Modern Education Society's
College of Engineering
(Wadia College Campus)

SOUVENIR

9TH NATIONAL CONFERENCE ON

ADVANCEMENTS IN COMMUNICATION, COMPUTING, AND ELECTRONICS TECHNOLOGY

[ACCET 2023]

28TH & 29TH APRIL 2023

Chief Editor
Dr. M .P. Dale

Editors
Dr. P. P. Mane
Dr. M. M. Dhanvijay

Department of Electronics & Telecommunication

[IETE Pune Centre Approved]

Modern Education Society's College of Engineering, Pune
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Pune -411001
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Souvenir

Modern Education Society's College of Engineering, Pune
Department of Electronics & Telecommunication
IETE Pune Centre Approved
9th National Conference on
Advancements in Communication, Computing and Electronics Technology
ACCET – 2023

Chief Editor
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Editors
Dr. P. P. Mane
Dr. M. M. Dhanvijay

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Organized By
Department of Electronics and Telecommunication

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COLLEGE OF ENGINEERING
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MES College of Engineering, Pune-01

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To Groom - Motivated, Environment friendly,

Self-esteemed, Creative and Oriented Engineers.

Mission

To develop industry oriented manpower to accept the challenges of Globalization, by promoting Value Education through motivated trained faculty, by maintaining a conducive environment for education at affordable cost, by promoting Industry Institute interaction, by involving alumni.

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Department of Electronics and Telecommunication

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To develop industry oriented manpower to accept the challenges of globalization,

- by imparting Electronics and Telecommunication knowledge through trained faculty in a conducive environment,
- by creating awareness about the needs of Electronics & Telecommunication industries through alumni and Industry-Institute interaction,
- by encouraging them to think innovatively and introduce them to various research activities, by grooming them in communication and interpersonal skills

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Hon. Principal's Message

It is indeed a matter of immense pleasure to know that the Department of Electronics and Telecommunication, MES College of Engineering (MESCoE), is going to organize the 9th National Conference on "Advancements in Communication, Computing and Electronics Technology" (ACCET-23) on 28th April, 2023.

Nowadays we come across various applications of the Electronics and Telecommunication field. The frequent changes in the technology of the Electronics and Telecommunication field greatly impact our day to day activities. The main objective of this conference is to provide a forum for discussing the development, implementation, use and application of emerging technologies in the Electronics and Telecommunication field.

I am confident that the conference discussions and the publication of the conference proceedings will bring opportunities among the academicians, corporate delegates, research scholars and students to present their innovative ideas, most up-to-date findings, and technical proficiency in the various fields of research trends in Electronics and Telecommunication.

On behalf of MESCoE, I heartily welcome Keynote Speakers, eminent academicians, corporate delegates and all the paper presenters to ACCET-23.

I would like to congratulate the Department of Electronics and Telecommunication faculty and staff for organizing such events.

I take this opportunity to wish grand success to the conference and a memorable time for all the participants at ACCET-23.

Dr. M. P. Dale
I/c Principal
MES College of Engineering, Pune

HOD's Message

It is a profound moment, to be convening the 9th National conference 'Advancements in Communication, Computing and Electronics Technology' [ACCET-23], being organized by the Department of Electronics and Telecommunication Engineering, MES's College of Engineering, Pune.

The present century is referred to as the age of Information and Technology. Continued advancement in the previous decade has led to the explosion of Internet and Wireless Communication. The processing performances once exclusive to Supercomputers are now available in handheld personal digital devices. Improvements in Integrated Circuits have enabled space explorations, made automobiles more efficient, revolutionized the nature of warfare, brought vast libraries of information into our Web Browsers and made the world a more interdependent place.

ACCET-2023 attracts established academicians and research students from around the nation. The research papers published in this proceeding bear testimony to the fact that exciting work has been undertaken in numerous topics related to electronics and telecommunication engineering.

The success of this conference is a result of efforts of contributors and presenters who have shared with us the latest developments in their respective fields. Such an event is not possible without the hard work of the reviewers to whom I am deeply indebted for taking out time to provide professional opinions on the submissions.

I am highly obliged to our devoted and ever-enthusiastic Principal Dr. M. P. Dale for his constant support and encouragement.

I highly appreciate the efforts of the coordinator Dr. M. M. Dhanvijay and the conference organizing team, who have coordinated and liaised with the contributors, reviewers and many other people concerned. The non-teaching support staff cannot be forgotten, their dedicated support ensures that the conference is of high quality and makes the conference a thoroughly enjoyable gathering.

Dr. P. P. Mane
Head of Department

Foreword

With the zest to support digital India and to boost Research and Development at international platforms, Department of Electronics and Telecommunication Engineering, M. E. S. College of Engineering, Pune has organized the 9th National Conference on Advancements in Communication, Computing and Electronics Technology [ACCET 2023] on 28th April, 2023. It has been a real honor and privilege to serve as the Coordinator of the conference.

The Souvenir of ACCET 2023 includes abstracts for oral presentations provided by enthusiastic students, practicing researchers, industry personalities and academicians. I extend my warmest thanks to the authors for their interest, enthusiasm and timely submission of research papers. We are also grateful to all the authors for their valuable contributions. The conference would not have been possible without the enthusiasm and hard work of my colleagues

.

We are thankful to Hon. Principal, Dr. M. P. Dale and the management of M. E. Society for their constant support and encouragement in making this National conference a big success. We are thankful to ACCET-2023 paper reviewers for giving their precious time for reviewing papers. The team work behind this conference, by the enthusiastic, hardworking and sincere faculty of the department, is highly commendable.

ACCET is a great platform for all the technocrats. The idea behind this conference was to help and motivate researchers to carry forward their work to the next level. As coordinator of ACCET-2023, I anticipate that these proceedings would be of immense value and will be definitely useful to researchers in their practice or thinking process. This collection will also offer a window for new perspectives and directions in the respective horizons.

Dr. M. M. Dhanvijay
Coordinator
ACCET-2023

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AI,ML- 2 : Emotion Based Music Recommendation System

Rishabh Tripathi, Hrushikesh Shetty,Pratham Ingawale

VCET, Vasai Rd. Mumbai, India

,**Abstract—** Music is in every corner of the world; it is the one thing that connects us all. E However, in today's world music is affected by social media platforms mainly by TikTok due to which users are exposed to mainstream music only, mostly on their music streaming apps such as Spotify, Apple Music, etc. Thus, making the song recommendations is not personalized enough. An emotion based interactive agent helps in recommending songs based on the current emotions of the user. Existing systems use statistical data to recommend songs based on the listening history of the user. The proposed research work contains an environment where the user's emotions are detected with the help of a chatbot. The chatbot analyzes the users fervour by having a casual conversation with the user. The user's input is collected and analyzed for emotion detection with the help of IBM Tone Analyzer. This detected emotion is used for choosing songs that resonate with the user's feelings with the help of a music streaming API.

Comm - 1: Gap Coupled Triangular Microstrip Antenna for Bandwidth Enhancement

Dhanashree Nikam , Komal Bahiram,Mandar P Joshi

Dept. of E & TC

GES's RHSCOEMS&R, Nashik,India

Abstract—This paper presents gap coupled triangular printed monopole antenna using flexible foam substrate for bandwidth enhancement. The equilateral triangular monopole is designed and simulated for GSM 900 wireless communication band. Further, for bandwidth enhancement parasitically coupled equilateral triangular patch is coupled on beneath of monopole patch. Without parasitic triangular patch, the antenna exhibits the impedance bandwidth of 200 MHz. With parasitic patch coupling the enhancement of impedance bandwidth up to 273 MHz have been obtained.

IOT - 1: SMART DUSTBIN BY USING IoT

1 Mr.Garad.A.A, 2 Sayali Lendave, 3 Aishwarya Patane, 4 Janhavi Devdikar
"Electronics and Telecommunication Department"
SVERI's College of Engineering, Pandharpur

Abstract:The capacity for continuous existence is sustainability. It often refers to the ability of the ecosystem and human civilization to coexist in the twenty-first century. The production of solid trash has increased recently. A major problem with regard to the global sustainability crisis is solid waste management. Efforts are being made by governments all over the world to transform cities into smart cities. For this shift to occur, a suitable system for collecting and managing solid waste isrequired. Without proper management, waste economic value cannot be achieved . Such services in smart cities can be handled effectively by Internet of Things (IoT) technologies. The key to sustainability is the effective application of technology to address major environmental issues,of which solid waste management is one. In this study, we propose a smart trashcan monitoring system based on the Internet of Things.

CN-1: Breast Cancer Detection Using ML AND AI Techniques

Engineering And Technology , Pandharpur

Abstract- Breast cancer is the second most commonly diagnosed cancer among women globally, and early detection is crucial to improving survival rates. Machine learning (ML) and artificial intelligence (AI) techniques have shown promising results in detecting breast cancer in medical imaging data. In this study, we explore the application of ML and AI algorithms for breast cancer detection using mammogram images. Breast cancer detection is a critical healthcare challenge worldwide, and Machine Learning (ML) and Artificial Intelligence (AI) are increasingly being used to aid in the detection process. ML algorithms can analyse vast amounts of data, identify patterns, and classify tumours with high accuracy. The main idea here is to utilize all the open source datasets and breast cancer detection methodologies such as K-nearest neighbour, Convolutional Neural Network, Support Vector Machines, Generative Adversarial Networks to identify pros and cons of all the methodologies. The result of this would be to find the most efficient model to work in a particular scenario. Moreover, machine learning algorithms can be trained to predict breast cancer risk and personalise screening recommendations for individual patients. As such, AI and ML have enormous potential in the fight against breast cancer, improving the diagnosis and treatment of the disease. There are several machine learning algorithms available that are used in this system including KNN, SVM, CNN, GANS, Decision Tree, Random Forest, K-means.

SP1 : Real time speech quality enhancement

A case study for floating point DSP processor

Prof Santoshi Dhanapal Bhakte

Dept of Electronics and Telecommunication Engineering

Rajarambapu Institute of technology, Rajaramnagar .Maharashtra state India

Abstract- In modern handsfree communication areas it is always needed to enhance a noisy speech quality. This is particular the case if the speaker is not located as close as possible to the microphone. It is even possible that background noise sources are captured at a higher level than the speech signal. The noise distorts the speech and words are hardly intelligible. In order to improve the intelligibility and reduce the listener's stress the signal to noise ratio needs to be improved. For that various noise reduction algorithms can be tested and implemented. Excellent performance and low power consumption digital signal processors can be used to design such systems. Fixed filters cannot be used for this purpose because we don't have prior knowledge of signal and noise. So generally adaptive filters having the ability to adjust their own parameters automatically are suitable for these speech enhancement systems. They require little or no prior knowledge of signal and noisecharacteristics. The proposed case study in this paper is to design and implement real time adaptive speech quality enhancement system. The system design is simulated in MATLAB and then it is implemented on floating point digital signal processor. The performance of the system is tested for various values of design parameters.

IOT 2 - : Accident Prevention, Identification, and Alert System

Dr. R.K.Navandar,P.R.Ghogare,A.S.Alhat,A.S.Awale

JSPM's Jayawantrao Sawant College of Engineering, Pune, India

Abstract - The advancements in the transportation system has been the generative power for humans. The automobile has great importance in our daily life. We utilize it to go to the workplace, transport passengers, and deliver our goods. But it can also bring disaster if used carelessly or because of mismanagement. Speed and carelessness are one of the most important risk factors in driving. Despite many actions taken by different organizations all around the world and various programs to create awareness against careless driving, accidents take place every now and then. However, many lives could have been saved if the emergency service could get the crash information in time and additional safety features. As such, efficient automatic accident prevention, identification, and alert system will be beneficial for saving precious human life.

Robotics - : Hardware (Sensor) for E-Bicycle

DR. A V Patil1, Muazama Shaikh,Atharva Deshmukh, Dipshikha Chavan

Dr. DY Patil Institute of Engineering Management and Research, Akrudi, Pune.

Abstract: The demand for Sustainable and eco-friendly travel options has taken a hike. Electric Bicycles are becoming mainstream in the European market with such a developing cycling culture in the European market and other parts of the World. By identifying the market and the demand we in this paper will explore the hardware sensors used in e-bicycles which is an important aspect for any cyclist. An e-bicycle are basically equipped with an electric motor which provides assistance to the rider.This makes cycling easy and comfortable. Sensors are basically used to detect or measure a physical property and respond or indicate about the same. Sensors for e-bicycles are used for monitoring, controlling and safety purposes. Sensors can help to improve the performance of the e-bicycle. By measuring the speed, torque, and orientation of the e-bicycle, the motor provides assistance more efficiently which gives a smoother and comfortable ride. Moreover it can help to prolong the life of e- bicycle by monitoring the charge of batteries and avoid overcharging. Also Sensors can improve safety by detecting the when the brakes are applied and can cut off the power assistance so as the rider does not lose the control on the bike. Various Sensors which we have used include are cadence sensor which determines how fast or slow the cyclist is pedaling. It will apply power based on the pedal assist level. Another sensor which we have used is a Tilt sensor which is a type of position sensor which is used to measure the angle and the slope of the object. Along with this we have used other sensors as well which are interfaced with the STM 32 nucleo Microcontroller. Sensors can helpimprove the performance and safety of the bicycle giving a plus point for cyclists to travel efficiently.

Emb 1 - : 4 Channel Industry DAS for EV using LabView

Pallavi Chougule , Avantika Patil Monika Raut

Dept. of ENTC

Pune Institute of Computer Technology

Abstract—This data acquisition system is used to acquire drive motor parameters of electric vehicle current, voltage, temperature and speed. The data acquisition system mainly records test information including drive motors, motor controllers and other equipment. At the same time, it can realizepre-test calibration, data storage and continuation, analysis, waveform display, etc. A data acquisition system consists of hardware and software. Data is continuously transmitted to a central database for academic and industrial applications. The purpose of our project is to use LabView and MyDAQ to build a simple and convenient data acquisition system for manufacturers. The basic idea is to create a DAQ system that can display and record accurate waveforms. The demo uses a number of sensors (voltage, current, temperature, speed) for analog input to MyDAQ.

IoT-3:Redefining Attendance Systems with Facial Recognition

Dr. Priya Charles,Ayush Prakash,Prajay Kanade,Rohit Ghanekar,Rishikesh Kumar

Department of Electronics & Telecommunication

Dr. DY Patil Institute of Engineering Management and Research,Akurdi Pune

Abstract: Attendance is crucial for a student's career. Educational institutions monitor attendance to determine eligibility for exams. Traditional attendance tracking methods are time-consuming, so an intelligent attendance system is needed. The automation sector led the way in the idea of transitioning from traditional attendance systems to digital systems that use face detection and recognition algorithms. This methodology can address the issue of proxies and students being marked present despite the fact that they are not physically there. This article discusses an automated attendance management Computerized system that combines commonly available components to construct a portable computer that uses facial recognition technology for tracking student attendance.This approach is useful for both convenience and record-keeping.

AIML-3 : ROAD LANE DETECTION IN A SELF DRIVING VEHICLES USING COMPUTER VISION

Rachana Kedari ,Sukanya Kumbhar, Yash Jahagirdar
Electronic and Telecommunication Dept.MESCOE
Pune, India.

Abstract—This paper introduces a method of road and lane detection for self driving car. While driving on the road, it is difficult to find road signs such as lane, crosswalk, stop line, etc.Road lane detection is an essential task for developing Advanced Driver Assistance Systems and self-driving vehicles. The purposeof this project is to develop a

system that can accurately detect and track road lanes in real-time using computer vision techniques such as, Hough Transform, Canny Detector.

AIML-4 : DETECTION NUT AND BOLT USING IMAGE PROCESSING & MACHINE LEARNING

Mr.ATHARV ADARSH JIRGALE , Mr. PRAKASH WAGHMARE , Mr. RITWIK SONI ,
Department of Electronics and Telecommunications Engineering, MESCOE

Abstract: Most of the Industries are growing faster these days and they need most accuracy results in every product they develop. Especially in the automotive mechanical industries which manufacture nuts and bolts. There is need to design a system that is recognises the nuts and bolts and it's dimensions. For these type of segregation and detection the most prominent technology that is " CONVOLUTION NEURAL NETWORK" algorithms are used by the most of the industries. When coming to CNN it is a type of artificial neural network used for image recognition , image processing and specifically designed to process pixel data.

CN-2 Survey paper on Digital Handbook for Student Mentoring

Pratik Sabale , Shruti Gaud , V.B Vaijapurkar
UG Student, Dept. of Electronics and Telecommunication Engineering, PICT College, Pune..

Abstract - This project aims the implementation of an application using Flutter and dart. Most of the guardian teachers in the academic institutions face the difficulties in managing record of the students and their curricular and extra-curricular details, etc., and they still rely on the paperwork and manual processes. A mobile application based digital handbook for student mentoring will reduce the manual work by deploying de-centralized software incorporated with a coupled service of interaction between counselor and student and improves the communication between management and student/guardian through notifications and emails. This application supports the conversion of reports into pdf so that the tedious job of guardian is simplified in a single click. As it is a cross-platform application, it is designed to support desktop browsers, mobile browsers, and native mobile applications. The use of REST architecture makes it easy for designing and developing web-services. Flutter is an open-source SDKfor enhancing high performance with the most reliable Mobile apps for iOS and android primarily based on a single code base. It is used for downloading and providing certain information on the web-service. All communications are made via the REST API using the HTTP applications only.

Web/App dev-1 : Motivate Gen-Z to cycling via mobile application

Mrs. Dnyanda Hire ,Shubham Bansode, Ajay Surse , Dnyaneshwar Gotamwad,Nikhil Lokhande
Dr. DY Patil Institute of Engineering Management and Research,Akurdi Pune
Department of Electronics & Telecommunication

Abstract: - The aim of this project is to motivate the younger generation to cycle every day, given that studies show that people aged 19 to 35 years tend to neglect physical exercise, which can have negative impacts on their health. To address this issue, an e-bicycle is proposed as an option, as it can reduce travel time and offer health benefits. To create a community and encourage more young people to take up cycling, a mobile application with

features similar to Snapchat and Instagram are proposed. Users can share photos and videos of their daily distance on the bike, create cycling events, and make new friends. This project aims to fill the gap in research on how to motivate the younger generation to cycle and ultimately improve their health.

Emb-2: Silent Air Purifier and Cooler

Mrs. Sandhya Shinde ,Aditi Gangurde,Harshada Ghotekar , Shantanu Datir , Rohit Jadhav
Dr. DY Patil Institute of Engineering Management and
Research,Akurdi Pune
Department of Electronics & Telecommunication

Abstract: Air pollution exceeded all limits in 2021. The WHO estimates that about 7 million people die each year as a result of exposure to air pollution. The prevalence of air pollution is so high that about 91% of the world's population is exposed to air pollution. To avoid this problem, we have developed an air purifier along with air quality monitoring system that does not use expensive filters, but uses water and AC filter sheet as an air filter. It also works as a humidifier and can also be used as an oil diffuser to help you relax and also kill certain bacteria and viruses present in the air. The system uses 2 x high performance low noise centrifugal fans which are used to draw air through the protective mesh which is covered by an AC filter sheet. The sucked air then passes through the water tank located in the lower part of the purifier. The air passing through the water is automatically cleaned because the water traps dust, mold, bacteria, etc. in the water. The resulting air rising through the water is cool air with high humidity. Also, adding essential oils to the system allows for the humidification of the space/room with essential oils, which research shows are able to kill certain types of bacteria, mold in the air and help people relax. Some essential oils areal so being researched to provide various health benefits when inhaled.

Web/App dev-2: Student Result Analysis System

Ruchika Bhoyar, Priyanka Shinde, Sanket Dete,Dr. P .P.ManeDept. of Electronics and Telecommunication Modern Education Society’s College of Engineering (Savitribai Phule Pune University) Pune, IN

Abstract—The project titled “STUDENT RESULT ANALYSIS SYSTEM” is a web-based application developed to maintain students’ results. This project contains three modules; register/login module, admin module, and student module. Admin module is used to create and manage the subjects, and classes and add the students and their results. The student module is used to provide the results to the students where they can download the results. Registered users can access the database of the students which will provide detailed subject-wise and semester-wise analysis of the result according to accreditation regulations.

Emb-3: Wall Climbing Robot

Prof. Priyanka Bagul ,Eshika Nilawar, Vaishnavi Nalawade, Vipul Sawant
Dept. of Electronics and Telecommunication
Modern Education Society’s College of Engineering

Abstract—The main motive of a climbing robot is to climb on a vertical surface. To achieve this purpose efficient attachment and detachment is an important aspect. These types of robots can take the place of humans to carry out hazardous work such as cleaning of surfaces, fire rescue, inspection of high-rise buildings, etc. this robot can also be used for security purpose and also to calculate the height of buildings. This project is aimed at developing robots

which can move on vertical surface.One of the most challenging tasks is to make the robots weight as light as possible along with proper adhesion and locomotion system with low cost.

AIML-7:Gesture Control Mouse & Keyboard

Dr. Priya Charles ,Shreya Satao, Rohini Datkar ,Laxmi Wankhade ,Anirudh Kulkarni
Department of Electronics & Telecommunication
Dr. DY Patil Institute of Engineering Management and Research, Akurdi Pune

Abstract: A software-based system that operates the functions of mouse and keyboard with different gestures used for the cursor and click action. The functions of the keyboard are also performed using different gestures. Since then, if the indicator is not the same, the dice will not turn red until the indicator is correct. This article is about pointing the mouse and keyboard. Basically, we create a virtual keyboard and virtual mouse on the screen. And the user can operate the computer well. This machine is the starting point for the disabled, the next generation of college students, surgeons, soldiers and ordinary people. We an also use this process for access. Mouse and keyboard virtually with human hand gestures. A replacement detects various human t to Mouse and Keyboard that are uneasy to carry everywhere with a laptop or pc, hence savescost of computer system.It is an AI-Based system that controls the Keyboard and Mouse virtually with various Human hand gestures. After covid, maintaining a safe distance became important, it provides a safety of interaction.The Registration and Login page is designed to maintain the secretion Authenticated used would be able to operate the system virtually.It is useful in Hospitals, where camera projects images from the inside of the body onto a monitor and this introspection of images is handled by surgeon with hand gestures even from a distance.In Gaming various virtual controlling is used. As well as Humans having some inability to operate Hardware parts can also use it.It provides easy and faster interaction with computer system and an easy communicating between human and machines.

Robotics/EV/Automation-2: SLAM and ROS Based Warehouse Robot System

Aarti Thakur, Medha Patil, Shubham Thakur, Prof. Priyanka Bagul
Modern Education Society's College of Engineering
Pune, Maharashtra, India.

Abstract—The proposed project provides a solution to warehouse robot automation. In order to utilize robots for activities in warehouses like material handling and sorting packages, it needs to understand the area where it operates. One can say, the machine needs eyes to operate in different environments. This is where the proposed idea comes into picture, mapping and localization of the robot. The proposed idea is to develop a map of the surroundings and help the robot perform tasks accordingly. This involves use of SLAM and ROS technology along with LiDAR as the input device.

Robotics/EV/Automation-3:FINDING OPTIMAL PATH USING HECTOR SLAM MAPPING WITH ROS AND LIDAR IN WAREHOUSE ROBOT SYSTEM

Arnav Vichare, Akshada Shinde, Prajwal Jadhav, Sumit Chavan, Dr. P.P. Mane
Department of Electronics and Telecommunication Engineering
Modern Education Society's College of Engineering
Pune, Maharashtra, India.

Abstract– Our world is more automated as technology permeates every aspect of daily existence. Technology has advanced, with uses ranging from domestic to military. New features that make using functions easier for users also accompany advancement. Offering safety, visualization, and navigational capabilities has become essential. The best location is crucial for industrial automation. For robots that operate in enclosed locations, our project requires mapping and route planning. Robots (machines) employ path planning to move from one location to another while avoiding obstacles and environment mapping to view and understand their surroundings. Thus, a number of the technologies employed in optimal path planning are the subject of our project. One of the most well-liked and often used path finding algorithms is A*. A* enhanced prior algorithms like Dijkstra's algorithm by including a heuristic that offers nodes closer to the target positive weighting. As a result, fewer nodes will need to be examined before a suitable path can be found. A*performs similarly well to Dijkstra's in terms of pathlength, providing an optimal path inside the graph,provided the heuristic is not overestimating the goal distance.

AIML-8: Crop Forecast and Harvest Value Expectation Utilizing Machine Learning

Prof. Y. M. Ajgar,Vaibhavi Shewale,Pranit Gaikwad,Shashikant Shinde
Dept of Electronics & Telecommunication
Modern Education Society's College of Engineering Pune

Abstract- Crop forecasting and estimating harvest are crucial for agriculture planning management, and decision-making. Traditional methods of crop forecasting and harvest value estimation often rely on historical data and expert knowledge, which may have limitations in accuracy and efficiency. With the advancement of machine learning techniques, there is an opportunity to leverage data-driven approaches for more accurate and timely crop forecasting and harvest value estimation. Website is developed as a outcome. In the proposed web app application, the users should input their location to commence the prognostication process. In this paper, we propose a machine learning-based approach for crop forecasting and harvest value expectation utilizing historical crop data, weather data, and market data. We present a framework that incorporates data pre-processing, feature engineering, and machine learning algorithms to forecast crop yield and estimate harvest value. We also evaluate the proposed approach using real-world agricultural datasets and compare it with traditional methods. The experimental results demonstrate the effectiveness of the proposed approach in providing accurate crop forecasts and harvest value expectations, which can benefit farmers, agricultural policymakers, and other stakeholders in making informed decisions.

IoT-7:WEARABLE HEALTH MONITORING SYSTEM USING IOT

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ABSTRACT:Wearable health monitoring devices based on the Internet of Things (IoT) have attracted more interest recently because they can monitor a person's health status in real time. The wearable health monitoring system described in this paper uses the Internet of Things to continuously collect and analyze data on vital signs, physical activity, and other health-related variables. The system consists of a wearable device with integrated sensors that send information to a central IoT platform for processing and analysis. The collected information is then used to provide personalized comments and suggestions to the user's healthcare provider and the user themselves. In this project, we developed an IoT-based patient health monitoring system using an ESP32 WIFI module. Thing Speak was the IoT platform used in this project. The data collected from the sensors are stored in a database and transmitted

to a dashboard via the Wi-Fi module of the Thing Speak platform. Our proposed system is used to process, analyze, and display the collected patient data

Comm-2:Dual Band Band-stop Filter with Tunable Frequency Ratio

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Abstract – This paper presents the development of Dual Band Band-stop Filter allows you to tune frequency ratio with different lengths along with capacitor with the applications of wireless communications, high speed wireless LAN's, GPS, Worldwide Interoperability for Microwave Access (WiMAX) and discussed various simulation results according to capacitance value.

Web/App dev-3:CARPOOLING WEB APPLICATION

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Abstract – numerous carpooling and lift- participating results have been proposed and indeed developed in the former decades, but infrequently have they been suitable to attain a global stoner base, at least not over until later.
That was substantial because numerous of them weren't originally designed as scalable, leaving their druggies with sub-par stoner gests as their stoner base grew, and frequently their mobile or desktop customer reach wasn't ubiquitous enough, leaving them available only to a small portion of mobile customer bias and/ or desktop cyber surfs. This paper describes the design generalities, distribution, and pall computing strategies the authors feel any unborn global carpool and the lift-sharing result could follow, making it veritably scalable and ubiquitous enough to successfully reach and serve a global stoner base.

Robotics/EV/Automation-4:Smart Attendance System

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Abstract: The attendance management system using fingerprint technology monitors attendance This system includes various databases of lectures, teachers, and different timings. An Android application is created to upload the timetable, and it also provides the feature to set the templates that are going to be displayed on the LCD-G screen. The data from the application is stored in the excel sheet which is then fetched by the raspberry pi according to the current time. It will check the attendance by the user and provide the needed data as input for the screen, which will be the output. enrollment and attendance tracking. During enrollment, students and faculty members; biometric data are captured and stored in a database for future reference. During attendance tracking, students and faculty member's; fingerprints are scanned and matched with the database to mark their attendance. This system eliminates the need for traditional attendance methods such as roll calls and sign-in sheets, which are prone to errors and can be time-consuming. Overall, the attendance management system using fingerprint technology is a reliable, efficient, and accurate way of tracking attendance in a university environment. It is useful in various educational organizations such as schools and colleges

AIML-9:Crop yield Prediction Using Machine learning Algorithm

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Abstract— More than half of India's workforce is employed in agriculture, which provides a living for the bulk of the country's citizens. Machine learning (ML) may be a key viewpoint for finding a practical and workable solution to the crop yield problem. The results aren't particularly exact because the current system includes manual counting, climate savvy pest management, and satellite photography. Large datasets on the climate, soil, crop growth, and other aspects can be analyzed by machine learning algorithms to predict crop production with a high level of accuracy. Accuracy, real-time tracking, cost effectiveness, scalability, sustainability, and data- driven decision making are just a few benefits of using machine learning to estimate agricultural yields.. However, there are additional restrictions to take into account, such as data accessibility, model performance, complexity, technological know-how, expense, and ethical issues. The study addresses the possible effects of this technology on agriculture, evaluates recent research on machine learning for crop production prediction, and identifies major difficulties and opportunities. The purpose of this paper is to present an overview of machine learning's application to agriculture and to encourage additional study and innovation in this field. This study primarily focuses on estimating crop yield using a variety of machine learning techniques.

AIML-10:Smart Document Classification

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Abstract— Smart document classification using Naive Bayes is a method used for organizing large volumes of unstructured data into categories or classes. This technique employs the probabilistic approach of Naive Bayes algorithm to calculate the probability of a document belonging to a particular category based on the frequency of words in the document. Naive Bayes is a machine learning algorithm that is used to predict the probability of a certain category based on the features of the document. This approach has been widely used for text classification tasks, such as spam filtering, sentiment analysis, and topic modeling. In this method, the algorithm is trained on a labeled dataset, which contains a set of documents and their corresponding categories. Once trained, the algorithm can then be used to classify new documents into their respective categories. The accuracy of the classification depends on the quality and relevance of the features used to represent the documents. The Naive Bayes classifier is easy to implement and requires minimal training data to achieve high accuracy, making it a popular choice for smart document classification. Overall, automatic document classification using naive Bayes is an effective and efficient approach for organizing and managing large volumes of textual data.

AIML-11:Melanoma skin cancer stage detention

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Abstract—Melanoma is a kind of skin cancer that, if not found in its early stages, can be fatal. In this study, we present a method for the detection and stage-based classification of melanoma skin cancer using a convolutional neural network (CNN). In our method, dermoscopic pictures that have already been processed are used to feed the CNN for feature extraction and classification. A dataset of 5,000 dermoscopic pictures with varied melanoma phases, including benign, early-stage, and advanced-stage melanomas, served as the basis for our model's training and testing. Our findings demonstrate that, when compared to current state-of-the-art methods, our CNN-based technique outperforms them by achieving an accuracy of 92.6% for the identification of various melanoma stages.

Emb-5:Electronic Voting Machine Authentication Using Biometric Information

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Abstract-This paper introduces a Biometric Voting System using Fingerprint Scanner and Arduino for voting in institutes and organization. A biometric voting system using Arduino is a promising innovation that could revolutionize the way we conduct elections. This system uses biometric data to authenticate the identity of voters, which eliminates the possibility of voter fraud and ensures the integrity of the voting process. With the use of Arduino, the system is easy to control and manage, making it efficient and reliable. It also eliminates the need for physical ballot papers, which reduces the risk of ballot stuffing and tampering. However, to fully implement this technology, several challenges must be addressed. The cost of the system, the need for reliable power supply, and the need for a secure database are some of the challenges that must be overcome.Despite these challenges, the biometric voting system using Arduino Mega holds great potential in ensuring free, fair, and credible elections. It is a step towards building a more transparent and reliable electoral process, which is crucial in promoting democracy and good governance.

Robotics/EV/Automation-5: An optimised battery management system for e-bicycle

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Abstract—Today's electric vehicle (EV) has been designed so that the engine, tank, and fuel pump of the traditional gasoline- powered vehicles to be replaced by an electric motor, battery, and charger. To put it another way, we used a pack of batteries in this instance rather than fossil fuel to propel the vehicle. Development of EV is required due to global climate change and abnormally escalating crude oil prices internationally. To address these issues, a new energy source that can take the place of fossil fuels must be created or improved, a green, sustainable energy. It is crucial to ensure that the battery being utilized is as dependable as fossil fuel because of this. Hence the battery life preservation and performance enhancement of EVs are greatly influenced by the design of the battery management system. The BMS is also responsible for a wide range of other functions, such as the evaluation of the voltage, current, and temperature of the system, the assessment of the state of charge (SOC) and health (SOH) of the cells, the management and supervision of the charge / discharge characteristics, and cell balancing. In this project, 18650 Lithium-Ion batteries are used to develop battery management for a 36V 7.8AH Battery Pack. Compared to other cell chemistries, lithium-ion batteries are a good option for EVs because of their high specific energy, high energy density, high open circuit voltage, and low self-discharge.

AIML-12:Camera System to Detect Littering

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Abstract—Recently, the utilization of security cameras for crime prevention and early detection of emergencies worldwide has been increased. The expansion in the use of surveillance cameras has helped in crime detection, captures and crime prevention. This paper aims to present an intelligent system for detecting the littering done by people in corridors, streets,etc based on a network of autonomous tracking units that capture
and process images.This study has explored an intelligent video surveillance system, presented by real time detection, object classification and interpreting the activity of the people by employing image segmentation to catch people throwing waste on roads. The method put forward in the paper incorporates the face identification system to detect littering and the person involved and report it to the lawful person. The algorithm for the system would be developed using python and be tested for various sets of exemplary real time video recordings to know the accuracy in the detection. In this paper we are using a Raspberry Pi as our main processor to which camera will be interfaced.

IoT-8:IoT Based Smart Waste Management System

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Abstract: To maintain the attendance manually in an institution. There is a difficulty in handling attendance manually. This project aims at designing a smart attendance system that automatically monitors and manages attendance of the students in an institution efficiently. The whole system is developed with an Arduino uno microcontroller and RFID readers. Unique RFID tags can be deployed in student id card. Also, Wi-Fi communication modules are used to make convenient communication depending on the availability of the network.

IoT-9:Online Voting System Using Blockchain

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ABSTRACT: Online voting using blockchain technology has emerged as a promising solution to enhance the security, transparency, and efficiency of elections. Blockchain-based online voting systems offer several blockchain-based voting system, votes are recorded on a distributed ledger that is secured by cryptographic algorithms and decentralized consensus mechanisms. This ensures that the voting process is transparent and tamper- proof, as any attempt to alter the recorded votes would require a consensus from the majority of the network participants. Despite the potential advantages of blockchain-based online voting, several challenges remain, including concerns over voter privacy, scalability, and the need for regulatory frameworks to govern such systems.

Emb-6:Design and Implementation of Emergency portable Ventilator

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Abstract— The COVID-19 pandemic has led to an overwhelming number of patients in numerous hospitals, clinics, and healthcare facilities resulting in a severe shortage of crucial medical equipment known as the ventilator. The ventilator is extremely necessary for patients that are in dire need of assistance with their breathing caused by the effects of COVID-19. Hospitals only have a fair number of commercial ventilators because they are expensive, large, immobile, and difficult to move. The goal of this paper is to design and build a portable emergency artificial ventilator that is reasonably affordable, small compared to the commercial ventilator, easier to move, could be used at home and can act as a worthy replacement for the commercial ones. The proposed emergency ventilator is based on an Arduino microcontroller to control a stepper motor, a pulse oximeter sensor. It eliminates the need for a human

intervention to compress the bag by compressing the self-inflating bag with a lever and it can alarm the facility in case of any abnormal conditions. As a conclusion, it was designed, implemented, and tested with very good results such as pulse oximeter sensor error was 1.02%.

Comm-3:Energy Efficient Resource Allocation in Cognitive Radio

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Abstract—Resource allocation is used for complete utilization of frequency spectrum in cognitive radio networks. To maximize energy-efficiency is a current research problem because of the many practical limitations such as transmission power, interference threshold of primary users and traffic demands of secondary users. Orthogonal frequency division multiplexing is an efficient technique for achieving downlink resource allocation in communication systems. Margin adaptive approach is used to minimize the amount of transmit power whereas rate adaptive approach is used to maximize data rate, it will give energy efficiency to the system. For the resource allocation process, subcarrier and power allocation is done sequentially to reduce the complexity of a system with single user as well as multi-user. The communication setup includes two host computers, communicating through two USRP boards over the range of 400 MHz to 4.4 GHz with the software tool of LabVIEW. By evaluating the performance of single user and multi-user greedy algorithms, it has been found that energy efficiency for single user is nearly 185bits/Joule whereas for multi-user has 150 bits/Joule using 20dB minimum power gain.

CN-3:5G Networks and Mobile Communication

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Abstract: The fifth-generation (5G) wireless network is a significant leap in telecommunications technology. It is the most anticipated technology, promising ultra-high speeds, low latency, and massive connectivity. The conversion from 4G to 5G networks is expected to revolutionize the world of communication and enable the development of new applications that were not possible before. This research paper provides an overview of the 5G network architecture, its benefits, challenges, and its impact on various industries.

Emb-7: SEED SORTING AND SOWING ROBOT

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Abstract— Agriculture is a crucial aspect of our economic system, and to meet the growing food demands, farmers need to implement new techniques that increase crop production without affecting soil texture. Seed quality plays a vital role in crop production, and the use of good quality seeds is necessary for satisfactory yield and export in markets. However, conventional seeding methods are time-consuming and labor-intensive, which increases the total cost of farming. To solve this problem, a seed quality analysis and sowing machine were developed that reduces the efforts and total cost of sowing seeds. The physical purity analysis of seeds is important in determining the proportion of pure seed components in the seed lot. Traditionally, the quality of grains is evaluated manually, which is time-consuming, expensive, and may produce varying results. Therefore, digital image processing techniques can be used for quality evaluation and grading of agricultural food in the industry. In this project, digital image processing techniques and artificial neural networks were utilized for grading and analyzing grains based on their

size and shape. This method requires minimal time and is low-cost, making it a practical solution for seed quality analysis. The sowing machine developed in this project is suitable for all types of crops, and its robust construction makes it reliable for use in different farming environments. Its manual operation reduces the efforts of farmers and increases the efficiency of planting, thus reducing the problems encountered in manual planting. In summary, the development of a seed quality analysis and sowing machine using digital image processing techniques and artificial neural networks is a significant step towards increasing crop production and reducing the total cost of farming.

AIML-13: Classification of vehicles using deep learning

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Abstract— In the area of highway management, the detection and counting of smart vehicles is becoming increasingly important. However, because vehicles come in a variety of sizes, it might be difficult to detect them, which has an impact on how accurately counts of vehicles are made. The proposed dataset, which offers the whole data foundation for vehicle detection based on deep learning, includes annotated tiny items in the image compared to the existing public datasets. The highway road surface in the image is first extracted and dividing into a remote area and a proximal area using a newly developed segmentation method in this vehicle detection and counting system;
the method is important for enhancing vehicle detection. The above two locations are then fed into the YOLOv3 network to detect the vehicle type and location. The ORB algorithm generates vehicle trajectories, which can be used to determine the vehicle's detection and the number of different vehicles.

Emb-3: Design and Implementation of Reversible Vedic Multiplier on Artix-7 FPGA

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Abstract— In conventional computing, multiplication is an essential operation that is performed using Arithmetic Logic Units (ALU) and multiplier circuits. In this paper, we present the review, design, and implementation of a reversible Vedic multiplier on Artix 7 FPGA using VHDL. The conventional multiplication technique is not efficient as it requires non- reversible operations such as addition and subtraction. The Vedic multiplier is a high-speed, low-power multiplier that uses the ancient Vedic mathematics techniques. Reversible logic is a new approach that reduces power dissipation and provides better efficiency. We have used VHDL to design and implement the reversible Vedic multiplier on the Artix 7 FPGA. We have evaluated the performance of the reversible Vedic multiplier and compared it with the conventional Vedic multiplier. Our results show that the reversible Vedic multiplier provides better efficiency and lower power dissipation. Reversible computing is gaining attention due to its potential applications in quantum computing, cryptography, and image processing.

AIML-14:Early Detection Of Alzhrimer's Disease Using Deep Learning

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Abstract—Our project is titled "EARLY DETECTION OF ALZHEIMER'S DISEASE USING DEEP LEARNING." It is used to detect Alzheimer's disease which is a debilitating neurological condition with no specific treatment, and early detection is crucial for timely care. Many studies have utilized statistical and machine learning techniques to diagnose Alzheimer's Disease. Deep learning algorithms have demonstrated human-level performance in various domains, and their application to Alzheimer's Disease diagnosis has shown promising results. In this study, we

propose a system for detecting Alzheimer's disease using magnetic resonance imaging (MRI) scans and Convolutional Neural Network (CNN) architecture. Our system offers high accuracy, quick processing time, and generalizability to various populations, making it a valuable tool for clinical settings. By using ResNet-50 architecture, our project showcases the effectiveness of deep learning models in Alzheimer's Disease detection.

AIML-15: Electricity Theft Detection using Machine Learning

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Abstract: In this paper, we propose a machine learning approach to detect electricity theft using the SARIMAX algorithm. The proposed approach utilizes historical data on electricity consumption and weather patterns to build a predictive model of normal electricity consumption. The model is then used to identify abnormal usage patterns, which may indicate theft. Our experimental results show that our approach is able to accurately detect instances of electricity theft.

AIML-16:'Sumitra': A GPT-3 based Geriatric Care Robot

Vishvali Deo, Vikrant Deo

Abstract— The global population is rapidly ageing. At this pace, there might soon come a time when the older population exceeds the number of young people. This would create a huge economic, social and most of all, a healthcare crisis. With a smaller number of youngsters to care for the elderly, it would put a large amount of stress on the currently available human centric system of care- givers. To avoid this catastrophe, we need to make use of Industrial Revolution 4.0 features – Robots and Autonomous Machines that would not only help the human care-givers but also substitute them eventually. This paper elaborates on the design of one such robot – 'Sumitra'. 'Sumitra' (Good Friend), with its variety of features, would be able to support geriatric population in maintenance of their physical as well as mental health. Moreover, it shall help ease the worry of family who stay far away from their older relatives by acting as a remote monitoring unit while still performing all the important functions of caregiving. We are positive that 'Sumitra' would stay true to its name and prove to be a caring and loving companion to its senior friends.

Robotics/EV/Automation-6:MARK1-Real Time Robot for Surface Cleaning

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Abstract— The development of technology has an effect on how we conduct our daily lives. Today, technology helps us with every action we perform and makes life more comfortable. The implementation and construction of robots or rovers is the emphasis of the following generation. Lately, algorithms for autonomous vehicles have evolved to deal with a variety of difficult circumstances and real-world conditions. Yet, these come at hefty prices that are out of reach for most people. Cleaning is handled manually at many businesses, educational institutions, and other buildings, which takes time. In this study, we have put forth a robot design model to address a number of operational
problems and shortcomings in the current systems in this field. MARK1 is a cleaning robot which is automatic.it has been developed to tackle various issues. It can move around a given room without hitting any obstacles. It can clean tiles shiny surfaces.It has a cotton circular brush in front attached which is used to mop the surface integrated with

water pumping mechanism with water flow control. It can also be programmed as per user convenience for following a rectangular path fed into it.All of the robot operations are controlled using Raspberry Pi

IOT- 5: Realtime Classroom Data Display.

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Department of Electronics & Telecommunication

Abstract: A real-time system for the classroom that displays the timetable and monitors attendance This system includes various databases of lectures, teachers, and different timings. An Android application is created to upload the timetable, and it also provides the feature to set the templates that are going to be displayed on the LCD-G screen. The data from the application is stored in the cloud, which is then fetched by the raspberry pi according to the current time. It will check the template selected by the user and provide the needed data as input for the screen, which will be the output. A real-time system for classrooms that displays a timetable and monitors attendance This system includes various databases of lectures, teachers, and different timings. The Android application is created to upload the schedule, and it also provides the feature to set the templates that are going to be displayed on the LCD screen. The data from the application is sent to the cloud, which is then fetched by the raspberry pi according to the current time. Check the ill-check template selected by the user and provide the needed data as a Screen or the will been, been will be the output. It is useful in various educational organizations such as schools and colleges.

IOT- 6: Location and Recognition of Objects for Visually Impaired People

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Abstract: This work based on "Detection and Identification of objects for blind people using Raspberry Pi" by S. Gayatri, K. Jayapriya, K. Jayaprakash and K. Lalitha [1] assists visually impaired persons with grocery shopping. The robot module (trolley) contains a Raspberry Pi, as well as an RFID reader. a headset. and motors. The person' speech (part where the person wants to go) is used as input, and this information is sent to the Raspberry Pi through Bluetooth. According to the specifications, the Raspberry will send a command to the driver IC, which will then drive the motors in the desired direction. All of the objects in the section will be RFID- tagged. The RFID scanner will detect (read) the tag whenever an item is picked and dropped into the cart. This will be relayed to Raspberry Pi, which will then send audio output (item name and price) to the person via headset. In addition, all things in the trolley are logged in the IOT and printed at the bill section. The Ultrasonic sensor is also used to detect obstacles for the blind individual to move forward. Disability refers to a person;s inability to fulfill their own desires without the help of others. One of an individual's limitations is visual impairment. Several solutions have been proposed to date to improve the quality of life for visually impaired and blind people. Purchasing groceries without the assistance of others is still a difficult task for them. The paper describes a device that helps them become aware of and purchase their products in the supermarket. RFID (radio frequency identification) reading technology is used. Based on the current time conditions, the audio orders will assist them in the grocery store. As a result, the existing grocery shop queueing system is eliminated. The device & final purpose is to eliminate other shopping aids for visually impaired persons and provide them with a convenient and complicated environment. When this technology is used, it makes purchasing easier for blind people, saves patron time, and increases business
sales. And the cost of an IoT product is compared to the cost of a market product.