VEL TECH MULTI TECH
DR.RANGARAJAN DR.SAKUNTHALA
ENGINEERING COLLEGE

TECHYUGAM'24






Founder's Note



COL.PROF.VEL.SHRI. DR.RANGARAJAN

Founder & Chairman

B.E(Elec.), B.E(Mech.), M.S. (Auto.), D.Sc.

The nation's development and economic growth depend on the growth of education, which creates wealth and well being. Technology is the key to safety, security, progress and prosperity. With that in my mind, I've great pleasure inviting you to Vel Tech Multi Tech Dr. Rangarajan Dr Sakuntala engineering college's Techyugam 2024. An all round development of knowledge, skills, tools and techniques is indeed, necessary.

Vel Tech strives to provide all these within and beyond the scope of the academic programmes such that our graduates are fully equipped to compete effectively in a multinational scenario.To build a safe, secure and prosperous India, we need to make higher technical education accessible and affordable with no distinction in caste, creed or color. The highly qualified and experienced faculty has designed each programme to make it student-centered and user-friendly. Care has been taken to provide sufficient opportunities to every student to bring out one's best talent in the highly participative learning process which is unique, whether it is academic, co-curricular or extra-curricular activity. One such opportunity that we have immense pleasure is assisting the students in the form of Techyugam 2024. The delivery and performance assessment systems have been devised to be totally transparent and flexible to suit every kind of person to perform and earn credits. The ambience is conductive to acquire assets such as a place for growth and insurance to success. Let us make India strong as never before. Future of India is in your hands!

Vice Chairman's Note



I am happy to mention that our college is an ISO 9001-2015 certified Institution and accredited by National Board of Accreditation (NBA),NEW DELHI. We have seven UG courses and three PG courses in our College. We have excellent infrastructural facilities and laboratories with latest equipments. We have very good facilities for sports . We have Army Girls Wing and Air Wing Boys and Girls.

We have dedicated, experienced and highly qualified faculty members. With buzzing mind of our faculty members we stumbled upon the idea of conducting the Techyugam 2024, which would help our students extremely in the field of knowledge and technology, motivate them to debate the strength and flaws of their budding ideas, encourage them to take the path of those idea and reach that dream. I Congratulate all the rank holders, gold medalists, winners in sports and games and all the students who have been placed for their achievements and wish them best of luck in their future endeavors. I sincerely appreciate the efforts of the faculty who worked for the growth of this college and thank the Management and Chairman Col.Prof. Dr.Vel R. Rangarajan, in particular for his support and guidance to improve this great Institution. I am sure that this college will reach the highest rank in a short span of time among the self-financing Engineering colleges in the state.

DR.SAKUNTHALA RANGARAJAN

Vice Chairman

MBBS

Trustee's Note



Dr.RANGARAJAN MAHALAKSHMI.K

Chairperson and Managing Trustee

With a sense of pride and privilege, I would like to bring to the knowledge of you that Vel Tech Multi Tech Dr.Rangarajan Dr.Sakunthala Engineering College started in the year 1999 has proved to be a beckon of knowledge in the field of R&D, Engineering and Technology.

As we embark on the task of transforming the college into one of the premier institutes globally, we have introduced innovative programmes; signed MOU's and created partnerships with various industries and academia in order to meet the growing demands of existing and prospective students.The success of an organization lies in the leadership skills and aptitudes of its people as well as the strength of its infrastructure. As we promulgate the achievements and work of the College, the management is cognizant of the need to ensure that the institution is fully equipped with the necessary resources and latest technologies to meet its objectives. We have focused our energies to be the best Student Supportive Institution in the Country.We want you to taste the fruit of success once and for the rest of your life, you will never rest.

Principal's Note



I am very happy to meet you through this page. Vel Tech Multi Tech has stood above the rest in its approach to education and in its pedagogies. The ways we teach and the ways our students learn are unique and creative. Education is not an act of acquiring knowledge but learning a skill to lead life and forming one's personality. Many constructive efforts have been taken to improve our college results.

As campus placements are progressing, efforts to groom the students to serve the society are also in pace. I can boldly say that we have excelled in every initiative that we undertook and we have stood together in facing the challenges in realizing quality education. I wish to record my hearty congratulations to those who have brought laurels to the institution and I appreciate all of you for working together as a team for the success and growth of the institution.

Dr.V.RAJAMANI

Principal

B.E., M.E., Ph.D

About College :

Vel Trust (1997, the Trust founded by the Educational-Philanthropic Personalities, Col.Prof.Vel.Dr.R.Rangarajan and Dr.Mrs.Sakunthala Rangarajan, the Founder President and the Foundress President respectively, promoted the erstwhile Vel Tech Multi Tech Dr.Rangarajan Dr.Sakunthala Engineering College popularly known as Vel Tech Multi Tech in 1999 with the vision to provide right environment for technology transformation to the young minds. The Institution has been consistent in maintaining excellence in the academic standards, research, reputation, recognition and professionalism since its inception and is known for its highest credentials in Teaching, Learning, Research, Innovation and extension activities.

The institution excels as one of the top premiere institutes in India owing to its State-of-the art Infrastructure, well equipped laboratories,highly qualified and experienced faculty members. The Institution has been accredited by NAAC Accredited with 'A' grade with an impressive score of 3.49 / 4.0. The Departments of Biomedical Engineering, Computer Science and Engineering, Electronics and Communication Engineering, Electrical and Electronics Engineering, Mechanical Engineering and Information Technology are accreditated by NBA. The institution's ranking in the NIRF Innovation category under the Band 11-50 is another milestone to its feathers in addition to the 2F & 12B status of UGC, New Delhi.

Focus on Inter-Disciplinary and Multi-Disciplinary programs along with industry oriented online courses, development of effective curriculum to cater to the industry needs in consonance with NEP, facilitating industrial internships for enhancing industry-readiness and employability of students are the visionary strategic plans of the institution.

Vision :

Elevating well being of humanity by augmenting human resource potential through quality technical education and training.

Mission :

To effectuate supremacy in technical education through articulation of research and industry practices for social relevance.

To inculcate the habit of lifelong learning.

To exhibit professional ethics, commitment and leadership qualities.



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About Techyugam

TECHYUGAM project expo event hosted by VTMT every year showcasing the innovative endeavors of our students in the realm of technology and beyond . With a blend of creativity , engineering prowess , and entrepreneurial spirit, TECHYUGAM serves as a platform for budding talents to present their projects, exchange ideas, and inspire the next generation of innovators. Join us as we celebrate ingenuity, foster collaboration and push the boundaries of possibility at TECHYUGAM.



TECHYUGAM, the innovation event of VTMT develops platforms and mechanisms for the effective transfer of knowledge between academia and industry. It facilitates collaborations, joint research projects, and technology transfer agreements with industry partners. TECHYUGAM creates a dynamic environment that nurtures creativity, drives innovation, and contributes meaningfully to societal progress. The state-of –the art facilities available with the institution and the availability of a robust ecosystem for innovation and knowledge transfer, paves the way for the establishment and development of research and entrepreneurship.The event enables to foster an entrepreneurial spirit among students and faculty. It moves thinking beyond academia for the aspiring entrepreneurs and also facilitates connections with industry experts, investors, and business networks to support the development and growth of startups.



Mr.R.Praveen

Technosphere's Evaluator

Current position

Senior Software Engineer, ICU Medical Inc

Educational Background

- Ph.D. (CSE) Anna University, Madras Institute of Technology Campus, Chennai.
- M.E (CSE)Anna University, Madras Institute of Technology Campus, Chennai
- B.E (CSE)K. S. Rangasamy College of Technology (Autonomous), Tiruchengode. Anna University

Experience

He has worked as an Engineer in Technology at Virtusa (Polaris Consulting Services Ltd.,) Chennai from August 2015 to January 2019, focusing on the SAM ENHANCEMENTS project during that time. Since January 2019, he has been involved in the MEDNET & HCA project. Additionally, he served as a Board of Study Member for the Department of Computer Science and Engineering and Business Systems at K S Rangasamy College of Technology, Tiruchengode, for the academic years 2020-2021, 2021-2022, and 2023-2024, 2024-2025. Furthermore, he received the Best Paper Award at the 3rd IEEE International Conference on Communication, Computing and Industry 4.0 for his work on cryptanalysis of Biometric-Based Secure User Authentication Protocol for IoT Applications from CMR Institute of Technology, Bengaluru, India, on December 16, 2022, as well as for his contribution to Machine Intelligence and Data Science Applications for Proactive Fault Prediction and Tolerance in Cloud Computing from the University of Versailles Paris Saclay, France, and UPES, Dehradun, India, on December 7, 2022.

Current position

- Assistant Professor (Sr- Gr) in MIT Campus, Anna University, Chennai.



Educational Background

- Ph.D in Process Control (Faculty of Electrical Engineering), Anna University, Chennai.
- M.E (Instrumentation Engineering) from St.Peter's Engineering College, chennai
- B.E (Electronics and Instrumentation Engineering) from Government College of Technology, Coimbatore

Experience

She has published 11 papers in international journals and 23 papers in international/national conference proceedings. Three of her paper received the Best Paper Award in International conference. She also received Best Video Presentation Award in Research Scholar's Day organized by the Department of Instrumentation Engineering, Anna University. She has authored a book titled "Linear and Non-linear System Theory", CRC Press. She has been a reviewer for ISA Transactions, Chemical Engineering and Communications, Transactions on Institute of Measurement and Control and Journal of Electrical engineering and Technology, etc.She has organized 3 Faculty Development Training Programme sponsored by Centre for Faculty development Training Programme, Anna University, organized Pre-conference tutorial titled "Process Control" in TIMA-2013 and conducted pre-conference tutorial titled "Autotuning using Relay Feedback" in the 9th International conference on Trends in Industrial Measurements and Automation (TIMA-2017), organized by the department of Instrumentation Engineering, MIT Campus, Anna University.

Dr.D.Kalpana

Electromed's Evaluator



Mr.N.Karthikeyan

Mechabotics's Evaluator

Current position

Manager – R&D, UCAL Fuel Systems Limited

Educational Background

- M.Tech (Automotive Engine technology) from IIT Madras
- B.E. (Mechanical Engineering) from University of Madras

Experience

He has authored over 5 International Technical Papers and Articles in the field of automotive engines, alongside being a Member of SAE India. Moreover, he received the SESSION BEST PAPER award at the ICAT 2014 conference at ISET, Pune. Actively participating in SAE KRT sessions in the SAE India Southern section, he has led a 6-member judge team to the SAE STUDENT convention 2018 at MLRIT, Hyderabad, and an 8-member judge team to the SAE STUDENT convention 2019 at BITS, Sathyamangalam. With a core interest in spirituality, he has been associated with SRI RAMCHANDRA MISSION /HEARTFULNESS institute since December 2004. He has also participated in and presented a Technical Paper titled 'AN APPROACH TOWARDS DESIGN OF PLASTIC FUEL RAIL FOR AUTOMOTIVE APPLICATION' at SIAT 2019, Pune, and currently serves as the SAEISS Chennai division Chairman since 2022. Alongside, he has been with UCAL Fuel Systems R&D Department since August 2007, focusing on the design and development of various automotive components such as Multi-Point Fuel Injection parts, Engine coolant parts, Plastic Fuel Rail, and Fuel Filter for Gasoline vehicles, as well as contributing to the design activities for Futuristic products of CNG vehicles and Electronics Products for EV applications including e Horn, DCDC Converter, Motor Controller, TPMS, and BMS.

Technosphere

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2. TinyML predictive model for Monitoring and Safeguarding NLC Workers
3. LUNA : Lunar Navigation and Autonomy, Using Super Resolution Techniques for DEM’s
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10. SECURE & SCALABLE TECH FOR JEWELLERY SHOP THEFT PREDICTION & PREVENTION

Mechabotics

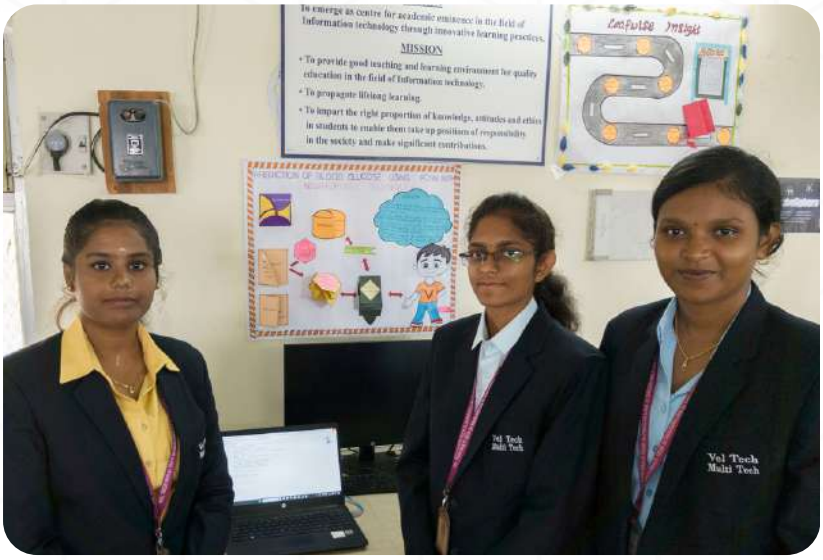
1. SMART CITY
2. RADIATION FREE HEAT THERAPY TOOL
3. TOMATO STORAGE
4. AUTONOMOUS DRONE
5. ENHANCED NANO GENERATOR USING PIEZOELECTRIC METHOD IN ENERGY APPLICATIONS
6. FRESNEL LENS CONCENTRATOR BASED ON HYBRID SOLAR PHOTO VOLTAIC CELL
7. KETBOT
8. REVAMPING OF SADDLE
9. TWO BOLT ASSEMBLY ADJUSTABLE TROLLEY
10. EFFECTIVE METHODOLOGY FOR HUMAN FOLLOWING AND AUTOMATIC BILLING TROLLEY

Technosphere

1 PREDICTION OF BLOOD GLUCOSE USING FCNN WITH THE NEURAOPTINET TECHNIQUE

Nandhini G, Dhivyashree R J, Devaki S

INFORMATION TECHNOLOGY



Project summary

Diabetes is a group of metabolic diseases characterized by elevated blood glucose levels (hyperglycemia). It is estimated that almost half a billion people are living with diabetes, and the incidence rates of type 1 diabetes (T1D) and type 2 diabetes are on the rise. T1D is thought to be precipitated by the autoimmune destruction of pancreatic β-cell resulting in an absolute insulin deficiency. People with T1D require lifelong self-management to maintain blood glucose (BG) levels in a therapeutically appropriate range. Failure to do so increases the risk of hyperglycemia, which can lead to microvascular and macrovascular complications, and of hypoglycemia, which can lead to coma, or in extreme cases, death. Our main objective of this work is to predict blood glucose levels using Fast Adaptive Confident Neural Network (FCNN) with the Neuraoptinet technique. This work is a beacon of progress that points to a future where diabetes care will be more precise, individualized, and proactive. A mobile application is developed for providing input data for predicting blood glucose levels and displaying output results.

2 TINYML PREDICTIVE MODEL FOR MONITORING AND SAFEGUARDING NLC WORKERS

Priyadharshini V, Pooja T, Muthu Priya K

INFORMATION TECHNOLOGY

Project summary



The informal sector employs over half of workers in many nations, leaving them without social protection for healthcare and lacking proper enforcement of job health and safety rules. Working conditions significantly impact health equity, crucial for earnings and economic growth. Various workplace risks like oxidation, weather, heat, and falls can harm workers' well-being. To address this, a plan tracks workers' health by assessing oxidation levels, heartbeat, temperature, and posture using a chip-integrated ML system. A mobile app alerts anomalies, utilizing LoRa tech to transmit data to overcome remote connectivity issues. An IoT module relays data to the app, notifying bosses of any worker issues swiftly. This plan efficiently monitors workers' health,
potentially saving lives by promptly detecting and notifying about problems.

3

LUNA : Lunar Navigation and Autonomy, Using Super-Resolution Techniques for DEM's

Rohit Kumar V, Sabarish K, KalyanaKumar S, Sriram K

INFORMATION TECHNOLOGY



Project summary

LUNA's primary goal is to improve lunar exploration by utilizing advanced techniques in super-resolution for Digital Elevation Models (DEMs). The project aims to overcome the challenges presented by the limited coverage of high-resolution data on the moon through the implementation of innovative methods to produce high-quality DEMs necessary for secure navigation during lunar missions. We employ a LapSRN based approach for upscaling the DEM images. The fundamental approach involves training an AI model on a dataset containing DEM images from the Chandrayaan – II TMC sensor to establish a model. Subsequently, this model is refined with the Moon's high resolution image dataset from Chandrayaan – II TMC-2 sensor which is converted into DEM images and used to fine tune the model to enable the production of high-resolution Digital elevation model images of the lunar landscape from low-resolution Digital elevation model input images captured during earlier lunar missions. The enhanced DEM images can be utilized in lunar missions to navigate safely across the lunar terrain.

Keywords : Digital Elevation Models, Super-Resolution, Convolutional Neural Network, Laplacian Pyramid SRN.

4

HUMAN POSE DETECTION

Ranjith J, Akash V, Kapilesh K, Gowtham G

ARITIFICIAL INTERLIGENCE AND DATA SCIENCE

Project summary



Human pose detection is a cornerstone technology behind a wide range of applications fueled by surveillance and computer vision. From fall detection in elderly care to enabling natural human-computer interaction, pose estimation plays a crucial role. In the world of sports and fitness, pose detection helps analyze movement patterns to improve technique and performance. It also holds immense potential in robotics, allowing robots to better understand and respond to human posture and movement. This technology is a key building block for a vast array of artificial intelligence projects and applications, constantly pushing the boundaries of what's possible. Pose estimation works by identifying and pinpointing key points on a person's or object's body. In the case of humans, these key points typically correspond to joints such as elbows, knees, wrists, and others. By accurately tracking these key points, pose estimation can effectively decode human posture and movement.

5

OBSTACLES DETECTING RADAR

Gokul S, Swesthik R, Kameswaran S

COMPUTER SCIENCE AND ENGINEERING



Project summary

In a world where precision and efficiency are paramount, our sensor type radar model stands at the forefront of technological advancement. Imagine a radar equipped with state of the art sensor and artificial intelligence algorithm capable of detecting and avoiding obstacles with remarkable precision. Whether it's navigating through cluttered spaces in disaster zones or assisting individuals with mobility impairments in their daily activities, this robot is designed to be a reliable companion in overcoming obstacles. With its advanced obstacle detection capabilities, this radar at enhance the visual angle upto one-eighty degree. Also, by further attachments such as wheels, this radar model can move in a path in which humans and other bigger machines can't. It can also automatically navigate through complex terrains, identifying and avoiding obstacles in real-time, thus reducing the risk of accidents and maximizing productivity.

6

VOLASA ROBOTICS

Arju G

COMPUTER SCIENCE AND BUSINESS SYSTEM

Project summary



The word "robot" was coined by the Czech playwright Karel Capek in 1921. His play, R.U.R. (Rossum's Universal Robots), introduced these artificial beings to the world, sparking a century of fascination with creating tireless workers. In 1961, science fiction became reality with the arrival of Unimate, the first industrial robot. This welding robot, controlled by a magnetic drum, marked a turning point in manufacturing. It embodied the long-held dream of mechanizing tools for automatic operation, a concept that had been brewing for centuries. Today, robotics continues to evolve at a rapid pace. The future lies in robots that can meet the ever-changing demands of modern manufacturing environments. These machines have the potential to drastically reduce the need for human labor in repetitive tasks. Imagine factory floors where robots with articulated arms handle a variety of jobs, from the delicate precision of cutting and grinding to the efficiency of polishing, painting, spraying, and assembly. This is the future that robotics promises, a future where machines take on the burden of manual labor, allowing humans to focus on more creative and strategic endeavors.

7

SMART BRIDGE

Akhil Adithyan S, Kabilan S, Jaishath R, Nelwin J.L

INFORMATION TECHNOLOGY

Project summary



With the recent advancements in robotics, the integration of robots has become indispensable in designing automation systems. Research and development now play a crucial role in machine design, especially in the realm of robotics. This paper delves into various intriguing aspects of robotics and its forthcoming impact on industrial applications. It explores cutting-edge developments such as object picking robotics employing 3-D object recognition through sensors, as well as the handling of extra-heavy payloads. Furthermore, it highlights the latest technological innovations that have enabled advanced industrial robots to supplant costly sensors and controls. These advancements underscore the transformative potential of robotics in revolutionizing industrial processes and enhancing efficiency across various sectors. As we continue to push the boundaries of technological innovation, the role of robotics is poised to expand further, shaping the future landscape of automation and manufacturing.

8

ROBOTIC ARM WITH ARDUINO

Ashrath A, Mokshitha R, Kavitha S, Dhanalakshmi R

ARTIFICIAL INTELLIGENT AND DATA SCIENCE

Project summary



A robotic arm controlled by an Arduino comprises mechanical joints and links, driven by motors or servos, with the Arduino acting as the central control unit. It interprets commands from user interfaces, sensors, or pre-programmed sequences to coordinate joint movements for tasks like pick-and-place operations or object manipulation. This versatility finds applications in manufacturing, healthcare, and research, offering cost-effective automation solutions. In sustainable agriculture and food security, solar dehydration presents an innovative method for storing and processing tomatoes, reducing post-harvest losses. Integration of solar absorption aligns with the objective of sustainable yields, contributing to advanced weatherization strategies. This approach underscores the importance of sustainability and resource conservation in addressing food security challenges effectively.

9

WIRELESS ELECTRIC VEHICLE CHARGING SYSTEM

Akeesh S, Sugan selva S, Rakesh B, Rahul Abraham R

ARTIFICIAL INTELLIGENT AND DATA SCIENCE

Project summary



This innovative system revolutionizes the charging process for electric vehicles (EVs), eliminating the necessity for cumbersome cables during charging sessions. This breakthrough not only enhances the convenience of EV ownership but also facilitates seamless charging experiences whether at home, the workplace, or on the go, leveraging the installation of coils beneath road surfaces. As electricity flows through the ground transmission unit's primary coil situated on parking surfaces, it induces a vertical magnetic flux, a crucial step in the charging process. This magnetic flux, in turn, interacts with the secondary coil within the vehicle's receiver unit, generating electrical pressure that facilitates the transfer of from the primary coil to the secondary one, a phenomenon known as electromagnetic induction. This groundbreaking technology achieves an impressive charging efficiency ranging between 80% to 90%, a figure on par with traditional cable-based charging methods.

10

VOICE-CONTROLLED ROBOT CAR

Kireety G, Snekan R, Dharanish M R, Aquila Raj son P

ARTIFICIAL INTELLIGENT AND DATA SCIENCE

Project summary



This project employs voice commands for robot control, utilizing an Android app and microcontroller integration. Bluetooth technology facilitates seamless communication between the app and the robotic platform. Users can effortlessly command the robot through either the app's interface buttons or verbal instructions. The robot's mobility is enabled by two DC servo motors, intricately connected to the microcontroller at the receiver's end. Commands transmitted from the app to the robot are converted into digital signals via Bluetooth, ensuring reliability within a range of about 100 meters. Upon reception, these signals are meticulously decoded by the receiver and processed by the microcontroller to drive the DC motors. This intricate hardware-software integration guarantees precise and responsive robotic maneuvers.

Electromed

1

SMART DRUGS BY ADAPTIVE PILLBOX

Aparna A, Kalyani G, Dhivyasri S N

BIOMEDICAL ENGINEERING

Project summary



Medicines serve as a cornerstone in upholding health standards, not only by averting illnesses but also by managing chronic conditions and facilitating the cure of diseases. The advent of IoT-based assistive and adaptive pillboxes marks a significant advancement in medical technology. These pillboxes, aptly named "All Time Medicine" (ATM), function as indispensable machines ensuring the availability of essential drugs around the clock. Particularly crucial in emergency situations, they have the potential to save lives, especially in scenarios such as accidents on highways or in remote rural areas where access to medical facilities is limited. The ATM system proves invaluable by providing immediate access to basic medication, thereby potentially mitigating the severity of injuries and offering crucial aid until professional medical assistance can be reached. Its deployment promises to make first aid readily accessible, thereby enhancing emergency response capabilities and contributing significantly to public health and safety initiatives.

2

Portable ECG

-Divya Sri R, Bhavani R, Dhivya dharani V, Varsha S

BIOMEDICAL ENGINEERING

Project summary



This particular project endeavors to create a Portable Electrocardiogram (ECG) Monitoring System, engineered for the purpose of convenient and effective cardiac health monitoring. The apparatus integrates a small-scale and featherweight design, rendering it effortlessly transportable for individuals to tote and utilize while on the move. Its compactness facilitates seamless incorporation into daily routines without hindrance. Furthermore, the system's user-friendly interface ensures accessibility and ease of operation for individuals of varying technological proficiency levels. Additionally, the device's advanced technological features enable accurate and real-time monitoring of cardiac activity, providing invaluable insights into heart health. The emphasis on portability and efficiency underscores the project's commitment to enhancing accessibility to vital healthcare technologies for the broader populace.

3 AN ELECTRONIC EYE FOR TOPPLE DETECTION

Rengasri G, Tejaswini K S A, Vinusa S

BIOMEDICAL ENGINEERING



Project summary

Human falls, particularly among the elderly population, pose significant risks, potentially resulting in permanent disabilities or even fatalities. While preventing such falls is a societal priority, it remains a challenging endeavor. One promising approach involves the implementation of near real-time detection systems to promptly provide assistance and mitigate the severity of falls. This proposal advocates for the integration of IoT devices within homes specifically designed for fall detection purposes. The system comprises various components, including sensors, a buzzer, LCD display, and micro-controller, facilitating swift response mechanisms. Through IoT technology, data transmission occurs seamlessly to the guardian's of the individual's movements and immediate receipt of alerts in case of a fall event. Additionally, a web dashboard serves to update the user's status and promptly notifies caretakers in the event of a fall occurrence. The ultimate objective is to develop an intelligent, cost-effective, and user-friendly fall detection system that seamlessly integrates into daily life routines without causing disruptions.

4 AI-ENABLED REMOTE PATIENT MONITORING AND HOSPITAL RESOURCE ALLOCATION

Daniel Joseph S, Kishore R

BIOMEDICAL ENGINEERING

Project summary



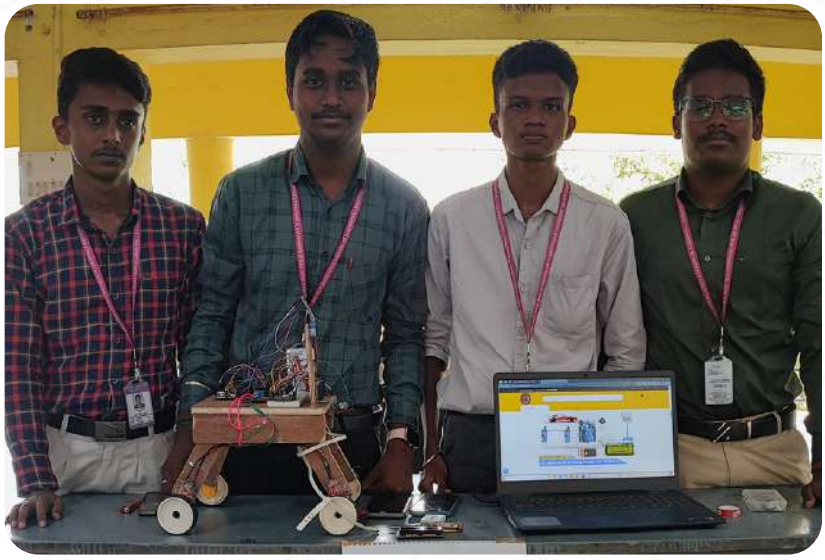
During the second wave of the COVID-19 pandemic in India, with hospitals overwhelmed and healthcare systems strained, patients in critical conditions were monitored remotely from their homes due to bed shortages and systemic collapse. Continuous monitoring by doctors was challenging. To address this, an Artificial Intelligence board is proposed to monitor vital signs like Spo2, HB, respiratory rate, and temperature, categorizing patients based on severity and hospital resources. It will recommend appropriate care like oxygen beds or ventilators. Additionally, it will track patient data and local hospital availability, sharing updates with family members via a Telegram Community channel for prompt inquiries. This channel aims to curb corruption by ensuring equitable access to medical resources and exposing malpractices like ambulance diversions for bribes, contributing to fairer healthcare distribution.

5

MINI ROVER

Rahul k, Boobesh T, Tarun Raj R J, Akash B S

ELECTRONICS AND COMMUNICATION ENGINEERING



Project summary

A state-of-the-art surveillance rover has been engineered, featuring a sophisticated integration of an ESP32-CAM module alongside an L298N motor driver. This rover epitomizes the fusion of cutting-edge technologies, poised to revolutionize remote monitoring and surveillance applications. At its core, the ESP32-CAM module serves as the nerve center, orchestrating seamless wireless connectivity and harnessing the power of camera functionality. With unparalleled efficiency, it captures and streams real-time video footage to a designated remote device for comprehensive monitoring. Complementing this, the L298N motor driver empowers precise maneuvering of the rover, ensuring fluid navigation across diverse terrains. Through the harmonious amalgamation of these integral components, the surveillance rover emerges as a formidable asset, adept at executing reconnaissance missions with unparalleled versatility. Its adaptability renders it proficient in navigating through a myriad of environments, thereby enhancing its efficacy in fulfilling an array of surveillance objectives.

6

DOOR SECURITY ALARM

Kavipriya S, Harini A , Srinath S V, Sanjay R

ELECTRONICS AND COMMUNICATION ENGINEERING

Project summary



The system comprises an IR sensor module placed strategically near the entrance door, which detects any movement within its field of view. Upon sensing motion, the sensor triggers an alarm mechanism, alerting occupants of potential intrusion.IR Sensor Detection: The system utilizes IR sensors to detect motion in the vicinity of the door, ensuring prompt response to unauthorized entry attempts.User-Friendly Interface: A simple and intuitive user interface allows for easy setup and configuration of the alarm system, catering to users with varying levels of technical expertise.Low Power Consumption: The system is designed to operate efficiently, minimizing power consumption to ensure prolonged battery life or continuous operation when connected to a power source.In conclusion, the implementation of a door security alarm system utilizing IR sensor technology presents a viable solution for bolstering residential security measures. Through its effective detection capabilities, user-friendly interface, and cost-effectiveness, the proposed system aims to provide peace of mind by safeguarding their property against unauthorized access and intrusion.

7

FACE RECOGNITION-BASED ATTENDANCE SYSTEM USING OPENCV

Harinath V, Thivakar V, Jayachandran S, Leo jerry S

ELECTRONICS AND COMMUNICATION ENGINEERING



Project summary

This paper presents the development of a face recognition-based attendance system leveraging the Open Source Computer Vision Library (OpenCV). By processing real-time video data for facial detection and feature extraction through advanced algorithms, the system matches individuals against a pre-registered database to automate attendance recording. Addressing challenges of accuracy and real-time processing, the system is optimized for diverse lighting conditions and facial expressions. This innovation not only streamlines attendance management but also enhances security measures in various institutional and corporate settings.

8

SOLAR POWERED HYBRID TRASH CLEANING VEHICLE

Jagankarthik T, Dinesh M, Bala yaswant B

ELECTRICAL AND ELECTRONIS ENGINEERING

Project summary



Water pollution poses a significant challenge in India, exacerbated by the burgeoning population and subsequent disposal of waste in lakes, rivers, and other water bodies. The resultant pollution renders the water unfit for daily consumption, thus squandering this invaluable resource. To combat this issue, innovative solutions like solar-powered trash cleaning vehicles have been introduced to collect floating debris from water sources. These vehicles harness solar energy through panels and store it in batteries, obviating the need for external power sources and enhancing project efficiency while reducing environmental impact. Furthermore, the emphasis on using non-toxic materials in constructing these machines underscores their commitment to environmental sustainability. Incorporating waste sorting mechanisms further augments their role in recycling endeavors, thereby promoting a circular economy approach and mitigating the adverse effects of water pollution on ecosystems and human health alike.

9

WIND ENERGY BASED AUTOMATIC WIRELESS CHARGING STATION FOR ELECTRIC VEHICLE

Badrinath rao V, Joshva P, Karthick S

ELECTRICAL AND ELECTRONIS ENGINEERING

Project summary



The concept of Wind-based Automatic Wireless Power Transfer holds tremendous potential in enhancing safety measures and mitigating hazardous incidents stemming from cable usage. The incorporation of MOSFET switches within the inverter architecture enables the generation of a high-frequency output, thereby optimizing the efficacy of power transmission across the coils. This heightened frequency output capability not only facilitates rapid but also efficient battery charging processes. Through a seamless integration with the windmill, the supply battery remains consistently charged, ensuring uninterrupted operation for users engaged in continuous driving endeavors. Such advancements in technology render the Wireless Power Transfer (WPT) system highly attractive for both stationary and on-the-go charging applications pertaining to electric vehicles. Consequently, this innovative solution not only fosters convenience and reliability but also underscores a significant stride towards sustainable and eco-friendly transportation initiatives.

10

A SECURE AND SCALABLE TECHNOLOGY TO PREDICT AND PREVENTON OF THEIFS IN JEWELLERY SHOP

Vignesh M, Naresh M, Aswin G S, Chandrasekar B

ELECTRICAL AND ELECTRONIS ENGINEERING

Project summary

This project proposes a secure and scalable solution for predicting and preventing theft in jewelry stores, utilizing advanced video analytics, ML algorithms, and secure communication protocols. By analyzing real-time video feeds, it detects suspicious activities and potential thefts, complemented by smart access control and alert systems. Its scalability ensures adaptability to various shop sizes, enhancing security effectively. Combining IoT-based security systems with sensors and cameras, the study explores comprehensive protection control, aiming for future automation structures. Automated security with IoT and alert texts monitors real-time video feeds, identifies suspicious activities, regulates entry, and triggers immediate responses for potential threats.



Mechabotics

1

SMART CITY

Vignesh S

MECHANICAL ENGINEERING



Project summary

The challenge at hand is to devise an automated system for real-time detection of street light faults, precise location tracking, and efficient maintenance in urban environments to bolster the reliability and sustainability of urban lighting infrastructure. By integrating advanced sensors and machine learning algorithms, the system aims to promptly identify and report faults, ensuring timely repairs. The inclusion of GPS and geospatial technologies facilitates accurate location tracking, creating a comprehensive database for effective urban management. Predictive maintenance algorithms and streamlined repair processes contribute to increased operational efficiency. This innovative solution not only enhances safety and security in urban areas but also aligns with broader smart city initiatives, fostering energy optimization, community engagement, and scalability for evolving urban landscapes.

2

RADIATION FREE HEAT THERAPY TOOL

Rajeev V, Muthukuruthi Raja T, Dhanush P, Elisa S

MECHANICAL ENGINEERING

Project summary

Now a days we know that heat therapy using radiation it is good but the causes of radiation in the human body for some times to solve this problem without any radiation and electromagnetic induction the radiation therapy has become using [rfhtt] radiation free heat therapy tool using peltior effect using p type and n type semiconductors linked with basic law of power electronics concept Heat therapy works by increasing the temperature of the targeted area, which in turn improves blood circulation, relaxes muscles, and reduces pain and stiffness. This increased blood flow delivers oxygen and nutrients to the tissues, promoting healing. Heat therapy can also help to decrease muscle spasms and enhance flexibility.



3 TOMATO STORAGE

Shrinath S, Vignesh S

MECHANICAL ENGINEERING



Project summary

The increasing waste of tomatoes due to overproduction and climatic factors significantly impacts tomato demand, subsequently affecting the tomato business and leading to soaring tomato sales costs that consumers find increasingly unaffordable. Consequently, the prices of tomato-dependent products also witness a surge. Addressing this issue, there arises a necessity to develop a storage system utilizing IoT, which can efficiently store tomatoes while monitoring their health in a cost-effective manner. Such a system not only contributes to the preservation of tomato freshness for an extended duration but also enhances overall tomato health compared to conventional preservation methods. To achieve this goal, we intend to implement leveraging technologies, creating a sustainable device that incorporates features such as a wireless monitoring system, temperature control, and moisture control. Key components of this system include Arduino Uno, ESP 8266, WiFi module, temperature sensor, and moisture sensor, all of which play crucial roles in ensuring the efficacy and reliability of the storage solution.

4 AUTONOMOUS DRONE

Akilan M, Shruthi G L, Deenathayalan R, Sheik Shabir Basha S M

MECHANICAL ENGINEERING

Project summary

Autonomous drones hold promise for revolutionizing medical services by providing swift and efficient delivery of critical supplies, such as medications, vaccines, and blood samples, to remote or inaccessible regions. Leveraging advanced technology, these drones can navigate challenging terrain, bypassing traditional transportation constraints. Their autonomous capabilities enable seamless operation, reducing reliance on human intervention and minimizing delivery times. Additionally, drones offer cost-effective solutions for emergency medical response, disaster relief efforts, and healthcare accessibility, thereby improving patient outcomes and saving lives. This abstract highlights the transformative potential of autonomous drones in enhancing medical services worldwide.



5

ENHANCED NANO GENERATOR USING PIEZOELECTRIC METHOD IN ENERGY APPLICATIONS

Dravid N, Shukeash M R, Mohammed mubeen N

MECHANICAL ENGINEERING

Project summary



The significant purpose of Nano Generator was used for conversion of Mechanical energy to Electrical energy from the effective utilization of Piezoelectric Material and Dynamo. These Materials generate voltage when subjected to Mechanical stress. The simple integration of necessary components into a small device, there evolves the possibility of harvesting energy from vibrations, movements, rotations and other Mechanical forces at the Nano scale level. The Generated electrical energy can be stored or used to power small electronic devices. The primary purpose was to use rack and pinion for the transfer of rotary energy to linear motion. The piezoelectric effect was produced by the tapping of the piezoelectric material. Dynamo would be utilized as the supporting factor for the improved power output. This work will give the necessary insights in designing high-performance nano generator which acts as the energy harvester and accelerate the development of power-generating technologies in real time applications.

6

FRESNEL LENS CONCENTRATOR BASED ON HYBRID SOLAR PHOTO VOLTAIC CELL

Prakash E, Jeevadharshan M S, Saranraj G, Yuvaraja S

MECHANICAL ENGINEERING

Project summary

Solar energy, abundant during daytime, is a sustainable, renewable, and green energy source. This project aims at fully utilizing solar irradiation efficiently, combining a semi-transparent solar panel with a large Fresnel lens for concentrating light onto a solar thermal absorber unit. A prototype integrates conventional solar cells and thermoelectric generators. Tools like Fresnel lenses and solar trackers boost intensity and efficiency. Solar trackers adjust the panel's orientation based on sunlight direction. Experimental results show a 119.2% increase in power with Fresnel lens optimization, reaching a peak output of 29.7 watts. Arduino simulation tracker tests demonstrate voltage improvements of 6.1% on the first day, 3.8% on the second, and 6.1% on the third.



KETBOT

7

Deenathayalan R, Shruthi G L,

MECHANICAL ENGINEERING



Project summary

This abstract introduces Ketbot, a groundbreaking blend of an electric kettle and a water bottle, revolutionizing hot drink preparation. Ketbot cleverly combines the functionality of a kettle with the portability of a water bottle, reshaping on-the-go hydration. At its core, Ketbot features a water bottle with a small heating element for rapid, energy-efficient heating and precise temperature control. With Ketbot, the need for a separate kettle becomes obsolete, streamlining practices. This fusion optimizes energy usage and enhances portability, ideal for modern lifestyles. Ketbot embodies sustainability and user-friendliness, catering to convenience and environmental responsibility. For hot beverage lovers, Ketbot promises a seamless, eco-conscious experience, transforming on-the-go hydration.

8

REVAMPING OF SADDLE

Gautham N, Arun Kumar S

MECHANICAL ENGINEERING

Project summary

This study introduces a groundbreaking four-layered saddle design, enhancing rider comfort and addressing heat absorption issues. The innovative material composition prioritizes environmental sustainability without compromising comfort. By utilizing eco-friendly materials, the saddle reduces its ecological footprint, promoting environmental consciousness within the equestrian industry. Despite its advanced features, the saddle remains affordable due to strategic material selection and manufacturing techniques. This affordability ensures accessibility to a wider audience, fostering broad adoption among riders. By emphasizing rider comfort, environmental responsibility, and economic viability, this research marks a significant advancement in saddle technology. The four-layered saddle serves as an accessible and eco-conscious alternative to traditional designs, representing a notable improvement in equestrian gear.



9

TWO BOLT ASSEMBLY ADJUSTABLE TROLLEY

Yuva sarojini S, Surya kumar G, Mohan kumar C

MECHANICAL ENGINEERING

Project summary



The urgent demand for improved security inspections and effective material handling is addressed by the Adjustable Trolley. Its remarkable 150 kg weight carrying capacity outperforms that of traditional trolleys and provides versatility in a range of applications. Its 360-degree spinning wheels are its most notable feature, as they provide smooth mobility and make it an essential tool for security officers. It serves a crucial role in security checks under vehicles, particularly for bomb detection, in addition to regular material handling. Due to its dual use in cargo transportation and security, the Adjustable Trolley is an essential tool for law enforcement, warehousing and logistics. The project represents a significant advancement in material handling technology with its innovative design, which is characterized by its significant load capacity, adaptability, and diverse features. This development confirms the Adjustable Trolley's crucial role in influencing the development of contemporary material handling and security protocols and offers hope for a more efficient and safe future in a variety of industries.

10

EFFECTIVE METHODOLOGY FOR HUMAN FOLLOWING AND AUTOMATIC BILLING TROLLEY

Ranjani R, Aariya Rajkumar R, Ashwini H, Harini G

ELECTRONICS AND COMMUNICATION ENGINEERING

Project summary

This project shows a novel framework with state-machine control in which the smart trolley tracks the target person in occlusion and illumination changes, as well as navigates with obstacle avoidance while following the target to the destination. People are detected and tracked using a deep learning algorithm. The smart trolley follows the target safely to the destination using a simultaneous localization and mapping algorithm with the LIDAR sensor for obstacle avoidance. We performed intensive experiments on our human following approach in an indoor environment with multiple people and moderate illumination changes. Experimental results indicated that the smart trolley followed the target well to the destination, showing the effectiveness and practicability of our proposed system in the given environment.





Event Captures


















VISION
MISSION















TECHYUGAM'24

PRIZE WINNERS

TECHNOSPHERE

1st Place

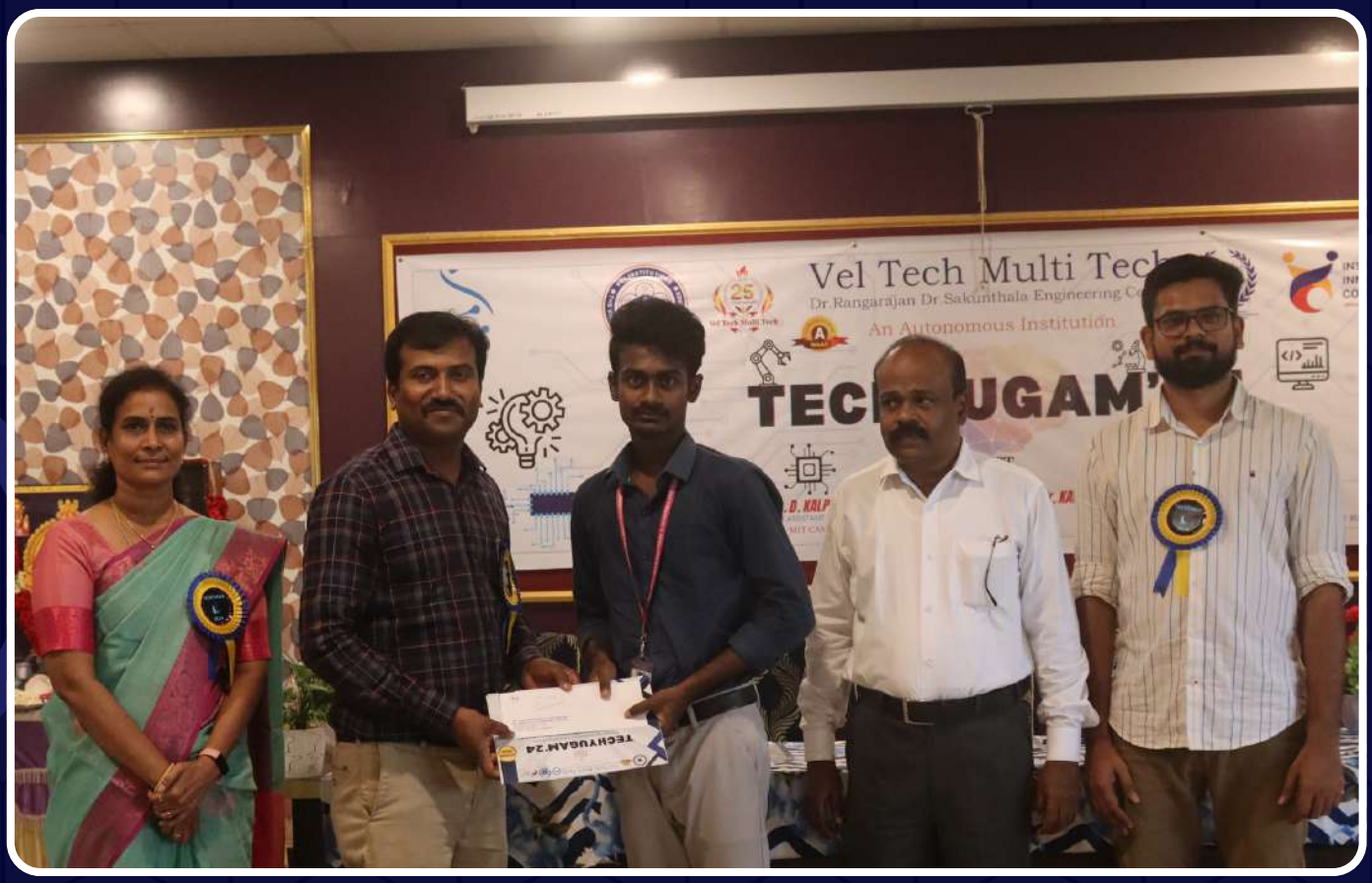


SMART BRIDGE

The department of Information Technology celebrates Akhil Adithyan S, Kabilan S, Jaishath R, Nelwin J.L for securing 1st place in the techyugam project expo. their exemplary efforts and innovation projects underscore their dedication to excellence. congratulations on this well deserved achievement, showing the department's commitment to pushing boundaries in IT

TECHNOSPHERE

2nd Place



WIRELESS ELECTRIC VEHICLE CHARGING SYSTEM

Akeesh S, Sugan Selva S, Rakesh B, and Rahul Abraham R from the Department of Artificial Intelligence and Data Science clinched 2nd place in the Technosphere Project Expo. Their project exemplifies innovation and dedication, reflecting the department's commitment to excellence. Congratulations to the team for their outstanding achievement, marking a significant milestone in the department's journey of technological advancement.

TECHNOSPHERE

3rd Place



LUNA : Lunar Navigation and Autonomy, Using Super-Resolution Techniques for DEM's

Rohit Kumar V, Sabarish K, KalyanaKumar S, and Sriram K from the Department of Information Technology have clinched 3rd place in the Technosphere Project Expo. Their commendable efforts in presenting their project deserve recognition. Congratulations to the team for their remarkable achievement!

Electromed

1st Place



AN ELECTRONIC EYE FOR TOPPLE DETECTION

The department of Biomedical Engineering celebrates Rengasri G, Tejaswini K S A, Vinusa S for securing 1st place in the techyugam project expo. their exemplary efforts and innovation projects underscore their dedication to excellence. congratulations on this well deserved achievement, showing the department's commitment to pushing boundaries in BME.

Electromed

2nd Place



MINI ROVER

Rahul k, Boobesh T, Tarun Raj R J and Akash B S from the Department of Electronics and Communication Engineering clinched 2nd place in the Electromed Project Expo. Their project exemplifies innovation and dedication, reflecting the department's commitment to excellence. Congratulations to the team for their outstanding achievement, marking a significant milestone in the department's journey of technological advancement.

Electromed

3rd Place



PORTABLE ECG

Divya Sri R, Bhavani R, Dhivya dharani V and Varsha S from the Department of Biomedical Engineering have clinched 3rd place in the Electromed Project Expo. Their commendable efforts in presenting their project deserve recognition. Congratulations to the team for their remarkable achievement!

Mechabotics

1st Place



AUTONOMOUS DRONE

The department of Mechanical Engineering celebrates Akilan M, Shruthi G L, Deenathayalan R, Sheik Shabir Basha S M for securing 1st place in the techyugam project expo. their exemplary efforts and innovation projects underscore their dedication to excellence. congratulations on this well deserved achievement, showing the department's commitment to pushing boundaries in MECH

Mechabotics

2nd Place



SMART CITY

Vignesh S from the Department of Mechanical Engineering clinched 2nd place in the Mechabotics Project Expo. Their project exemplifies innovation and dedication, reflecting the department's commitment to excellence. Congratulations to the team for their outstanding achievement, marking a significant milestone in the department's journey of technological advancement.

Mechabotics

3rd Place



TWO BOLT ASSEMBLY ADJUSTABLE TROLLEY

Yuva sarojini S, Surya kumar G and Mohan kumar C from the Department of Mechanical Engineering have clinched 3rd place in the Mechabotics Project Expo. Their commendable efforts in presenting their project deserve recognition. Congratulations to the team for their remarkable achievement!

Guest's Testimony



"I have called for a project evaluator for the techyugam 2024 event. The student are open to take suggestion and incorporate the change immediately, which show their caliper. The faculty member and the institute provide the great learning opportunity for their students. I wish the institute to continuous the events forever"

- R. [illegible]



"The Techyugam 2024 is well organized by involving all the students form all branches. The technical level of first year students involvement for implementing their ideas is well appreciated. I thank the organizers and management for encouraging the student by conducting the technical events. Best wishes for all"

- Kalpana



"Techyugam 2024 had innovative student projects, open to feedback. The institute offers great learning, and I hope Techyugam persists. Kudos to all involved, especially first-year students, organizers, and management for their support. Best wishes to everyone involved!"

- N. Kartikayan

Student's Testimony



A SECURE AND SCALABLE TECHNOLOGY TO PREDICT AND PREVENTON OF THEIFS IN JEWELLERY SHOP

Working on this project helps us learn new things, making us better. It improves our confidence and communication skills. When we work on it, we become better versions of ourselves. This project teaches us and helps us grow.

PREDICTION OF BLOOD GLUCOSE USING FCNN WITH NEURAOPTINET TECHNIQUE

The event was very informative, and I learned about how to choose datasets for ML (Machine Learning) and DL (Deep Learning) projects, as well as how to align our problem solutions with real-time environments. Overall, the event was interesting.





SMART CITY

We received some good ideas for the development of our project and gained valuable experience. Additionally, we had the opportunity to learn about other projects in our vicinity, which broadened our perspective. This exchange of ideas and experiences has enriched our understanding and will positively impact our project's progress.

Student's Testimony



RADIATION FREE HEAT THERAPY TOOL

This has become a very helpful project expo. This type of project exhibition can be conducted more frequently in the future by Vel Tech Multi Tech. It has been a wonderful experience to improve our knowledge.

LUNA : Lunar Navigation and Autonomy, Using Super-Resolution Techniques for DEM's

The event organized was neat, thanks to the volunteer, Mr. R. Praveen (Sir), who shared lots of knowledge and insights from our project. He gathered many ideas and approaches and learned some new model training techniques.





AN ELECTRONIC EYE FOR TOPPLE DETECTION

We have received a lot of valuable feedback and suggestions for this project through Techyugam. This feedback is greatly appreciated and will be instrumental in improving our project. We are grateful for the support and input we have received.

Student's Testimony



TinyML predictive model for Monitoring and Safeguarding NLC Workers

The event was very interesting and it shows our level of thinking. It also provided more knowledge about machine learning and dataset collection. Mr. R. Paveen (sir) shared his experience and taught many things.

PORTABLE ECG

We learn by attempting innovative projects, which assist us in enhancing our skills and receiving feedback from evaluators. This process aids in our skill development and provides us with valuable suggestions for improvement. By engaging in such endeavors, we continually evolve and refine our abilities.





Face Recognition-Based Attendance System Using OpenCV

We learned many things that are very useful for our future development. The knowledge we gained will greatly benefit us in the long run. It's invaluable for our growth.

Student's Testimony



SMART BRIDGE

The guest was very accurate in finding our flaws and gave us new ideas for solving our problems. We feel good about enriching our knowledge through this experience.

MINI ROVER

I learned how to effectively present and explain the project, enhancing communication. As a result, the evaluator provided valuable ideas to improve the project's efficiency. This collaborative process facilitated a more productive and insightful project development.





DOOR SECURITY ALARM

We learned many things about innovation. We believe it's highly beneficial for us, as it has the potential to enhance our skills and expand our knowledge. This newfound understanding may lead to significant personal and professional growth.

Student's Testimony



WIND ENERGY BASED AUTOMATIC WIRELESS CHARGING STATION FOR ELECTRIC VEHICLE

We learned many useful things for our future development. The knowledge we gained will greatly benefit us in the long run. It's invaluable for our growth. The guest accurately found our flaws and gave us new ideas to solve our problems. We feel good about enriching our knowledge through this experience.

SMART DRUGS BY ADAPTIVE PILLBOX

We have gained further insights into the issues related to our project, and as a result, we have developed some ideas for implementing it during this event. With the new knowledge we've acquired, we are better equipped to execute our project effectively through this event.





WIRELESS ELECTRIC VEHICLE CHARGING SYSTEM

It is a trial run for our future project. With the help of this event, we aim to enhance our presentation and communication skills for our upcoming project. We have gathered a lot of experience at Techyugam.