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Makers Lab, Institute of Technology and Management

About Makers Lab

Makers Lab is a student cub for practicing multidisciplinary project work by self-constructed teams. The club is financially supported by institute and AICTE, MoE, Govt. of India.

Club students are acquiring professional expertise by participating in national and international contests time to time. Some of them are –

- Two times first runners up winners in Smart India Hackathon Hardware Edition in 2017 and 2019.
- Secure worldwide 27th rank in Cansat-2016 organized by The American Astronautical Society (AAS), NASA and US Naval Research Laboratory, USA.
- Made man size Humanoid Robot Project ADVIK 1.0 and ADVIK 2.0.
- Regular training center for Drone making and flight practice.
- IPR support for all innovative prototype and developed products.
- Pre-Incubation and Incubation facilities.

Smart India Hackathon – 2017 winning team

Smart India Hackathon – 2019 winning team

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CANSAT – 2016 team

ADVIK 1.0 Team

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एजुकेशन: एबीवी ट्रिपल आईटीएम में दो दिवसीय 'माइंड ओवर मैटर 2018' शुरू

6 छात्रों ने 1.5 लाख में बनाया चार किलो का रोबोट, हाथ मिलाने के साथ पहचानता है चेहरा

ग्वालियर। नईदुनिया रिपोर्टर

एक साल की मेहनत के बाद मेकर्स क्लब नामक टीम के 6 स्टूडेंट्स ने 1.5 लाख की लागत से तैयार किया 4 किलो वजनी रोबोट। ये रोबोट लोगों से हाथ मिलाता है और अपनी आंखों में लगे फेस रिकग्निशन सिस्टम से फेस भी डिटेक्ट करता है। सर्विलेंस और सिक्योरिटी पर्पस के हिसाब से तैयार किए गए इस रोबोट में माइक्रो कंट्रोलर लगे हैं और इसे ब्लूटूथ से कंट्रोल किया जा सकता है।

कुछ इसी तरह की जानकारी दे रहे थे एबीवी ट्रिपल आईटीएम में पढ़ने वाले इंफॉर्मेशन टेक्नोलॉजी के स्टूडेंट्स शुक्रवार से शुरू हुए दो दिवसीय माइंड ओवर मैटर (मॉम) 2018 के तहत आयोजित मॉडल एक्सपो में। इस चौथे नेशनल लेवल टेक्निकल इनोवेशन फेयर में विभिन्न कॉलेज और स्कूल के स्टूडेंट्स ने अपने वर्किंग मॉडल्स पेश किए। इस बार मॉम की थीम 'अ रोड टुवर्ड्स सेफर इंडिया' थी। कार्यक्रम के उद्घाटन सत्र में मुख्य अतिथि के रूप में विट्स पिलानी के पूर्व वाइस चांसलर एल.के माहेश्वरी मौजूद थे। शाम को कल्चरल प्रोग्राम के तहत कैराओकेनननाइट के साथ बज बैंड ने परफॉर्मेंस भी दी।

किया नुक्कड़ नाटक

■ कॉम्पीटीशन की थीम 'अ रोड टुवर्ड्स सेफर इंडिया' के तहत रनमंच कॉम्पीटीशन में विभिन्न स्कूलों के स्टूडेंट्स ने तकनीक और सुरक्षा से जुड़े नुक्कड़ नाटक पेश किए। इनमें महिला सुरक्षा और रूरल से जुड़ी सुरक्षा जैसे मुद्दे भी उठाए गए। इसके अलावा डिजर्टेशन कॉम्पीटीशन में प्रतिभागियों को ऑन द स्पॉट टॉपिक दिया गया, जिस पर उन्होंने अपने आइडियाज रखे। इसे दूसरे छात्रों के सब शेयर किया।

ऐप से कम होगी मोबाइल चेक करने की आदत

इंटरनेट की लत को छुड़ाने के लिए ट्रिपल आईटीएम के आईटी सेकंड ईयर स्टूडेंट नीतिश ने एक ऐप तैयार किया है। यह ऐप मोबाइल चेक करने की आदत को कम कर देते हैं। इस ऐप को खोलकर हम अपना कोई भी काम कर सकते हैं। शर्त है कि हमें ऐप में चल रहे एसाइनमेंट को हटाकर कोई भी सोशल साइट नहीं खोलें। यह ऐप ड्राइविंग, पढ़ाई, फैमिली के साथ समय बिताते हुए इस्तेमाल की जा सकती है। इसमें स्क्रीन पर एक विजिटिंग बनती हुई नजर आएगी, जिसके हमें रिवॉर्ड्स भी मिलेंगे। अगर हम उसे हटाकर कोई अन्य सोशल ऐप का इस्तेमाल करते हैं तो यह रिवॉर्ड्स वापस ले लिए जाएंगे। खास बात यह है कि यह ज्यादा बैट्री का इस्तेमाल नहीं करती और एप्पल गेम किट से जुड़े होने के कारण यह आपका स्कोर दुनियाभर में शेयर कर सकती है।

रेलवे ट्रैक्स पर होने वाला वाइब्रेशन बनाएगा बिजली

■ आरके वीएम के स्टूडेंट्स ने इस दौरान रेलवे ट्रैक्स पर होने वाले वाइब्रेशन से बिजली पैदा करने का मॉडल पेश किया। इसमें रेलवे ट्रैक्स के नीचे पीजो प्लेट्स लगाए जाते है, जिन पर ट्रेन के चलने से होने वाले वाइब्रेशन के कारण दबाव पड़ता है। यह प्लेट्स एसी को डीसी में बदलकर बिजली पैदा करते हैं। यह पीजो प्लेट्स ग्रामीण इलाकों के रेलवे ट्रैक्स में लगाई जा सकती है, जिससे वहां रहने वाले लोगों को बिजली सप्लाई की जी सके। इस बिजली का इस्तेमाल ऑटोमेटेड वैरीकेड्स बनाने के लिए भी किया जा सकता है, जिससे वैरीकेड्स लगाने के लिए इसनों की जरूरत न रहे।

हो रही हैं ये प्रतियोगिताएं

शुक्रवार को मोबाइल एप्लिकेशन डेवलपमेंट, ब्रेनवेव, रंगमंच कॉम्पीटीशन हुए। वहीं शनिवार को एक्जामेन क्विज और वैड वॉर्स होगा। समापन अवसर पर फिजिक्स की किताबें लिखने वाले एचसी वर्मा भी मौजूद रहेंगे।

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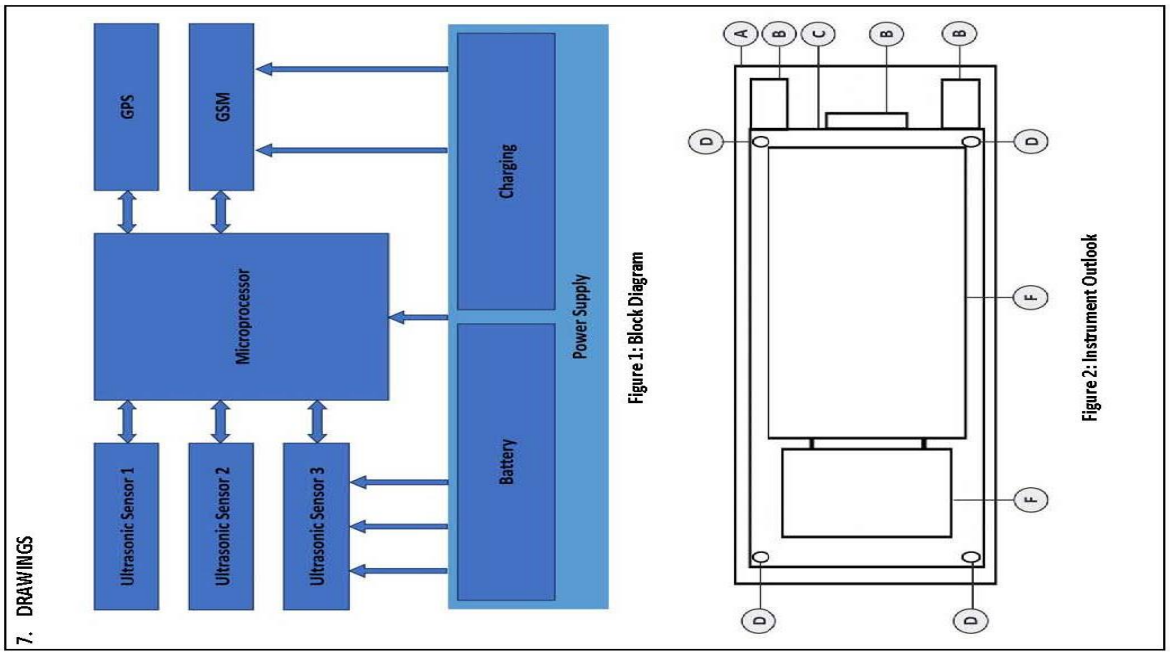
Project: Railway Track Crack Detection System

Patent ID: 202421026957

Summery: This project is innovative engineering project designed to enhance railway safety by identifying cracks and faults in railway tracks. This system employs advanced sensors and imaging technology to continuously monitor the tracks, detecting any structural anomalies in real-time. By integrating GPS and GSM modules, the system can accurately pinpoint the location of detected cracks and promptly alert maintenance teams, thereby preventing potential accidents and ensuring smoother railway operations. This project not only aims to improve the reliability of railway infrastructure but also to reduce maintenance costs and enhance passenger safety.






Team:

S.No.	Name	Roll Number	Branch	Sem	Section
1.	Himanshu Batham	0905EC201009	ECE	8	NA
2.	Mridul Goswami	0905EC213015	ECE	8	NA
3.	Suhana Uddin	0905EC201024	ECE	8	NA
4.	Kartikay Gupta	0905EC201011	ECE	8	NA

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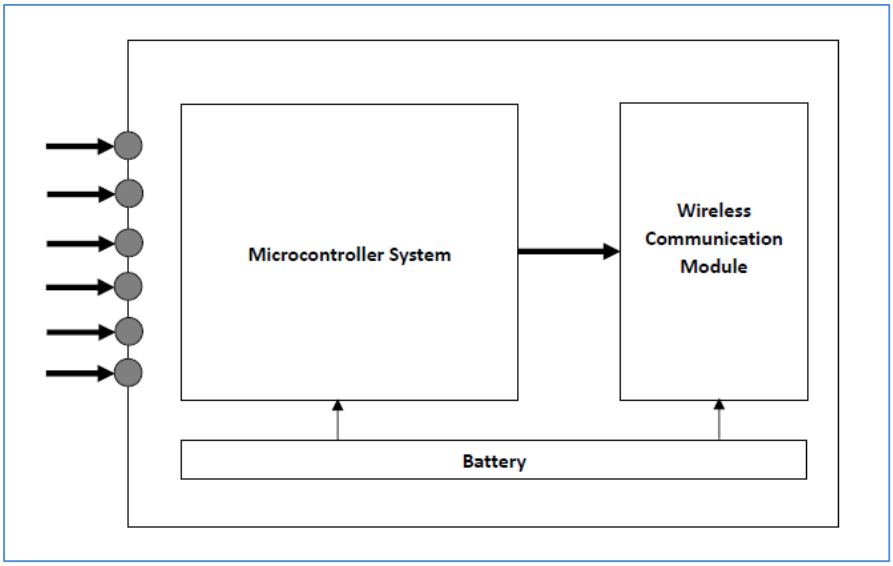
Project: An All Weatherproof Iot Enabled Weather Monitoring Data Collecting Module

Patent ID: 202421022439

Summery: All Weatherproof IoT Enabled Weather Monitoring Data Collecting Module is disclosed. The system comprises a network of sensors that collect weather data such as temperature, humidity, pressure, wind speed, and rainfall. The data is transmitted to a cloud server via a wireless communication module. The cloud server processes the data and provides weather forecasts and alerts to users through an android app. The app also allows users to view historical weather data and compare different locations. The system enables users to access accurate and real-time weather information from anywhere.



Team:

S.No.	Name	Roll Number	Branch	Sem	Section
5.	Harsh Dixit	0905EC201007	ECE	8	NA
6.	Krishna Kumari	0905EC213013	ECE	8	NA
7.	Jatin Sharma	0905EC171014	ECE	ALUMNI	NA
8.	Prashast Bhatnagar	0905EC171018	ECE	ALUMNI	NA
9.	Priyansh Agarwal	0905EC171019	ECE	ALUMNI	NA

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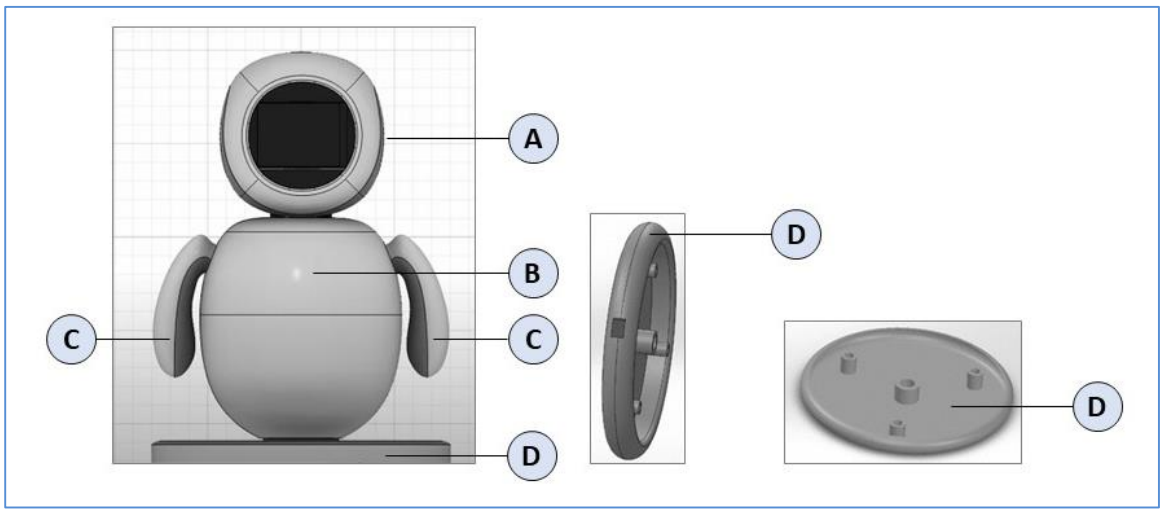
Project: An Interactive Personal Robot – Talk-Buddy (2023-24)

Patent ID: 202421022438

Summery: The Interactive Personal Robot "TalkBuddy" is a groundbreaking initiative in DIY robotics, aiming to create an emotionally intelligent personal robot. TalkBuddy uses advanced sensors to recognize and react to human emotions, fostering immersive interactions. The project is open-source, user-friendly, and encourages community-driven development. It allows customization of the robot's look and functions, serving as a technological milestone and a creativity stimulator in the robotics community. to become empathetic companions, enriching human lives through emotional connections and shared experiences.



Team:

S.No.	Name	Roll Number	Branch	Sem	Section
10.	Abhishek Rawat	0905EC201002	ECE	8	NA
11.	Saksham Tyagi	0905EC213D03	ECE	8	NA

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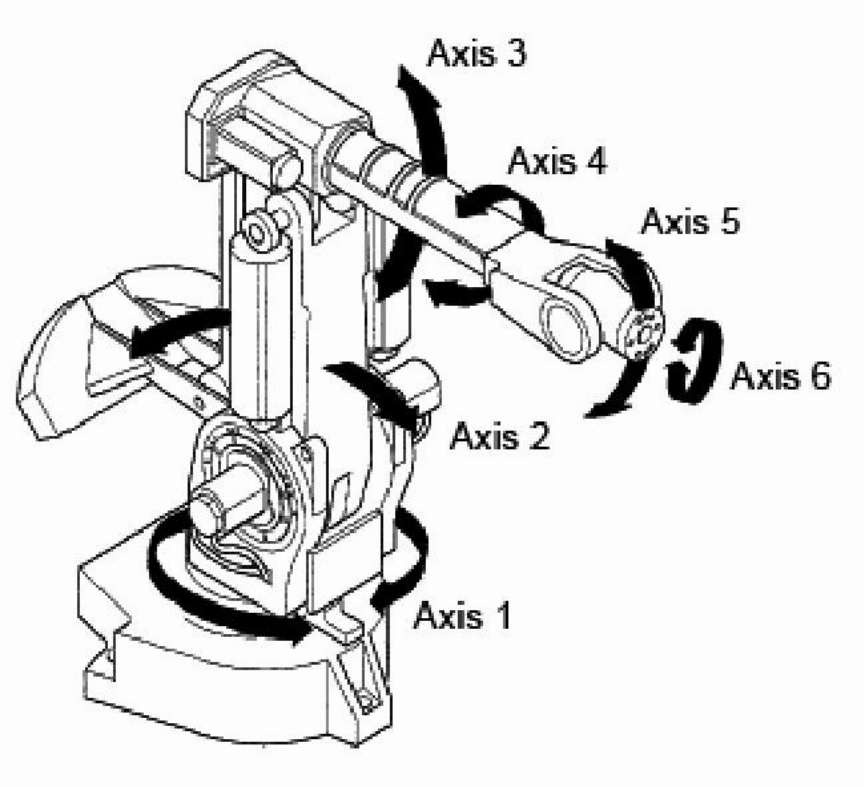
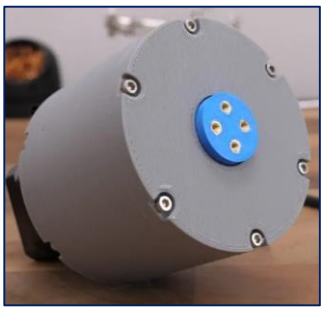
Project: Two Stage Planetary Gearbox for 6 DOF Articulated Robotic Arm (2023-24)

Summery: The "Two Stage Planetary Gearbox for 6 DOF Articulated Robotic Arm" project focuses on designing a compact and efficient gearbox to enhance the performance of a six-degree-of-freedom robotic arm. By employing a two-stage planetary gear system, the gearbox achieves high torque output and precise motion control, essential for complex robotic tasks. This design improves the arm's load-bearing capacity and operational accuracy, making it suitable for applications in automation, manufacturing, and robotics research. The project demonstrates the integration of advanced robotic engineering principles to optimize robotic functionality and efficiency.





Team:

S.No.	Name	Roll Number	Branch	Sem	Section
1.	SHREYASH MUJUMDAR	0905EC211025	ECE	6	NA
2.	DHRUV SHIVHARE	0905EC211014	ECE	6	NA
3.	PRASANNA BHAGWAT	0905EC211019	ECE	6	NA
4.	YASH SIHARE	0905EC211030	ECE	6	NA

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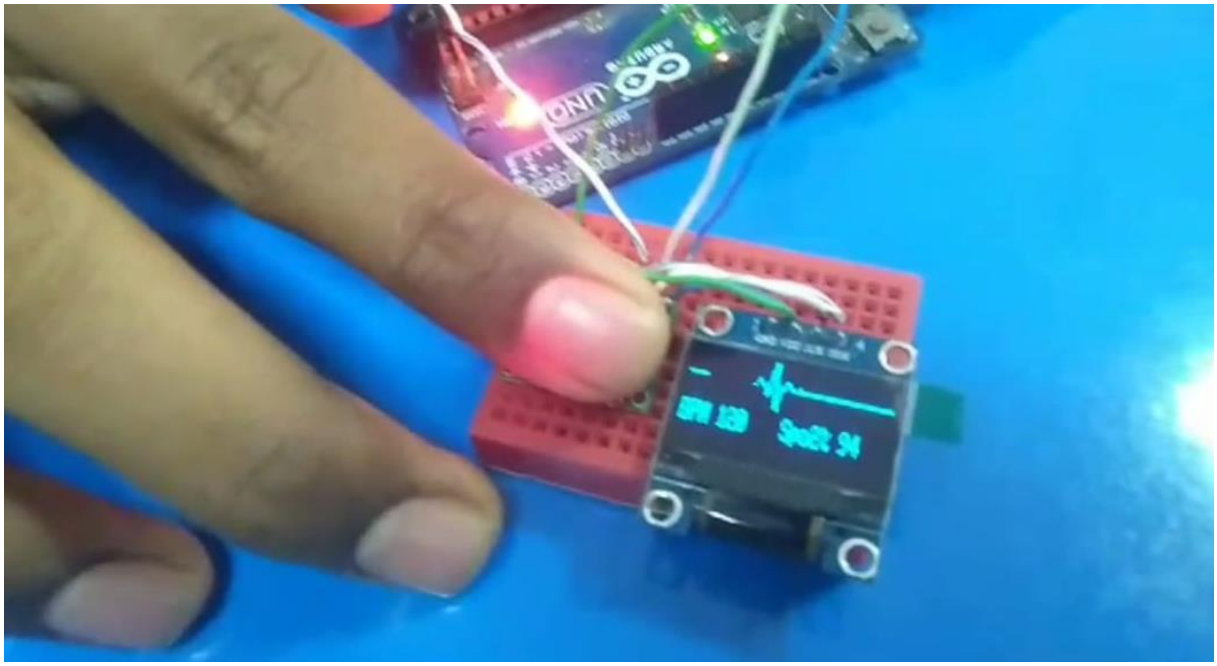
Project: Pulse Oximeter using Arduino (2023-24)

Summery: This project involves designing a portable and cost-effective device to measure blood oxygen saturation (SpO2) and pulse rate. Utilizing an Arduino microcontroller, along with sensors like the MAX30100, the system captures and processes the photoplethysmographic signals to determine SpO2 levels and heart rate. The data is then displayed on an LCD screen for easy reading. This project highlights the application of microcontroller technology in healthcare, providing an accessible tool for monitoring vital signs, which can be particularly useful in remote or resource-limited settings.



Team:

S.No.	Name	Roll Number	Branch	Sem	Section
5.	KRISHNA VERMA	0905IT221071	IT	3	B
6.	Balveer Kumar Saurav	0905CS221063	CSE	3	A

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Project: RGB Ambience Lighting with Android App Control (2023-24)

Summery: The "RGB Ambiance Lighting with Android App Control" project aims to create a customizable lighting system that enhances the ambiance of any space. By using RGB LEDs and an Android application, users can easily control the color and intensity of the lights through their smartphones. This system allows for a wide range of lighting effects and moods, making it ideal for both residential and commercial settings. The project showcases the integration of mobile technology with smart lighting solutions, offering a user-friendly and versatile approach to interior lighting design.

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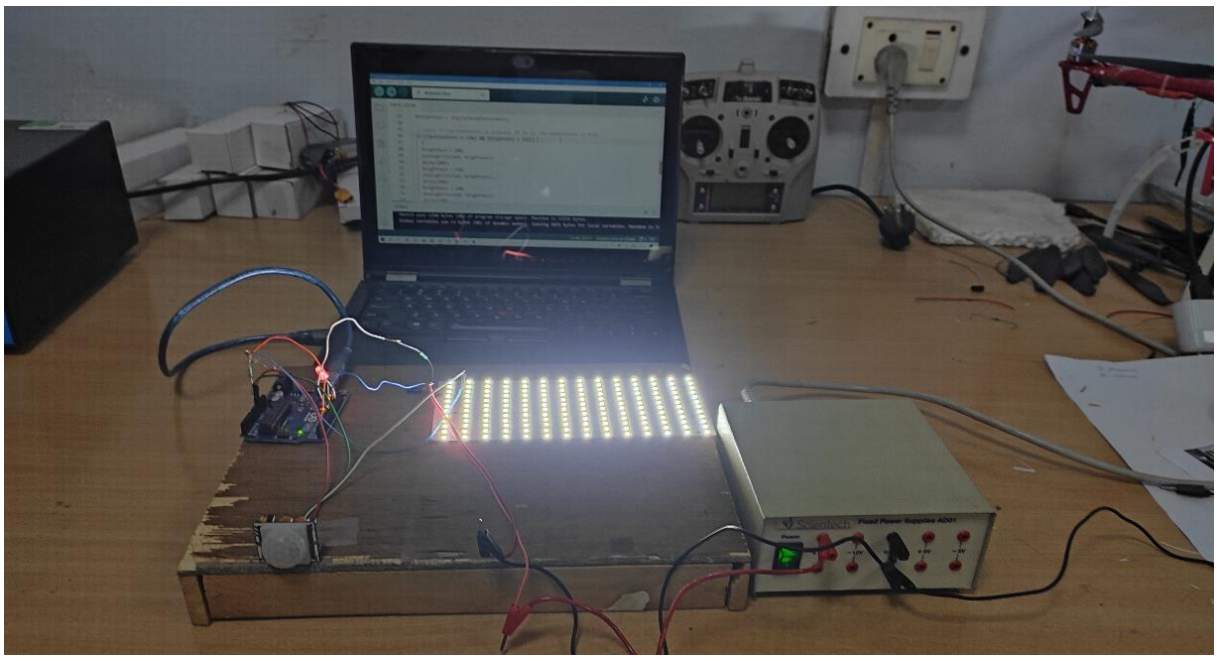
Team:

S.No.	Name	Roll Number	Branch	Sem	Section
7.	AKANSHA KUSHWAHA	0905CS221018	CSE	3	A
8.	AKANKSHA SINGH	0905CS221017	CSE	3	A
9.	AMAN K. DANDAUTIYA	0905CS221024	CSE	3	A
10.	MAYANK KUMAR DUBEY	0905CS221127	CSE	3	B

Project: Smart LED Lighting System with Power Saving (2023-24)

Summery: The "Smart LED Lighting System with Power Saving" project focuses on developing an intelligent lighting solution that optimizes energy consumption. By integrating sensors and microcontrollers, the system can automatically adjust the brightness of LED lights based on ambient light levels and occupancy. This not only enhances user convenience but also significantly reduces power usage, contributing to energy efficiency and cost savings. The project demonstrates the potential of smart technology in creating sustainable and eco-friendly lighting solutions.



Team:

S.No.	Name	Roll Number	Branch	Sem	Section
11.	HARSH YADAV	0905EC201008	ECE	7	NA
12.	YASH DWIVEDI	0905EC201025	ECE	7	NA

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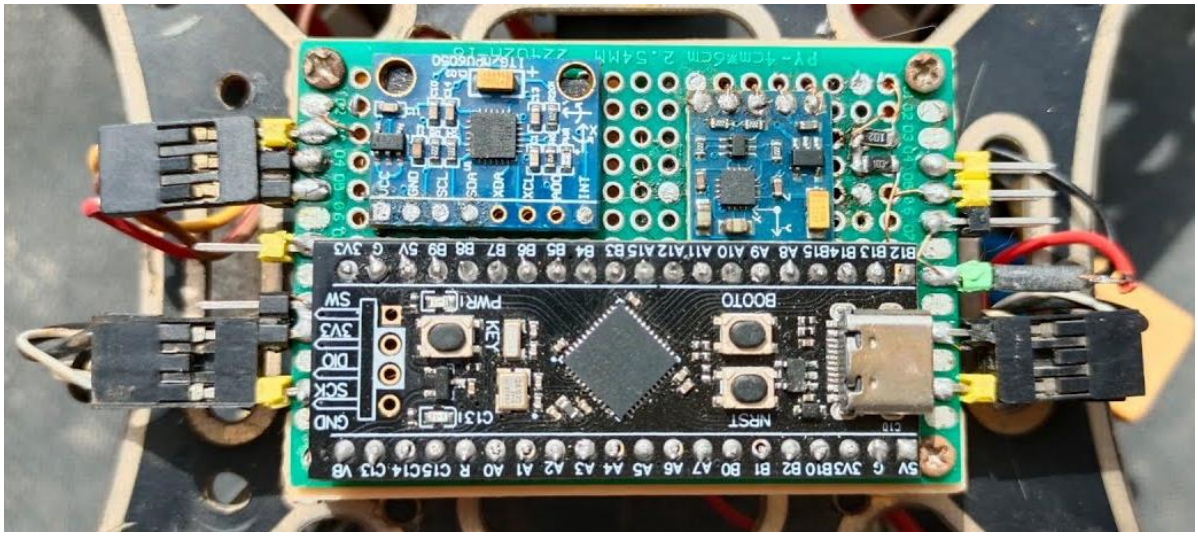
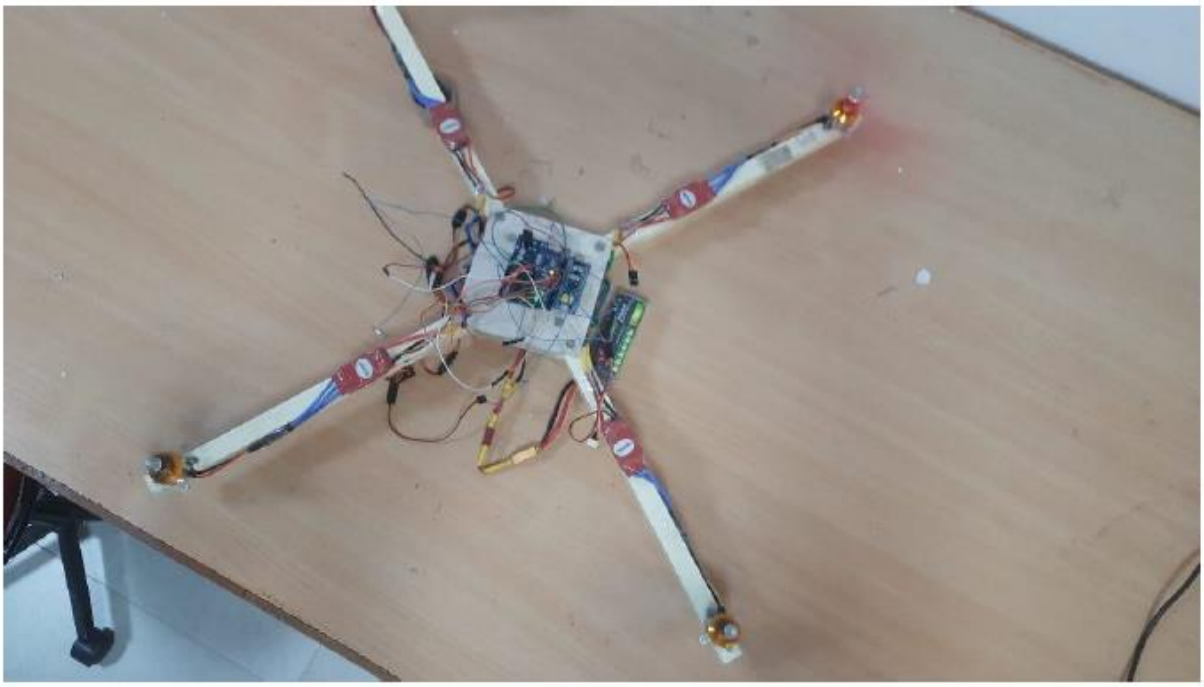
Project: Design & Development of Flight Controller Using STM—32

Summery: The project "Design & Development of Flight Controller Using STM-32" focuses on creating a robust and efficient flight controller for drones using the STM32 microcontroller. This involves designing the hardware and software components to ensure stable and responsive flight control. Key features include integrating sensors like IMUs (Inertial Measurement Units), barometers, and GPS for precise navigation and stability. The project also emphasizes implementing safety measures such as input protection to prevent damage from voltage spikes. By leveraging the capabilities of the STM32 microcontroller, the project aims to develop a reliable and high-performance flight controller suitable for various drone applications.





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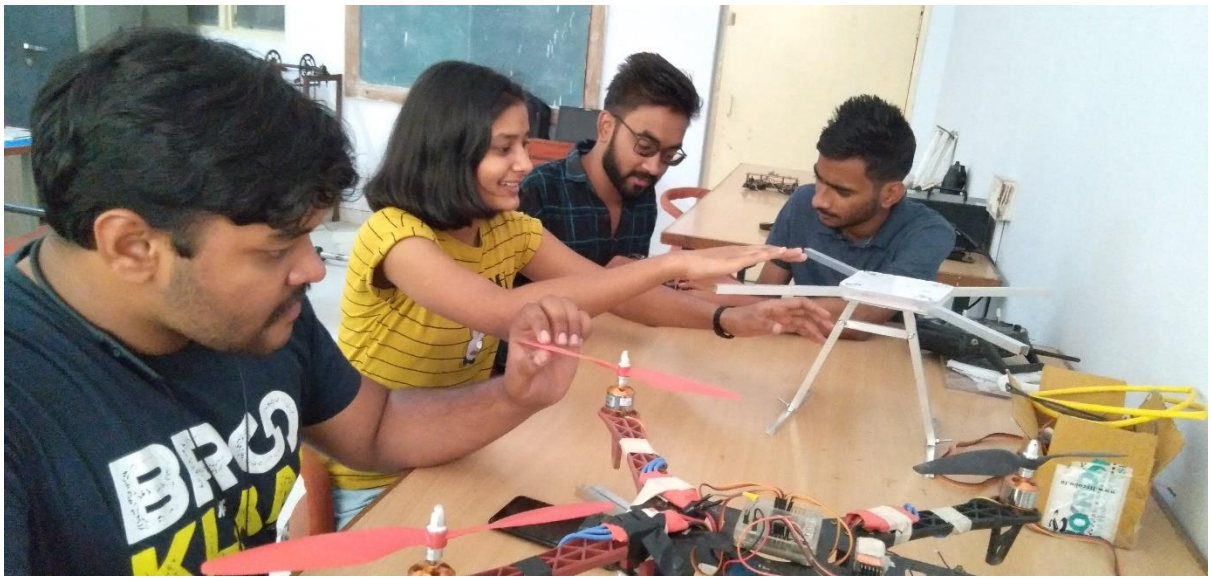

Team:

S.No.	Name	Roll Number	Branch	Sem	Section
13.	Sugam Patel	0905EC191029	ECE	8	NA
14.	Sapna Suman	0905EC191021	ECE	8	NA
15.	Vinay Agrawal	0905EC191034	ECE	8	NA
16.	Haritesh	0905EC191009	ECE	8	NA

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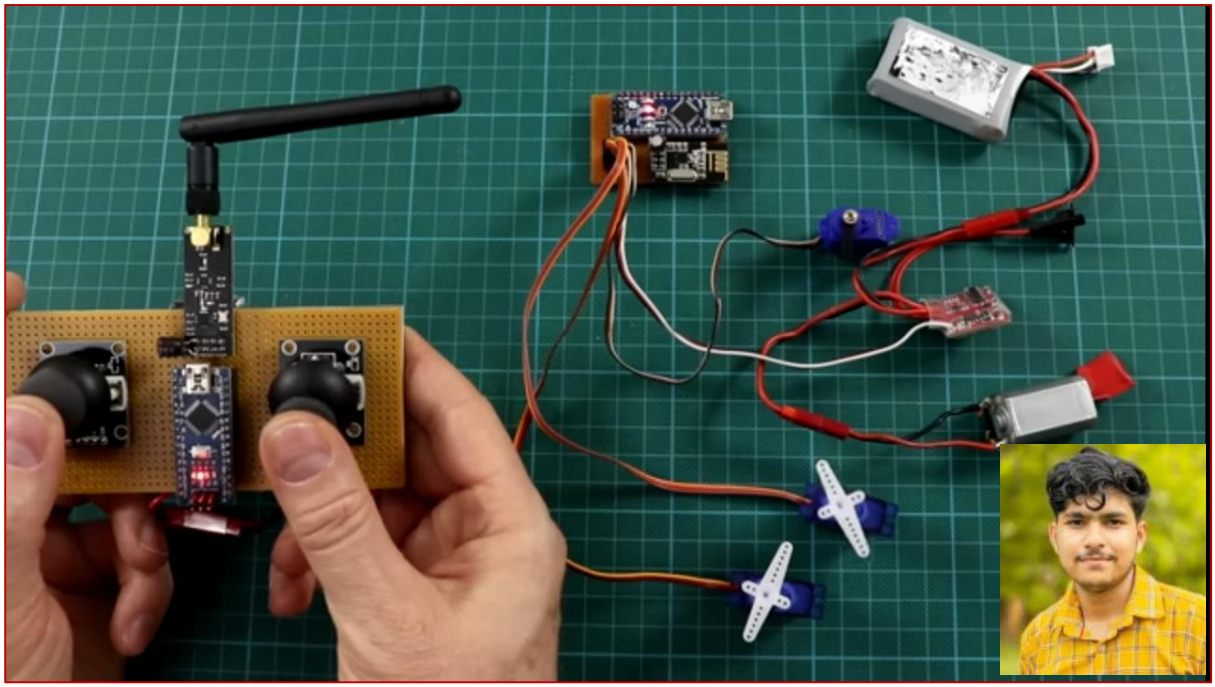
Project: Design and Development of 2.4GHz 6 Channel Drone Transmitter & Receiver using nRF24L01 (2022-23)

Summary: This project involves the design and development of a **2.4GHz 6-channel drone transmitter and receiver system** using the **nRF24L01** module. The aim is to establish a reliable communication link between the drone and its controller, leveraging the 2.4GHz ISM band for wireless communication. The project includes designing the electronic circuits, programming the firmware, and ensuring robust signal processing for effective data transmission and reception. The outcome is expected to be a functional prototype that provides hands-on experience in circuit design, embedded programming, and system integration.



Team:

S.No.	Name	Roll Number	Branch	Sem	Section
12.	Abhishek Rawat	0905EC201002	ECE	5	NA
13.	Saksham Tyagi	0905EC213D03	ECE	5	NA

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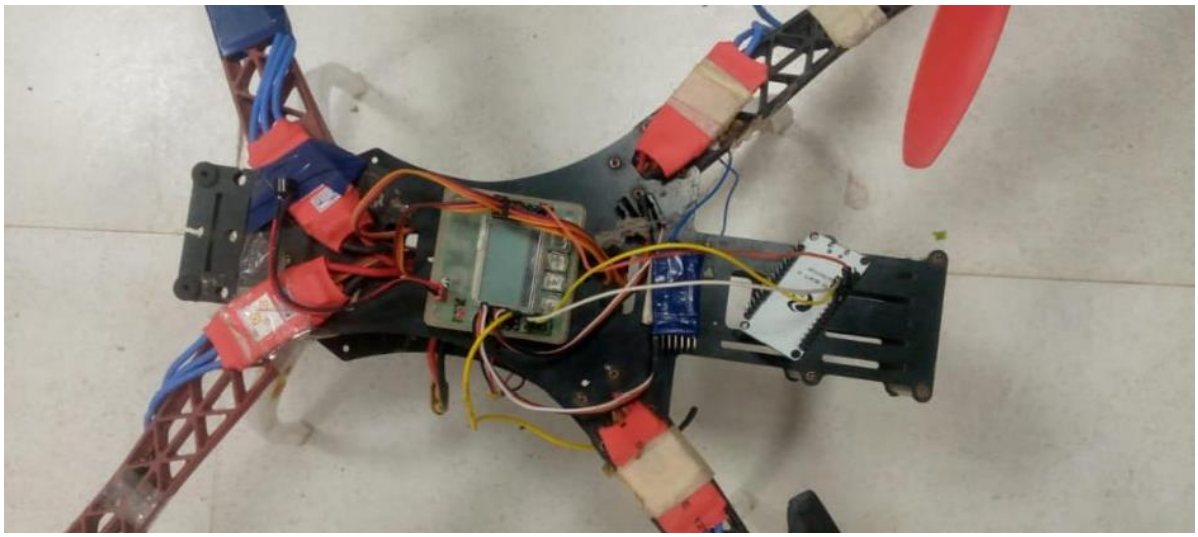
Project: IoT Based Solution for Drone Navigation and Activity Administration by Authority (2022-23)

Summary: The project focuses on developing an Internet of Things (IoT) based system to enhance the navigation and activity management of drones by authorities. The system integrates various IoT devices and sensors to provide real-time data and control over drone operations. This includes GPS for precise location tracking, cameras for visual monitoring, and communication modules for seamless data transmission. The primary objective is to create a robust and efficient framework that allows authorities to monitor and manage drone activities effectively, ensuring safety and compliance with regulations.



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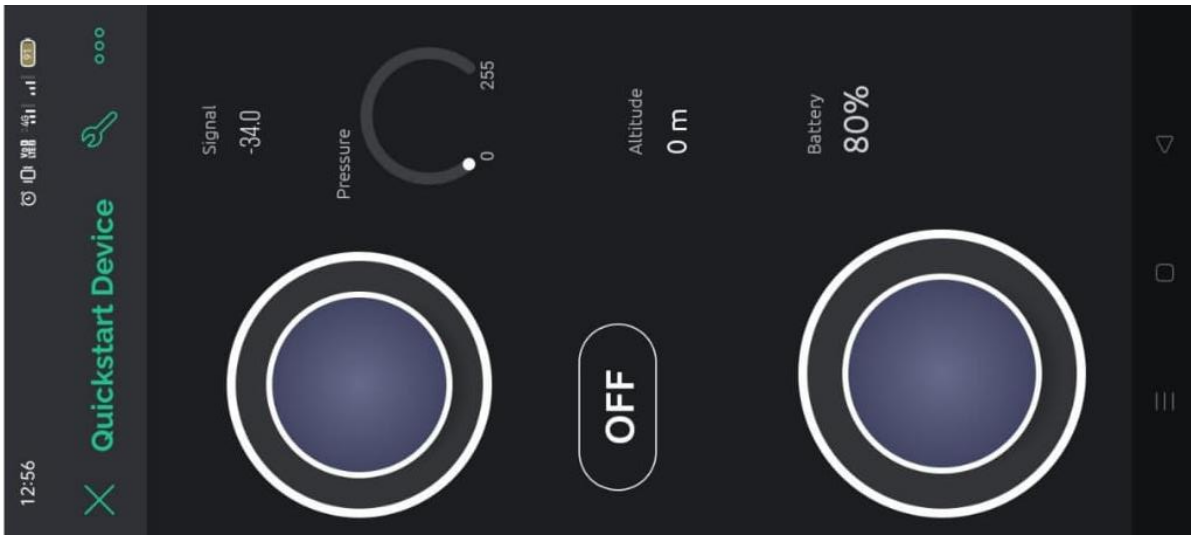

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17.	Sugam Patel	0905EC191029	ECE	7	NA
18.	Sapna Suman	0905EC191021	ECE	7	NA
19.	Vinay Agrawal	0905EC191034	ECE	7	NA
20.	Haritesh	0905EC191009	ECE	7	NA

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Project: Drone Delivery Tower (2021-22)

Summary: Design and Develop an Autonomous done based delivery tower system in which various drones a delivering the packages autonomously. Entire system can be monitored/ governed through the software.

Team:

S.No.	Name	Roll Number	Branch	Sem	Section
21.	Himanshu Dewangan	0905CS201083	CSE	3	CS-2
22.	Deeksha Pokhariya	0905CS201054	CSE	3	CS-2
23.	Gaurav Jain	0905it201024	IT	3	IT-A
24.	Mohammad Aiman Zaki	0905CS201100	CSE	3	CS-2
25.	Shivani Kushwah	0905CS201162	CSE	3	CS-4
26.	Stuti Bhadauriya	0905CS201171	CSE	3	CS-4
27.	Uday Gupta	0905IT201091	IT	3	IT-B
28.	Ashwini Saxena	0905cs201040	CSE	3	CS-1
29.	Abhishek Rawat	0905EC201002	EC	3	EC-1
30.	Abhishek Mishra	ITM21CA001	MCA	1	MCA-1
31.	Kajal Bajpayee	ITM21CA013	MCA	1	MCA-1
32.	Subhashini Shukla	ITM21CA035	MCA	1	MCA-1

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Project: Smart Switchboard (2021-22)

Summary: Design and develop and IoT based smart switchboard which can drive through voice, android app and manually with feedback to one source to all plateforms.

Team:

S.No.	Name	Roll Number	Branch	Sem	Section
1.	Uday Gupta (TL)	0905IT201091	IT	3	IT-B
2.	Srashti Jain	0905IT201084	IT	3	IT-2
3.	Riyanshi Saxena	0905IT201072	IT	3	IT-2
4.	Gaurav Jain	0905IT201024	IT	3	IT-1
5.	Sumit Chaurasiya	0905IT201087	IT	3	IT-2
6.	Sumit Sahu	0905IT201088	IT	3	IT-2
7.	Ashutosh Tiwari	0905EC201004	EC	3	EC-1
8.	Mohini Tomar	0905CS201102	CSE	3	CS-2

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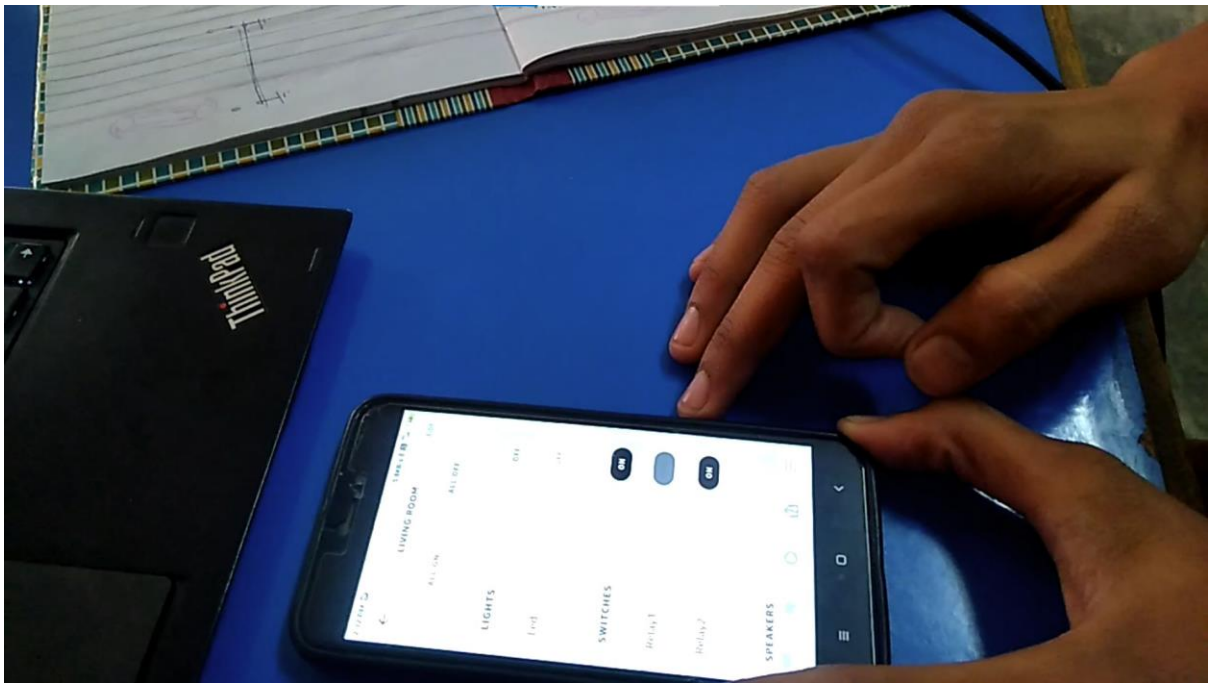

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Project: Smart LED Street Light (2021-22)

Summary: Smart Street Lightings for campus who consumes 10% intensity at idle state and on 100% intensity on somebody pass through nearby.

Team:

S.No.	Name	Roll Number	Branch	Sem	Section
1.	Mohini Tomar	0905CS201102	CSE	3	CS-2
2.	Harsh Jain	0905CS201075	CSE	3	CS-2
3.	Manvendra	0905CS201098	CSE	3	CS-2
4.	Ashutosh Tiwari	0905EC201004	EC	3	EC-1
5.	Kartikay Gupta	0905EC201011	EC	3	EC-1
6.	Himanshu Batham	0905EC201009	EC	3	EC-1
7.	Devutt Shrivastava	0905CS201060	CSE	3	CS-2

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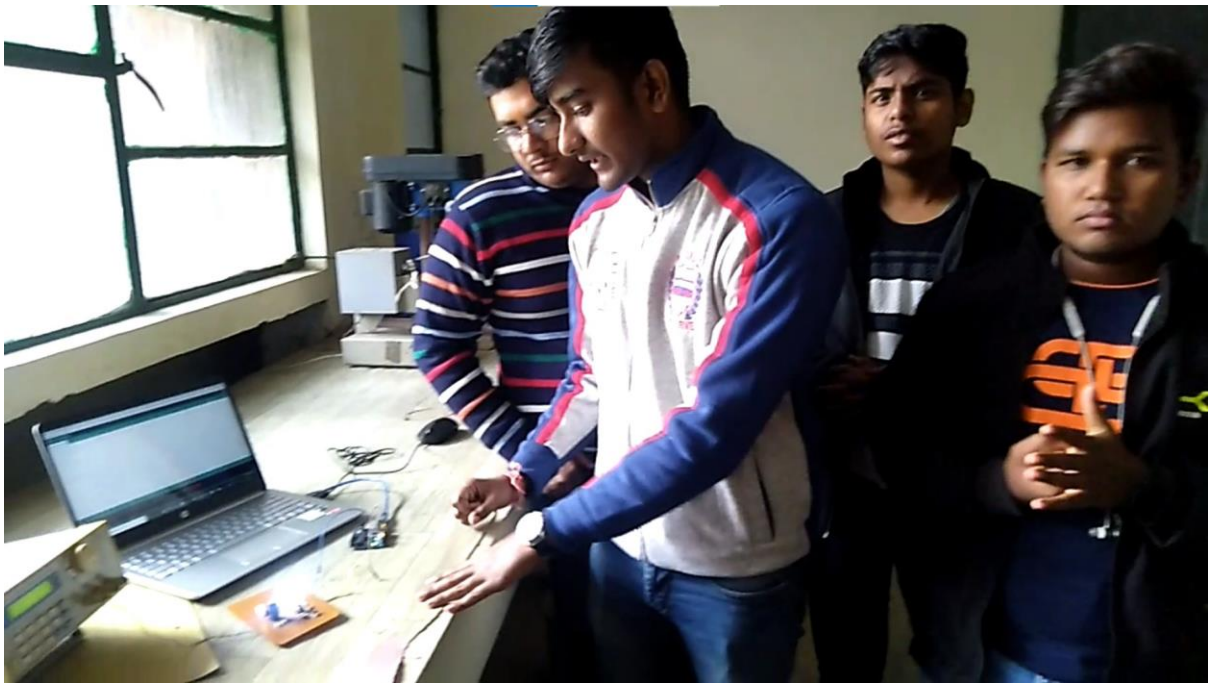

Project: Water Tank Level motoring system (2021-22)

Summary: All overhead water tank will be monitored on android app via IoT cloud service. The user can set warning system on a particular or all tanks.

Team:

S.No.	Name	Roll Number	Branch	Sem	Section
1.	Yatin Punhani	0905CS201204	CSE	3	CS-4
2.	Vivek Kumar	0905cs201200	CSE	3	CS-4
3.	Somil Yadav	0905cs201170	CSE	3	CS-4
4.	Yamini Bamal	0905cs201201	CSE	3	CS-4
5.	Udita chahar	0905cs201188	CSE	3	CS-4
6.	Vansh Jaiswal	0905IT201094	IT	3	IT-B

Project: Nitro Car Modification

Summary: Modification of nitro car 1/10 scale like adding disk brakes, reverse driving gearbox etc.

Team:

S.No.	Name	Roll Number	Branch	Sem	Section
1.	Krishnakant Sharma	0905ME191018	ME	5	ME-1
2.	Ravi Rajput	0905ME191025	ME	5	ME-1
3.	Jatin Sapra	0905ME191014	ME	5	ME-1

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Project: ADVIK 2.0

Summary: ADVIK is a humanoid robot, constructed out of 3D printable plastic body components, and controlled by Arduino microcontrollers. The design concept is taken from open source robotics communities.

Team:

S.No.	Name	Roll Number	Branch	Sem	Section
1.	Abhishek Mishra	ITM21CA001	MCA	1	MCA-1
2.	Kajal Bajpayee	ITM21CA013	MCA	1	MCA-1
3.	Subhashini Shukla	ITM21CA035	MCA	1	MCA-1
4.	Ashutosh Tiwari	0905EC201004	EC	3	EC-1
5.	Uday Gupta	0905IT201091	IT	3	IT-B

Project: Smart Dustbin (2021-22)

Summary: Smart dustbin system for institute campus. Every dustbin is autonomous and connected to an android app. Notification on app and sms to cleaning workers. Three level of users – Admin, Users, Cleaning workers. This project is also submitted to Municipal Corporation Gwalior for consideration through an contest "Clean Innovative Challage-2022"

Team:

S.No.	Name	Roll Number	Branch	Sem	Section
1.	Raksha Sharma	0905IT201061	IT	3	IT-B
2.	Prakrati Chauhan	0905IT201051	IT	3	IT-B
3.	Amit Singh Bhadoria	0905IT201015	IT	3	IT-A
4.	Ashutosh Kumar	0905IT201018	IT	3	IT-A
5.	AMISHA SHRIVASTAVA	0905IT201014	IT	3	IT-A
6.	SIDDHARTH PATHAK	0905IT201081	IT	3	IT-B
7.	DEVRAJ SINGH JADON	0905EC201006	EC	3	EC-1
8.	RISHIKA SHARMA	0905CS201141	CSE	3	CS-3

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Project: Weather Monitoring IoT Channel (2020-21)

Summary: IoT based weather monitoring channel to collect the data and reporting android app with some algorithm-based forecast.

Patent ID: 202421022439

Team:

S.No.	Name	Roll Number	Branch	Sem	Section
1.	Jatin Sharma	0905EC171014	EC	7	EC-1
2.	Prashast Bhatnagar	0905EC171018	EC	7	EC-1
3.	Priyansh Agarwal	0905EC171019	EC	7	EC-1

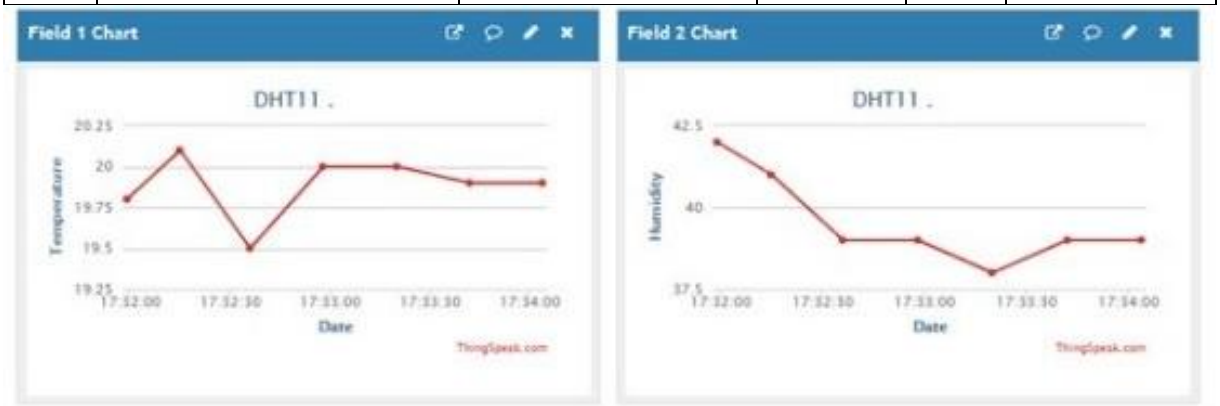
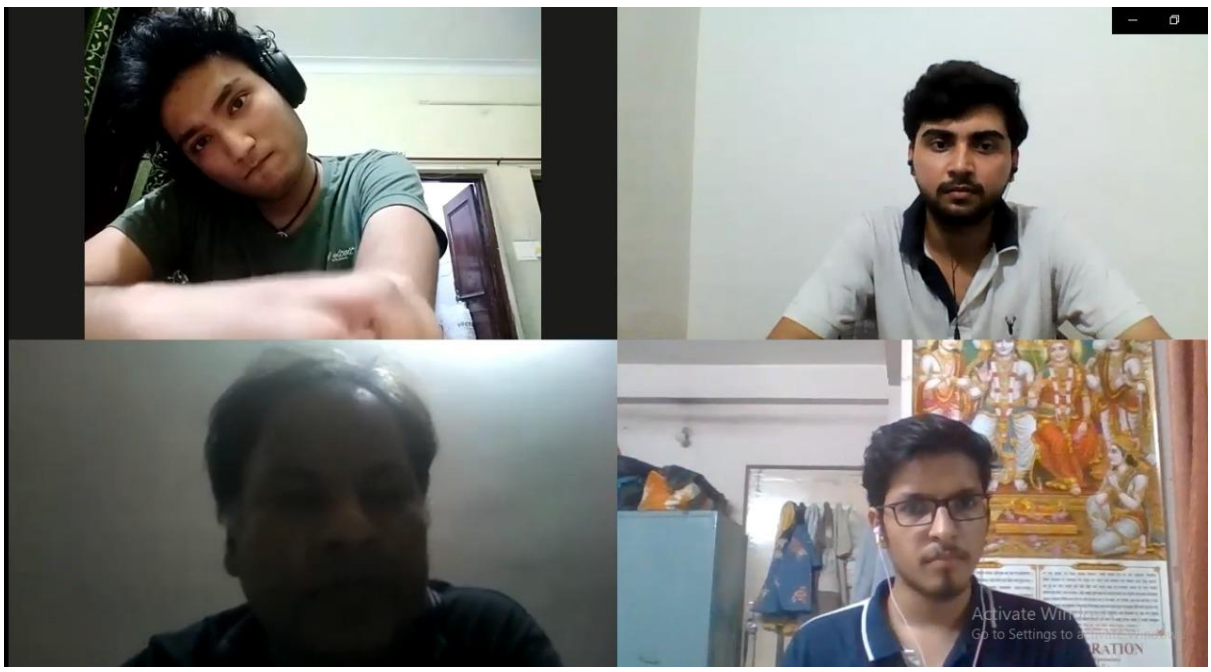


Figure 4.4 Output for Temperature and Humidity



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Project: Multipurpose Adjustable Cane (SIH2019 Winners for 1st Runner up Rs. 75000/-)

Summary: Multipurpose Adjustable Cane for featuring a linearly retractable pipe and height adjustability mechanism for various operative positions, as well as connection assemblies for attaching fixed and foldable gripping handles, foldable knee supporting handles, and the base. The Legs are firmly attached to the pipe's distal end to provide stability and non-slip contact with the surface. The foldable handle is connected near to the pipe's proximal end, and the fixed handle is connected at the pipe's proximal end.

Patent ID: 202121053003

Team:

S.No.	Name	Roll Number	Branch	Sem	Section
1.	Aniket Kumar	0905ME161013	ME	7	ME-1
2.	Yaman Sahu	0905ME161089	ME	7	ME-1
3.	Ashutosh Pandey	0905ME161025	ME	7	ME-1
4.	Jatin Gulati	0905ME161039	ME	7	ME-1
5.	Deepali Sharma	0905CS171051	CSE	5	CS-1
6.	Anshika Arora	0905CS171032	CSE	5	CS-1

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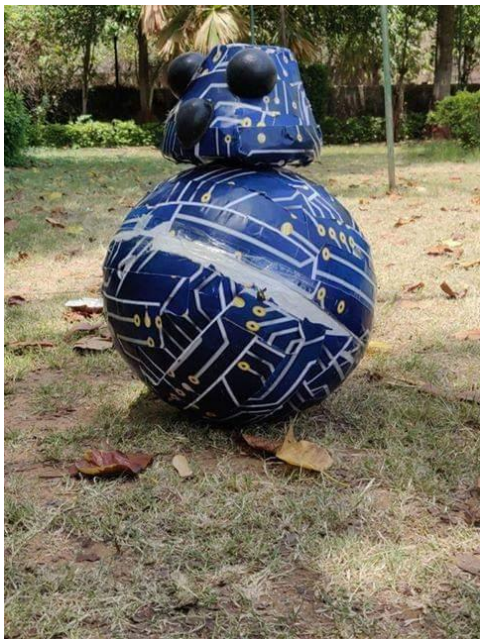
Project: Holonomic Ball Robot (2018-19)

Summary: This project is based on an Astro-mechanical droid that appears on Star Wars Episode - The Force Awakens. It has a ball shaped body and a domed head that resembles that of droids Ball Robot's body rolls independently from the head, which always stays near the vertical axis of the droid.
The body contains a drive system that always keeps a relative position with respect to the sphere. The system uses wheels to make the sphere roll in any direction. The drive system can be maneuvered using a mobile phone via Bluetooth Connectivity. The base plate acts as a counterweight, keeping the center of gravity close to the ground.

Team:

S.No.	Name	Roll Number	Branch	Sem	Section
1.	Pranav Gudhenia	0905EC151024	EC	7	EC-1
2.	Sagar Masand	0905EC151030	EC	7	EC-1
3.	Bhashkar Gupta	0905EC151008	EC	7	EC-1
4.	Haarish Khan	0905EC151016	EC	7	EC-1



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