

Annexure - IV


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

SUBMISSION OF PROGRESS REPORT (FY 22-23)

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 <ul style="list-style-type: none">• Mobile Number• E-Mail ID	9625441043 sagar.juneja@chitkara.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.		4,750,000 (Second Year)
	3.	dated 13/11/2018	60,00,000 (Third Year)
	4.		60,00,000 (Fourth 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
Workshop on Prototyping Techniques	<ul style="list-style-type: none">• On April 11, Chitkara University NewGen IEDC and Chitkara University Fabrication Facility conducted a workshop on Laser Cutting and 3D Printing for the students of Chitkara Design School and Chitkara School of Planning and Architecture (CSPA).• More than 25 students attended workshop and learnt the operations of 3D printer, laser cutting machine as well as designing of products on CAD & CURA software.• The session was delivered by Mr. Chanpreet Singh – Project Manager, CURIN. 
Workshop on Textile and Print Technology	<ul style="list-style-type: none">• On April 12, another workshop titled Textile and Print Technology for Interior Spaces was conducted for CSPA wherein Mr. Chanpreet Singh taught how to convert the virtual design models in the form of stencils and dies for textile printing.• The workshop was attended by more than 20 students.





Session on Prototype Building for School Students

- Chitkara University NewGen IEDC conducted a session on prototype building for students of Chitkara International School on April 25, 2022.
- The session was held on two consecutive days where students came to know how NewGen IEDC supports the new ideas and convert them into a commercialized product.
- Mr. Sagar Juneja - Assistant Dean, CURIN and Co-Coordinator (NewGen IEDC and TEC) gave a brief overview about NewGen IEDC and the fabrication facilities available at the centre and Mr. Chanpreet Singh conducted the hands-on session on laser cutting and 3D printing. The session was attended by close to 20 students.



SciSky Program by CUCIF

- Chitkara University Central Instrumentation Facility (CUCIF) conducted a hands-on workshop on High Performance Computing using GPU Server on April 25 under their flagship program titled SciSky 2.0.
- The aim of SciSky is to deliver professional skills to the students, research scholars, and faculty members. Till date more than 500 students, scholars and faculty members have been benefitted from SciSky.

	 <p>Science Kunj Skilling Program for Young Professionals (SciSkY) on High Performance Computing using GPU Server</p> <p>Event Highlights:</p> <ul style="list-style-type: none"> • Learn about Integrated Graphics and their functions • GPUs for VR games • GPUs for video editing and content creation • GPU for machine learning and Flow of Kaggle and TensorFlow <p>Date : April 25, 2022 Venue : Science Kunj, Babbage Block, 4th Floor</p> <p>Limited seats! Contact us for more info: cucif@chitkara.edu.in 9896006220</p> <p>SCAN TO REGISTER</p>
<p>Workshop on Technology Entrepreneurship Development</p>	<ul style="list-style-type: none"> • This workshop was organized during June 1-3, 2022. • Around 32 students and faculty members from the Chitkara International School participated in the event. • Brainstorming session on ideas building was organized and teams pitched their ideas and received inputs from experts. 
<p>Workshop on Design Techniques</p>	<ul style="list-style-type: none"> • A two-day workshop on Design Techniques and Laser Cutting Operations was conducted during September 19-20 to train the students on building good quality project prototypes. • 39 students participated and learned about CAD designing software and designing techniques, laser cutting operations, and technicalities of laser cutting machine. • Student participants made the designs themselves in this hands-on workshop and realized them using laser cutting machine.



PCB Designing Workshop

- On 8th September, Dr. Amit Pandey – Assistant Professor, ECE conducted a workshop on PCB designing and fabrication using Etching Technique for the students of electronics and allied branches.

CHITKARA UNIVERSITY

A technical event

DESIGNING OF PCB USING ETCHING TECHNIQUE

Under the Student Chapter of IE(I) in association with IIC and Electronique Design Center (Offline)

Resource Person
Dr. Amit Kumar
 Assistant Professor
 Department of Electronics and Communication Engineering

Date : 8th September, 2022
Time : 1:30 pm - 4:00 pm
Venue: Electronique Design Center
 Edison Block

Faculty Coordinator:- Dr. Amanpreet Sandhu
 Presented by
 Department of Electronics and Communication Engineering

INSTITUTION'S INNOVATION COUNCIL

Scan to Register:

Technovanza on Startup and Innovation

- Led by the CSI Student Chapter, this two day event featured technical quizzes based on software programs, followed by deployment of those programs, etc.
- The event also featured a talk by one of the student entrepreneurs of the university - Divyansh Chauhan.




TECHNOVANZA

On Startup & Innovation

- Expert Talk
- Quiz
- Binary Fetch
- Deployment

Date : 18th October, 2022
 Venue : Einstein Hall, Galileo Block

Date : 19th October, 2022
 Venue : Pulitzer hall, Picasso Block

Time : 9:30 AM – 04:00 PM
 Mode : Offline

Student Coordinator: Gaurav Chib | 8437208855

Organised By
 CSI STUDENT CHAPTER
 Department of Computer Applications
 Chitkara University, Punjab



Scan to Register




Expert Talk on Distributed Power Generation

- On October 19, Dr. Sandeep Kaur from Punjab Engineering College, Chandigarh was invited to deliver an expert talk on Distributed Generation Planning, Modern Trends and its Operational Issues to the Electrical Engineering students.
- She talked about concepts of distributed generation, load forecasting, daily and monthly analysis of grids and load areas across the country through frequency management by national and state load dispatch centers.



Expert Talk

Distributed Generation Planning, Modern Trends & its Operational Issues



Resource Person





Dr. Sandeep Kaur
 Punjab Engineering College
 Deemed to be University
 Chandigarh

Date: 19th October, 2022
 Time: 11:00 AM - 1:00 PM
 Venue: FETA Lab, Tesla Block

For Prefinal & Final Year
 Electrical Engineering Students

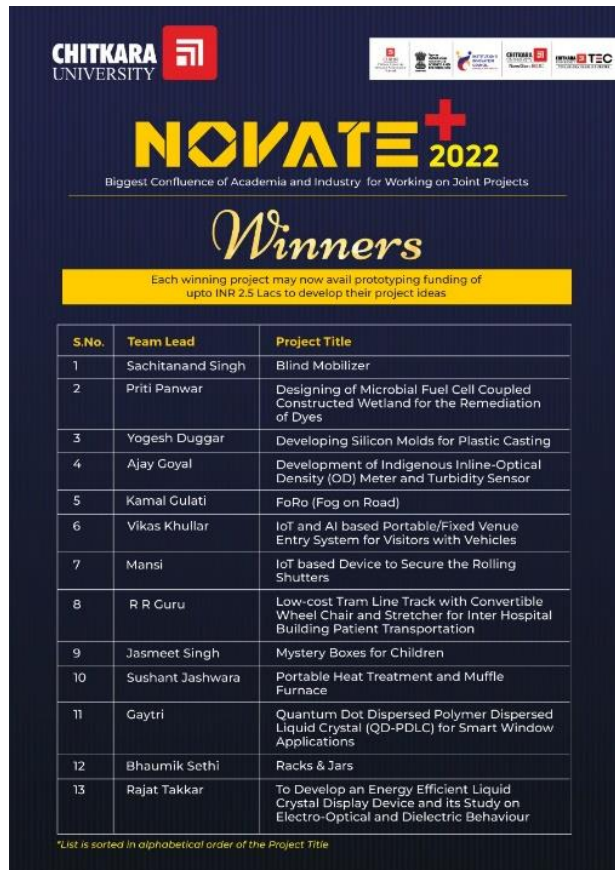



<p>Session on Funding Opportunities for the Development of Innovative Ideas & Products</p>	<ul style="list-style-type: none"> On December 15, Mr. Sagar Juneja - Assistant Dean, CURIN, Chitkara University and the Coordinator, NewGen IEDC delivered this talk on Funding Opportunities Available for Development of Innovative Ideas & Products for the students of Computer Applications department. 
<p>How To Win Prototype Funding For Your Innovative Project Ideas</p>	<ul style="list-style-type: none"> This session was delivered by Mr. Sagar Juneja - Assistant Dean, CURIN, Chitkara University and the Coordinator, NewGen IEDC on December 17 for the students and faculty members of Department of Applied Sciences. 

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

Activities	Outcome/Achievements
<p>NOVATE+ 2022</p>	<ul style="list-style-type: none"> CURIN, Chitkara University organized the 4th edition of NOVATE+ 2022 on the theme Biggest Confluence of Academia and Industry for Working on Joint Projects. During March – May 2022 more than 50 industry-academia joint projects were received, out of which 29 entries were shortlisted to compete in the finals to win prototype funding from NewGen IEDC and Technology Enabling Centre (TEC). NOVATE+ 2022 was convened by Mr. Sagar Juneja – Assistant Dean, CURIN and Co-Coordinator (NewGen IEDC and TEC).

- The jury comprised of following experts – Mr. Shivansh Sethi (CEO & Founder- Aiotize Pvt. Ltd.), Dr. Jagreet Kaur (Director – Xenonstack Pvt. Ltd.), Mr. Deepak Nair (Research & Design, Consultant), Dr. Sachin Ahuja (Director, Research, Chitkara University), Mr. Sanjay Bhatnagar (Visiting Faculty, Chitkara University), Dr. Varsha Singh and Dr. Neha Tuli (Assistant Professors, CURIN and Entrepreneurs).



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NOVATE 2022
Biggest Confluence of Academia and Industry for Working on Joint Projects

Winners

Each winning project may now avail prototyping funding of upto INR 2.5 Lacs to develop their project ideas

S.No.	Team Lead	Project Title
1	Sachitanand Singh	Blind Mobilizer
2	Priti Panwar	Designing of Microbial Fuel Cell Coupled Constructed Wetland for the Remediation of Dyes
3	Yogesh Duggar	Developing Silicon Molds for Plastic Casting
4	Ajay Goyal	Development of Indigenous Inline-Optical Density (OD) Meter and Turbidity Sensor
5	Kamal Gulati	FoRo (Fog on Road)
6	Vikas Khullar	IoT and AI based Portable/Fixed Venue Entry System for Visitors with Vehicles
7	Mansi	IoT based Device to Secure the Rolling Shutters
8	R R Curu	Low-cost Tram Line Track with Convertible Wheel Chair and Stretcher for Inter Hospital Building Patient Transportation
9	Jasmeet Singh	Mystery Boxes for Children
10	Sushant Jashwara	Portable Heat Treatment and Muffle Furnace
11	Gaytri	Quantum Dot Dispersed Polymer Dispersed Liquid Crystal (QD-PDLC) for Smart Window Applications
12	Bhaumik Sethi	Racks & Jars
13	Rajat Takkar	To Develop an Energy Efficient Liquid Crystal Display Device and its Study on Electro-Optical and Dielectric Behaviour

*List is sorted in alphabetical order of the Project Title

The Journey of Creating Products for the Real World

- On April 1, 2022, Mr. Vyasteja Rao - Founder & Creative Director, Analogy Design, Bengaluru was invited to train the students as well as faculty on how to convert the project prototypes into real world products.
- The objective of the talk was to understand the challenges and complications encountered while converting prototypes into market ready products.
- He also gave suggestions on how to make the products sustainable and eco-friendly.



CHITKARA UNIVERSITY | **CURIN** | **CHITKARA UNIVERSITY** | **INSTITUTIONS INNOVATION COUNCIL** | **CHITKARA TEC**

Invited Talk on Product Design
THE JOURNEY OF CREATING PRODUCTS FOR THE REAL WORLD

ABSTRACT
Product design and development is a complicated field with a lot of intricacies around people, objects as well as practices. The talk aims to equip students and young entrepreneurs with the best practices and industry learnings to not only create and innovate but also bring their idea into execution in the best way possible.

Invited Speaker
Mr. VYASATEJA RAO
Founder & Creative Director
Analogy Design, Bengaluru
<https://analogydesign.co/>

Date: April 1, 2022 | **Time:** 11 am -12 noon
Webinar Link: <https://tinyurl.com/webinar-pd-apr1>
Register by March 30

Expert Talk on Funding Opportunities for Developing Innovative Projects

- An expert talk on Funding Opportunities for Developing Innovative Projects was delivered by Mr. Sagar Juneja in a session that was organized by the Matrix club (student club) of Chitkara University on April 27, 2022.
- Mr. Sagar discussed about how students can win prototyping grant from NewGen IEDC, what is a meaning of prototyping grant and pre-incubation funding.
- The main objective of the talk was to make the students aware about how they can convert their ideas into minimum viable products (MVPs) after obtaining prototyping grant from NewGen IEDC and later think about converting their MVPs into start-ups or commercialized products. The session was attended by about 100 students.



Three-day Event on 'Ideation to Commercialization'

- A three-day event titled "Ideation to Commercialization" (I2C) was organized on 25th, 26th and 29th April, 2022.
- It aimed at inculcating entrepreneurship skills among the students. Around 80 students participated in the event.
- It featured activities like information sharing on prerequisites for start-up ideation by E-Cell executives, invited talks on topics like 'digital marketing and technology in the start-ups', 'idea building and scaling of start-ups' etc.
- 15 student teams pitched their ideas to the jury members and top ideas were awarded.



Ideation to Execution: Know All About Entrepreneurship

- On October 20, Mr. Anuj Sharma, Founder of the Himalayan Company was invited to train young entrepreneurs to help them in building successful companies.
- The session provided in-depth knowledge about how start-ups can escalate from their ideation stage to launching their product in the market and how they can get good returns for the same.

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cee|d SMART7 Learning Series

cee|d

**FROM IDEATION TO EXECUTION:
KNOW ALL ABOUT ENTREPRENEURSHIP**

**RESOURCE PERSON
ANUJ SHARMA**
FOUNDER OF THE HIMALAYAN COMPANY
TEDX SPEAKER

DATE: THURSDAY, OCTOBER 20
TIME: 11:00-11.30 AM
VENUE: EXPLORE HUB

INSTITUTION'S INNOVATION COUNCIL
(Ministry of HRD Initiative)

4 QUALITY EDUCATION, 8 DECENT WORK AND ECONOMIC GROWTH, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Build Up Your Startup Idea and Work on Your Model

- Ms. Drashti Shah (Global Facilitator and Startup Mentor), and Ms. Nisha Kotecha (Founder & CEO, Inkdivo and GloCal Coworking) were invited to interact with the student start-ups on October 31.
- Key points of discussions were the importance of thorough research about the ideas and the best practices to improve the business models to build successful businesses out of them.

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cee|d SMART7 Learning Series

cee|d

**BUILD UP
your Startup Idea and
work on the model**

DATE : October 31, 2022
TIME : 3 PM to 4 PM



VENUE : Plato Hall

MS. NISHA KOTECHA
Founder & CEO, InkDiVo & GloCal CoWorking,
Global Facilitator - Techstars Startup Weekend

MS. DRASHTI SHAH
Global Facilitator, Startup Mentor, Techstars Startup Weekend

INSTITUTION'S INNOVATION COUNCIL
(Ministry of HRD Initiative)

4 QUALITY EDUCATION, 8 DECENT WORK AND ECONOMIC GROWTH, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

<p>Design Tech Expo 2022</p>	<ul style="list-style-type: none"> • Design Tech Expo 2022 was organized on December 16 to inculcate design thinking principles for prototype development among students. • The events featured showcasing of prototypes that were developed by students to provide solutions to problems pertaining to areas like healthcare, management, transport, agriculture, and education. 
<p>Innovation to IPR</p>	<ul style="list-style-type: none"> • An expert talk on Innovation to IPR was delivered by Dr. S. N. Panda - Professor & Executive Director (Research) on December 20, 2022. • The talk was meant for the students to empower them with the knowledge and importance of IPR in order to safeguard their innovative project ideas. 
<p>Two days FDP on 'Increase Your innovation Quotient and Initiate a Start-Up Venture'</p>	<ul style="list-style-type: none"> • This two-day FDP was conducted for the faculty members of the Department of CSE on December 22 and 23. • The FDP was oriented towards imparting knowledge to faculty members on adopting innovative practices that can help them in understanding procedures and mechanisms to set up a start-up venture and transferring this knowledge to the students.

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INSTITUTION'S INNOVATION COUNCIL
(Ministry of HRD Initiated)

4 QUALITY EDUCATION

9 QUALITY MEMBERS

Faculty Development Program on
Increase Your Innovation Quotient
and Initiate a Start-Up Venture

KEY HIGHLIGHTS

- Rubrics behind setting up a Start-Up Venture
- Key aspects to understand innovative strategic mechanisms for initiating a Start-Up venture

SPEAKERS



Dr. Adarsh Aggarwal
Professor, Centre for Entrepreneurship
Education & Development, Chitkara University



Mr. Sagar Juneja
Assistant Dean (CURIN) &
Coordinator IEDC, Chitkara University



Dr. Krishan Gupta
Founder and Managing
Director of Organic Wellness



Dr. S.N. Panda
Professor & Executive Director (Research)
CURIN, Chitkara University

22nd December & 23rd December, 2022
10:00 AM onwards
Sun Hall, Turing Block / Online Mode

Who should attend: Faculty Members

Registration Link:
<https://forms.gle/mqccmLxFTs61gcDs6>

Registration Fee: NIL

CONVENER
 Dr. Kamali Singla, Professor-DCSE & Deputy Registrar-IQAC |
 CUIET, Chitkara University, Punjab, 7989436404, kamali.singla@chitkara.edu.in

CO-CONVENER
 Dr. Ankit Bansal, Associate Lead, QA| DCSE, CUIET,
 Chitkara University, Punjab, 9815354056, ankit.bansal@chitkara.edu.in



ORGANIZED BY
 Research and Innovation Unit, Department of
 Computer Science & Engineering, Chitkara University



Idea-Thon 2.0

- CURIN organized the final round of the 2nd Edition Idea-Thon 2.0 Hackathon on January 20-21, 2023 and it featured 35 project pitches.
- Based on the comments of the jury, funding has been awarded to 17 projects for building proof of concepts!
- Total funding of INR 25 Lacs+ has been awarded from NewGen IEDC.



[C] To enhance Industry-Academia interaction

Activities	Outcome/Achievements
<p>Expert Talk on Building a Start-up in Space Technology</p>	<ul style="list-style-type: none"> On April 1, Jainul Abedin, Founder, Abyom Spacotech and Defence Pvt. Ltd. was invited to deliver an expert talk on the topic on “Building a Start-up in Space technology” wherein 100+ students and budding entrepreneurs participated and learnt the technical aspects of building start-ups in space technology. He explained that most space tech start-ups are working into CANSATs, sounding rockets, high altitude balloons, satellite components manufacturing etc. 
<p>Session on Entrepreneurial Mindset for a Start-up</p>	<ul style="list-style-type: none"> On April 7, Ms. Aashna Narula - Founder Director, Psychopedia was invited to interact with close to 100 budding entrepreneurs & students on the topic of entrepreneurial mindset. She explained entrepreneurial mindset is a specific set of beliefs, knowledge, and thought process that drive the entrepreneurial behaviour. 

<p>Invited Talk on Scaling Up Start-up</p>	<ul style="list-style-type: none"> • Mr. Anuj Mittal - Founder, Flocus Technologies was invited to deliver this talk on May 23. • It was attended by close to 200 participants who were guided about strategies for scaling of startups with real-life examples followed by an exciting concept of the staircase to heaven. • Mr Anuj Mittal was Co-Founder, Healthians.com and is alumnus of IIT Delhi & IIM Lucknow. 
<p>Demo Day for Start-ups</p>	<ul style="list-style-type: none"> • This event was organized on May 26, wherein Start-ups from both Chitkara University, Punjab and Chitkara University, Himachal Pradesh pitched their start-ups ideas in front of the jury and inputs were provided by the jury to them. • The jury of the event was team Voyager X and Ms. Soniya, Advisor to Nipah. Voyager X team has developed a product Vflat which is being used worldwide for scanning the documents. 
<p>Invited Talk on Edge Computing and Its Applications</p>	<ul style="list-style-type: none"> • On June 8, CURIN organized an invited talk on edge computing to understand this technology and its various applications. • The invited speaker of the session was Dr. Satish Kumar who is a Chief Scientist at the Centre of Excellence for Intelligent Sensors and Systems (ISenS) in CSIR – Central Scientific Instruments Organisation (CSIO), Chandigarh. • Participants were made familiar with the open opportunity of working on a series of next generation applications such as – artificial organoleptic systems, drone based scene understanding, drone based fault diagnosis, smart clothing for future patient monitoring, multi-sensing analysis for pilot cognition state, advanced photonic nose for diagnosis of diseases, IoT based elderly care, smart building automation, smart surveillance system,

activity detection and recognition, multi-sensing based human body detection under debris, etc.



MoU with CSIO for Joint Projects

- Dr. S. Anantha Ramakrishna - Director, CSIR-Central Scientific Instruments Organisation (CSIO), Chandigarh and Dr. Archana Mantri – Vice Chancellor, Chitkara University, Punjab signed an MoU for carrying out collaborative work by the two organizations.
- The scope of the MoU encompasses usage of common research facility, incubation/development of the existing technologies available with CSIR-CSIO by the companies incubated at Chitkara Innovation Incubator Foundation, internship opportunities for students of Chitkara University at CSIR-CSIO, and running joint academic programs.



Invited Talk on Cyber Security

- On September 17, an invited talk on the topic 'Cyber Evolution: Knowing the Advance Cyber Crime Techniques and its Counter Defense Mechanisms' was organized that was delivered by Mr. Smith Gonsalves - Director & Principal Consultant, CyberSmithSECURE.
- He explained about various opportunities for potential industry-academia collaborations for cyber preparedness.



Invited Talk on Food Processing Machinery

- Mr. Gulshan Chouhan from Chouhan Engineering Company (Manufacturers & Suppliers of Confectionery Machines), Rajpura was invited on August 11, 2022 to talk about some of these machinery where he believes faculty from Chitkara University can collaborate with his industry.
- The session was attended by close to 30 faculty members for Mechanical Engineering and Mechatronics departments.



Invited Talk on Talent Analytics

- On Sep 3, we invited Mr. Pushpinder Singh - Chief Technology Officer, Ambiente Technologies Pvt. Ltd. (ATPL), Punjab to discuss some of his specific problems related to analytics, especially talent analytics, wherein he sought collaboration with the academia.
- ATPL was interested in building data based decision making solutions (including software) for Talent Management, Performance Appraisals, Defining & Maintaining Company Culture, etc.
- Close to 25 faculty members from the departments of Business Management, Computer Science and Engineering and CURIN attended this session.



Trends and Future of Automation Industry in India

- On Sep 7, Mr. Shivaji Waghmare, CEO Fuji Electric India Pvt. Ltd. was invited to deliver a talk on the topic Trends and Future of Automation Industry in India.
- He talked about how automation is shaping landscape in India and what all skill sets are required to have a successful career in this field.



Invited Talk on Compact Fortified Rice Making Machine

- Mr. Rajeev Kumar & Mr. Gurdeep Singh from Vishavkarma Agro Industries, Rajpura were invited on September 23 to discuss the idea of building a Compact Fortified Rice Making Machine.
- They discussed about the need for this machine, technical details as well as the challenges associated with the machines currently available in the Indian market.
- The session was attended by close to 20 faculty members from Mechanical Engineering department.



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

None

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

- **Commercialization of a NewGen IEDC supported Projects – 1) PregAura and 2) Fully Automatic Bottle Labeling Machine for Pharma Industries**

1. A patent licensing agreement dated 28th September 2022 has been signed by and between Chitkara Innovation Incubation Foundation (CIIF) and M/S. Cutting Edge Medical Devices Private Limited, Indore (CEMD) for the patent titled 'A Device for Monitoring Health Parameters' having an application number 201911007068, which was filed on 22-02-2019. Additionally, a related patent dated 16-07-2020 having an application number 202011030405 and is titled 'Health Monitoring System for Pregnant Women and Fetus' has also been licensed to CEMD.



2. Converted a semi-automatic bottle labelling machine into a fully automatic one to improve the speed and accuracy of labelling using servo motors, servo drives and high speed PLC. Multi-type bottle labelling using recipe function in HMI is possible. Technology has been deployed at SA Automation Pvt. Ltd., Mohali

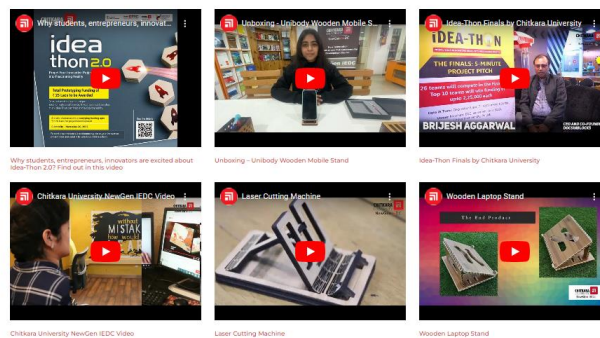


- **NewGen IEDC YouTube Channel**

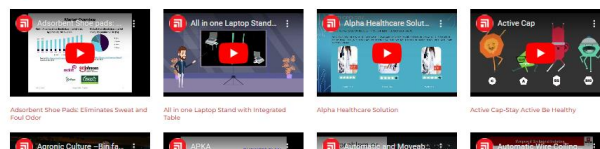
NewGen IEDC YouTube Channel features close to 100 informative videos on innovations, including the videos of each of the supported projects. Please visit this link to access the videos - <https://newgeniedc.chitkara.edu.in/video-gallery/>

Video Gallery

Featured Videos



Project Videos



- **Focused Collaborations Industries/Start-ups**

In order to speed-up the project development, deployment and commercialization, the focus of NewGen IEDC has been to build collaborations with industries as well as start-ups. A large number of NewGen IEDC supported projects have industry tie-ups. See Annexure A for project details.

- **Diversity and Interdisciplinary Participation**

In addition to engineering, we have supported projects from Pharmacy, Applied Sciences, Health Sciences, Business Management, etc. Most of these projects are interdisciplinary in nature. See Annexure A for project details.

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.

S.No.	Title of the Project
1	All in One Laptop Stand with Integrated Table
2	Alpha Healthcare Solution
3	Automatic and Moveable Vertical Garden Barricades
4	Designing of Microbial Fuel Cell Coupled Constructed Wetland for the Remediation of Dyes
5	Development of safe AR-LEAD and VR-LEAD for Autism
6	Developing Silicon Molds for Plastic Casting
7	Enhancement of Working Life of Agricultural Equipment and Tools with the Development of Wear Resistant Alloy Powder Coatings
8	FoRo (Fog on Road)
9	IR imaging for detecting medical applications
10	Low-cost Tram Line Track with Convertible Wheel Chair and Stretcher for Inter Hospital Building Patient Transportation at Apex Care Medical Centers in India: Patient Safety from Fall and Resuscitation in Need
11	Metal Spray Gun for Industrial Applications
12	Perineal Retractor for safe and accurate Episiotomy during Vaginal Delivery
13	Portable Heat Treatment and Muffle Furnace
14	Quantum Dot Dispersed Polymer Dispersed Liquid Crystal (QD-PDLC) for Smart Window Applications
15	R-Bit - Financial Education and Training Platform
16	Rodent Surgical Table
17	Screening, Actuation & Sainitizing
18	Schottky Junction Printable Solar Cell
19	To Develop an Energy Efficient Liquid Crystal Display Device and its Study on Electro-Optical and Dielectric Behaviour
20	Virtual Reality Based Home Eye Testing Device for Measuring Spectacle Power of the Eye

- 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 Vasishta (*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. Vasishta 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. Vasishta'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 Gol 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. Vasishta 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 22-23	Up to March-2023*
1.	Total number of Student Projects supported	20	80 Projects have been supported so far and 20 more have already been approved
2.	Total fund provided towards supporting Student Projects	INR 33,06,948	INR 1,46,26,581
3.	No. of Patents filed by students Details in Annexure C	9	49
4.	No. of Patents Granted Details in Annexure C	4	12
5.	No. of companies/Starts up Set up by Students Annexure D	2	12 (total of 14 NewGen IEDC projects have start-ups)
6.	No. of enterprise/Business commercialized Details to be attached as per Annexure D	2	6

7.	Social Impact Made, If any	<p>In the fourth year, 6 out of the 20 projects that have been supported are from Deep-Tech Medical/Health Care domain that can be very beneficial to the society. These projects are –</p> <ol style="list-style-type: none"> 1. Alpha Healthcare Solution 2. Development of safe AR-LEAD and VR-LEAD for Autism 3. IR imaging for medical applications 4. Low-cost Tram Line Track with Convertible Wheel Chair and Stretcher for Inter Hospital Building Patient Transportation at Apex Care Medical Centers in India: Patient Safety from Fall and Resuscitation in Need 5. Perineal Retractor for safe and accurate Episiotomy during Vaginal Delivery 6. Virtual Reality Based Home Eye Testing Device for Measuring Spectacle Power of the Eye 	<p>Total 21 projects</p> <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.</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 5. An Agrowaste Management - Development of Multipurpose Chemically Stable, Thermal and Ion-conducting Membrane 6. Swayam Khaad - decomposition of organic waste using iron (III) based catalyst in the presence of UV light 7. Design of Nano-bubbles Generator for STP to Improve the DO Levels in Water 8. Development of a Novel, Low Cost & Compact Total Organic Carbon Analyzer to Measure the Organic Content in Water <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
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			<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. Britab 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.
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ANNEXURE A

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

1. Team / Project Description

Title – All in One Laptop Stand with Integrated Table

Student Members – Pranav Garg, Pranav Kumar

Mentors – Dr. Gulshan Dhillon

Description– We proposed the idea of a “All in One Laptop Stand with Integrated Table” to solve the problems faced by the users with the existing laptop stand. The following features will be provided in a single product:

- Mesh base to avoid overheating along with sliding USB powered fans for additional cooling.
- A hinge protection feature is uniquely designed to provide support to the laptop screen.
- It is compatible with various sizes of laptops.
- The table will be adjustable to height, includes features such as a cup/mobile holder, a drawer with integrated wireless charging, a power strip with USB ports, a comfortable armrest, and a USB-powered study lamp.
- Adjustable angle that can reduce screen effects and help to create a more natural typing position.

Project status at beginning of the Year:

It was a well prepared concept and students were looking for funds to build their idea.

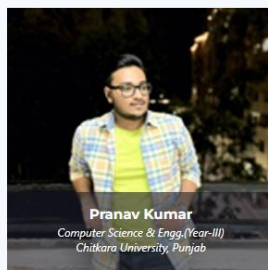
Interventions made:

- Funds from NewGen IEDC
- Prototyping Support
- 3D designing and printing support.

Current status:

1. First prototype is ready. Work is going on to improve upon the current design
2. Three patents have been filed - 332371-001, 332372-001, 358132-001
3. The team has almost completed with the table and currently finalizing the fit of the armrest.
4. For laptop stand, they are working on 3D prints for the hinge protection assembly.

Video and Photographs: <https://youtu.be/6XkDXzlfGgl>



2. Team / Project Description

Title – Alpha Healthcare Solution

Student Member – Lalrempuii, Parivesh and Namandeeep

Mentors – Dr. Rajesh Kaushal

Description –When a patient goes to the hospital for a checkup, he/she has to wait for 1-2 hours to meet the doctor. So, we came up with the solution of ZoCare app which allows one to get instant access to healthcare system with one touch. This app will connect nurses, physiotherapists, and dieticians as per the need of the patient/client and also provides home service for people who need medical attention but can't go to hospitals due to their medical conditions.

The app also allows patients to book online appointments with various general physicians and specialties such as cardiologists, endocrinologists, ENT, cosmetologists, dermatologists, rheumatologists, neonatologists, etc. This app will help patients save time in an efficient manner.

Project status at beginning of the Year: It was a well thought idea, but student (who is not from engineering background) lacked expertise in implementing the project

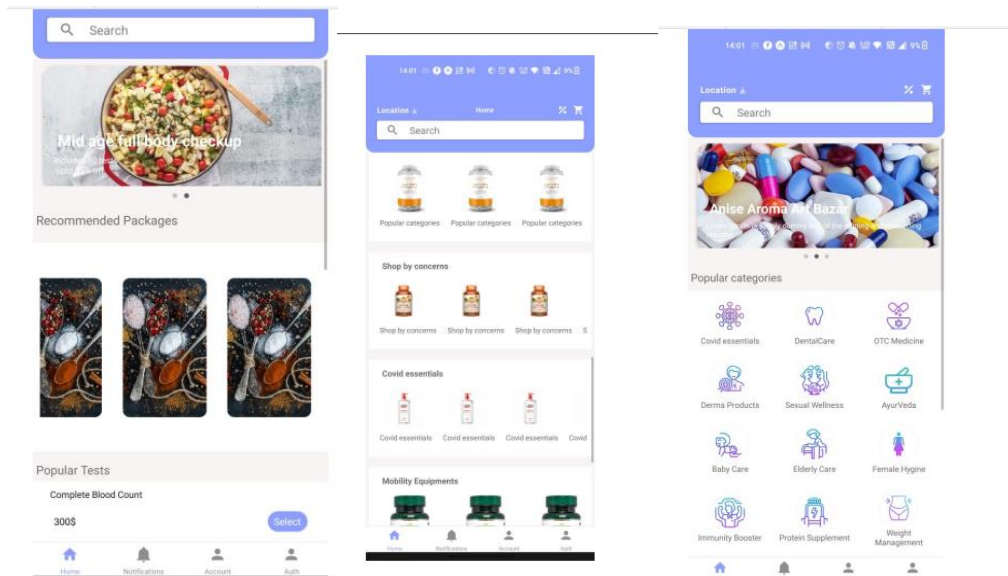
Interventions made:

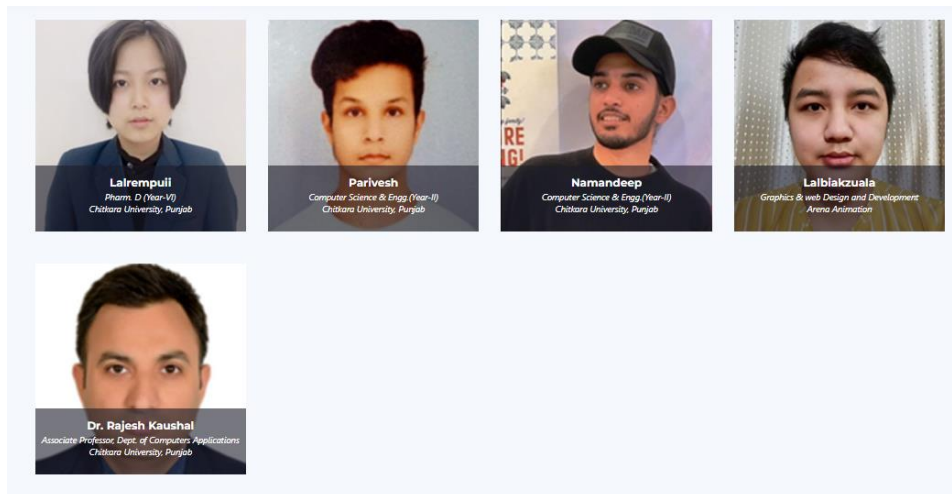
5. Funding from NewGen IEDC
6. Mentoring in executing the project and identifying vendors for procurement
7. Support in building an interdisciplinary team.

Current status:

- Front end design for Android OS is done, iOS implementation is going on.

Video and Photographs: <https://youtu.be/QTzoy0s5LaM>





3. Team / Project Description

Title- Automatic and Moveable Vertical Garden Barricades

Student Member – Appurav Gupta and Jayti Garg

Mentors. – Dr. Pooja Mahajan, Mr. Hamid Raza and Mr. Atul Dutta

Description- Barricades are used to check, control and regulate traffic movements. It is often found that these barricades are very stark and not visible in low-light areas. Moreover, we are all aware of the present environmental issues and the shortage of green-covered areas.

The Automatic and Moveable Vertical Garden Barricades will consist of a vertical garden and an automated irrigation system to nurture plants. It will not only look impressive but will also give comfort to people's minds, with nature's calming powers.

It will also comprise LED lights with solar panels to make the system energy-efficient and increase visibility at night. It has space for advertisements to generate revenue from it. This will be one set to provide a complete integrated design and environment-friendly solution for many issues.

Project status at beginning of the Year: It was just an idea

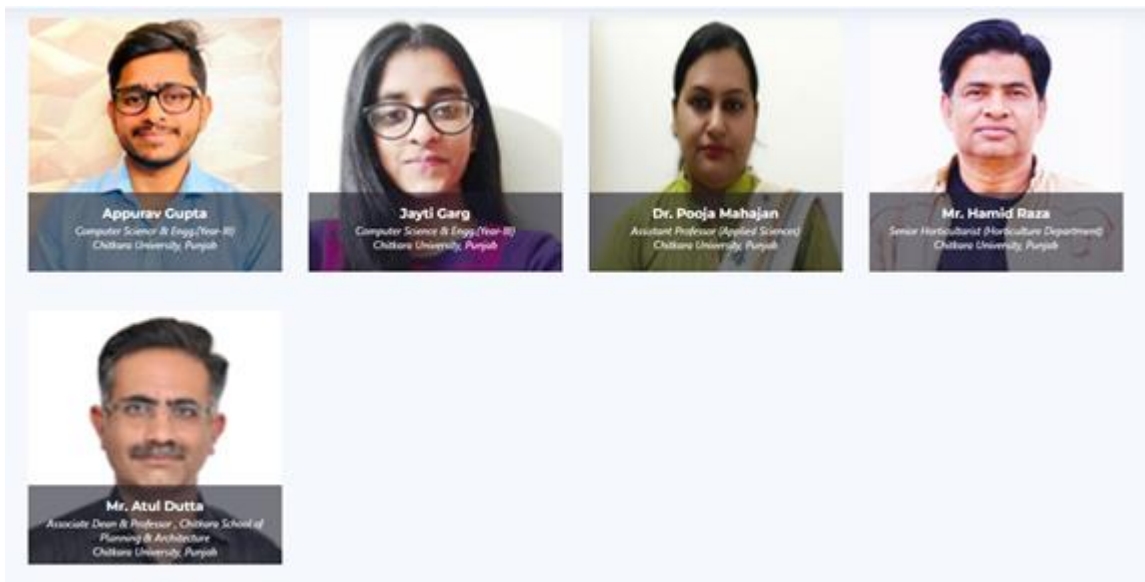
Interventions made:

8. Funding support
9. Mentoring support
10. Identification of components and vendors
11. Prototyping support in sheet metal work

Current status:

- Prototype is ready
- Working on the Automation part
- Design patent has been filed - 357439-001

Video and Photographs: <https://youtu.be/iSvf5ioIgLs>



4. Team / Project Description

Title – Designing of Microbial Fuel Cell Coupled Constructed Wetland for the Remediation of Dyes

Student Member – Priti Panwar

Mentors. – Dr. Pooja Mahajan and Dr. Jyotsna Kaushal

Description - Use of synthetic dyes in textile industry all over the world which is resulting in enhancing toxicity levels of water bodies by the direct discharge of dye effluent without adequate treatment. Dyes are also carcinogenic and mutagenic. Additionally, there is a need to explore methods of generating energy from alternate sources to reduce the dependence on non-renewable sources.

There is a need to develop such technologies which could not only treat wastewater in an economic way but also generates electrical energy simultaneously. As per present Sustainable Development Goals, the adoption of more sustainable energy generation and wastewater treatment strategies is required for economic and environmental goals to be harmonious. CW-MFCs in combination is the new type of energy provider along with treatment of hazardous synthetic dye effluent in eco-friendly and cost-effective manner.

A microbial fuel cell coupled with constructed wetland reactor will be designed and constructed for the degradation of synthetic dyes. Electrogenic bacteria and plants will be used to improve the degradation efficiency of dyes and to increase the bioelectricity generation

Project status at beginning of the Year:

It was a well-researched project idea

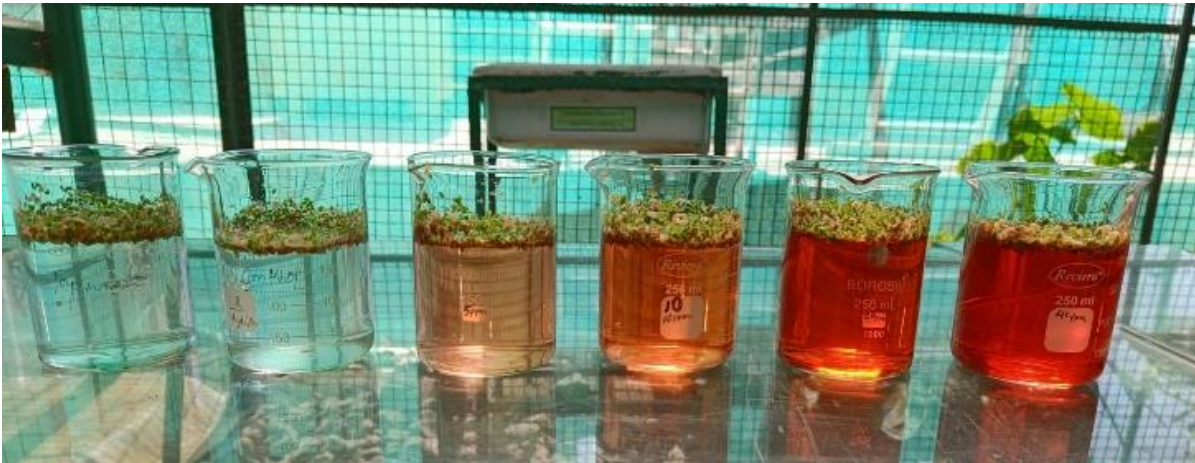
Interventions made:

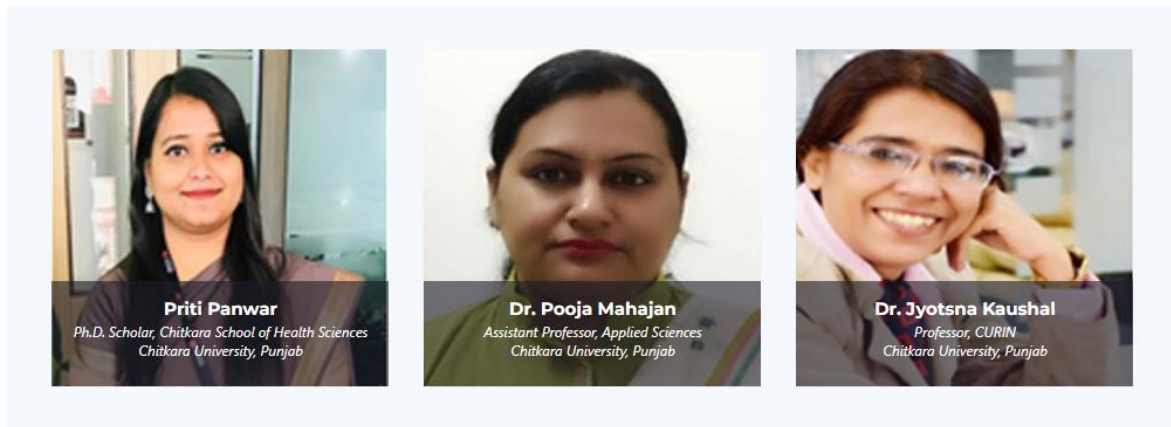
Funding support and support in sourcing the components.

Current status:

- We are conducting preliminary experiments for the construction of CW-MFC in order to optimise certain parameters which will play a significant role in the performance of the system. Here are the pictures of preliminary experiments conducted for the degradation of dyes.
- We are going to purchase the material for the construction of fuel cell such as electrodes, substrate, wires, resistors, rectangular boxes and peristaltic pump. The list has been prepared and will be sent for quotations soon and the purchase will be done by the end of January.

Video and Photographs: <https://youtu.be/hOb4lhq-Kk>





5. Team / Project Description

Title – Development of safe AR-LEAD and VR-LEAD for Autism

Student Member – Anjali and Shubham Kumar

Mentors. – Dr. Thakur Gurjeet Singh, Dr. Nitin Saluja, Dr. Gurjinder Singh and Dr. Debarshi Ghosh

Description - It is estimated that more than 2 million people in India are affected by autism spectrum disorder (ASD). The intervention of ASD in India is more geared towards traditional methods involving parents, physicians, and educators. The traditional interventions can be grouped into 4 different approaches: developmental, behavioral, cognitive, and therapeutic. In Autism Disorder, children face difficulties in social interaction, developing behavior and communication. We identified these problems in some kids in our surroundings. To discuss the problem, we visited the Head of the Department, Psychiatry Department from Rajindra Government Medical College and Hospital Patiala, Punjab, and found that it is not easy to implement AR directly on the Autism Kids.

This project aims to create an AR-based application (AR-LEAD) for treating autism in rodents. A pre-clinical study would be conducted to analyze rodents' oxidative stress parameters, neurotransmitter levels, apoptotic markers, and neuroinflammatory biomarkers. The outcomes of this project would aid in the development of similar AR/VR applications that can be used for autism patients in the future for clinical trials.

Project status at beginning of the Year:

It was a well-researched idea

Interventions made:

- Funding support and components sourcing support
- 3D designing and printing support.

Current status:

- Successfully interfaced the Raspberry Pi with the capacitive touchscreen LCD to display the virtual content to the subject. Four capacitive touchscreens were connected successfully with the Raspberry Pi to form the panoramic display for the rodents.
- Next, team is going to design and 3D print the case for the panoramic display in which 5 screens can be attached at one time.
- Patent filed - 202211046851

Video and Photographs: <https://youtu.be/tPTm3bM2MgE>



6. Team / Project Description

Title – Developing Silicon Moulds for Casting Purposes

Student Member – Yogesh Duggar

Mentors. – Mr. Chanpreet Singh

Description– The casting mould built using silicon rubber will help MSMEs (Micro, Small and Medium Enterprises) to reduce the cost of products developed using casting moulds. The biggest leverage will be achieved by plastic products manufacturing and rubber products manufacturing industries. The combination of high thermal resistivity of silicon rubber with the strength and thermal conductivity will be used to build the casting mould. These casting moulds are divided into a silicon rubber mould and a metal casing covering its outer part. The silicon rubber mould will be used as the inner part to shape the casting material. The use of silicon rubber mould will reduce both the complexity of manufacturing the mould as well as reduce the cost of manufacturing. The outer metal casing will be used in strengthening and pressure handling of the silicon rubber mould. This outer casing will also help in evenly cooling the silicone mould. We intend to replace metal dyes in MSME's by silicon dyes (silicon rubber mould) in the process of plastic and rubber casting.

Project status at beginning of the Year:

It was interesting idea that we decided to support from NewGen IEDC.

Interventions made:

12. Funding support

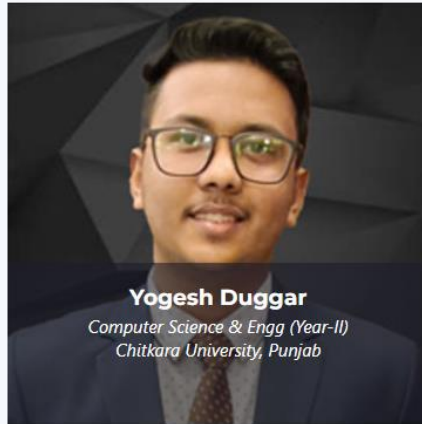
13. Support in identification and sourcing of components
14. Technical mentorship in project execution

Current status:

15. Conducted a flame test to determine the degree of burn and oxidation.
16. Investigated the effects of varying tension forces on the elasticity of silicon rubber at different temperatures.
17. Examined the changes in silicon rubber subjected to constant heat (non-flame).
18. Determined the range of heat transfer for different thicknesses over different time frames.
19. Evaluated the compatibility of various tools for modelling silicon rubber.
20. Collaborated with the shoe industry to design new plastic shoe outsoles and initiated the development of new models.

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





7. Team / Project Description

Title – Enhancement of Working Life of Agricultural Equipment and Tools with the Development of Wear Resistant Alloy Powder Coatings

Student Member –Hemender Yadav, Hitesh Singla and Himakshi Gupta

Mentors –Dr. Rakesh Goyal,

Description– Agricultural tools and components like plows, hole diggers, and harvester blades are facing a critical problem of wear and erosion due to the erosive nature of sand and stones. This results in less efficiency of the equipment in a particular time increased maintenance and thus the higher overall cost of work.

We propose a solution that will develop the well-defined composition of Wear Resistant Coating Powders. Such solutions are used for coating of Agricultural tools and components by Thermal spray coating technique and shall provide protection against the high rate of wear which increased the working life of the tool.

The coating technologies are very effective and economical to achieve the desired results. This has been already proven in different journals/literature reviews that coating is probably the only effective solution to provide protection from wear and add extra life to the agricultural equipment.

Project status at beginning of the Year –

- It was a theoretical idea, strongly backed by literature

Interventions made:

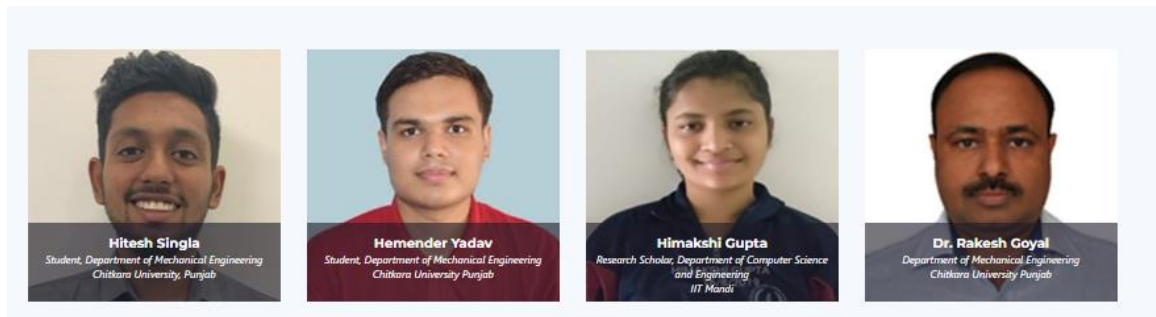
- Funds were provided from NewGen IEDC for building a prototype and testing the efficiency of the proposed coating.

Current status:

- The prototype has been made and currently under testing.
- Results are being obtained.

Video and Photographs: <https://youtu.be/R0X9e83ygLI>





8. Team / Project Description

Title – FORO (Fog on Roads)

Student Member – Kamal Gulati, Jyoti Gupta and Sakhshra Monga

Mentor – Dr. Nitin K. Saluja

Description - FORO is a fog detection device which gives hyper local prediction of fog in real time. The devices presently available in the market are ADAS (Advanced Driver Assistance Systems) integrated with LIDAR (Light Detection And Ranging), Image processing, Radar, optical power measurement etc. These techniques produce reliable results but with more complexity. Also, the cost of these techniques is very high. So to overcome this problem we have found that the FM radio signals vary with the fog. We started automating the process of noting down the signals while moving on the roads with an instrument named FoRo (Fog on Roads). We are in process of prototyping FoRo for precise recording of the signals, converting it into digital signals and transferring the data to the mobile phones with the linked application. It records the signal and send it to the servers. The server has an Artificial Intelligence algorithm which can predict the fog at hyper-local level in real time. Now, we can predict the time of your arrival better than Google Maps in the winter seasons of India

Project status at beginning of the Year: It was a well-researched idea

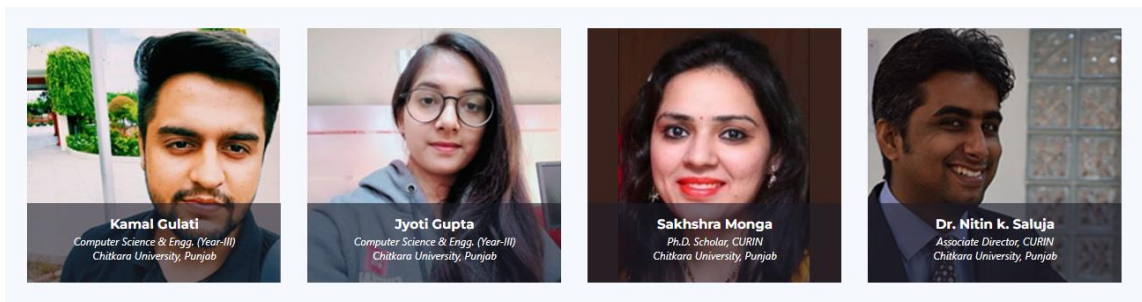
Interventions made:

Funding Support and Components Sourcing Support

Current status:

- Team is analyzing the FM signals coming from FM radio at different intervals of time so that we can find distortions in the FM radio signal.
- Working on the PCB design, and programming the microcontroller with a ML based code.
- Patent filing is in process.

Video and Photographs: <https://youtu.be/ctSjWR4aHEA>



9. Team / Project Description

Title – IR imaging for medical applications

Student Member – Neha and Raj Rani

Mentors. – Dr. Varsha Singh

Description – The project is about high-resolution infrared imaging employing infrared sensor technology and real-time image processing techniques. The innovation is focused specifically on imaging for medical purposes.

One of the challenges with infrared sensors is the amount of electromagnetic interference that occurs when they are used to drive a normal display, such as a laptop display. Lines across the screen, like what one may see on analogue television in a bad reception area, are a common result.

As a result, an infrared camera system that is not susceptible to electromagnetic interference is required, so that EMI interference does not appear on the display screen when coupled to a CPU, such as in a laptop.

In addition, infrared equipment used in medical laboratories is usually bulky and hefty, making transportation difficult. As a result, there is a desire for a medical infrared system that can be carried in a bag, opened, and used in an off-campus treatment facility.

Additionally, the output of a single channel infrared sensor must be processed to sharpen the image displayed on-screen and achieve high image resolution.

Project status at beginning of the Year: A basic prototype with off the shelf camera was available.

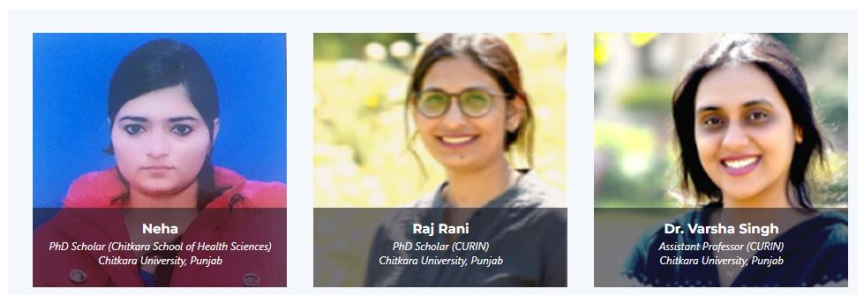
Interventions made:

21. Funding from NewGen IEDC
22. Support in identification of right components and vendors
23. 3D designing and printing support.

Current status:

- Component aspects of the device are in the process of procurement and the final aspect of the project design for fabrication and assembly of the prototype is undergoing.
- Patent has been filed having an Application Number 202111030344.

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



10. Team / Project Description

Title – Low-cost patient transportation track with convertible wheelchair and stretcher for inter building patient transfer in tertiary care hospital: Prioritizing the Patient safety.

Student Member – Shelly Kaushik

Mentors – Prof. Keerti Bhusan Pradhan

PGI Doctor's - Dr. R R Guru, Prof Vipin Koushal, Dr Navin Pandey, Dr Karan Singla, Dr Girija and Er Dharmendra

Description - During the intra-hospital and inter-building transfer of the patients for admissions or other diagnostic procedures, issues like Fall of the patient from the stretcher, exertion of patient attendants, lack of signages on the

way, the danger of vehicular road traffic accidents, the helplessness of attendants during transport of the patient leading anxiety and delay in the treatment.

As a solution to finding out the most comfortable, safe, and effortless mode of patient transfer, the proposed solution is to design a convertible wheelchair with a stretcher and smooth designated metallic tracks for effortless movement of the Convertible wheelchair. This project may be adopted in apex care Hospitals for patient safety.

Project status at beginning of the Year:

It was an excellent idea with full theoretical understanding on how to implement it.

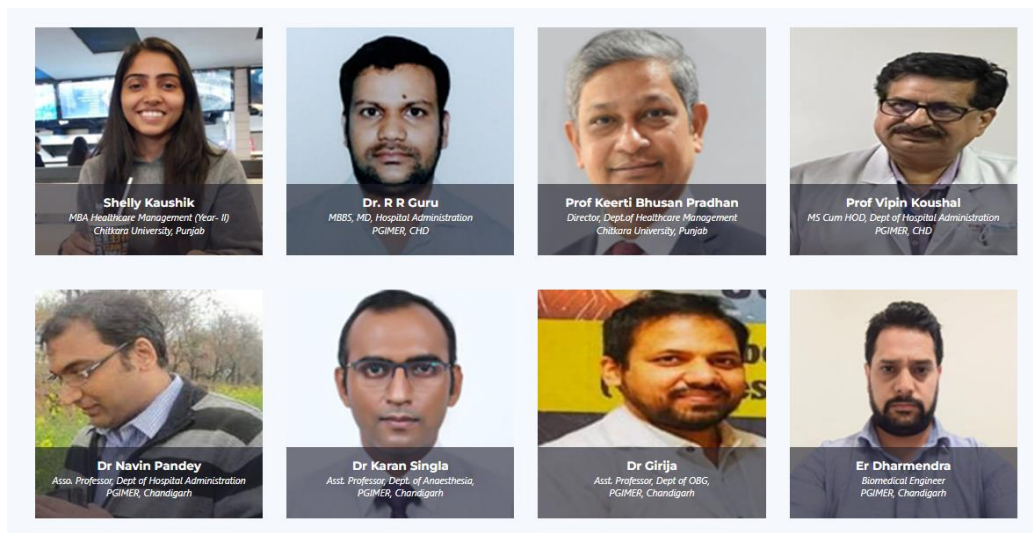
Interventions made:

24. Funding support and components sourcing support.

Current status:

- The design of first the wheel chair is finalised. The wheel chair also been made in the workshop after necessary modifications.
- The second wheel chair is in tendering process. The hardware for the tramline is also in tendering process.
- The signages, resuscitation trolley work is under process.
- The location and permission for the tramline in the hospital area is in process of getting approval from the concern authority.
- The permission for the tram line making in side hospital premises is in process

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



11. Team / Project Description

Title- Metal Spray Gun for Industrial Applications

Student Member – Ayush Sharma and Sushant Jashwara

Mentors. – Dr. Rakesh Goyal, Dr. Kashi Das Chattopadhyay and Ms. Punam

Description - The idea is to develop and manufacture a Thermal (Wire Flame) Spray gun for thermal spray coatings. This gun will be helpful in depositing the coating on the components which are subjected to the application of wear and corrosion. This gun will be helpful in the repair and reclamation of worn-out components. This gun can be used by researchers and the industry. This gun has many applications in many verticals. Global Thermal Spray Coatings Market size was worth over \$8 billion in 2016 and is expected to be increased over \$13 billion by 2024. Growth in aerospace and automotive sectors particularly in North America will propel thermal spray coatings market share. As per industry estimates, U.S. civil aviation spending was over USD 79 billion in 2015 and is set to register a growth of over 6.5% through 2024. The other lucrative industries using thermal spray coatings are automotive and healthcare.

Project status at beginning of the Year:

It was a well-researched idea

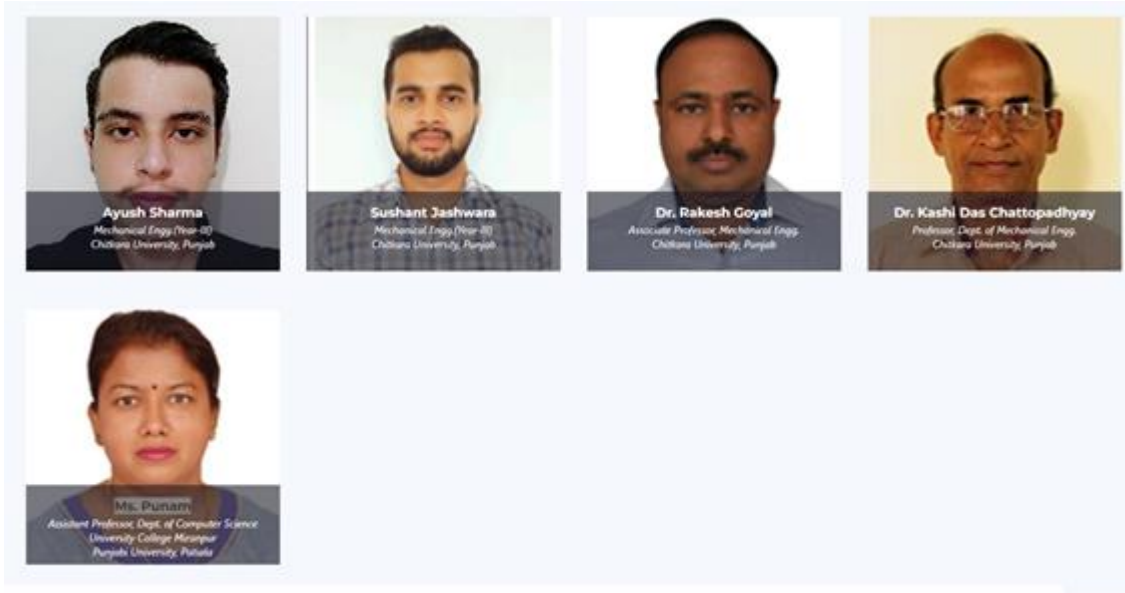
Interventions made:

Funding Support and Components Procurement Support

Current status:

- Components have been ordered and received. Prototype is being made
- Tying up with SYNCO industries
- Patent application is in process.

Video and Photographs: <https://youtu.be/8ODwYaZPfn4>

**12. Team / Project Description**

Title – Perineal Retractor for safe and accurate Episiotomy during Vaginal Delivery

Student Member – Dr. Vanya Sharma, Cheshta Ahuja, Jyotsana Chaudhary, Km Beena Patel, Harsh and Mukul Goyal

Mentors – Dr. Keerti Bhusan Pradhan

Description– This is a surgical instrument that helps to guide the incision made during an episiotomy at a specific angle, in turn reducing the risk of vaginal tears. Injuries related to vaginal childbirth is something that is not talked about openly in the Indian society. Up to 9 in every 10 first time mothers who have a vaginal birth will experience some sort of tear, graze or episiotomy. These tears range from mild to severe and in some cases lead to pelvic floor incontinence. With this in our mind, our team set out to help make the quality of life, for first time mothers, better.

Project status at beginning of the Year: It was a well-researched idea

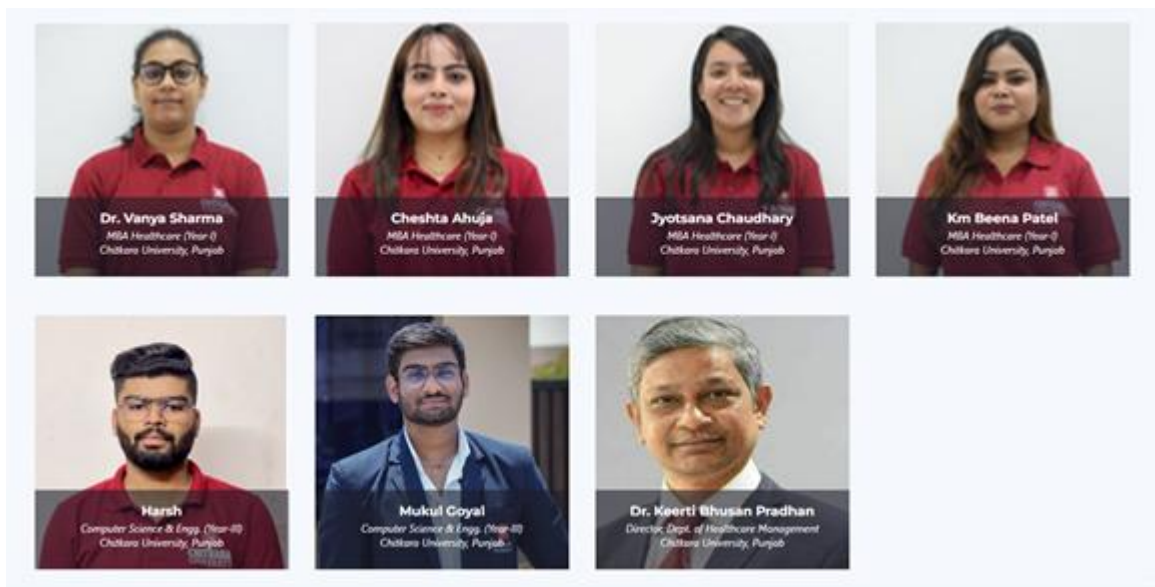
Interventions made:

25. Funding Support
26. 3D designing and fabrication support

Current status:

- One 3D printed prototype was made and tested.
- Now, a few samples of prototypes with medical grade material are being made.

Video and Photographs: https://youtu.be/69qsz_67IFA



13. Team / Project Description

Title- Portable Heat Treatment and Muffle Furnace

Student Member – Jaskaran Singh

Mentors. – Dr. Rakesh Goyal and Ms. Punam

Industry Partner - Mr. Harish Kumar Sharma, Termico Engineers

Description -

Heat treatment muffle furnace can work both vertical and horizontal and shall provide uniform heat treatment properties. It is provided a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of

furnace will be in the range of 800°C-1000°C. This furnace has increasing demand in the Industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries and etc.

Project status at beginning of the Year:

It was a well-researched idea

Interventions made:

Funding support and components procurement support.

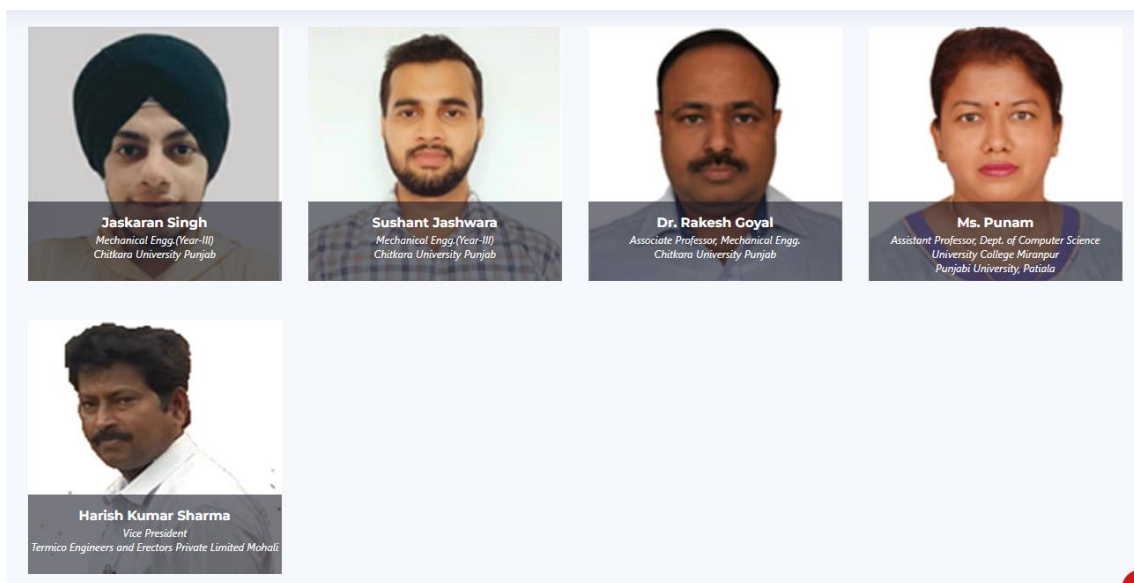
Current status:

27. Team has been able to select all the components needed for building the furnace. Components have been ordered.

28. Material is being received.

29. Patents filed - 202211045767, 360479-001, 364097-001, 364098-001, 364099-001

Video and Photographs: <https://youtu.be/x9Y2NBjgiBo>



14. Team / Project Description

Title – Quantum Dot Dispersed Polymer Dispersed Liquid Crystal (QD-PDLC) for Smart Window Applications.

Student Member – Gaytri and Shubam Sudan

Mentors – Dr. Vandana Sharma and Dr. Pankaj Kumar

Description - The purpose of this project is to develop energy efficient quantum dot (QD) dispersed PDLCs using varied concentrations of synthesized QDs. QDs are widely used in many applications such as optoelectronics, photovoltaics, solar cells and lasers. Unlike bulk material, these semiconductor nanoparticles exhibit unique optical and electrical properties dictated by their size, shape, and quantum physics at the nanoscale. The dispersion of such QDs in PDLC mixtures may provide an efficient way to control the placement of QDs inside the polymer matrix and LC droplets. Metal-doped carbon quantum dots will be synthesized by a single step hydrothermal route using different carbon sources, surface modifiers and metal precursors. The resultant QDs will be filtered with the help of a suitable membrane, followed by freeze-drying of the samples at -80 °C. The dried carbon-based QDs will be characterized for their basic properties and dispersed in the polymer-LC mixture for the fabrication of PDLC cells. The surface anchoring energy of the polymer to the LC molecules will be controlled using different concentrations of QDs. Thus, the performance characteristics such as threshold & operating voltages, maximum and minimum transmittances, and contrast ratio of the QD dispersed PDLCs will be improved. Once the prototype QD dispersed PDLC cell is developed for smart windows and display applications, we will look for licensing collaborations with industries.

Project status at beginning of the Year:

Detailed literature review and clarity of the project implementation was there with the team

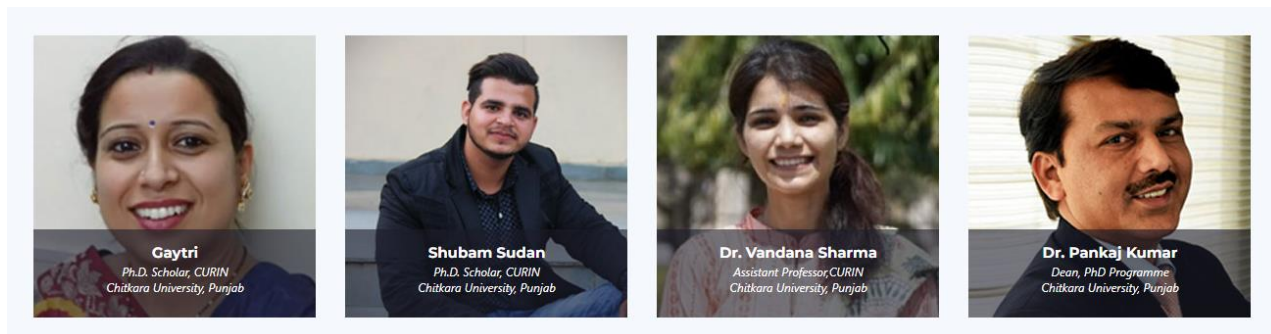
Interventions made:

30. Funding support and complete support in procurement of components

Current status:

- Synthesis of metal doped carbon QDs and variation samples is done.
- The synthesis part of the project has been completed and the samples have been sent for analysis.
- Drying of samples is a challenge due to the hygroscopic nature of metallic samples. Various methods have been practiced to overcome the issue.

Video and Photographs: <https://youtu.be/Tn4JtQLv8wE>



15. Team / Project Description

Title– R-Bit Financial Education Platform

Student Member – Tanshul, Namandeep and Yashika Thakur

Mentors. – Dr. Navjeet Kaur

Description- The project R-Bit is a Financial Learning and Training platform. It consists of learning materials and a training playground with paper money to get some real-life experience about the flow of money, before entering into the real financial world. The platform features all types of investment opportunities, and learning material from basics to advance level so that a person who has no knowledge of this area can be connected to an experienced one. The platform to provide multilingual support to eradicate the language barrier.

Project status at beginning of the Year: It was a well presented idea with a basic framework ready

Interventions made:

31. Funding from NewGen IEDC
32. Support in building a team. Mentoring support
33. Support in connecting with the right vendors. Trained them on making procurement correctly.

Current status:

- The team has used Adobe for making and editing most of the pictures and components used in the platform
- Coin ranking API has been used to fetch real time data of crypto currency
- Building Charting solution from the scratch

Video and Photographs: https://youtu.be/ZF3Uy_Aqi4E

Investment PORTFOLIO Coins R

Stock Market

Equity market is place to invest or trade in Equity section of stock market

Crypto

Crypto market place is a place where you can trade in crypto currencies

DeFi

Here You can invest and try different Decentralized Yield generation protocols

Real Estate

Here you can Invest in Virtual real estate and get a Gist how the real world works

Currencies

Here You can Trade the different currencies of the world to earn profit .

Schemes

Here you can invest in Different plans and pollicie offered by various institutions

Markets Market Info

Change		
Name	Price	Change
🔥 LUNA	5.65996	185.30
📉 MIR	0.37036	102.19
📉 ZCL	0.06328	71.85

Market Cap		
Name	Price	Change
🟡 BTC	21402.17817	3.26
👉 ETH	1720.75995	0.83
👉 USDT	1.00162	0.17

24hVolume		
Name	Price	Change
👇 USDT	1.00177	0.18
🟡 BTC	21401.50036	3.26
👉 ETH	1720.38923	0.80

Global Crypto Stats

Total Coins : 15659
 Total Exchanges : 173
 Market Cap : 1.1T
 Volume Change : 88.3B
 Total Market : 30.2K

Cryptocurrencies	Price	24h Change	24Hr Volume	Market Cap
🟡 Bitcoin BTC	21.4K	3.26	1	409.8B
👉 Ethereum ETH	1.7K	0.80	2	209.8B



Tanshul
Computer Science & Engg. (Year-II)
Chitkara University, Punjab

Namandeep
Computer Science & Engg. (Year-II)
Chitkara University, Punjab

Yashika Thakur
Computer Science & Engg. (Year-II)
Chitkara University, Punjab

Dr. Navjeet Kaur
Assistant Professor (Computer Science and Engg.)
Chitkara University, Punjab

16. Team / Project Description

Title – Rodent Surgical Table

Student Member – Nikhil Garg

Mentors – Dr. Thakur Gurjeet Singh, Mr. Chanpreet Singh and Dr. Debarshi Ghosh

Description– Rodent surgical tables are used for animals' examinations or surgery by a veterinary surgeon or preclinical researchers. It is important to provide an accurate position and height of the working table for surgery with proper temperature regulation, which enables the veterinarian to be in a precise position rather than kneeling or crouching to treat the animal on the floor.

The present invention is an improved surgical table and more particularly to use in veterinary medicine. There are a lot of surgical tables available in the market, but the facilities available are not advanced. The proposed current design is 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 design's significant commercial value is that it will provide preclinical researchers with a better option for starting rodent surgeries, close to 100 percent efficiency, and reduce the complications. The present need is to work with better equipped facilities to provide excellent options in the preclinical research lab. The proposed design will attract various companies and researchers for the investment in the rodent design of the surgical table.

Project status at beginning of the Year: It was a well-researched idea

Interventions made:

34. Funding and Components Sourcing Support

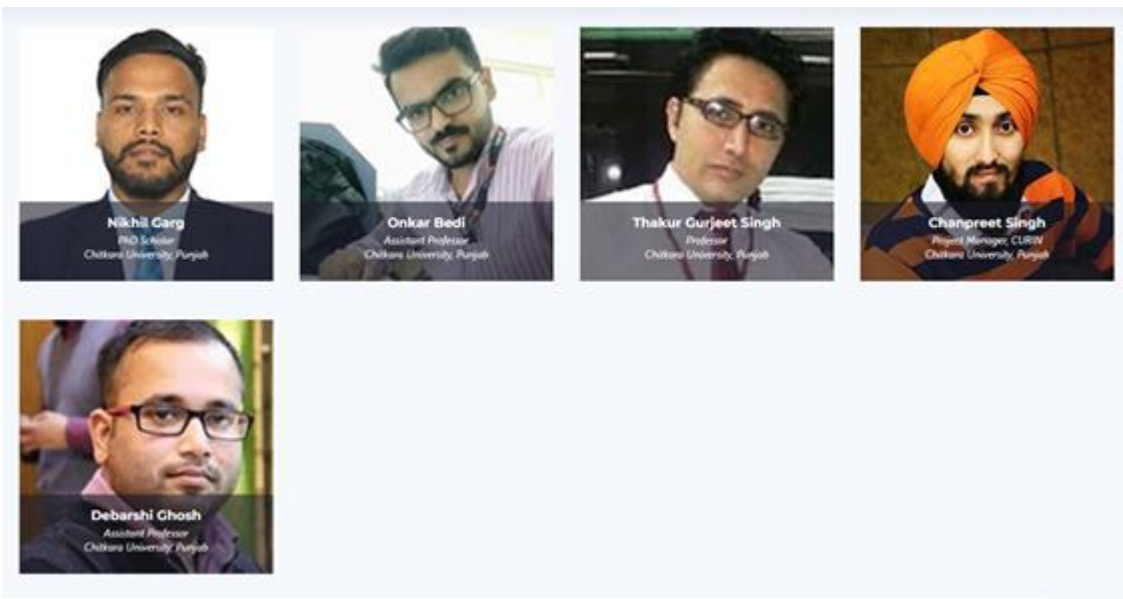
35. Fabrication Support

Current status:

- Prototype is ready
- Patent has been filed 331265-001

Video and Photographs: https://youtu.be/aU2NJ_VrUds





17. Team / Project Description

Title – Screening, Actuation and Sanitizing

Student Member – Urvash Nahata, Rishabh Tandon and Akshat Chandra

Mentors – Mr. Sandeep Kumar

Description– SAS is an apparatus for granting entry permission to an individual, the said apparatus comprising: a temperature sensor for capturing and determining a body temperature by pointed towards head of the individual. A bar code scanner, comprising a scanner that is enabled to read different bar code symbologies present on an identification card authentication. A positive authentication of a person will grant the entry permission to the individual and activate automatically a sanitizer dispenser before entering into a specified region. The data of the entries will be shared with the accounts department for salary disbursement of employees on daily basis.

Project status at beginning of the Year:

The patent of the idea was filed (202011035739) before applying for funding support from NewGen IEDC

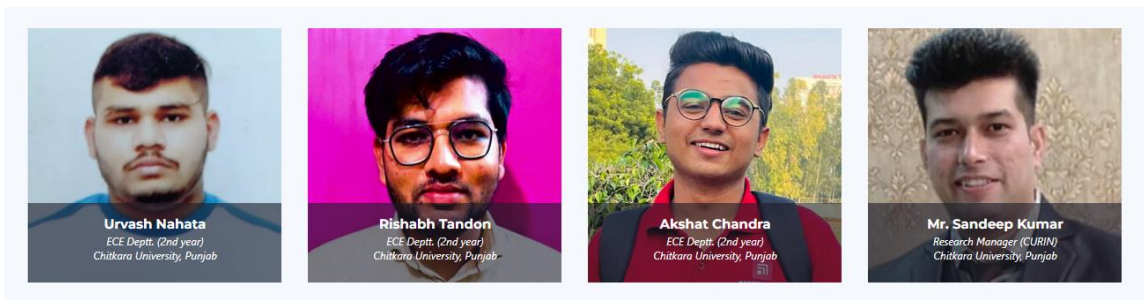
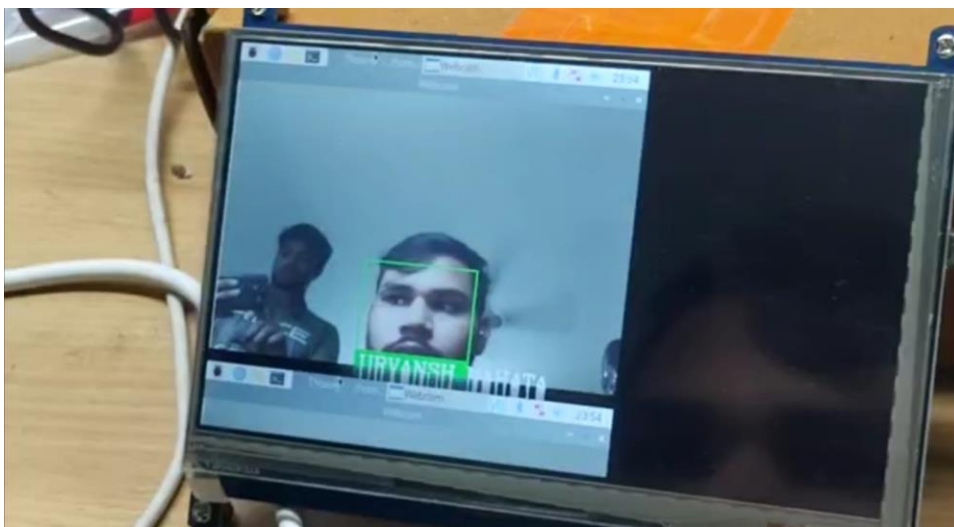
Interventions made:

- 36. Funding from NewGen IEDC
- 37. Mentoring in identifying the right components and budget preparation.
- 38. Support in identifying the vendors for procurement

Current status:

- Prototype is ready and final testing is going on.
- Next step is to make an enclosure for housing all the components. 3D printing will be used.

Video and Photographs: <https://youtu.be/J8wQivfaFY>



18. Team / Project Description

Title – Schottky Junction Printable Solar Cell

Student Member – Nikhil Shrivastav

Mentors – Dr. Rahul Pandey, Dr. Jaya Madan

Description– Rise in demand for affordable solar power components, including solar panels, is expected to fuel the printable solar cells market in the near future. The photovoltaic cell provides better performance at a good cost, but they are not flexible in nature. Also, conventional crystalline silicon-based PV devices have several problems such as High usage of raw materials, High thermal budget, Recycling of silicon, High manufacturing cost, Several complicated productions, and Less efficient Solar Cells.

Therefore, we thought to fabricate semiconductor nanocrystals-based screen-printed flexible solar cells. The first semiconductor nanocrystals or powder layer mixed with polymer binder or the active layer is screen printed on an FTO coated glass. The First active layer will create a Schottky Junction with the FTO coated glass. Then the Second semiconductor nanocrystals or powder layer mixed with polymer binder is screen printed that would collect the electrons. The second layer would create an ohmic contact for the first layer. Lastly, the back electrode would be screen printed, which would act as a back electrode for electron extraction.

Project status at beginning of the Year: It was just an idea but a well-researched one.

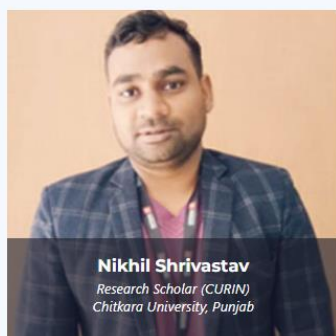
Interventions made:

- 39. Support in identifying a credible industry partner
- 40. Funding and procurement support
- 41. Patent support.

Current status:

- A patent has been filed – 202211009134
- Team has been able to source all the material needed for building a printable solar cell.
- Fabrication process of building a mini prototype is underway
- Work is being done in collaboration with POWERED ELECTRON PRIVATE LIMITED.

Video and Photographs: <https://youtu.be/vAtw9im1aJ8>



19. Team / Project Description

Title – To develop an energy efficient liquid crystal display device and its study on electro-optical and dielectric behaviour

Student Member – Rajat Takkar

Mentors. – Dr. Vandana Sharma and Dr. Pankaj Kumar

Description -

In the project we plan to build suitable combination of LC, nanomaterials, LC orientations and cell configurations to obtain a superior performance of LC based display devices. The purpose is to develop energy efficient cum high contrast flexible LC displays using non-contact method. Specifically, the performance characteristics of vertically aligned nematic LCs of negative dielectric anisotropy using nanoscale particles of varied sizes and concentrations will be controlled and electro-optical as well as dielectric behaviour will be studied.

Project status at beginning of the Year:

It was a thoroughly researched idea with detailed literature review available with the applicants.

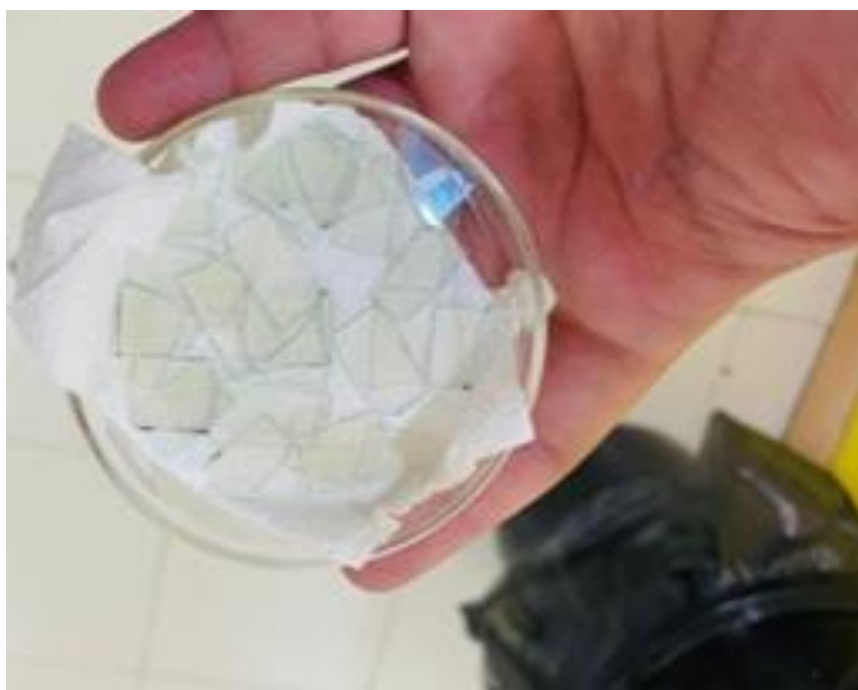
Interventions made:

Funding support and components procurement support from NewGen IEDC

Current status:

- Prepared a few VALCs sample cells.
- Some of the VALCs cells have been prepared using ITO glass substrates and LC mixtures as well as confirmed by Microscopy and conos copy studies.

Video and Photographs: <https://youtu.be/IEETBhS3M-k>



20. Team / Project Description

Title – Virtual Reality-Based Home Eye Testing Device for Measuring Spectacle Power of the Eye

Student Member – Maheswari Srinivasan and Arshdeep Kaur

Mentors – Dr. Keerti Bhusan Pradhan

Description– There are only 12000 ophthalmologists in India for a population of 136 crores. In some of the rural places of India, there are no eye care facilities. Hence a device for tele-eye consultation and tele-eye testing was required. Our innovation 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.

Project status at beginning of the Year: A very basic level prototype using cardboard modelling was ready. Team had absolute clarity on technical implementation of the project.

Interventions made:

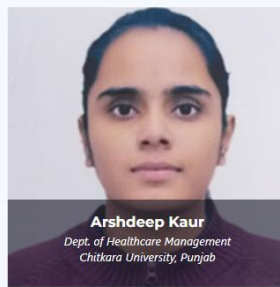
42. Funding support from NewGen IEDC
43. Support in identifying the vendors and components procurement
44. Complete support in 3D designing and 3D printing

Current status:

- A patent has been submitted for examination – 202141028827
- The acrylic prototype is submitted in the ethics committee and ethical approval obtained for clinical trials going on.
- Selected for NIDHI EIR fellowship grant award and receiving Rs. 30000 as stipend per month.
- We are working on the current liquid lens. We have to test on it. If it works out well, we want to buy one more liquid lens.
- Collaborated with M.N eye hospitals in Chennai for clinical trial.

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





ANNEXURE B

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

1) Virtual Reality-Based Home Eye Testing Device for Measuring Spectacle Power of the Eye

Team details (with contact information)

Name	Email ID	Contact
Maheswari Srinivasan (Student)	maheswariishayoga@gmail.com	9841661134
Arshdeep Kaur(Student)	arshdeep.lhc21@chitkara.edu.in	9888333815
Dr. Keerti Bhusan Pradhan (Mentor)	keerti@chitkara.edu.in	9501119651

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

Our device solves a problem in eye care. India has only 12000 ophthalmologists for a 136 crores population. In some rural places of India, there are no eye care centers. Hence we need a device for tele-eye testing.

Our innovation is the virtual reality-based device that can connect doctors and patients through cloud systems. It tests the spectacle power of the eye and sends the prescription remotely.

We use artificial intelligence and automate some of the steps in refraction. Along with remote eye testing, it saves much time for the doctor. (From 40 minutes to 5 minutes)

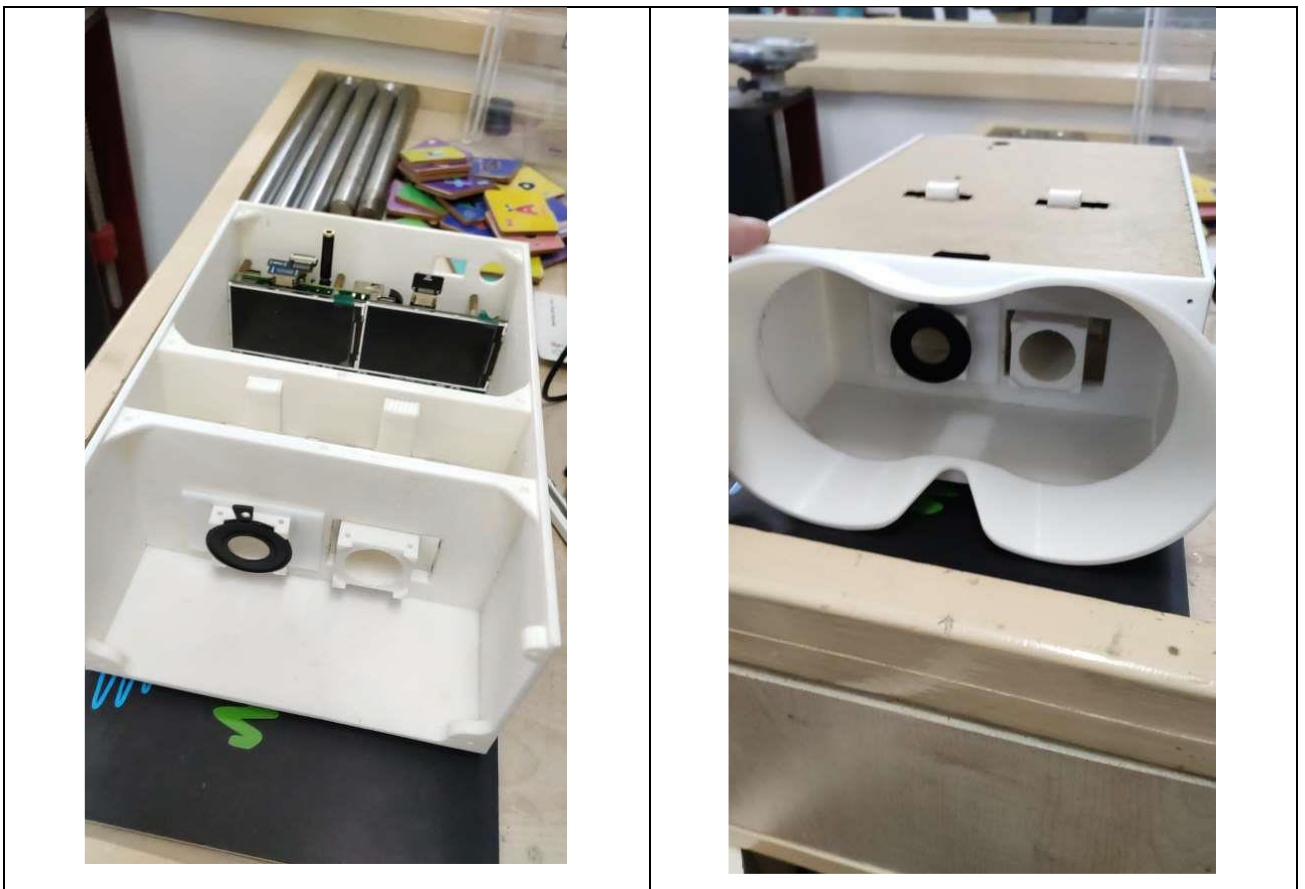
Salient Features of Our Product Include –

1. *The spectacle refraction test can be done from a remote location.*
2. *The eye care practitioner from one country can do the spectacle refraction test to anybody in any other part of the world.*
3. *The spectacle refraction test takes nearly 30 to 40 minutes of the chair time for the eye care practitioner. The test time can be reduced to 4 to 5 minutes using artificial intelligence so that the practitioner can see more patients.*
4. *The patient need not physically come to the hospital. The patients can order homebased eye testing but still, they can get it tested by an expert eye care practitioner.*
5. *Rural India where there are no eye care facilities can get connected with the top ophthalmologists in metropolitan cities for their opinion.*

- **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 –

1. The acrylic prototype is submitted in the ethics committee and ethical approval obtained for clinical trials going on.
2. Selected for NIDHI EIR fellowship grant award and receiving Rs. 30000 as stipend per month.
3. We are working on the current liquid lens. We have to test on it. If it works out well, we want to buy one more liquid lens.
4. Collaborated with M.N eye hospitals in Chennai for clinical trial.
5. A patent has been submitted for examination, having an application number - 202141028827



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

NewGen IEDC not only provided us funds, but also helped in timely procurement of the components. We also received a lot of help from the NewGen IEDC mentor during Idea-Thon 1.0 Hackathon. Additionally, NewGen IEDC supported us in 3D designing and 3D printing in a very professional manner.

- **Future plan**

- Clinical trial
- Scientific publication of clinical trial results.
- OLA like business model- Connecting doctors and patients with mobile app. Mobile application development.

2) Rodent Surgical Table

Team details (with contact information)

Name	Email ID	Contact Number
Mr. Nikhil Garg (<i>Applicant</i>)	nikhilgarg096@gmail.com	9878689836
Dr. Thakur Gurjeet Singh (<i>Mentor</i>)	gurjeet.singh@chitkara.edu.in	9815951171
Dr. Onkar Bedi (<i>Team Member</i>)	onkar.bedi@chitkara.edu.in	9915540099
Mr. Chanpreet Singh (<i>Team Member</i>)	chanpreet.singh@chitkara.edu.in	7986030317
Mr. Debarshi Ghosh (<i>Team Member</i>)	debarshi.ghosh@chitkara.edu.in	7797740743

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

Rodent surgical tables are used for animals' examinations or surgery by a veterinary surgeon or preclinical researcher. It is important to provide an accurate position and height of the working table for surgery with proper temperature regulation, which enables the veterinarian to be in a precise position rather than kneeling or crouching to treat the animal on the floor.

The present invention is an improved surgical table, particularly for use in veterinary medicine. There are a lot of surgical tables available on the market, but the facilities available are not advanced. The proposed current design is 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 physiological demand and an automated position setter for the ease of the surgery. The design's significant commercial value is that it will provide preclinical researchers with a better option for starting rodent surgeries, with close to 100 percent efficiency, and reduce the complications. The present need is to work with better equipped facilities to provide excellent options in the preclinical research lab. The proposed design will entice various companies and researchers to invest in the rodent surgical table design.

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

The important commercial value of the design is that it will give a better option to the preclinical researchers for the commencement of rodent surgeries with 100 percent efficiency to reduce rodent surgery related complications. The present need is to work with better equipped facilities to provide an excellent option in the preclinical research lab, so our design will attract various companies and researchers for the investment in the rodent design of surgical tables.

- Dedicated surgery area for the rodents
- Heat bed with temperature controller unit will be installed underneath the dedicated surgery area to control the rodent temp at the time of surgery
- Adjustable height and the rotation of surgery table makes a reflex angle means greater than 180° but less than 360° to reach specific angle during surgery.
- Beaker to hold the physiological fluid and other tools and equipments are provide at one side of the table to reach these at single point and to utilise the maximum space of the table.
- After surgery and during surgery the waste produced is cleaned easily and drained though the provide drainage point at the dedicated surgery area.



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

In addition to funding support, we received following contributions from NewGen IEDC

1. Strategies for Concept Design
2. Rapid Prototyping to Functional Prototypes
3. We got help to improve our product's aesthetics and meet customers' standards.
4. Opportunity to demonstrate to investors during fundraising in order to gain their support

- **Future plan**

This project gives an insight into the preclinical studies based upon surgical procedures. Preclinical researchers should be able to interact with situations during surgery and other aspects of medical terms. This product is planned to be commercialised in the medical sector to train trainees for the surgery of rodents.

3. IR Imaging for Medical Applications

Team details (with contact information)

Name	Email ID	Contact
Neha (Student)	neha.9230@chitkara.edu.in	7988432037
Raj Rani (Student)	raj.rani@chitkara.edu.in	9876762506
Dr. Varsha Singh (Mentor)	varsha.singh@chitkara.edu.in	9779801234

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

Our product is a high-resolution infrared imaging employing infrared sensor technology and Real-Time Image Processing techniques. The innovation is focused specifically on imaging for medical purposes.

One of the challenges with infrared sensors is the amount of electromagnetic interference that occurs when they are used to drive a normal display, such as a laptop display. Lines across the screen, like what one may see on analogue television in a bad reception area, are a common result.

As a result, an infrared camera system that is not susceptible to electromagnetic interference is required, so that EMI interference does not appear on the display screen when coupled to a CPU, such as in a laptop.

In addition, infrared equipment used in medical laboratories is usually bulky and hefty, making transportation difficult. As a result, there is a desire for a medical infrared system that can be carried in a bag, opened, and used in an off-campus treatment facility.

Additionally, the output of a single channel infrared sensor must be processed to sharpen the image displayed on-screen and achieve high image resolution.

As a result, the sector has an unmet requirement to solve the shortcomings and inadequacies, especially or surface sensing medical applications such as:

- *Pressed median nerves*
- *The temporomandibular joint disorder*
- *Imaging of subsurface anatomical structures for dermal applications*
- *Topological fungal and bacterial infections on the body*
- *Hydration detection system*
- *Types of burns etc.*
- *Plastic surgery*

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

- Component aspects of the device are in the process of procurement and the final aspect of the project design for fabrication and assembly of the prototype is undergoing. The following technology was used to complete the design engineering.
- The carrier board (PCB) will be controlling the camera module, LED illumination source, input/output units of the device. The following describes the overstep wise process flow of designing the electro-mechanical design of the controller unit.
- Components finalized as per the block diagram created and sourced it early for long leaded components as per the standards.
- Patent filed - 202111030344



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

NewGen IEDC helped us in sourcing different components of the projects, some of the components had to be imported from outside India and NewGen IEDC provided a hassle free support in this regard. The operational support we are receiving from NewGen IEDC is unparalleled.

- **Future plan**

It is proposed to use this imaging system in building a complete medical application for eye care that we don't intend to disclose at this stage.

4. Schottky Junction Printable Solar Cell

Team details (with contact information)

Name	Email ID	Contact
Nikhil Shrivastav (Student)	nikhil.shrivastav@chitkara.edu.in	7340749567
Dr. Rahul Pandey (Mentor)	rahul.pandey@chitkara.edu.in	8527503843
Dr. Jaya Madan (Mentor)	jaya.madan@chitkara.edu.in	9210908163

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

There is a massive demand for non-conventional sources of energy owing to a limited supply of currently prevalent sources like fossil fuels. However, a rise in demand for affordable solar power components, including solar panels, is expected to fuel the printable solar cells market in the near future. The photovoltaic cell provides better performance at a good cost, but they are not flexible in nature. Also, conventional crystalline silicon-based PV devices have several problems such as High usage of raw materials, High thermal budget, Recycling of silicon, High manufacturing cost, Several complicated productions, and Less efficient Solar Cells.

Therefore, we thought to fabricate semiconductor nanocrystals-based screen-printed flexible solar cells. The first semiconductor nanocrystals or powder layer mixed with polymer binder or the active layer is screen printed on an FTO coated glass. The First active layer will create a Schottky Junction with the FTO coated glass. Then the Second semiconductor nanocrystals or powder layer mixed with polymer binder is screen printed that would collect the electrons. The second layer would create an ohmic contact for the first layer. Lastly, the back electrode would be screen printed, which would act as a back electrode for electron extraction.

- **Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs.**
 - We have completed the first part of the project, that's generating the materials to be used.
 - We have currently initiated the fabrication process of the Schottky Junction Printable Solar Cell.
 - We are yet to decide the next expenditure of our project cause we are still under the fabrication process of the first mini prototype.
 - There has been minimal amount of challenges being faced as we have a dedicated and motivated team that is working towards the project together.
 - The expected time to complete our fabrication for the Mini prototype for the Schottky Junction Printable Solar Cell would be 20th September 2022.
 - Our project is a collaborative project with POWERED ELECTRON PRIVATE LIMITED.
 - Once we have our mini prototype ready for the Schottky Junction Printable Solar Cell it would require testing to know about its effectiveness and technical data.
 - Patent filed - 202211009134



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

NewGen IEDC has provided us funding support, helped us in procuring all the components in timely manner and most importantly, it helped us in providing professional help in building this prototype.

- **Future plan**

As of now, our focus is to build a mini prototype and test it. Once it is done, we shall make some application (like wearable electronics) using our flexible solar cells.

ANNEXURE C – Patents

- 9 patents have been filed in FY 22-23, which takes our total tally of patents to 49
- Of the 40 patents that were reported in the previous years, 4 more have been granted this year. Our total tally of granted patents stand at 12.

Details of 9 filed patents and 4 granted patents have been included in this Annexure.

Four Granted Patents

1) 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: 16-Dec-2022
7. Patent Application Number: 347073-001

2) 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: 25-Nov-2022
7. Patent Application Number: 349524-001

3) 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: 29 Dec 2022
7. Patent Application Number: 324751

4) 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: 31-May-2022
7. Patent Application Number: 1962/DEL/2015

Nine Filed Patents

1) Name of the Technology: HEIGHT ADJUSTABLE TABLE

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: Filed
4. Student team details

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

5. Patent Filing date: 8-Feb-2022
6. Patent Granted date: NA
7. Patent Application Number: 358132-001

2) Name of the Technology: A DEVICE FOR MONITORING HEALTH PARAMETERS

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

1. Highlights of the Technology (innovation/uniqueness etc.):
 - a. 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:
 - a. It will reduce the risk of any contagious disease to pregnant women
 - b. 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: 22-Feb-2019
6. Patent Granted date: NA
7. Patent Application Number: 201911007068

3) Name of the Technology: PRINTABLE SOLAR CELL

Project Title: Schottky Junction Printable Solar Cell

1. Highlights of the Technology (innovation/uniqueness etc.):
 - a. Flexible solar cells that will be used in portable applications.
2. Impact it will create:
 - a. Clean energy.
3. Current Status of the Patent: Published
4. Student team details

Name	Email Id	Mobile
Nikhil Shrivastav	nikhil.shrivastav@chitkara.edu.in	7340749567

5. Patent Filing date: 21-Feb-22
6. Patent Granted date: NA
7. Patent Application Number: 202211009134

4) Name of the Technology: VIRTUAL REALITY SYSTEM TO MONITOR BEHAVIOUR OF RODENTS

Project Title: Development of safe AR-LEAD and VR-LEAD for Autism

1. Highlights of the Technology (innovation/uniqueness etc.):
 - a. AR and VR technology based system for treating Autism disorder.
2. Impact it will create:

- a. The outcomes of this project would aid in the development of a AR/VR applications that can be used for autism patients in the future for clinical trials.
3. Current Status of the Patent: Published
4. Student team details

Name	Email Id	Mobile
Anjali	anjali@chitkara.edu.in	8146690075

5. Patent Filing date: 17-Aug-22
6. Patent Granted date: NA
7. Patent Application Number: 202211046851

5) Name of the Technology: HEAT TREATMENT ELECTRIC FURNACE

Project Title: Portable Heat Treatment and Muffle Furnace

1. Highlights of the Technology (innovation/uniqueness etc.):
 - a. Heat treatment muffle furnace can work both vertical and horizontal and shall provide uniform heat treatment properties.
2. Impact it will create:
 - a. This furnace has increasing demand in the Industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries, etc.
3. Current Status of the Patent: Filed
4. Student team details

Name	Email Id	Mobile
Jaskaran Singh	jaskaran2313.be20@chitkara.edu.in	7973954502

5. Patent Filing date: 11-Mar-22
6. Patent Granted date: NA
7. Patent Application Number: 360479-001

6) Name of the Technology: ROTARY JOB HOLDER CASE HARDENING FURNACE

Project Title: Portable Heat Treatment and Muffle Furnace

1. Highlights of the Technology (innovation/uniqueness etc.):
 - a. Heat treatment muffle furnace can work both vertical and horizontal and shall provide uniform heat treatment properties.
2. Impact it will create:
 - a. This furnace has increasing demand in the Industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries, etc.
3. Current Status of the Patent: Filed
4. Student team details

Name	Email Id	Mobile
Jaskaran Singh	jaskaran2313.be20@chitkara.edu.in	7973954502

5. Patent Filing date: 12-May-22
6. Patent Granted date: NA
7. Patent Application Number: 364097-001

7) Name of the Technology: **HEAT TREATMENT FURNACE WITH CONTROLLED ATMOSPHERE AND CONTROLLED SPEED**

Project Title: Portable Heat Treatment and Muffle Furnace

1. Highlights of the Technology (innovation/uniqueness etc.):
 - a. Heat treatment muffle furnace can work both vertical and horizontal and shall provide uniform heat treatment properties.
2. Impact it will create:
 - a. This furnace has increasing demand in the Industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries, etc.
3. Current Status of the Patent: Filed
4. Student team details

Name	Email Id	Mobile
Jaskaran Singh	jaskaran2313.be20@chitkara.edu.in	7973954502

5. Patent Filing date: 12-May-22
6. Patent Granted date: NA
7. Patent Application Number: 364098-001

8) Name of the Technology: **CASE HARDENING HEAT**

Project Title: Portable Heat Treatment and Muffle Furnace

1. Highlights of the Technology (innovation/uniqueness etc.):
 - a. Heat treatment muffle furnace can work both vertical and horizontal and shall provide uniform heat treatment properties.
2. Impact it will create:
 - a. This furnace has increasing demand in the Industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries, etc.
3. Current Status of the Patent: Filed
4. Student team details

Name	Email Id	Mobile
Jaskaran Singh	jaskaran2313.be20@chitkara.edu.in	7973954502

5. Patent Filing date: 12-May-22
6. Patent Granted Date: NA
7. Patent Application Number: 364099-001

9) Name of the Technology: **HEAT TREATMENT ELECTRIC FURNACE**

Project Title: Portable Heat Treatment and Muffle Furnace

1. Highlights of the Technology (innovation/uniqueness etc.):
 - a. Heat treatment muffle furnace can work both vertical and horizontal and shall provide uniform heat treatment properties.
2. Impact it will create:
 - a. This furnace has increasing demand in the Industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries, etc.
3. Current Status of the Patent: Published
4. Student team details

Name	Email Id	Mobile
Jaskaran Singh	jaskaran2313.be20@chitkara.edu.in	7973954502

5. Patent Filing date: 10-Aug-22
6. Patent Granted date: NA
7. Patent Application Number: 202211045767

ANNEXURE D – Start-ups

14 NewGen IEDC projects have associated start-ups with them and there are a total of 12 start-ups. 10 start-ups were reported in the last progress report. Below are the details of two new companies from NewGen IEDC projects that we not reported earlier

I. Name of the Company/Start-up: **POWERED ELECTRON PRIVATE LIMITED**

**POWERED
ELECTRON**

Highlights of the Company/Start-up

Product: Renewable energy based technologies and products, primarily solar based.

Investment: Self-funded upto 50 Lakhs

Employment generated: 10

Commercialized or not: Yes

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

- POWERED ELECTRON has a vision to promote and make this clean form of energy accessible to consumers and industries in a more affordable and better way.
- Currently they are working on developing flexible solar cells for portable applications.

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

Student team Details:

Name	Email Id	Mobile
Nikhil Shrivastav	nikhil.shrivastav@chitkara.edu.in	7340749567

Establishment date of the Company/Start-up/Commercialization: 03-Mar-21

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

POWERED ELECTRON is a Indian Solar power company registered under the Ministry of Corporate Affairs, Government of India. Currently operating in the Solar Photovoltaic Industry based in Kolkata(West Bengal). Our company provides products designing, engineering, procurement and installation of solar powered system for residential, commercial, industrial, institutional and government consumers.

II. Name of the Company/Start-up: **MURPH TECHNOLOGIES PRIVATE LIMITED**

Highlights of the Company/Start-up

Product: Electronics and Embedded Systems

Investment: Self-Funded, 1 Lakh

Employment generated: 5

Commercialized or not: Yes

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

- It is an embedded system company that makes state-of-the art electronic products.

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

Student team Details:

Name	Email Id	Mobile
Karan Aggarwal	karanaggarwal59@gmail.com	8872973158

Establishment date of the Company/Start-up/Commercialization: 04-Nov-20

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

Murph Technologies Private Limited is a 2 years 3 months old Private Company incorporated on 04 Nov 2020. Its registered office is in Ambala, Haryana, india. The Company's status is Active, and it has filed its Annual Returns and Financial Statements up to 31 Mar 2022 (FY 2021-2022). It's a company limited by shares having an authorized capital of Rs 1.00 lakh and a paid-up capital of Rs 1.00 lakh as per MCA.