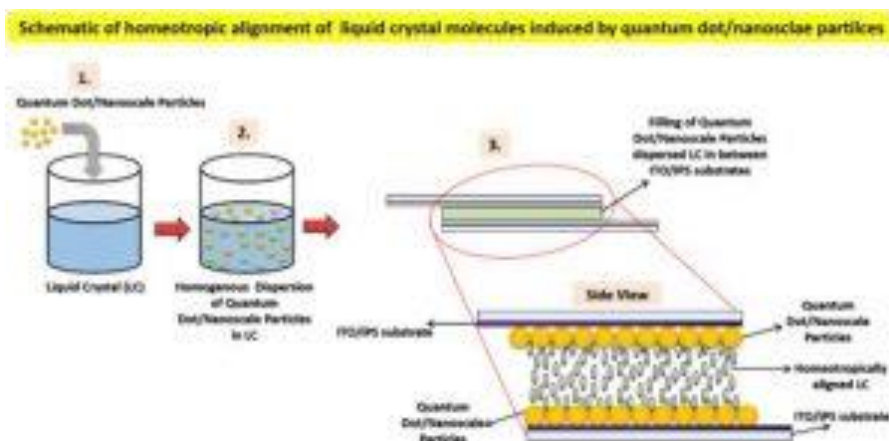
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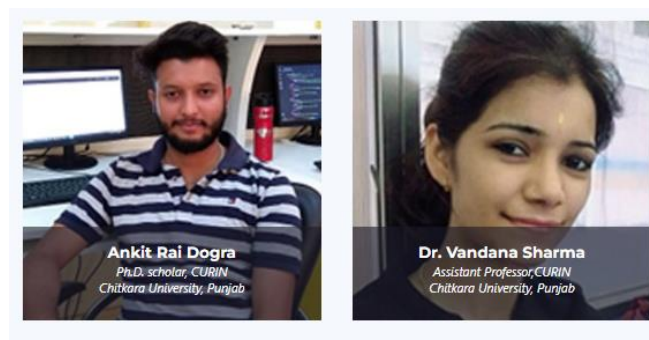
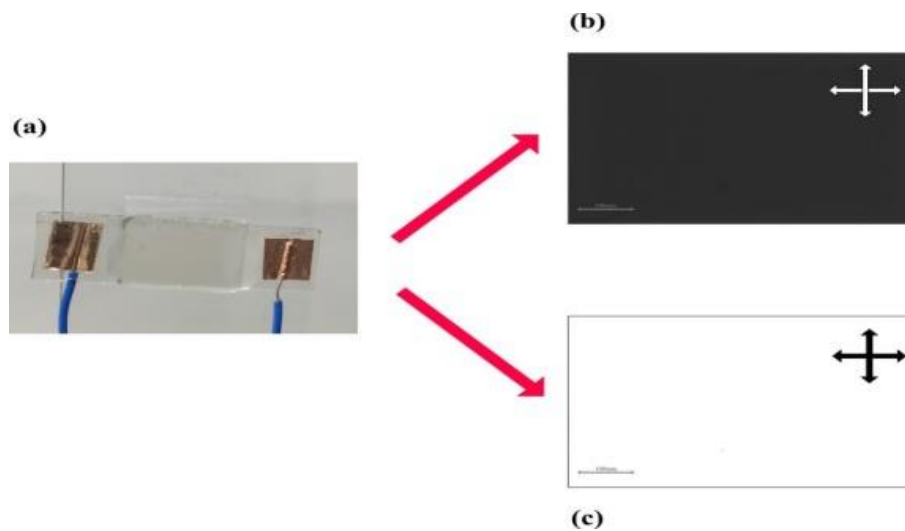
- Provided grant from NewGen IEDC.
- Supporting them to identify vendors and procuring components.

Current status:

- The prototype samples of flexible displays have been made in the lab and tested for performance
- The future plan is to build the display for a digital device and test it with a device

Video and Photographs:





15. Team / Project Description

Title- Injector Driver Circuit for Diesel Engines

Student Member –Gopal Lal Jat and Jeevan Singh Dosad

Mentors. –Dr. Mamatha Sandhu and Dr. Gurjinder Singh

Description - As global fuel consumption increases, the requirements for environmental protection act and policies are getting more rigid. Therefore, the fuel economy and emission performance of internal combustion engines need to be improved continuously. Traditional mechanical fuel injection systems in diesel engines have a long delay due to its mechanical inertia; hence it cannot meet emission requirements, such as flexible fuel injection timing inside the diesel engine. Thus, electronic control technologies were invented for diesel engines to overcome this shortcoming as they noticeably improve engines' performance and reduce total carbon emission. The fuel injection rate can also be controlled flexibly by Electronic Fuel Injection (EFI) system and the performance of the diesel engine can be adjusted conveniently to achieve certain vehicle emission targets. It is very important for the injector to have a flexible control driving circuit.

Project status at beginning of the Year: Theoretical research was done and had basic prototype ready.

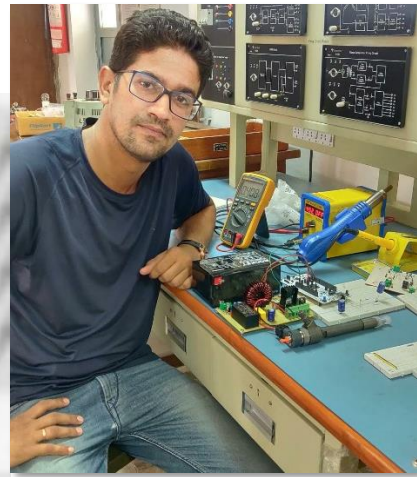
Interventions made:

- Funding support
- Procurement of the components

Current status:

- Complete simulation has been done and the industry is evaluating the results
- Industry partner – Meedhavi Automotive Research Centre, Punjab

Video and Photographs: <https://youtu.be/h5b5oskNc2g>



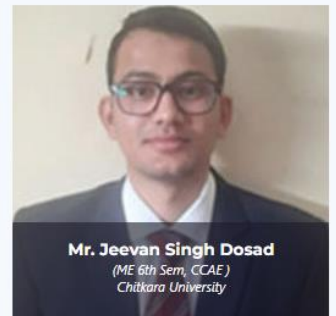
Dr. Mamatha Sandhu
Associate Professor, EE
Chitkara University



Dr. Gurjinder Singh
Associate Professor, ECE
Chitkara University



Mr. Gopal Lal Jat
Ph.D. Student, EE
Punjab Engineering College, Chandigarh



Mr. Jeevan Singh Dosad
(ME 6th Sem, CCAE)
Chitkara University

16. Team / Project Description

Title- Liquid Filling and Sealing of Polymeric Capsules

Student Member –Vanshika Chayal

Mentors. –Dr. Vivek Puri, Dr. Nitin Verma

Industry Partner - Mr. Navin Sharma

Description - The pharmaceutical company is facing breakthrough ratcheted up the overall quality of the product. They require some modification in the product, achieving the desired quality with improved banded capsules. The pharmaceutical industry is incentivizing innovation in an effort to bring highly effective sealing and banding solutions, yet less expensive, banded capsule products to market in a quick and efficient manner. The proposed technical solution emphasizes the various techniques involved in the preparation of the polymeric sealing solution. Liquid filling and sealing of hard gelatin capsules with optimum banding solution concentration thus becomes a much more feasible option for the development of quality capsules.

Project status at beginning of the Year: It was well research idea and team had all the theoretical background needed for implementation.

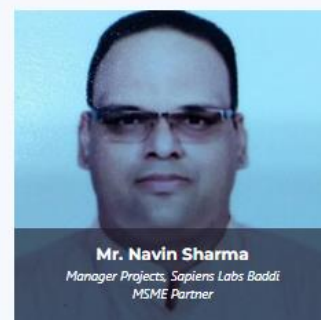
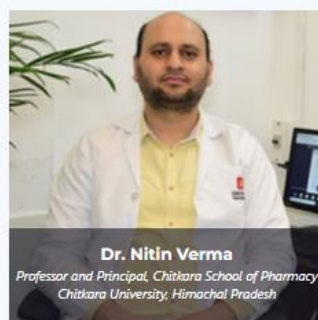
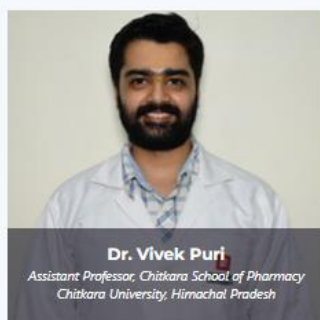
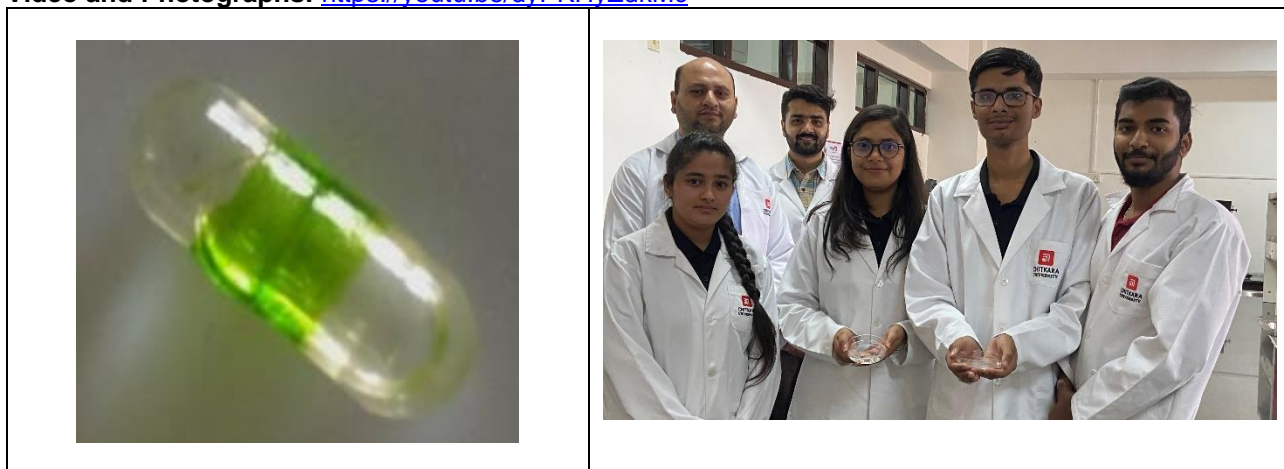
Interventions made:

- NewGen IEDC provided funding support.
- Supported in procurement of the components

Current status:

- The team is trying to achieve polymeric sealing solution for hard gelatin capsules
- Polymer has been identified. Work is going on for the development of the capsules (trial batches have been prepared)
- The project got Industry Partner – Sapiens Lab, Baddi

Video and Photographs: <https://youtu.be/dyPKHyZdkMc>



Title- Vidyut_AR

Student Member – Ashwani Singh

Mentors. – Dr. Bhanu Sharma

Description- Learning through visualization has more impact than the theoretical learning. Students usually encounter difficulties when they first apply their theoretical knowledge to the practical problems. Therefore, it is important to introduce an effective, innovative and interactive method for teaching electronic circuits. To address this problem, we have initiated the learning of basic science fundamentals at an early stage in k-12 education by different modules. We designed the innovative and engaging activities for the young minds. Prototypes of these modules have been prepared. The modules target day to day science learning, and to solve the real world problems with the hands-on practice, by the students. The innovative step is that the kit includes transparent electronic modules, assistive sheet, Augmented Reality(AR) markers, Phone for 3D visualization of circuit, which enhance the student's interest in learning. Learning of electronic circuits at very young age is difficult. To solve this problem, we designed a kit based on Augmented Reality.

Project status at beginning of the Year: The project team was finalist in the Smart India Hackathon

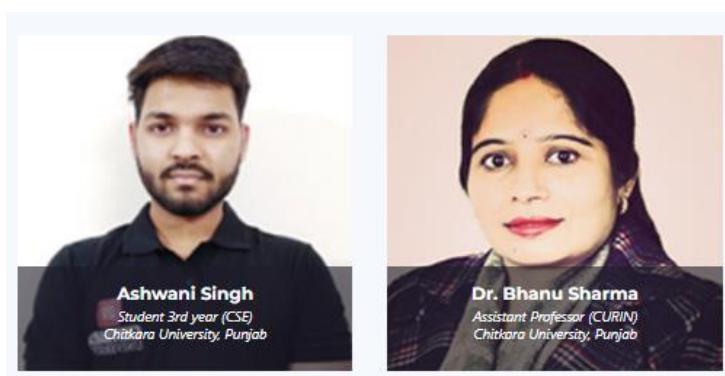
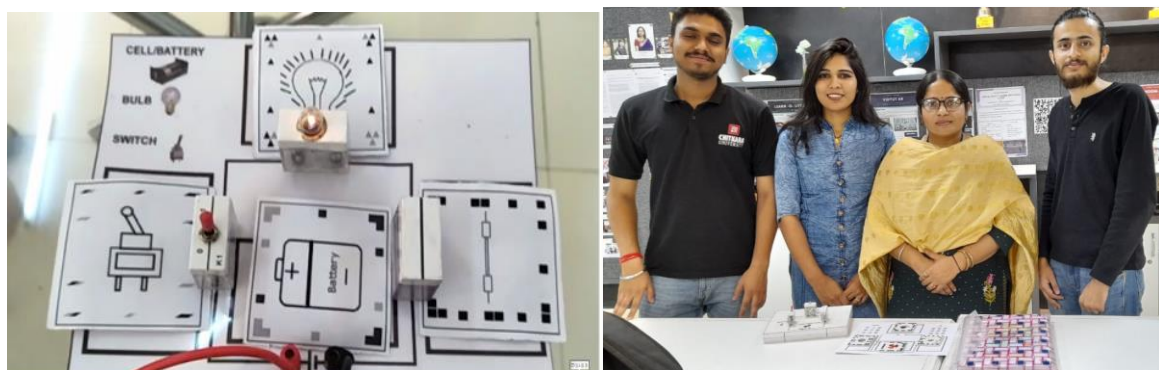
Interventions made:

- Provided grant from NewGen IEDC.
- Supported in procurement of all the components

Current status:

- The kit is being developed for K to 12 grades
- Using Unity 3D, Grade-1 and 2 markers developed and experiments conducted
- The advanced level AR modules are under development

Video and Photographs:



18. Team / Project Description

Title – Adsorbent Shoe Pads: Eliminates Sweat and Foul Odor

Student Member –Tarandeep Kaur Bhatia, Adhish Singh and Ankit Rai Dogra

Mentors. –Dr. Mohit Kapoor, Dr. K. R Ramkumar and Dr. Partha Khanra

Description - This proposal presents a waste-derived reusable adsorbent pad that you can wear on your feet to eliminate the sweaty odor. The proposed odor removal patch includes mainly two layers namely the moisture-absorbing layer, and malodor removing layer/ freshening layer, wherein the moisture-absorbing layer is made of waste-derived cellulose fibers and malodor removing/freshening layer made of carbonized rice husk and citrus (e.g., lemon, orange, etc.) rind. The two layers adhered together using a glue material. Further, the patch incorporates an adhesive layer that helps in attaching to the interior of user's shoe. Further, this adsorbent shoe pad consists of carbon-based Quantum Dots (QDs) which have surface functionalities and capable to kill bacteria and other microorganisms. The adsorbent pad will absorb the moisture, Volatile Organic Components (VOCs), microbes and eliminate skin infection. The use of natural flavonoids will provide refreshing natural essence to the feet. The proposed work will be developed into a prototype and tested for its adsorption-desorption cycle to ensure the reusability of the pads. This will help to contribute in sustainable economy and become a perfect product for smelly feet.

Project status at beginning of the Year: The idea was conceptualized and was ready to implement.

Interventions made:

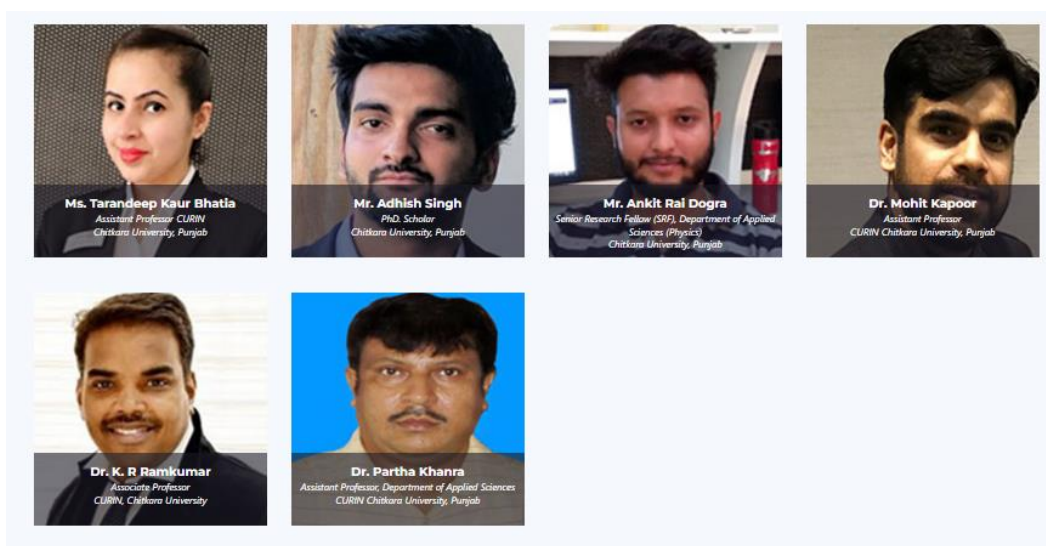
- Fabrication facility support
- Funding from NewGen IEDC
- Supported in identifying vendors and procurement of the components

Current status:

- Carbon-based adsorbent material developed, pore size distribution, and preliminary pock test for odor removal conducted.
- Fabrication and testing for recyclability and longevity pending
- Patent filed - 202011048390

Video and Photographs:





19. Team / Project Description

Title – Energy Saving Based Smart Classroom: A System

Student Member –Ms. Shivani Sood

Mentors. –Dr. Harjeet Singh and Dr. Muthukumaran M

Description - The concept of smart classes is widely used in educational institutions for the better understanding of students. However, with the introduction of the smart classroom in the educational institutions, more electrical and electronic devices are being used. Sometimes the electrical devices are fully operational even if a number of students are less than the required capacity of classroom. This leads to a waste of electrical resources. In order to take care of such losses one has to keep track of everything in the classroom and electrical appliances need to be operated manually. This is very tedious and difficult for a person to always keep track of the strength of students/people in the classroom. There is a need of an automatic system for controlling ambient conditions of the smart classroom based on the number of students/people present in the classroom. Our primary objective is to develop a system/device, which is capable enough to take the decision to operate the electronics/ electrical appliances in real time environment (by capturing the movement of human being/objects) with the integration of machine learning based techniques.

Project status at beginning of the Year: It was a theoretical idea, inspired from another similar product.

Interventions made:

- NewGen IEDC gave financial support.
- Supporting them to identify vendors

Current status:

- A system is developed to automate the resources of the classrooms with the help of a powerful microprocessor
- The hardware components have been procured and Raspberry Pi is being used as a processor and AI/ML techniques are being applied in the system

20. Team / Project Description

Title – Swayam Khaad

Student Member –Adhish Singh

Mentors – Dr. Mohit Kapoor

Description–The proposal presents a cost-effective design and strategy of a waste container for household and industrial purposes. This device is based on the heat-assisted catalytic transformation of food waste into soil matrix and liquid fertilizer in the duration of 10-18 hours. The system will be equipped with a stainless steel body, heating mantle, mixer and grinder, a stainless-steel filter, and a collection tray. The decomposed material

both solid and liquid fertilizer, will have a shelf life of approx. 18 months without any noxious smell. The methodology includes: drying the food waste; pulverization; addition of adsorbent and catalyst; followed by catalytic transformation into final product. In the first step, organic waste is dried and pulverized to ensure increased exposed surface area. This step will be repeated a couple of times to make sure the waste is broken in uniform small size. Thereafter, a mixture of additives (catalyst + adsorbent) will be added to the mixture, to start the catalytic transformation of the particles obtained from the prior steps in the presence of optimal temperature and pressure. The key step of this process is the use the meticulously designed catalyst for the rapid decomposition of food waste into soil matrix and liquid fertilizer. As per our initial screening and hypothesis, the decomposition process will take 6-12 hours that is much faster than any other decomposition method available in the market. During the catalytic transformation, additional reagents might be required to improve the major elements (N, O, P, S) concentration in the decomposed waste. The property of the material as a soil fertilizer will be determined after biochemical and chemical transformations.

Project status at beginning of the Year–It was well thought idea and ready for implementation.

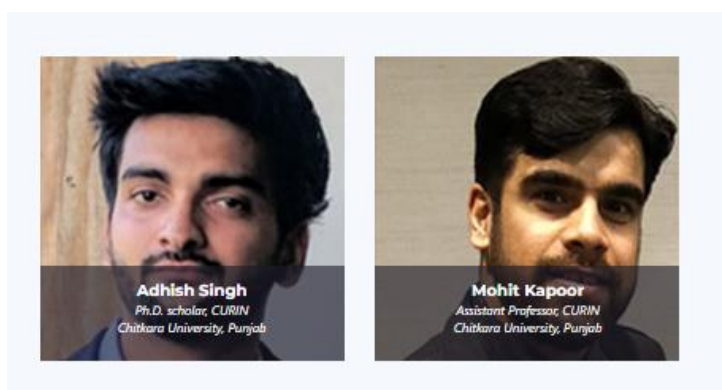
Interventions made:

- NewGen IEDC provided grant to the project
- Identification of the vendors

Current status:

- Partial decomposition achieved under 12 hours and soil matrix obtained without any rotten smell
- Future plan is to integrate automation into the system using electronic sensors.

Video and Photographs:



ANNEXURE B - Case study of four NewGen IEDC projects supported in FY 21-22

1) Adsorbent Shoe Pads: Eliminates Sweat and Foul Odor

Team details (with contact information)

| Name | Email ID | Contact |
|---------------------------|------------------------------|------------|
| Adhish Singh (Student) | adhish.singh@chitkara.edu.in | 7355227056 |
| Dr. Mohit Kapoor (Mentor) | mohit.kapoor@chitkara.edu.in | 9728474257 |

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

This proposal presents a waste-derived reusable adsorbent pad that you can wear on your feet to eliminate the sweaty smell and odor. The proposed anti-odor removal patch includes mainly two layers namely the moisture-absorbing layer and malodor removing layer/ freshening layer where in the moisture-absorbing layer is made of waste-derived cellulose fibers and the mal-odor removing/freshening layer made of carbonized rice husk and citrus (e.g., lemon, orange, etc.) rind.

The two layers adhered together using an adherent/ glue material. Further, the patch incorporates an adhesive layer that helps in attaching to something, such as the interior of an end user's shoe. Further; this adsorbent shoe pad consists of carbon-based Quantum Dots (QDs) which have surface functionalities capable to kill bacteria and other microorganisms. The adsorbent pad will absorb moisture, Volatile Organic Components (VOCs), and microbes and eliminate skin infection. The use of natural flavonoids will provide refreshing natural essence to the feet. The proposed work will be developed into a prototype and tested for its adsorption-desorption cycle to ensure their usability of the pads. This will help contribute to the sustainable economy and help this become a go-to product for smelly feet.



Figure: (a) fabricated adsorbent pad, (b) magnified area on the pad indicating porosity, (c) high brittleness of one of the membrane design

Salient Features: -

1. Two layers pad - moisture-absorbing layer, and malodor
 2. layer - made up of waste-derived cellulose fibers
 3. Malodor layer made of carbonized rice husk and citrus rind.
 4. Consists of carbon-based Quantum Dots (QDs)
 5. Capable to kill bacteria and other microorganisms.
 6. Absorb the moisture, Volatile Organic Components (VOCs), microbes
 7. Eliminate skin infection.
- **Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs**
Following is the description of journey of the team members in their own words -

You're not alone if you find that your feet stink when you remove your shoes. It is fairly common to have stinky feet. We all have been there. That's how the idea was born to create a thin, yet durable adsorbent pad capable of eliminating foul odor, and microbial growth in the shoes and feet. With the help of the grant, we began developing various anti-microbial adsorbent materials from waste biomass, and flavonoid-containing compounds. In particular, we were highly interested in rinds of citric fruits, along with rice husk (a commonly found waste material in Indian agricultural fields.) Currently, we have tested for anti-microbial activity of the adsorbent material in a powder state. These adsorbent materials have been cast into polymeric membrane-type material, which is currently being tested for their thermal stability, and physical durability.

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

This passionate journey couldn't have been possible without the help of the Newgen IEDC grant. The grant provided us with an opportunity to take a stride ahead toward creating a sustainable adsorbent material that can help us avoid bad experiences on a daily basis. The funding support we are provided with offers us the freedom to test various designs and fabrication processes.

- **Future plan**

We want to take the prototype to the minimum viable product (MVP) stage, followed by possible iterations and design changes that will go into the making of our product. At this point, our short-term goal is to design an inexpensive and sustainable shoe pad that people can wear/stick without even having a feel of it.

2) High Temperature Erosion / Corrosion Behavior of Alloy Powder Coatings on Boiler Steels

Team details (with contact information)

| Name | Email ID | Contact |
|--------------------------|-----------------------------------|------------|
| Hemender Yadav (Student) | hemender2321.me19@chitkara.edu.in | 8901053575 |
| Hitesh Singla (Student) | hitesh2307.me19@chitkara.edu.in | 9876610815 |
| Dr. Rakesh Goyal | rakesh.goyal@chitkara.edu.in | 9501035721 |

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

There is great problem of Erosion and Corrosion arising in boilers due to flue gases caused by burning of coal fuel. This is decreasing the working life and efficiency of the boilers. To address the above said problem, we are developing novel materials solutions. Such solutions are further used for the coating of boiler components and ultimately shall provide a protection against the high rate of wear and corrosion.

The findings will be published and shared with the boiler manufacturing industries. The same can be validated by these industries.

Salient Features: -

1. Reduce the high rate of wear and corrosion
2. Effective and economical coating technology

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

Following is the description of journey of the team in its own words –

In the ideate phase of the design thinking process that initial ideas for problem solving are developed that there is lot of erosion/corrosion problem in the boiler tubes which is decreasing its output and life. In this phase it is very important to generate as many ideas as possible and to select one idea from them. So, we have generated the ideas to counter this degradation problem. By changing the whole tube material with the special alloy materials, making the boiler tubes thicker and heavier to apply corrosion resistant coatings on these tubes. But some of the ideas when discussed were not feasible or were increasing the cost of the process. In ideate phase the problem statement has been defined with the help of ideas and an exhaustive literature survey. Typically, these ideas are rough- those that it results from the brainstorming and literature survey. The important thing is to "think outside the box" and generate multiple ideas so that in the next stage draw some options for prototyping. The objective of the Idea generation phase is to find creative ideas that will solve the targets and challenges of industry. And it has been decided to protect the boiler tubes by depositing various powder coatings.



Video Demonstration - https://youtu.be/PIBUphuj_2o

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

NewGen IEDC is channelizing the knowledge and energy of students towards becoming active partners in the economic development process. In this project, it is helping in purchasing the materials required for projects. The team is managing the mechanism of quotation calling, selecting the best materials for the projects, helping in procurement of the best materials. NewGen IEDC also monitors the progress of the projects through annual review progress presentations which helped the students to achieve the targets in the shortest possible times.

- **Future plan**

To move to the industry with our findings so they can validate the same. More problems of degradation of different types of industries other than boiler will be taken into consideration as a project. So the losses due to degradation may be reduced to the minimum as possible.

3) Hybrid Tea Brewer

Team details (with contact information)

| Name | Email ID | Contact |
|------------------------|--|------------|
| Meena Pundir (Student) | meena.pundir@chitkara.edu.in | 9878166451 |
| Dr. Prateek Srivastava | prateek.srivastava@chitkara.edu.in | 9785749960 |

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

We are developing a smart machine which can brew tasty tea and coffee in minimum time. We have already registered the company Sustainergic Tech Pvt. Ltd.

Salient Features: -

1. Electrical as well as Solar operated machine
2. Free from human touch
3. Time efficiency (up to 10 cups in 4 mins)
4. Pressurized steam to brew tea
5. IoT based and Fault Detection & Diagnostic

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

Following is the description of journey of the team in their words –

The team started with the idea to develop a tea/coffee brewer which can provide tasty and hygienic tea/coffee in less time. Initially we worked on the design of the project. After initial design we tried to find out the company who can do the manufacturing of the brewer and boiler as per our design. In the first go the testing was conducted and there were some issues with the brewer. The brewing was not happening properly. We

redesigned the brewer and second level of testing started. Thereafter now the process of manual testing is completed and now we are working on the development and testing of controller.



Video Demonstration - https://youtu.be/hpAiXeOpM_A

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

NewGen IEDC has helped in getting the funding for prototyping of the machine. The NewGen IEDC team has helped in guiding and provided technical inputs from time to time.

- **Future plan**

After the successful testing of Hybrid Tea Brewer we will commercialize the machine and in the next phase we are planning to prepare the IoT enabled tea/coffee brewer.

4) Liquid Filling and Sealing of Polymeric Capsules

Team details

| Name | Email ID | Contact |
|---------------------------------------|---|-------------------------|
| Vaibhav Raghuvanshi | vaibhav1018.bpharm20@chitkarauniversity.edu.in | 7681949866 |
| Shreyas Satyendra Kumar | shreyas1015.bpharm20@chitkarauniversity.edu.in | 7988211836 |
| Vanshika Chayal | vanshika1041.bpharm20@chitkarauniversity.edu.in | 6239983313` |
| Isha, Student | isha1044.bpharm20@chitkarauniversity.edu.in | 7876859304 |
| Komal | komal1023.bpharm20@chitkarauniversity.edu.in | 7018448858 |
| Navin Kumar Sharma (Industry Partner) | project@sapienslabs.in | 9373228415 / 7807780837 |
| Dr. Nitin Verma (Mentor) | nitin.verma@chitkarauniversity.edu.in | 9736419033 |

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

The project emphasizes the technology required for the preparation of polymeric banding solution. We produced a biopolymer-based banding solution which will be applied over the capsule to effectively seal the liquid-filled, HPMC capsules. Thus, liquid filling and sealing of hard gelatin capsules with optimal concentration of banding solution becomes a significantly more viable choice for the manufacture of high-quality capsules.

Salient Features: -

- Highly effective sealing and banding solutions,
- Less expensive,
- Liquid filling and sealing of hard gelatin capsules with optimum banding solution more feasible for the development of quality capsules.

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

Following is the description of journey of the team in their words –

Major global pharmaceutical markets accept the non-animal components of the polymeric banded capsule formulation for medicinal and therapeutics application. Optimizing polymeric concentration is critical for achieving perfect, uniform, and stable capsule sealing and avoiding counterfeiting. Furthermore, the liquid capsule sealing methodology is designed to prevent fabricating: a sealed capsule can only be opened by splitting it into two halves. As a result, replacing its contents without compromising the capsule's integrity is difficult. Polymeric banded capsules are used to provide reduced leakage of liquids filled, higher user acceptance since they are vegetarian, and increase active pharmaceutical ingredient (API) release profiles.



Video Demonstration – <https://youtu.be/dyPKHyZdkMc>

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

NewGen IEDC inculcates the spirit of innovation and entrepreneurship among us, supported and encourage through proper guidance, mentorship and financial support.

- **Future plan**

- First we go for patent filing of this innovative technique
- Secondly we will discuss it with our industry partner to transfer this technology from pilot scale to large scale.

ANNEXURE C – Patents

- 40 patents have been filed till date and this include 9 patents that have been filed by projects which are going to be supported in the fourth year (FY 22-23)
- 8 patents have been granted so far
- Summary of all these 40 patents is given below

Details of Patent Filed/Granted

1) Name of the Technology: HEIGHT ADJUSTABLE FOLDING ARM REST TABLE WITH SLIDABLE HOLDERS

Project Title: All in One Laptop Stand with Integrated Table

1. Highlights of the Technology (innovation/uniqueness etc.):
 - a. A laptop stand with integrated table with the unique features
 - b. Adjustable height and angle, and includes features like wireless charging, USB ports and a USB-powered study lamp
2. Impact it will create:
 - a. It is a good consumer product, uniquely designed to provide support to the laptop screen which improves the posture of user.
3. Current Status of the Patent: Granted
4. Student team details

| Name | Email Id | Mobile |
|-------------|----------------------------------|---------------|
| Pranav Garg | Pranav0844.cse19@chitkara.edu.in | 9023522555 |

5. Patent Filing date: 26-Aug-20
6. Patent Granted date: 9-Jul-21
7. Patent Application Number: 332371-001

2) Name of the Technology: PORTABLE VENTILATED UNIVERSAL LAPTOP STAND

Project Title: All in One Laptop Stand with Integrated Table

1. Highlights of the Technology (innovation/uniqueness etc.):
 - a. Mesh base to avoid overheating along with sliding USB powered fans for additional cooling
2. Impact it will create:
 - a. Adjustable height and angle, and includes features like wireless charging, USB ports and a USB-powered study lamp improves the quality of product.
3. Current Status of the Patent: Granted
4. Student team details

| Name | Email Id | Mobile |
|-------------|----------------------------------|---------------|
| Pranav Garg | Pranav0844.cse19@chitkara.edu.in | 9023522555 |

5. Patent Filing date: 26-Aug-20
6. Patent Granted date: 5-Mar-21
7. Patent Application Number: 332372-001

3) Name of the Technology: RODENT SURGICAL TABLE

Project Title: Rodent Surgical Table

1. Highlights of the Technology (innovation/uniqueness etc.):

- a. Advanced stainless-steel surgical table with extra facilities
 - b. Automated temperature regulator system
 - c. Less complicated than available designs
2. Impact it will create:
 - a. Provides an accurate position and height of the working table for surgery with proper temperature regulation.
 3. Current Status of the Patent: Granted
 4. Student team details

| Name | Email Id | Mobile |
|-------------|-------------------------|------------|
| Nikhil Garg | Nikhilgarg096@gmail.com | 9878689836 |

5. Patent Filing date: 21-Jul-20
6. Patent Granted date: 18-Jun-21
7. Patent Application Number: 331265

4) Name of the Technology: INHALABLE MICROPARTICLES OF HYDROXYCHLOROQUINE FOR MANAGEMENT OF ACUTE RESPIRATORY SYNDROME

1. Project Title /Highlights of the Technology (innovation/uniqueness etc.): Formulation development of freeze dried inhalable micro-particles of hydroxychloroquine and surfactants for pulmonary delivery for management of ARDS in COVID & SARS diseases
2. Impact it will create:
 - a. Inhalable HCQ micro-particles pass through airway & prevent replication of virus effectively & surfactants maintain alveolar capacity.
 - b. Administration of formulation using an autohaler (Inhaler) produces long duration of action in lungs
 - c. Inhalable HCQ micro-particles could be an important tool for acute respiratory distress syndrome (ARDS) in COVID as well as in emergency care clinical team.
3. Current Status of the Patent: Granted
4. Student team details

| Name | Email Id | Mobile |
|---------------------|----------------------------|------------|
| Ms. Rupanshi Grover | rupanshigrover98@gmail.com | 9855348586 |

5. Patent Filing date: 18-Jun-20
6. Patent Granted date: 16-Apr-21
7. Patent Application Number: 202011025625

5) Name of the Technology: GK RETRACTOR

1. Project Title/ Highlights of the Technology (innovation/uniqueness etc.): Perineal retractor for safe and accurate episiotomy during vaginal delivery
2. Impact it will create:
 - a. The product has novel design of a device that will be 3D printed and economical
 - b. Based on potential market, the device can be used in all PHC, CHC and medical colleges both in India and abroad
3. Current Status of the Patent: Granted

4. Student team details

| Name | Email Id | Mobile |
|--------------|-----------------------------|------------|
| Vanya Sharma | vanyas.hc21@chitkara.edu.in | 8146900906 |

5. Patent Filing date: 10-Sep-20

6. Patent Granted date: 29-Sep-21

7. Patent Application Number: 334120-001

6) Name of the Technology: **SYSTEM FOR CONTROLLING TRAFFIC AT AN INTERSECTION**

Project Title: Intelights

1. Highlights of the Technology (innovation/uniqueness etc.): Deep learning-powered Intelligent System for Controlling Traffic at an Intersection

2. Impact it will create:

- a. A dynamic signal controlling and coordinating mechanism to decrease the AWT (Average Wait Time) of vehicles
- b. It helps in reducing the number of harmful gases released by vehicles and lowers the consumption of fuel being burned on the traffic signal.

3. Current Status of the Patent: Granted

4. Student team details

| Name | Email Id | Mobile |
|-------------|--------------------------|------------|
| Rahul Goyal | rahulgoyal0.rg@gmail.com | 9988866864 |

5. Patent Filing date: 8-Nov-19

6. Patent Granted date: 21-Jun-21

7. Patent Application Number: 201911045568

7) Name of the Technology: **CAP FOR BOTTLE**

Project Title: Active Cap

1. Highlights of the Technology (innovation/uniqueness etc.): A bottle cap which stores and protect vital ingredients, till consumption.

2. Impact it will create:

- a. The concept is to develop the best infusion cap technology, which can be useful in daily life.

3. Current Status of the Patent: Granted

4. Student team details

| Name | Email Id | Mobile |
|-------------|----------------------------|------------|
| Pintu Kumar | pintu.associates@gmail.com | 9973409111 |

5. Patent Filing date: 5-Nov-19

6. Patent Granted date: 6-Nov-20

7. Patent Application Number: 323330

8) Name of the Technology: **A MOUSE TRAP**

Project Title: Pied- Piper

1. Highlights of the Technology (innovation/uniqueness etc.): An AI based autonomous mouse trap

2. Impact it will create:

- a. The human touch free mouse trap will reduce the risk of diseases.
 - b. Economical and easy to operate device.
3. Current Status of the Patent: Granted
 4. Student team details

| Name | Email Id | Mobile |
|--------------|-------------------------|------------|
| Rouble Gupta | roublegupta03@gmail.com | 8607576787 |

5. Patent Filing date: 17-Dec-18
6. Patent Granted date: 18-Mar-21
7. Patent Application Number: 201811047766

9) Name of the Technology: AUTOMATIC AND MOVEABLE VERTICAL GARDEN BARRICADES

Project Title: Automatic and Moveable Vertical Garden Barricades

1. Highlights of the Technology (innovation/uniqueness etc.): Barricades with automatic watering system garden
2. Impact it will create:
 - a. The barricades with LED light will be visible at night to avoid the accidents
 - b. Vertical garden with an automated irrigation system to nurture plants and to enhance the greenery in surroundings.
3. Current Status of the Patent: Filed
4. Student team details

| Name | Email Id | Mobile |
|---------------|----------------------------------|------------|
| Appurav Gupta | Apurav0511.cse19@chitkara.edu.in | 7206360685 |

5. Patent Filing date: 28-Jan-22
6. Patent Granted date: NA
7. Patent Application Number: 357439-001

10) Name of the Technology: FLUID INFUSION MONITORING SYSTEM

Project Title: Intravenous Fluid Monitoring

1. Highlights of the Technology (innovation/uniqueness etc.): An automatic fluid monitoring device for healthcare sector
2. Impact it will create:
 - a. A proposed system to alert the caretaker/attendant about the level of fluid in patient's drip will reduce the risk of any mishappening.
 - b. An android app to detect the fluid level remotely
3. Current Status of the Patent: Filed
4. Student team details

| Name | Email Id | Mobile |
|---------------|--------------------------------|-------------|
| Divpreet Kaur | dkaur2559.ca19@chitkara.edu.in | 79733 54043 |

5. Patent Filing date: 20-Oct-21
6. Patent Granted date: NA
7. Patent Application Number: 202111047731

11) Name of the Technology: AN UNMANNED WEARABLE APPARATUS FOR MEASURING THE REFRACTIVE ERROR OF AN EYE

1. Project Title/Highlights of the Technology (innovation/uniqueness etc.): Virtual Reality Based Home Eye Testing Device for Measuring Spectacle Power of the Eye
2. Impact it will create:
 - a. An Online platform for doctors to advise the patients in remote areas
 - b. A product with high commercial potential
3. Current Status of the Patent: Filed
4. Student team details

| Name | Email Id | Mobile |
|----------------------|-----------------------------|------------|
| Maheswari Srinivasan | maheswariishayoga@gmail.com | 9841661134 |

5. Patent Filing date: 27-Jun-21
6. Patent Granted date: NA
7. Patent Application Number: 202141028827

12) Name of the Technology: DEVICE FOR MONITORING COMPRESSED MEDIAN NERVE

Project Title: IR Imaging for Medical Applications

1. Highlights of the Technology (innovation/uniqueness etc.): Infrared sensor technology and real-time image processing for diagnosis of eye ailments.
2. Impact it will create:
 - a. High-resolution infrared imaging employing infrared sensor technology and real-time image processing for diagnosis of eye ailments.
 - b. An infrared camera system that is not susceptible to electromagnetic interference during diagnose
 - c. It will achieve single channel infrared sensor to sharpen the image displayed on-screen and high image resolution
2. Current Status of the Patent: Filed
3. Student team details

| Name | Email Id | Mobile |
|----------|--------------------------|------------|
| Raj Rani | raj.rani@chitkara.edu.in | 9876762506 |

4. Patent Filing date: 6-Jul-21
5. Patent Granted date: NA
6. Patent Application Number: 202111030344

13) Name of the Technology: MICRONIZED PHARMACEUTICAL FORMULATION COMPRISING IVERMECTIN AND DOXYCYCLINE

Project Title: Micronized Formulation of Ivermectin-Doxycycline: A Promising Anti-Viral Approach

1. Highlights of the Technology (innovation/uniqueness etc.): Drug delivery system composed of combination of Ivermectin and doxycycline
2. Impact it will create:
 - a. It will be carrier system for drug to target the lungs directly

- b. Polymers have been selected and pre-formulation studies have been carried out on drugs and polymers.

3. Current Status of the Patent: Filed

4. Student team details

| Name | Email Id | Mobile |
|--------------|--------------------------|------------|
| Malkiet Kaur | malkietkaur033@gmail.com | 6280002664 |

5. Patent Filing date: 25-Nov-21

6. Patent Granted date: NA

7. Patent Application Number: 202111054543

14) Name of the Technology: GROW BED CUM COMPOSTING BIN

Project Title: Agronic Culture: Bin farming for healthy beings

1. Highlights of the Technology (innovation/uniqueness etc.): Old unused or used barrels will be recycled to grow inorganic food, herbs and contribute to the increase in the rate of recycling.

2. Impact it will create:

- a. The main idea behind this setup is to promote healthy culture through organic food, build a repository of herbs and medicinal plants.
- b. It plays role to achieve Sustainable Development Goals, to be in sync with the 3Rs—Recycle, Reduce, and Reuse
- c. It also creates a portable and compact farming system in less space.

3. Current Status of the Patent: Filed

4. Student team details

| Name | Email Id | Mobile |
|-----------------------|---------------------------|------------|
| Arryan Madhu Chitkara | arryan.chitkara@gmail.com | 7626871000 |

5. Patent Filing date: 31-Jul-21

6. Patent Granted date: NA

7. Patent Application Number: 347073-001

15) Name of the Technology: SMART TWO DIRECTIONAL MOVABLE MOUNT FOR SOLAR PANELS

Project Title: Solar Powered Umbrella Like Canopy

1. Highlights of the Technology (innovation/uniqueness etc.): A canopy with the diverse features for small vendors and guards

2. Impact it will create:

- a. Economical and portable canopy with the features of light and fan working with small solar power system
- b. It makes the job easy for the open market vendors, guards etc.

3. Current Status of the Patent: Filed

4. Student team details

| Name | Email Id | Mobile |
|------------------------|------------------------------------|------------|
| Aaishwarika Raj Sharma | aaishwarika.sharma@chitkara.edu.in | 7018336523 |

5. Patent Filing date: 15-Sep-21

6. Patent Granted date: NA
7. Patent Application Number: 349524-001

16) Name of the Technology: METHOD OF NANOPARTICLES FILM DESPOSITION FACILITATING VERTICAL ALIGNMENT OF LIQUID CRYSTALS

1. Project Title / Highlights of the Technology (innovation/uniqueness etc.): Homeotropic alignment of liquid crystal molecules induced by quantum dot/nano-scale particles for flexible display and device applications – a stride approach
2. Impact it will create:
 - a. It will producing flexible plastic LC displays requiring a low temperature process.
 - b. It has potential to contribute to the high performance as well as low power consumption display devices
3. Current Status of the Patent: Filed
4. Student team details

| Name | Email Id | Mobile |
|-----------------|-----------------------------|------------|
| Ankit Rai Dogra | ankit.dogra@chitkara.edu.in | 9878353997 |

5. Patent Filing date: 10-Jun-21
6. Patent Granted date: NA
7. Patent Application Number: 202111025904

17) Name of the Technology: ELECTROCHEMICALLY DEPOSITED MAGNETIC BIO-CONJUGATE MOF (METAL ORGANIC FRAMEWORK) FOR SENSOR APPLICATIONS

Project Title: Electrochemically Deposited Magnetic Bio-Conjugate MOF (metal organic framework) for Sensor Applications

1. Highlights of the Technology (innovation/uniqueness etc.): Establishment of new synthesis methods, construction of new MOF structures and exploration of their applications
2. Impact it will create:
 - a. Biosensors have a lot of good potential in the healthcare areas
 - b. It improves the performance of biosensors
3. Current Status of the Patent: Filed
4. Student team details

| Name | Email Id | Mobile |
|-----------------|---------------------------------------|------------|
| Baljinder Singh | baljinder1153as.phd20@chitkara.edu.in | 8894881355 |

5. Patent Filing date: 21-Oct-21
6. Patent Granted date: NA
7. Patent Application Number: 202111047993

18) Name of the Technology: REUSABLE ADSORBENT PAD

Project Title: Adsorbent Shoe Pads: Eliminates Sweat and Foul Odor

1. Highlights of the Technology (innovation/uniqueness etc.): The shoe pad consists of carbon-based Quantum Dots (QDs) with the surface functionalities and capable to kill bacteria and other microorganisms.

2. Impact it will create:
 - a. To Contribute in sustainable economy and become a reasonable product for smelly feet.
 - b. A reusable/recycled adsorbent pad which reduces the wastage

3. Current Status of the Patent: Filed

4. Student team details

| Name | Email Id | Mobile |
|--------------------------|----------------------------------|------------|
| Tarandeep Kaur Bhatia | tarandeep.bhatia@chitkara.edu.in | 9891714104 |

5. Patent Filing date: 5-Nov-20

6. Patent Granted date: NA

7. Patent Application Number: 202011048390

19) Name of the Technology: AN APPARATUS FOR GRANTING ENTRY PERMISSION TO AN ENTITY

Project Title: Screening, Actuation & Sanitizing apparatus

1. Highlights of the Technology (innovation/uniqueness etc.): A touch free device to take attendance and verify the identity of the person
2. Impact it will create:
 - a. SAS is an apparatus for granting an entry permission to a person in any organization
 - b. A bar code linked with the ID cards for permission after scanning the body temperature and collect data to use as attendance
 - c. Efficient product for commercialization

3. Current Status of the Patent: Filed

4. Student team details

| Name | Email Id | Mobile |
|---------------|----------------------------------|------------|
| Urvash Nahata | urvansh2015.be20@chitkara.edu.in | 8597024220 |

5. Patent Filing date: 19-Aug-20

6. Patent Granted date: NA

7. Patent Application Number: 202011035739

20) Name of the Technology: PROCESS OF PREPARING CALCIUM-DEPOSITED THREE-DIMENSIONAL CARBON FOR ENERGY STORAGE FROM WASTE PAPER AND EGGSHELLS

1. Project Title/ Highlights of the Technology (innovation/uniqueness etc.): Development of Hybrid Pulse Power Device Using Semiconductor 3D-Graphitic Carbon
2. Impact it will create:
 - a. Graphene based batteries are proposed to be developed because it has high surface-to-volume ratio, metal-like electrical conductivity, good thermal conductivity, mechanical and chemical stability
 - b. It is ideal for making super capacitors
3. Current Status of the Patent: Filed
4. Student team details

| Name | Email Id | Mobile |
|---------------|-------------------------------|--------------|
| Shagun Sharma | shagun.sharma@chitkara.edu.in | 916239769215 |

5. Patent Filing date: 6-Oct-20
6. Patent Granted date: NA
7. Patent Application Number: 202011043463

21) Name of the Technology: SYSTEM AND METHOD FOR AUGMENTED REALITY-BASED LEARNING

1. Project Title: EDU GEO
2. Highlights of the Technology (innovation/uniqueness etc.): Augmented Reality-based Geometry Learning Assistant (AR-GLA) to enhance understanding of the concept through visualization of the 3D objects.
3. Impact it will create:
 - a. Objective of the product is to assist the students' in their learning and longtime retention of the concepts related to geometry.
4. Current Status of the Patent: Published
5. Student team details

| Name | Email Id | Mobile |
|------------------|----------------------------------|-------------|
| Shubham Gargrish | shubham.gargrish@chitkara.edu.in | 08529268218 |

6. Patent Filing date: 6-Aug-20
7. Patent Granted date: NA
8. Patent Application Number: 202011033693

22) Name of the Technology: HEALTH MONITORING SYSTEM FOR PREGNANT WOMEN AND FETUS

Project Title: PregAura – Smart Non-Contact Distant Maternal Care for Pregnant Women during COVID Times

1. Highlights of the Technology (innovation/uniqueness etc.): A contact-less booth with the device to record vitals of a pregnant women and the data can be easily transferred to the doctor through cloud.
2. Impact it will create:
 - It will reduce the risk of any contagious disease to pregnant women
 - Advance stage for licensing this technology to Cutting Edge Medical Devices Pvt Ltd., Indore for commercialization
3. Current Status of the Patent: Published
4. Student team details

| Name | Email Id | Mobile |
|------------|----------------------------|-------------|
| Soni Singh | soni.singh@chitkara.edu.in | 99845 40176 |

5. Patent Filing date: 16-Jul-20
6. Patent Granted date: NA
7. Patent Application Number: 202011030405

23) Name of the Technology: AN AIR FILTRATION APPARATUS FOR FILTERING MICRO-ORGANISMS

1. Project Title/Highlights of the Technology (innovation/uniqueness etc.): Portable Virus-Sniffing-Device Against Newly Emerging Viruses

2. Impact it will create:
 - a. COVAPUR-AIR is a well-designed device, and adaptable as per the user's requirement, that would kill the virus present in the air and provide pure, non-toxic air to breathe.
 - b. The prototype tested for its efficiency and reusability based on the biological data.
3. Current Status of the Patent: Published
4. Student team details

| Name | Email Id | Mobile |
|--------------|------------------------------|------------|
| Adhish Singh | adhish.singh@chitkara.edu.in | 7355227056 |
5. Patent Filing date: 10-Jul-20
6. Patent Granted date: NA
7. Patent Application Number: 202011029313

24) Name of the Technology: MONITORING SYSTEM FOR SUBJECT

Project Title: Mano Aid

1. Highlights of the Technology (innovation/uniqueness etc.): A device to provide cognitive behavioral therapy virtually to mental health patients.
2. Impact it will create:
 - a. It will keep the norm of social distancing and provide an opportunity to psychotherapists to work from home.
3. Current Status of the Patent: Filed
4. Student team details

| Name | Email Id | Mobile |
|-----------------|-----------------------------|------------|
| Gurwinder Singh | gurwinder55@chitkara.edu.in | 8708599041 |
5. Patent Filing date: 25-Aug-20
6. Patent Granted date: NA
7. Patent Application Number: 202011036603

25) Name of the Technology: PROCESS OF PREPARING THREE DIMENSIONAL CARBON FROM PROSOPIS JULIFLORA

Project Title: Ethanol Fuel Cell

1. Highlights of the Technology (innovation/uniqueness etc.): Development of a renewable ethanol fuel cell to reduce of greenhouse gasses
2. Impact it will create:
 - a. Research oriented project for the conversion of Prosopis Juliflora to Ethanol fuel and Commercial level Ethanol & Lignin will be produced.
3. Current Status of the Patent: Filed
4. Student team details

| Name | Email Id | Mobile |
|--------|------------------------|------------|
| Taniya | taniya@chitkara.edu.in | 8054865123 |
5. Patent Filing date: 23-Sep-20
6. Patent Granted date: NA
7. Patent Application Number: 202011041260

26) Name of the Technology: FOGMINATOR

Project Title: Fogminator

1. Highlights of the Technology (innovation/uniqueness etc.): Developing an AI model for producing 3D image on the dashboard to assist driver for an obstruction-free view in foggy condition.
2. Impact it will create:
 - a. It will reduce road accidents
 - b. An economical solution to drive safely in foggy conditions with zero visibility
3. Current Status of the Patent: RFE Filed
4. Student team details

| Name | Email Id | Mobile |
|---------------|-------------------------------|------------|
| Nikhil Sharma | nikhil.sharma@chitkara.edu.in | 7015438207 |

5. Patent Filing date: 4-Jun-19
6. Patent Granted date: NA
7. Patent Application Number: 201911022157

27) Name of the Technology: A SYSTEM AND APPARATUS FOR AUGMENTED REALITY BASED EDUCATION

Project Title: Learn-O- Little

1. Highlights of the Technology (innovation/uniqueness etc.): A system and apparatus for augmented reality based education
2. Impact it will create:
 - a. Learning kit to provide advancement to preschool children need, with visual effects, audio pronunciations and engaging interactions
 - b. The kit is designed in a convenient form so kids can carry with them and learn anytime, anywhere.
3. Current Status of the Patent: RFE Filed
4. Student team details

| Name | Email Id | Mobile |
|-----------|---------------------------|-------------|
| Neha Tuli | neha.tuli@chitkara.edu.in | 07888868524 |

5. Patent Filing date: 8-Jun-19
6. Patent Granted date: NA
7. Patent Application Number: 201911022811

28) Name of the Technology: A DRIVING TEST SIMULATION APPARATUS

Project Title: Driving Test Simulator

1. Highlights of the Technology (innovation/uniqueness etc.): A Virtual Reality-based headset and an android device including custom-made steering wheel and pedals which will evaluate the drivers encountering with real-life challenges in Virtual 3D city.
2. Impact it will create:
 - a. The user will drive the car in a Virtual 3D city environment encountering real-life challenges, different road conditions, traffic signs and signals etc. E

- b. Evaluation will be conducted on the basis of the users' response and the efficiency to follow traffic rules.
 - c. The proposed solution would help to examine the necessary skills required to ensure a safe driving experience.
3. Current Status of the Patent: RFE Filed
 4. Student team details

| Name | Email Id | Mobile |
|---------------|-------------------------------|------------|
| Shivam Sharma | shivam.sharma@chitkara.edu.in | 7009025479 |

5. Patent Filing date: 16-Jan-19
6. Patent Granted date: NA
7. Patent Application Number: 201911001972

29) Name of the Technology: INTERNET OF THINGS (IOT) AND ARTIFICIAL INTELLIGENCE ENABLED TEA VENDING SYSTEM

Project Title: Healthy Tea Vending Machine

1. Highlights of the Technology (innovation/uniqueness etc.): To prepare tea directly from the fresh tea leaves, without adding any artificial preservatives
2. Impact it will create:
 - a. An IoT enabled tea brewer machine that will work on solar thermal
 - b. Reduce consumption of electricity and affordable to small vendors.
3. Current Status of the Patent: RFE Filed
4. Student team details

| Name | Email Id | Mobile |
|------------|----------------------------|------------|
| Aina Mehta | aina.mehta@chitkara.edu.in | 6280676790 |

5. Patent Filing date: 30-May-19
6. Patent Granted date: NA
7. Patent Application Number: 201911021602

30) Name of the Technology: YORK- YOUR OWN RESTAURANT KIT

Project Title: York (Your Own Restaurant Kit)

1. Highlights of the Technology (innovation/uniqueness etc.): A compact tool kit.
2. Impact it will create:
 - a. An economical and light weight product to be used in hospitality sector.
3. Current Status of the Patent: Filed
4. Student team details

| Name | Email Id | Mobile |
|--------------|-------------------------|-------------|
| Jatin Parmar | teentravels17@gmail.com | 86073 79797 |

5. Patent Filing date: 16-Dec-19
6. Patent Granted date: NA
7. Patent Application Number: 324751

31) Name of the Technology: BOTTLE CAP ASSEMBLY

Project Title: Active Cap

1. Highlights of the Technology (innovation/uniqueness etc.): Vital ingredients infusion cap technology
2. Impact it will create:
 - a. The concept is to develop the best infusion cap technology, which can be useful in daily life.
3. Current Status of the Patent: FER Received
4. Student team details

| Name | Email Id | Mobile |
|-------------|----------------------------|------------|
| Pintu Kumar | pintu.associates@gmail.com | 9973409111 |

5. Patent Filing date: 14-Oct-19
6. Patent Granted date: NA
7. Patent Application Number: 201911041596

32) Name of the Technology: WATER EFFICIENT AIR COOLER

Project Title: Hybrix Cooler

1. Highlights of the Technology (innovation/uniqueness etc.): A device to increase the efficiency of the cooler and reuse water
2. Impact it will create:
 - a. Consumption of water is less than coolers available in market
 - b. Also, useful in humid areas
3. Current Status of the Patent: FER Received
4. Student team details

| Name | Email Id | Mobile |
|-------------------|-------------------------------|------------|
| Mr. Nikhil Sharma | nikhil.sharma@chitkara.edu.in | 7018208861 |

5. Patent Filing date: 15-Apr-19
6. Patent Granted date: NA
7. Patent Application Number: 201911015150

33) Name of the Technology: Augmented Reality Based Learning System and Method for Electronic Circuits

Project Title: Vidyut_AR

1. Highlights of the Technology (innovation/uniqueness etc.): AR based electronic kit to build electronic circuits
2. Impact it will create:
 - a. AR based electronic kit for teaching students how to build electronic circuits (hands-on exposure)
 - b. The kit is being developed for K to 12 grades
3. Current Status of the Patent: RFE Filed
4. Student team details

| Name | Email Id | Mobile |
|-------------------|-----------------------------------|------------|
| Mr. Ashwani Singh | ashwani1189.cse19@chitkara.edu.in | 6283539782 |

5. Patent Filing date: 26-Jun-19
6. Patent Granted date: NA
7. Patent Application Number: 201911025477

34) Name of the Technology: A DEVICE FOR GENERATING WEATHER FORECAST

Project Title: BHUGOAL

1. Highlights of the Technology (innovation/uniqueness etc.): A device to forecast weather accurately in local area
2. Impact it will create:
 - a. A reasonable and affordable device to predict local weather precisely
 - b. It is more helpful to farmers
3. Current Status of the Patent: RFE Filed
4. Student team details

| Name | Email Id | Mobile |
|-------------|------------------------|------------|
| Rahul Kinra | rahulkinra99@gmail.com | 7357588720 |

5. Patent Filing date: 24-Dec-18
6. Patent Granted date: NA
7. Patent Application Number: 201811048842

35) Name of the Technology: DEVICE FOR REDUCING MOISTURE FROM FOOD GRAINS

Project Title: Grain Paddy Dryer

1. Highlights of the Technology (innovation/uniqueness etc.): Electric heating element under the plates inside the closed heating chamber to extract the moisture from grain.
2. Impact it will create:
 - a. The grain dryer machine is to reduce moisture from crop like Paddy, Wheat, etc. to prolong the storage for further processing (i.e milling operations of paddy).
3. Current Status of the Patent: RFE Filed
4. Student team details

| Name | Email Id | Mobile |
|--------------------|-----------------------|------------|
| Mr. Gurasees Singh | aseescooldh@gmail.com | 9878417700 |

5. Patent Filing date: 5-Nov-18
6. Patent Granted date: NA
7. Patent Application Number: 201811041912

36) Name of the Technology: DEQUANI – COUNTERFEIT DETECTOR

1. Project Title/ Highlights of the Technology (innovation/uniqueness etc.): Machine for Detection of Fake Cheques in Banking Operation
2. Impact it will create:
 - a. Efficient and economical way to control sale of pirated goods
 - b. Also, helps to detect the fake and original goods
3. Current Status of the Patent: RFE Filed
4. Student team details

| Name | Email Id | Mobile |
|---------------|------------------------|------------|
| Mohit Chachra | chachramohit@gmail.com | 9728068898 |

5. Patent Filing date: 14-Nov-17

6. Patent Granted date: NA
7. Patent Application Number: 201711040525

37) Name of the Technology: WATER FILTRATION APPARATUS

Project Title: Swach Neer

1. Highlights of the Technology (innovation/uniqueness etc.): A purifying chamber made up of mixture of sand, mud and rice husk ash which contains a pair of ceramic candles to purify water
2. Impact it will create:
 - a. Economical than available purifiers in market
 - b. Helps to save the natural ingredients of water
3. Current Status of the Patent: FER Received
4. Student team details

| Name | Email Id | Mobile |
|---------------|-------------------------------|-------------|
| Pooja Mahajan | pooja.mahajan@chitkara.edu.in | 09814749649 |

5. Patent Filing date: 20-Dec-17
6. Patent Granted date: NA
7. Patent Application Number: 201711045864

38) Name of the Technology: AN APPARATUS FOR DISPENSING PLANT NUTRIENT

Project Title: Intelligent Urea Spreading Machine

1. Highlights of the Technology (innovation/uniqueness etc.): AI based urea spreading machine to reduce the wastage of fertilizers
2. Impact it will create:
 - a. It will reduce the consumption of Urea.
 - b. It will increase the yield of crop as it sprays fertilizers on plants after detecting its color and image.
3. Current Status of the Patent: RFE Filed
4. Student team details

| Name | Email Id | Mobile |
|-----------------|------------------------|------------|
| Mr. Puneet Bawa | erpuneetbawa@gmail.com | 7986268917 |

5. Patent Filing date: 29-Sep-17
6. Patent Granted date: NA
7. Patent Application Number: 201711034792

39) Name of the Technology: PAPERLESS ERASABLE MAGNETIC BRAILLE SLATE

Project Title: Brill- Tab Edukit

1. Highlights of the Technology (innovation/uniqueness etc.): Brilltab Edukit is an innovative device for visually impaired children to ensure inclusive and equitable quality education
2. Impact it will create:
 - a. An electronic advanced device that can be utilized by visually impaired children
 - b. More options for the Braille devices for learning in market
3. Current Status of the Patent: RFE Filed
4. Student team details

| Name | Email Id | Mobile |
|-------------|-----------------------------|---------------|
| Puneet Bawa | puneet.bawa@chitkara.edu.in | 7986268917 |

5. Patent Filing date: 30-Sep-16
6. Patent Granted date: NA
7. Patent Application Number: 201611033447

40) Name of the Technology: WIND TURBINE DRIVEN GENERATOR FOR VEHICLE

Project Title: Wind Turbine Driven Generator for Vehicles

1. Highlights of the Technology (innovation/uniqueness etc.): The device is used to generate electricity to charge any type of vehicle batteries, provided vehicle is in motion.
2. Impact it will create:
 - a. I will improve the efficiency of electric vehicles by harnessing wind energy
 - b. The system for harnessing the wind energy will be mounted on the roof of the vehicle to save energy which saves the extra design cost
3. Current Status of the Patent: FER Received
4. Student team details

| Name | Email Id | Mobile |
|-------------|-------------------------------|---------------|
| Yash | yeah2316.me18@chitkara.edu.in | 7837777403 |

5. Patent Filing date: 30-Jun-15
6. Patent Granted date: NA
7. Patent Application Number: 1962/DEL/2015

ANNEXURE D – Start-ups

- 12 NewGen IEDC projects have associated start-ups with them and there are a total of 10 start-ups.
- 3 technologies have been commercialized so far.

I. Name of the Company/Start-up: **6DOF Solutions**



Highlights of the Company/Start-up

Products:

1. Learn O' Little Kindergarten kit
2. Magic AR Coloring book

Investment:

- Received grant of INR 7 lakhs from Ministry of Electronics and Information Technology (MeitY)

Employment generated: Yes – 3 employee

Commercialized or not: Yes, the Magic coloring book is available on online marketing platforms.

Impact it will create (including social impact, if any)

- The product will change the learning methods for small children in coming days. It will save time & energy of working parents.
- The education market sector will get new dimensions in the learning material.

Current Status of the Company/Start-up: The start-up is in the stage of commercialization.

Student team Details:

| Name | Email Id | Mobile |
|-----------|---------------------------|------------|
| Neha Tuli | neha.tuli@chitkara.edu.in | 7888868524 |

Establishment date of the Company/Start-up/Commercialization: 22-Feb-21

One paragraph on the Company/Start-Up covering all the points-

The company established in February 2021. The company has launched two products: Learn O' Little Kindergarten kit and Magic AR Coloring Book. It works on Augmented Reality technology to make classes more engaging and informative. Learn -O- Little is an interactive learning kit for kindergarten kids to help them learn the alphabet, word building and practice various interactive quizzes.

II. Name of the Company/Start-up: **Two Decimals Pvt. Ltd.**



Highlights of the Company/Start-up

Product: BhuGoal

Investment:

- Received another grant of INR 20 lakhs from Ministry of Electronics and Information Technology (MeitY) SASACT

Employment generated: Yes-10 employees (during 2020-21)

Commercialized or not: No

Impact it will create (including social impact, if any)

- The product gives more accurate information about the weather conditions which helps to schedule events and activities at local level.
- The local weather prediction is quite helpful for farmers to reduce crop damage

- A reasonably economical product for commercialization.

Current Status of the Company/Start-up: The product is in industrial development stage.

Student team Details:

| Name | Email Id | Mobile |
|-------------|------------------------|------------|
| Rahul Kinra | rahulkinra99@gmail.com | 7357588720 |

Establishment date of the Company/Start-up/Commercialization: 19-Oct-19

One paragraph on the Company/Start-Up covering all the points

Too Decimal Private Limited provides precise weather monitoring at the local level. It augments traditional weather data sources by collecting millions of data points from multiple sources. The company has a vision to Empower people and businesses to outsmart weather events by planning and taking prior actions. The start-up serves the sectors like Municipalities, Aviation, Construction, landscaping, Mining etc.

III. Name of the Company/Start-up: **Active WTR Wellness Beverage LLP**

ACTIVE WTR

Highlights of the Company/Start-up:

Product: Active Cap

Investment:

- Received another grant of INR 2.5 lakhs from CM Start up scheme, Government of Himachal Pradesh

Employment generated: No

Commercialized or not: No

Impact it will create (including social impact, if any)

- It reduces the wastage of beverages.
- It will bring change in healthcare sector.

Current Status of the Company/Start-up: The startup is in development stage.

Student team Details:

| Name | Email Id | Mobile |
|-------------|----------------------------|------------|
| Pintu Kumar | pintu.associates@gmail.com | 9973409111 |

Establishment date of the Company/Start-up/Commercialization: 10-May-21

One paragraph on the Company/Start-Up covering all the points

Active Wtr Wellness Beverage Llp is a Limited Liability Partnership firm incorporated on 10 May 2021. It is registered at Registrar of Companies, Jharkhand. Active Wtr is a beverage packaging startup. The company's concept is to develop the world's best infusion cap technology. The Activecap helps other companies from various segments to expand their product lines and generate growth using its unique solutions. It is a revolutionary way to store and protect vital ingredients, till consumption.

IV. Name of the Company/Start-up: **80 Wash Llp**



Highlights of the Company/Start-up

Product: Pied Piper
80 Wash

Investment:

- Received another grant of INR 20 lakhs IICDC Program- 20 lakhs and INR 3 lakh from CM Start up scheme, Govt. of Himachal Pradesh

Employment generated: Yes – 2 employees

Commercialized or not: Yes

Impact it will create (including social impact, if any)

- Pied Piper is an economic and human touch free trap which reduces the risk of the spreading diseases.
- It will enhance the market for the AI based autonomous products

Current Status of the Company/Start-up: The Company is in pre- sales commercializing stage.

Student team Details:

| Name | Email Id | Mobile |
|--------------|-------------------------|------------|
| Rouble Gupta | roublegupta03@gmail.com | 8607576787 |

Establishment date of the Company/Start-up/Commercialization: 11-Mar-21

One paragraph on the Company/Start-Up covering all the points

80 Wash Llp has two products named - Pied Piper & 80 Wash. Pied-Piper is a trending patented trap, which is completely free from human touch. The company supports AI-based autonomous travelling to dump rats/mice outside at specified places. Pied-Piper traps multiple rats at once. E-Pinjra is also termed “The Piped Piper”. The company’s another product named 80 wash - washing machine that washes clothes in 80 seconds without water. 80wash Llp is a Limited Liability Partnership firm incorporated in March 2021. It is registered at Registrar of Companies, Delhi.

V. Name of the Company/Start-up: Core Idea Innovations Pvt. Limited

Highlights of the Company/Start-up

Product: Virtual Reality Based Home Eye Testing Device for Measuring Spectacle Power of the Eye

Investment:

- Received grant of INR 2 lakhs from Innovative Voucher Program, Govt. of Tamil Nadu
- INR 30,000 (per month) NIDHI- EIR fellowship for one year

Employment generated: No

Commercialized or not: No

Impact it will create (including social impact, if any)

- Most of the rural places in India have no eye care facilities. The device will provide the facility of tele-eye consultation and tele-eye testing.

Current Status of the Company/Start-up: Active, the startup has Minimal buyable product ready and is in developmental stage.

Student team Details:

| Name | Email Id | Mobile |
|----------------------|-----------------------------|------------|
| Maheswari Srinivasan | maheswariishayoga@gmail.com | 9841661134 |

Establishment date of the Company/Start-up/Commercialization: 11-Nov-21

One paragraph on the Company/Start-Up covering all the points

Core Idea Innovations Private Limited classified as Non-Govt. Company and registered at Registrar of Companies(ROC), Tamil Nadu. The product is a virtual reality-based device that can connect clinicians and patients through cloud systems. The device tests the spectacle power of the eye and sends the prescription remotely. It helps the patients to reach out the ophthalmologists easily across the countries. The company is in its initial stage and product is ready for final testing and launch in market.

VI. Name of the Company/Start-up: **GFF Innovations Private Limited**



Highlights of the Company/Start-up

Product: Rodent Surgical Table
Moksha–Bio fuel convertor

Investment:

- Received grant of INR 25 lakh from FICCI

Employment generated: Yes – 2 employees

Commercialized or not: No

Impact it will create (including social impact, if any)

- The table is equipped with advanced facilities as per the surgeon's requirement.
- The design's significant commercial value will provide preclinical researchers with a better option for starting rodent surgeries with the 100 percent efficiency, and reduce complications.

Current Status of the Company/Start-up: Active.

Student team Details:

| Name | Email Id | Mobile |
|----------------|--------------------------------|------------|
| Varinder Singh | Varinder.singh@chitkara.edu.in | 9464445524 |

Establishment date of the Company/Start-up/Commercialization: 29-May-18

One paragraph on the Company/Start-Up covering all the points

GFF Innovations Private Limited is registered and incorporated in May 2018. The product Rodent surgical tables used for animals' examinations or surgery by a veterinary surgeon or preclinical researchers are in developmental stage. The present design is an improved surgical table and efficient with facilities as it is made up of stainless-steel surface with heating pads, LED lamp, tool tray, waste drainage pipe, beaker space (250 ML and 100 ML), animal tissue holder, with an automated temperature regulator as per the need of physiological demand and an automated position setter for the ease of the surgery. The company is planning to attract various companies and researchers for the investment with the proposed design.

VII. Name of the Company/Start-up: **Anukai Solutions Pvt. Ltd.**



Highlights of the Company/Start-up

Product: Intelights

Investment:

- Received grant of INR 9 lakhs from TIDE 2.0, MeitY

Employment generated: Yes- 11 employees

Commercialized or not: Yes

Impact it will create (including social impact, if any)

- An IoT device to provide Intelligent Mobility through Artificial Intelligence and CCTV cameras and ensure smooth movement of vehicles.
- Reduces Average Wait Time (AWT) of commuters at traffic signals leads to less traffic jams and reduce pollution.

Current Status of the Company/Start-up: Active.

Student team Details:

| Name | Email Id | Mobile |
|--------------|-------------------------------|------------|
| Gourav Goyal | Gourav.goyal@chitkara .edu.in | 9910910439 |

Establishment date of the Company/Start-up/Commercialization: 01 June 2018

One paragraph on the Company/Start-Up covering all the points

Anukai Solutions Private Limited is incorporated on 01 June 2018 and classified as Non-govt. company. It is registered at Registrar of Companies, Chandigarh. Its authorized share capital is Rs. 900,000. It is involved in Hardware consultancy. This class includes consultancy on type and configuration of hardware with or without associated software application. The company is providing employment to 11 persons and generating a healthy revenue.

VIII. Name of the Company/Start-up: **Dagriation Solutions Pvt. Ltd.**



Highlights of the Company/Start-up

Product: Brill-Tab Edukit

Intelligent Urea Spreading Machine

Investment: Received grant of INR 7 lakhs from MeitY

Employment generated: No

Commercialized or not: No, analytical testing of product is in process.

Impact it will create (including social impact, if any)

- Brilltab Edukit provides electronic and advanced device for visually impaired children. It promotes lifelong learning opportunities.
- Intelligent Urea Spreading Machine' will help to reduce the consumption of inorganic fertilizers.

Current Status of the Company/Start-up: The start up is in developmental stage.

Student team Details:

| Name | Email Id | Mobile |
|-----------------|-----------------------------|------------|
| Virender kadyan | - | 9992037007 |
| Puneet Bawa | puneet.bawa@chitkara.edu.in | 7986268917 |

Establishment date of the Company/Start-up/Commercialization: 12 July 2019

One paragraph on the Company/Start-Up covering all the points

Dagriation Solutions Private Limited is a Private incorporated in July 2019 and classified as Non-government company It is registered at Registrar of Companies, Delhi. It is involved in Software publishing includes production, supply and documentation, other applications software, computer games software for all platforms, consultancy and supply. Consultancy includes providing the best solution in the form of custom software after analyzing the users' needs and problems.

IX. Name of the Company/Start-up: Ramanuj Technologies



Highlights of the Company/Start-up

Product: Video Laryngoscope

Investment: No

Employment generated: No

Commercialized or not: No

Impact it will create (including social impact, if any)

- A low cost health care instrument which is easy operates for health professionals.

Current Status of the Company/Start-up: Active, The start-up is in commercializing stage.

Student team Details:

| Name | Email Id | Mobile |
|----------|-------------------------|------------|
| SN Panda | snpanda@chitkara.edu.in | 9416096257 |

Establishment date of the Company/Start-up/Commercialization: 19-Jul-19

One paragraph on the Company/Start-Up covering all the points:

Ramanuj Technologies Private Limited is a 2 years 10 months old Private Company incorporated on 19 Jul 2019. Its registered office is in Ambala, Haryana, India. The Company's status is Active.

X. Name of the Company/Start-up: Sustainergic Tech Private Limited



Highlights of the Company/Start-up

Product: Hybrid T Brewer

Investment: Received INR 7 lakhs from MeitY

Employment generated: Hired freelancer

Commercialized or not: No

Impact it will create (including social impact, if any)

- Solar based wending machine will bring the revolution in the market.
- Economical and easy to operate machine, beneficial to small vendors.

Current Status of the Company/Start-up: The startup is in developmental stage.

Student team Details:

| Name | Email Id | Mobile |
|--------------------|------------------------------------|---------------|
| Prateek Srivastava | prateek.srivastava@chitkara.edu.in | 9785749960 |

Establishment date of the Company/Start-up/Commercialization: 17 Feb 2021

One paragraph on the Company/Start-Up covering all the points:

Sustainergic Tech Private Limited is a Private incorporated on 17 February 2021. It is classified as Non-govt Company and is registered at Registrar of Companies. Its authorized share capital is Rs. 100,000. Prateek Srivastava is the director of Sustainergic Tech Private Limited. It is involved in hot beverage vending machines. The company is developing a Smart tea/coffee brewer which works on both electrical energy and solar energy.