MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

Autonomous Institution – UGC, Govt. of India

Accredited by NBA & NAAC with 'A' Grade

NIRF Indian Ranking, Accepted by MHRD, Govt. of India | Band – Excellent, National Ranking by ARIIA

Maisammaguda, Dhulapally, Secunderabad – 500 010, Telangana

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Under
Student Chapter IEEE, IETE & Technical Association Electro Spikes

TECHNITRONIX

HALF-YEARLY TECHNICAL MAGAZINE

DEPARTMENT OF
ELECTRONICS AND COMMUNICATION ENGINEERING

E C E

Editorial Board members

- ❖ Dr. Y. Madhavee Latha, Principal,Chairperson
- ❖ Dr. Sudhakar K, HOD
- ❖ Dr. N.L.Aravinda , Assoc.Professor
- ❖ Mr.S.Srikanth , Assistant Professor

DEPARTMENT VISION

- Our vision is to develop the department in to a full fledged Centre of learning in various fields of Electronics and Communication Engineering keeping in view the latest developments and to invoke enthusiasm among the Students to continually renew their education in rapidly developing technological scenario.

Vision

DEPARTMENT MISION

- Our mission is to inculcate a spirit of scientific temper and analytical thinking & train the students in contemporary technological trends in electronics and communication to meet the challenging needs of the industry by providing versatile sound knowledge in the field of engineering and technology

Mission

ABOUT THE DEPARTMENT

The Department of Electronics and Communication Engineering is accredited by NBA, with an intake of 240 in B.Tech Programme and also offers M.Tech Programme in Embedded Systems. The department has state of the art laboratories with latest softwares like MENTOR GRAPHICS, CADENCE, MATLAB, XILINX, CCSTUDIO, KEIL, RTOS, RT Linux, OSCAD, PSPICE and MULTISIM. The department consists of well equipped Robotics- Centre of Excellence to train the students in specific modules to design and develop innovative projects that extend the state of the art in Robotics. It has well qualified and experienced faculty members. The highly competent and professional faculties, many of them drawn from premise institutions and industry have extensive experience and contribute to the holistic development of academics, research and career building of students. 32faculty members attained patent rights. The department faculty published 82 papers in SCI/Scopus indexed journals, 156 papers in UGC indexed/International journals and presented 226 papers in various national & international conferences and published 28 textbooks with ISBN. The department established IEEE, IETE & ISTE student chapters under which it organizes Technical Symposiums and various co-curricular activities every Academic Year. The department organized National Conference on Signal Processing Communications and System Design (SPCOMSD) in 2014and is organizingInternational Conference on Signal Processing Communications and System Design (ICSPCOMSD) every year, from past 7 years. The department also organized Faculty Development Programmes on Analog & Digital Design using CADENCE Tools, Embedded System using 32 bit processor, Programmable System on Chip Mixed Signal Microcontroller, Refresher Courses on Analog and Digital Communications, Digital Signal Processing, VLSI Design using CADENCE Tools and One Week Refresher Course on "VLSI & Embedded Systems". The department organized AICTE Sponsored Two Week Faculty Development Programme on "Speech, Image & Video Processing Techniques, Analysis & Applications", AICTE Sponsored One Week Short Term Training Programme on "Optimization Techniques through Machine Learning for Wireless and IOT", AICTE Sponsored One Week Short Term Training Programme on "Emerging Trends in Wireless Sensor Networks and Applications", AICTE Sponsored One Week Short Term Training Programme on "Deep Learning Techniques for Electronic Health Record Analysis", AICTE Sponsored One Week Short Term Training Programme on "Emerging Trends in Advanced Signal & Image Processing", AICTE Sponsored One Week Short Term Training Programme on "Emerging Trends in VLSI Technology" and the department also received AICTE sanctioned MODROB's on "Advanced VLSI Lab" and Advanced Microwave Engineering Lab". The department also publishes the Registered Journal "International Journal of Research in Signal Processing, Computing and Communication-System Design (IJRSCSD)" with an ISSN: 2395-3187.

PO'S

PO1	Engineering knowledge	An ability to apply knowledge of mathematics (including probability, statistics and discrete mathematics), science, and engineering for solving Engineering problems and modeling
PO2	Problem analysis	An ability to design, simulate and conduct experiments, as well as to analyze and interpret data including hardware and software components
PO3	Design / development of solutions	An ability to design a complex electronic system or process to meet desired specifications and needs
PO4	Conduct investigations of complex problems	An ability to identify, formulate, comprehend, analyze, design synthesis of the information to solve complex engineering problems and provide valid conclusions.
PO5	Modern tool usage	An ability to use the techniques, skills and modern engineering tools necessary for engineering practice
PO6	The engineer and society	An understanding of professional, health, safety, legal, cultural and social responsibilities
PO7	Environment and sustainability	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and demonstrate the knowledge need for sustainable development.
PO8	Ethics	Apply ethical principles, responsibility and norms of the engineering practice
PO9	Individual and team work	An ability to function on multi-disciplinary teams.
PO10	Communication	An ability to communicate and present effectively
PO11	Project management and finance	An ability to use the modern engineering tools, techniques, skills and management principles to do work as a member and leader in a team, to manage projects in multi-disciplinary environments
PO12	Life-long learning	A recognition of the need for, and an ability to engage in, to resolve contemporary issues and acquire lifelong learning

PSO'S

The graduates of the department will attain:

PSO1: The ability to analyze, design and implement application specific electronic system for complex engineering problems for analog, digital domain, communications and signal processing applications by applying the knowledge of basic sciences, engineering mathematics and engineering fundamentals.

PSO2: The ability to adapt for rapid changes in tools and technology with an understanding of societal and ecological issues relevant to professional engineering practice through life-long learning

PSO3: Excellent adaptability to function in multi-disciplinary work environment, good interpersonal skills as a leader in a team in appreciation of professional ethics and societal responsibilities.

PEO'S

PEO1-PROFESSIONAL DEVELOPMENT

To develop in the students the ability to acquire knowledge of Mathematics, Science & Engineering and apply it professionally within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability with due ethical responsibility.

PEO2-CORE PROFICIENCY

To provide ability to identify, formulate and solve engineering problems with hands on experience in various technologies using modern tools necessary for engineering practice to satisfy the needs of society and the industry.

PEO3- TECHNICAL ACCOMPLISHMENTS

To equip the students with the ability to design, experiment, analyze and interpret in their core applications through multi disciplinary concepts and contemporary learning to build them into industry ready graduates.

PEO4- PROFESSIONALISM

To provide training, exposure and awareness on importance of soft skills for better career and holistic personality development as well as professional attitude towards ethical issues, team work, multidisciplinary approach and capability to relate engineering issues to broader social context.

PEO5- LEARNING ENVIRONMENT

To provide students with an academic environment and make them aware of excellence, leadership, written ethical codes and guidelines and the life-long learning to become a successful professional in Electronics and Communication Engineering

MESSAGES

Founder Chairman's Message

MRECW has made tremendous progress in all areas and now crossing several milestones within a very short span of time and now I feel very happy to know that the students and faculty of the ECE department of MRECW are bringing out the volume-2 of the Technical magazine Technitronix in A.Y 2022-23. As I understand this magazine is intended to bring out the inherent literary talents in the students and the teachers and also to inculcate leadership skills among them. I am confident that this issue will send a positive signal to the staff, students and the persons who are interested in the educational and literary activities

Ch. Malla Reddy
Founder Chairman, MRGI
Hon'ble Minister, Govt. of Telangana State

Principal's Message

I congratulate the department of ECE, MRECW for bringing out the issue of the prestigious Half-yearly department technical Magazine Technitronix under A.Y: 2022-23, I am sure that the magazine will provide a platform to the students and faculty members to expand their technical knowledge and sharpen their hidden literary talent and will also strengthen the all round development of the students. I am hopeful that this small piece of literary work shall not only develop the taste for reading among students but also develop a sense of belonging to the institution as well. My congratulations to the editorial board who took the responsibility for the arduous task most effectively. I extend best wishes for the success of this endeavor.

Dr. Y. Madhavee Latha
Principal

Head of the Department's Message

It is an occasion of great pride and satisfaction for the department of ECE, MRECW to bring out the issue of the Half-yearly of the Technical magazine Technitronix under A.Y:2022-23, it gives me immense pleasure to note that the response to the magazine has been over whelming. The wide spectrum of articles gives us a sense of pride that our students and faculties possess creative potential and original thinking in ample measures. Each article is entertaining interesting and absorbing. I applaud the contributors for their stimulated thoughts and varied hues in articles contributed by them

Dr . K. Sudhakar
HOD

SCIENTIST OF THE HALF YEAR
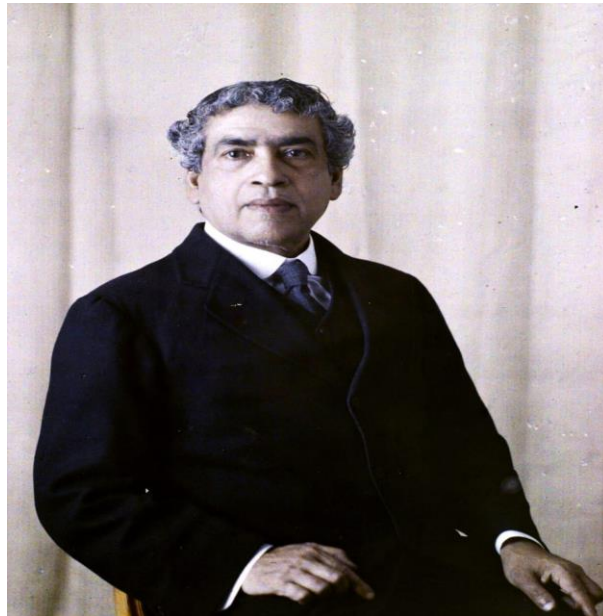
JAGDISH CHANDRA BOSE

Jagdish Chandra Bose: Often referred to as the "Father of Radio Science," Bose conducted pioneering research on electromagnetic waves in the late 19th and early 20th centuries. His work laid the foundation for modern radio technology.

Jagdish Chandra Bose (1858–1937) was an influential Indian physicist, biologist, and inventor known for his pioneering work in plant physiology and radio technology. He is often regarded as one of the founding figures of modern science in India. Bose was educated at the University of Calcutta and later studied at Cambridge University, where he conducted significant research in the field of physics.

One of Bose's notable contributions was in the study of plant responses to stimuli. He invented an early form of the crescograph, which allowed him to measure plant growth and responses to external factors, demonstrating that plants could exhibit sensitivity akin to animal responses. His groundbreaking experiments revealed that plants could react to environmental changes and communicate through electrical signals.

In addition to his work in botany, Bose made significant advances in the field of radio science. He was among the first to explore wireless communication and developed devices that could detect electromagnetic waves. His contributions laid the groundwork for future developments in radio technology. Bose's interdisciplinary approach and innovative spirit have left a lasting legacy, inspiring generations of scientists and researchers in India and beyond.

FACULTY ARTICLES

SILICON PHOTONICS

Silicon photonics is an innovative technology that combines silicon-based electronic circuits with photonic devices to enable high-speed data transmission using light. By leveraging the optical properties of silicon, this technology allows for the creation of waveguides, modulators, and detectors on a single chip. These components facilitate the manipulation and transmission of light, making it possible to send data at much higher rates and over longer distances compared to traditional electrical signals. This integration is crucial for meeting the growing demand for bandwidth in data centers, telecommunications, and computing applications . The key advantages of silicon photonics include its compatibility with existing silicon fabrication techniques, which allows for cost-effective mass production. Additionally, silicon photonic devices can achieve low power consumption, making them ideal for energy-efficient data transmission. The ability to integrate multiple functions—such as data processing and transmission—on a single chip reduces the size and complexity of systems, paving the way for smaller, faster, and more efficient communication devices. This is particularly important in applications requiring high-speed data processing, such as cloud computing and artificial intelligence . Moreover, silicon photonics is driving advancements in various fields beyond telecommunications. Its applications extend to sensors, imaging systems, and biomedical devices, where optical methods can enhance detection and analysis capabilities. For instance, lab-on-a-chip technologies utilize silicon photonics to conduct rapid and sensitive biochemical assays, improving diagnostics in healthcare. As research and development in silicon photonics continue, the potential for new applications and improvements in existing technologies promises to revolutionize how data is transmitted and processed across multiple industries.

MS.H.BHAGYA LAXMI
Department of ECE

BIOMEDICAL ELECTRONICS

Biomedical electronics is a multidisciplinary field that focuses on the design and application of electronic devices for medical purposes. These devices play a crucial role in monitoring, diagnosing, and treating various health conditions. Examples include wearable health monitors that track vital signs, implantable devices such as pacemakers that regulate heart rhythms, and diagnostic equipment like electrocardiograms (ECGs) and imaging systems. By integrating advanced electronic technologies with biological systems, biomedical electronics enhances patient care and medical outcomes . Recent advancements in biomedical electronics have led to the development of smart devices capable of real-time health monitoring and data transmission. Wearable technology, for instance, utilizes sensors to continuously collect health data, which can be analyzed and shared with healthcare providers. This capability facilitates remote monitoring and telemedicine, allowing for timely interventions and personalized healthcare management. Additionally, the integration of artificial intelligence and machine learning algorithms with these devices enhances diagnostic accuracy and predictive analytics, improving patient outcomes . The future of biomedical electronics is promising, with ongoing research aimed at miniaturizing devices, improving biocompatibility, and enhancing functionality. Innovations such as flexible electronics and microfabricated sensors are paving the way for more comfortable and efficient monitoring solutions. Moreover, the convergence of biomedical electronics with other fields, such as silicon photonics, is expected to lead to breakthroughs in diagnostics and treatment. As technology continues to evolve, biomedical electronics will play an increasingly vital role in shaping the future of healthcare, making it more accessible, effective, and patient-centered.

Mr.K.NAGA DASHARATH
Department of ECE

EDGE COMPUTING

Edge computing is a distributed computing paradigm that brings computation and data storage closer to the location where it is needed, rather than relying solely on centralized cloud servers. This approach reduces latency, minimizes bandwidth usage, and improves the performance of applications by processing data near the source of generation. By leveraging edge devices— such as IoT sensors, gateways, and local servers—edge computing enables real-time data analysis and decision-making, which is critical for applications like autonomous vehicles, smart cities, and industrial automation One of the primary advantages of edge computing is its ability to handle large volumes of data generated by connected devices without overwhelming the network. By filtering and processing data locally, only the most relevant information is sent to the cloud for further analysis or storage. This not only reduces the amount of data transmitted but also enhances security and privacy, as sensitive information can be processed on-site rather than being sent to centralized servers. Additionally, edge computing can operate effectively in environments with limited or unreliable internet connectivity, ensuring continuity of service . As the demand for real-time processing and the number of connected devices continue to grow, edge computing is becoming increasingly important across various industries. Sectors such as healthcare, manufacturing, and telecommunications are adopting edge solutions to improve efficiency, reduce costs, and enable new applications. For instance, in healthcare, edge computing can facilitate remote patient monitoring by processing health data in real-time, while in manufacturing, it can enhance predictive maintenance by analyzing equipment data on-site. As technology advances, edge computing is poised to play a crucial role in shaping the future of digital infrastructure and smart applications..

MR.V.NAGA MAHESH
Department of ECE

AUTONOMOUS ROBOTS
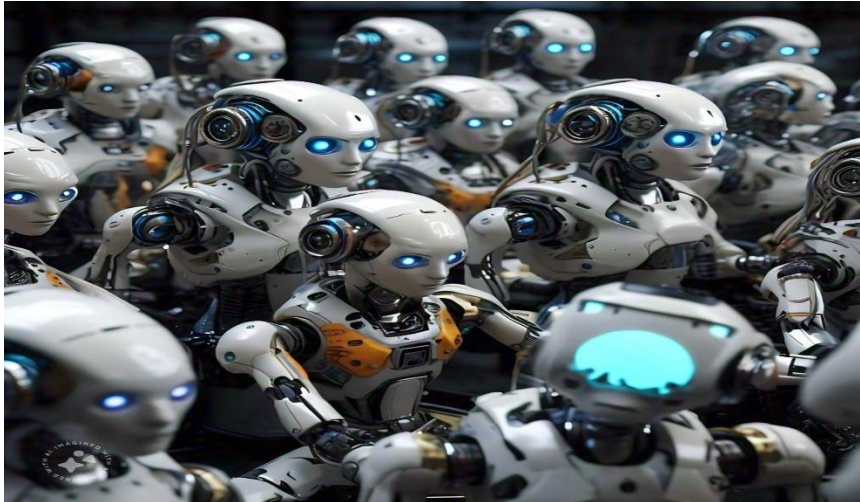
Autonomous robots are machines capable of performing tasks without direct human intervention, leveraging advanced technologies such as artificial intelligence (AI), machine learning, and sensor systems. These robots can perceive their environment, make decisions based on real-time data, and adapt to changing conditions. Applications range from industrial automation, where robots perform repetitive tasks on assembly lines, to service robots in healthcare, agriculture, and logistics, where they can assist with everything from delivery to patient care . One of the key features of autonomous robots is their ability to navigate and operate in complex environments. This is achieved through the integration of various sensors, including cameras, LiDAR, and ultrasonic sensors, which allow robots to build maps of their surroundings and detect obstacles. Advanced algorithms enable these robots to process this sensory information to make informed decisions, such as path planning and obstacle avoidance. As a result, they can function effectively in dynamic settings, adapting their behavior as needed to accomplish their goals The development of autonomous robots is driving innovation across multiple industries, with significant implications for efficiency, safety, and productivity. In agriculture, for example, autonomous drones can monitor crop health and optimize resource usage, while self-driving vehicles are transforming transportation and logistics. As the technology matures, challenges such as regulatory issues, safety concerns, and ethical considerations regarding human-robot interaction will need to be addressed. Nevertheless, the potential for autonomous robots to revolutionize work processes and enhance capabilities continues to grow, making them an integral part of the future landscape.

MS.G.ANUSHA
Department of ECE

STUDENT ARTICLES

GESTURE CONTROL WHEEL CHAIR

Persons with disabilities continue to face barriers that prevent them from enjoying their full civil, political, economic, social, cultural and developmental rights . Mainstreaming and universal access for persons with disabilities are the ultimate goals of the disability movement. The solution is the removal of all cultural, physical, social and other barriers that prevent persons with disabilities from equally accessing opportunities and participating fully in all aspects of life. Impact of disability is deleterious, affecting an individual's every aspect. Majority of disabled reside in rural areas of developing countries. Moreover, different types of disability add to its wide spectrum. All these make it a major health issue. Considering the lack of universal accessibility, alternative solution is to provide indirect access by having the entity support to use of a person's assistive device technology to achieve access.

S.VARSHITHA REDDY
20RH1A04L9
III ECE -D

REGENERATIVE ENGRGY FOR ELECTRIC BIKES

Nowadays in some places we are using electric bikes. These electric bikes run using the batteries. But these batteries must be charged time to time which is not possible for long distance travelling. So here we came up with an idea where we can generate the electricity while running the bike. We generally know that any moving object produces the mechanical energy and we even know that it can be converted into electrical energy. So while we are running the electric bike the mechanical energy is converted into the electrical energy and this energy can be used to recharge the batteries. This product can be used in any mechanical energy producing machines so that the energy will not be wasted and can be used for other purposes by converting. Now to save the fuel and decrease the pollution world is using the electric bikes, so to save the electricity we can use this product. Proper utilization of waste energy can mitigate energy crisis and keep cost under control. This project aimed to regenerate the energy from braking load in the vehicle. In this study, a prototype electric regenerative system was designed and tested experimentally to predict its performance. It was observed that the amount of energy stored in battery was increased with the increasing braking load. This energy can be used for operating auxiliary components In a nutshell, this project has brought the totally unused energy during braking in the lime light and paved the way to utilize this energy in a fruitful manner.

B. Devi Sree
20RH1A0428
III ECE A

SAILENT SOUND TECHNOLOGY

In recent years, the utilization IOT devices in ever where like, Health, Military, Industry, Agriculture, Feet Management etc., whenever there is need for automization, reduce power consumption and minimize human resources with effective utilization, the IOT modules are best solution. In this paper, implement smart electronic notice board scrolling display board is common site today. Advertisement is going digital the use of led scrolling display board at big shops, shopping centers, railway stations, bus stand and educational institutes is becoming an effective mode of communication in providing information to the people.

A.ASHWINI
20RH1A0407
III ECE A

FLOOD DETECTION AND ALERTING SYSTEM

The main challenge being faced in flood forecasting is to accurately forecast the impending flood sufficiently in advance with high level of accuracy. Flood have a great impact on the region in which it occurs. Flood creates many problems. Trees are uprooted; buildings are destroyed. In other words, whole city will be under water. Rescue team finds difficulty in removing the flooded water. They find difficulty in rescuing the people of that flooded area.

The only solution to this problem is to detect the occurrence of flood before it hits an area. By using sensors, we can predict the flood in prior. We used water level indicator sensor to measure the water level. A pressure sensor is used to measure the intensity of the flood by calculating its force. The input is given to Arduino UNO which turns on the alarm and led to alert locals and sends command to GSM MODEM to send messages to rescue teams. We can further implement this to detect drainage overflow which is also a greater issue now a days.
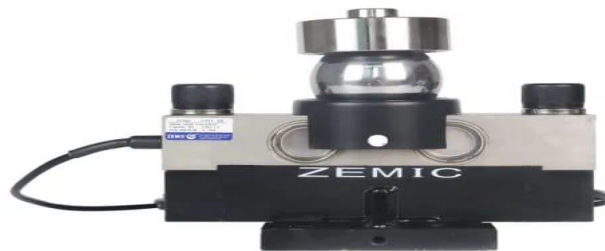
CH. SRINIDHI
20RH1A0446
III ECE A

VEHICLE WEIGHT DECTECTOR MACHINE

Now a days we might hear the many cases of vehicles overloading. Due to the over weight of load in the vehicle, the vehicle might lose its control while driving. Due to these many accidents had been occurred on road way transportation. We might see many of lorries, load carrying Dumpers carries a large load while transporting the load from one place to another. Due to that many problems will occur. Few of them are :-

• Due to the heavy load the road gets damaged.

• If the vehicle loose its control, the load might fall down and causes harms to some other who is travelling on the same road.

To overcome this we have came up with a new idea called Vehicle Weight Dectector Machine

A.SHRAVIKA
20RH1A0414
III ECE -A

SMART GARBAGE SYSTEM

Proper management of waste is getting tougher because of increasing population, urbanization, and industrialization. we need to apply technology-based solutions to handle large amounts of waste for overpopulated urban area. we have presented a smart IoT based integrated system. Arduino Uno is used as a microcontroller to synchronize all of the four systems. Sensors are used for identification and measuring the garbage level. The communication system uses a global system for mobile communications (GSM) module that will inform the corresponding authority to collect the waste when the garbage bin is filled up. gas sensor to detect the bad and toxic gas in the bin and inform to the concern authorities. sound sensor to detect the baby sound when someone thrown the infant in the bin also it can detect the animals sound like cats, dogs so that they can save a life. Humidity sensor to detect the wetness in the bin if the wetness is detected the lid of the bin gets open and make the garbage dry . To improving the waste segregation process we are dividing the waste into dry and waste. By soil moisture sensor and IR sensor we can balance both the dry and waste inside the bin. To improvising the process of sanitization we are using a water pump outside the bin to connect the bin with sanitizer inside and outside. The proposed waste management system is much efficient than any other conventional waste management system and most importantly it is a completely automated system.

C.NIHARIKA
20RH1A0452
III ECE A

AUTOMATIC ENGINE LOCKING SYSTEM THROUGH ALCOHOL DETECTION

This project presents the design and implementation of An Alcohol Detection with Engine Locking for cars using The Ultrasonic Sensor and Arduino UNO as the MCU (Master Control Unit). The system will continuously Monitor level of alcohol concentration in alcohol Detection sensor and thus turn off the engine of vehicle If the alcohol concentration is above threshold level. The model will also send the message of whereabouts Of the vehicle through SIM900A. The project provides An efficient solution to control accidents due to drunk Driving.

SADDI PRAVALIKA
20RH1A04K8
III ECE D

WHEEL CHAIR WITH ATTACMENT OF B-TYPE OXYGEN CYLINDER FOR COPD PATIENTS

The objective of this project is to provide the movement of the people who are disable The objective of this project is to provide the movement of the people who are disable

The main objective of this wheel chair system project is recommended to control a wheel chair by using speech recognition module. The system is designed to control a wheel chair using the commands their movement as a daily need. Speech recognition technology is a key technology which will provide a new way of human interaction with machine or tools.

Therefore, the problems that they face can be solved by using speech recognition technology for the movement of wheel chair. This can be realized and optimized with use the smart phone device as an intermediary or interface. In this project interface have been designed therefore to develop a program for commands also control the movement of chair and handle or manage the graphical commands.

T.SARALA DEVI
20RH1A04N7

NON-INVASIVE GLUCOMETER

Diabetes is a common chronic disease in mostly all countries worldwide. The most used method to measure glucose level in blood is an invasive method which is painful, expensive and danger in spreading infectious diseases. Over a long term, the invasive method results in damage of finger tissues. As an alternative, the non-invasive method can be used which facilitates frequent testing, relieves pain and discomfort caused by frequent finger pricks. A non-invasive method of glucose level measurement is proposed in this paper. The variation in the intensity of NIR light received from the photo detector after passing through the finger is used to determine the glucose level of blood. The measured glucose level is displayed in LCD display and transmitted to the android application which is created in the mobile phone to display and store data via Bluetooth.

P. SHREEYA
20RH1A04L8
III ECE D

COLOUR CODED THERMOMETER WITH VOICE ASSISTANCE

Electronic devices are becoming compact ,flexible and cheap that are capable of doing more function as compared to their predecessors that happened with the ability to perform fewer functions. Experts always strive to introduce innovation in automation that requires minimum effort and gives maximum output. It is an idea to have acolour coding scheme in thermometer to indicate fever level for uneducated people and also a speaker that can read out temperature through a voice message for those who are visually challenged people. This makes the task of knowing their body temperature easy and understandable for everyone.

The invention includes a thermometer with a backlight and a method for lighting the backlight. The thermometer has temperature sensing tip, a processor taking temperature readings and determining a sensed temperature reading of the living being from the temperature sensing tip. The thermometer also includes a display and a backlight for lighting the display. The backlight is activated upon a command from the processor and the processor determines whether a decrease in the temperature readings exceeds or is equal to a predetermined threshold in order to activate the backlight. The method embodiment can includes the steps of using the processor to monitor a temperature change indicated by a temperature sensing element. The processor then detects a temperature decrease and activates a first colour light emitting element to backlight a display if the temperature decrease exceeds or equals a predetermined threshold. In this present work, voice controlled concept is added to the medical field. The device designed is handy and it can be used over a considerable distance. it is seen with progress of time that the basic health parameters that depicts the diagnosis takes time. Now with the help of this device doctors can know the condition of his patient, from a different room, or floor by sending a voice command and thus retrieving the information. This device can make work for them, convenient and prompt, and hence can treat the patient at the earliest.

T.SUSHMITHA
20RH1A04N2
III ECE D

SMART WHEEL CHAIR FALL DETECTION

Falling is among the major causes of medical problem that are faced by the elderly people and movement disability person. These people tend to injure themselves from falling when they are alone. When a falling event occurred, medical attention needs to provide immediately in order to reduce the risk of fallen from getting severe injuries which may lead to death. Several technologies have been developed which some utilized webcams to monitor their activities. However, the cost of operation and installation is expensive and only applicable for indoor environment. Some users also worried about their privacy issues. Current commercialized device is by wearing wearable wireless emergency transmitter which restrict movement of user and produce high false alarm. This research proposed a wheel chair person fall detection system with IOT which is cost effective and reliable to detect fall and alert surrounding to call for help. For fall detection, gyroscope, GSM module and micro-controller are implemented into the system.
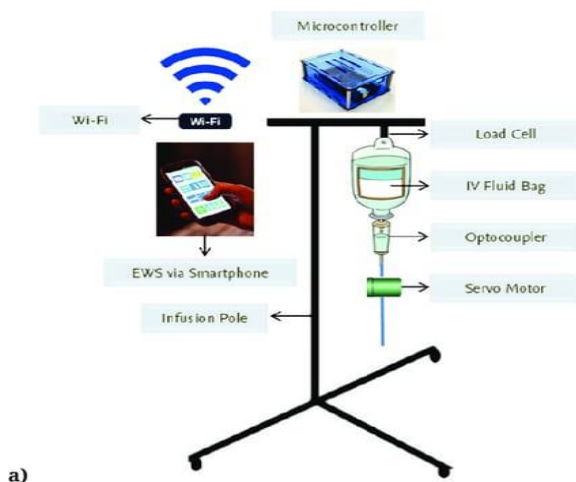
VOOTURI CHITHRIKA
20RH1A04P4
III ECE D

IV FLUID MONITORING SYSTEM

This paper emphasizes Intravenous fluid monitoring (IV) using load cell and heart beat sensors. Intravenous fluid monitoring system is a sensor which is used in medical applications for monitoring the glucose level, if the glucose level starts reducing in the liquid, then it gives a warning. The main use of this sensor is to reduce the risk rate of the patients if they are not monitored properly. Intravenous therapy is a typical method of treatment which may be used for better modification of electrolyte imbalances in the body, to deliver medications, for transfusion of blood or fluid injection. The proposed method lowers chance of heart attack due to air embolism and reduces difficulties involved in IV therapy. Periodic therapy especially in the case of chemotherapy can be effectively carried out. The necessity to monitor IV administration is profound and this paper presents a solution to the above problem.

P.SANGEETHA
20RH1A04G9
III ECE

WATER AVAILABILITY BASED CROP SPECIFICATION SOLUTION-IOT BASED IRRIGATION

Agriculture plays vital role in the development of agricultural country. In India about 70% of population depends upon farming and one third of the nation's capital comes from farming. Issues concerning agriculture have been always hindering the development of the country. The main problem that we are facing in today's agriculture are low productivity and over exploitation of scarce water resources. Huge waste of water resources damaging crop productivity, increasing soil salinity, and aggravating water shortages. 95% of India's water is used for irrigation. Due to over exploitation of water resources, there is no proper usage of water, most of water which is being used in agriculture is getting wasted offering low productivity of crops. The only solution to this problem is smart agriculture by modernizing the current traditional methods of agriculture. Hence the project aims at making agriculture smart using IoT technologies

This project proposes an automated irrigation system which monitors and maintains desired soil moisture content via automatic watering. It uses soil moisture sensor which measures exact moisture level in soil. It also uses a rain sensor which is a switching device used to detect rainfall and control water flow from the pump. Microcontroller on Arduino mega platform is used to implement control unit. This enables the system to use appropriate quantity of water which avoids over/under irrigation. Soil moisture sensors measure or estimate the amount of water in the soil. Rain sensor is a water conservation device connected to an automatic irrigation system that causes the system to shut down in the event of rainfall. Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards can read inputs of soil sensors and rain sensors and turn it into an output-on 1LED display. Potentiometer is used to set a particular level

This project can be further developed using multiple sensors like PH sensor, Humidity sensor, Temperature sensor and others. This project can also be used as a source of security where the field could be fenced and it could protect the field from predators

M.JYOTHSNA SUJANA
20RH1A04F5
III ECE

SIGN LANGUAGE DETECTION GLOVES

The paper describes an aiding device for the dumb and physically challenged people. Such people are made to wear gloves fitted with flex sensors and tactile switches whose resistance change with each gesture shown by them. This produces a voltage change and given to microcontroller which will send the sign language codes corresponding to each gesture to android app and then sounds the code of sign which is given by hand via speaker.

Dumb people normally communicate by means of sign-language. A gesture in a sign language, is a particular movement of the hands with a specific shape made out of them. Gesture recognition is classified into two main categories, that is vision based and sensor based. The disadvantage of vision based techniques includes complex algorithms for data processing and requirement of more computing power. But glove-based gesture recognition is simple and user-friendly.

MARADANA SOWMYA
20RH1A04E6
III ECE C

PORTABLE KASHAYA MAKING MACHINE
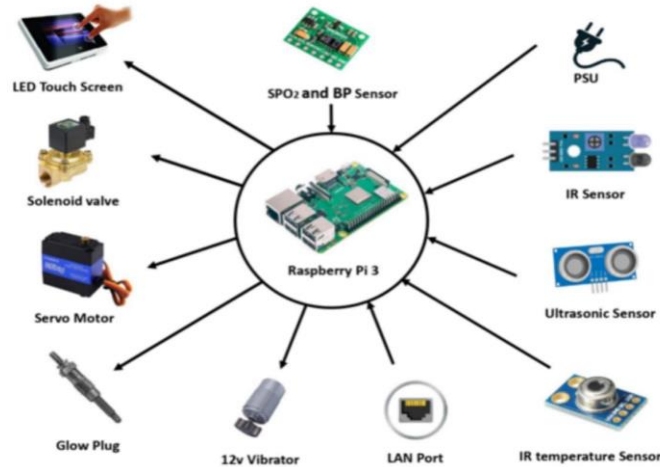
Kashaya is an Ayurveda and does not denote any one particular Ayurvedic medicine, but a generic term for various types of medicinal, Concoction in Ayurveda. Kashaya refers to a water decoction or water extract of a single herb or group of herbs and can be used for ailment like indigestion, cough and common cold. It is an ancient form of medicine that has been used for a long time. Many are very bitter in taste and the liquids is dark in colour. It is mainly used by Kerela, Tamil Nadu, Andhra Pradesh, Telangana and West Bengal states. As the process of making Kashaya is a cumbersome process, hence there is usual compliance of patient to Kashaya. To overcome this whole strategical idea towards the Kashaya, A machine which can directly produce the Kashaya has been implemented. This project proposes an automated Kashaya system which prepares it with a certain temperature. Microcontroller on Arduino Nano platform is used to appropriate quantity of Kashaya. Relay is used as a switch for the motor for the functioning of outlet. The copper coils heat's up the container. LED is used for entering the specific quantity.

N.SUCHITHA
20RH1A0417
III ECE

ADVANCED SURVELLANCE ROBOT

In response to rising crime rates and the growing need for safety, surveillance systems have become increasingly important. Surveillance involves monitoring behavior, activities, or other changing information, typically for the purpose of managing, directing, or protecting people. This project aims to design and build a manually controlled surveillance robot capable of roaming an environment and transmitting real-time video data back to a ground station. This data allows a human controller to navigate the robot remotely. The robot, designed for army and industrial applications, features a robotic arm for pick-and-place operations. Additionally, it integrates an advanced land mine detection system with a multi-sensor array, including ground-penetrating radar, metal detectors, and infrared sensors, to accurately detect and locate various types of land mines, distinguishing between metallic and non-metallic mines to reduce false positives. High-definition cameras and thermal imaging sensors enhance its surveillance capabilities, providing comprehensive situational awareness in diverse environments such as dense vegetation and rough terrains.

M SUKANYA
21RH1A04E9
IV-ECE-C

GEOFENCING IN AGRICULTURE

The main aim of our research paper is to protect the crops from damage caused by animal as well as divert the animal without any harm. Animal detection system is designed to detect the presence of animal and offer a warning. In this research, we used IR sensor to detect the movement of the animal and send signal to the controller. It diverts the animal by producing sound and signal further, this signal is transmitted to GSM Module and which gives an alert to farmers and forest department immediately. The designed system will continuously check for any animal to enter the field. IR sensors are used in this project to detect animal movement and to give a signal to the controller. So, the farmers will be aware of the difficulty and available to the spot just in case the animals do not show off by the alarm. The complete safety of crops was ensured by this system from animals thus protecting the farmer's loss.

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M SRUJANA
21RH1A04G7
IV-ECE-C

# BOMB DETECTION ROBOT WITH GPS LOCATION USING AURDUINO
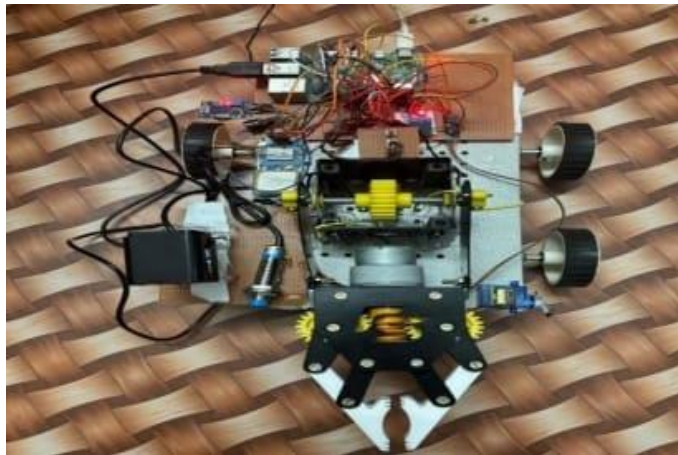
This project enhances bomb disposal safety by utilizing robotics for remote control and real-time monitoring. The robot, connected to an Arduino Uno board and controlled via a smartphone, is equipped with a video surveillance camera and a metal detector, making it suitable for military applications. The system allows bomb disposal teams to remotely assess suspicious objects before physically engaging, significantly reducing the risk of injury or fatality. Although the robot doesn't directly disarm bombs, its live camera footage provides crucial information for informed decision-making during operations. The integration of a robotic arm, internet connectivity, and wireless camera improves the management of hazardous situations. This technology represents a significant advancement in modern security, enhancing the safety of personnel by minimizing direct exposure to dangerous environments. Overall, the project highlights the potential of robotics in improving safety and reducing risks in high-risk scenarios like bomb disposal.

P SINDHU
21RH1A04K7
IV-ECE-B

ARDUNIO BASED UNDER GROUND CABLE FAULT DETECTOR USING GPS AND GSM
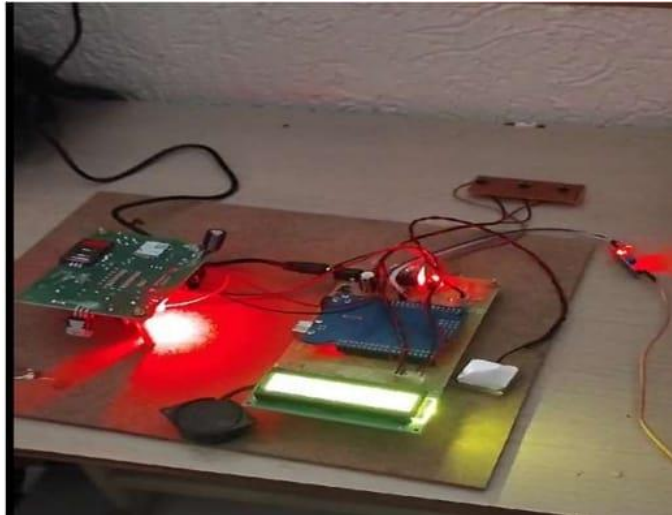
Underground cable systems are vital for modern infrastructure, but detecting and locating faults within these cables can be challenging. This paper presents a novel approach to fault detection by integrating GPS and GSM technologies with conventional fault detection methods. The system utilizes Time Domain Reflectometry (TDR) and Frequency Domain Reflectometry (FDR) to identify faults in underground cables. Upon detecting a fault, the system employs GPS to determine the precise location and GSM to transmit this data in real-time to a central monitoring station. This integration enables accurate fault mapping and rapid communication with maintenance teams. Testing demonstrates that this approach significantly enhances fault detection accuracy and reduces response times by providing immediate and precise location information. The use of GPS ensures accurate localization of faults, while GSM facilitates real-time data transmission and automated alerts, improving overall operational efficiency. This method represents a significant advancement in underground cable maintenance, offering a reliable and efficient solution to fault detection challenges.

S VASAVI
21RH1A04N4
IV-ECE-D

ENVIRONMENTAL POLLUTION DETECTION USING IOT

Environmental pollution has become a significant concern due to its detrimental effects on ecosystems and human health. The swift growth of infrastructure, industries, and vehicles have been creating environmental issues like greenhouse effect and diseases. Air Pollution has surfaced globally as a result of eruptive industrial growth. Transportation by road is also one of the major causes for air pollution, which contribute to weather change that has hazardous domestic and global consequences. To avoid such instability in the nature, we need an environmental pollution monitoring system. This paper focuses on the implementation of IoT-enabled systems using sensors like the MQ-3 and DHT11 for detecting environmental pollution. The MQ-3 sensor is effective in detecting volatile organic compounds (VOCs), including alcohol, which are prevalent in polluted environments. Complementing this, the DHT11 sensor measures temperature and humidity, providing essential context for understanding pollutant behaviour. By connecting these sensors to an IoT network, real-time data collection and transmission to a central server can be achieved. This enables continuous monitoring, data analysis, and the identification of pollution.

Y DEEPIKA
21RH1A04R9
IV-ECE-D

IOT BASED BABY MONITORING SMART CRADLE

In recent years, the integration of Internet of Things (IoT) technology in healthcare has seen significant advancements, particularly in infant care. This paper presents the design and development of an IoT-based baby monitoring smart cradle, aimed at enhancing infant safety and parental convenience. The smart cradle is equipped with multiple sensors that monitor various parameters such as temperature, humidity, sound, and movement. These sensors are connected to a central IoT platform that continuously collects data and provides real-time monitoring through a mobile application. The system is designed to alert parents of any abnormal conditions, such as excessive crying, changes in room temperature, or the baby's movement, through notifications on their smartphones. Additionally, the cradle includes features such as automated rocking and lullaby playback, triggered by specific conditions detected by the sensors. This technology not only ensures the well-being of the infant but also reduces the stress and anxiety experienced by new parents. The paper discusses the technical specifications, the architecture of the IoT system, and the benefits of integrating smart technology into traditional childcare practices. The proposed smart cradle represents a step forward in the use of IoT in daily life, offering a reliable and efficient solution for modern parenting challenges.

V VISHRUTHI
21RH1A04R5
IV-ECE-D

INTEGRATED SOLAR PANEL

This advanced solar energy system integrates a dual-axis sun-tracking mechanism with an automated cleaning feature to maximize efficiency and performance. The dual-axis tracker, controlled by a microcontroller and light sensors, continually adjusts the solar panel's orientation to align with the sun's path, enhancing energy capture throughout the day. An integrated rain sensor detects precipitation and activates an automated wiper system that clears the panel of water, dust, and debris, ensuring optimal solar exposure. This automation reduces the need for manual maintenance and operational costs while extending the lifespan of the panels. Experimental results show significant improvements in daily and seasonal energy yields, making the system especially effective in regions with variable weather conditions. By maintaining optimal panel cleanliness and alignment, the system delivers a more reliable and cost-effective solar energy solution.

M SUPRAJA
21RH1A04E3
IV-ECE-C

EVENTS-PHOTOGRAPHS

ORIENTATION DAY – 2K22

AWARENESS PROGRAMME ON HIGHER EDUCATION-ABROAD

MEDHA — 2K22

PROIECT EXPO-2K23

NATIONAL LEVEL HACKATHONS

TEACHER'S DAY 2K23

NATIONAL LEVEL HACKATHONS

ALUMNI TALK

Placement Experience: from 3-2 semesters, students are eligible for campus placements. A number of organizations, including TCS, Infosys, Wipro, Accenture, and Capgemini, visit our college each year and choose a large number of students; placement rates at Mrecw are 100%.

B RISHITA
18RH1A0412
B.Tech – 2022 Passed out

The competitive spirit in our college pushed me to innovate and think outside the box. Every challenge felt like a new opportunity to grow and improve. It was inspiring to be surrounded by so many driven individuals.

FARHEEN SABHA
18RH1A0462
B.Tech -2022 Passed Out

Faculty helped me to overcome the fear of coding. I vividly remember the moment everything clicked, and I was able to solve complex problems. That achievement boosted my confidence and changed my outlook on learning.

NEHA
18RH1A04F4
B.Tech -2022 Passed Out

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