Souvenir of

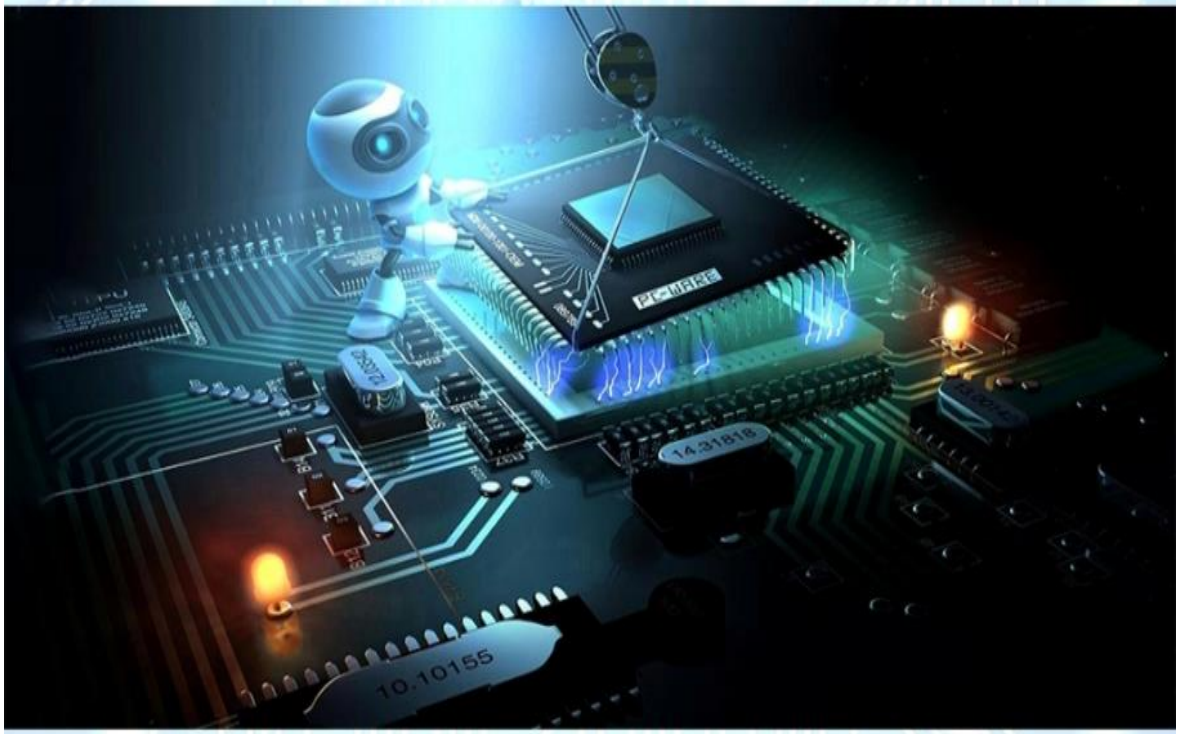
8th National Conference on

Advancements in Communication, Computing and Electronics Technology

[ACCET 2022]

accet@mescoepune.org

19TH AND 20TH APRIL 2022



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Dr. M. P. Dale

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Dr. P. P. Mane

Prof. M. M. Dhanvijay

Department of

Electronics and Telecommunication Engineering

Modern Education Society's College of Engineering, Pune

Accredited by NBA and NAAC with "A" Grade

Pune-411 001

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Souvenir

IEEE Signal Processing Society
Pune Chapter

IEETE

IEEE Signal Processing Society
sponsored
IETE Pune Centre Approved
8th National Conference on
Advancements in Communication, Computing and Electronics Technology
ACCET – 2022

Chief Editors
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Dr. M. P. Dale

Editors
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Organized By

Department of Electronics and Telecommunication

Modern Education Society's
COLLEGE OF ENGINEERING
Accredited by NBA and NAAC with 'A' Grade
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MES College of Engineering, Pune-01

Vision

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

Mission

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

"The Key to Unlock Curious Minds."

A conference is a place where true meeting of minds happen. Researchers who would have done a good deal of thinking about their idea, will come forward and share their thoughts with fellow researchers. The beauty of a conference such as 8th National conference ***'Advancements in Communication, Computing and Electronics Technology' [ACCET-22],*** is that it allows such exchanges which in turn will ignite more ideas and ways of improving the presented ideas. The biggest beneficiaries hence will be the attendees who truly participate. Thanks and congratulate the organizing team for enabling innovation through a conference ACCET-22. With the blurred boundaries between domains, technologies getting merged and less compelling technologies practically disappearing, we need to be updated on how our world is evolving and changing. We can use of ACCET-22 to add value to ourselves, our research and our communities. Wish you all a great conference.

It is encouraging to celebrate the ACCET-22 to gather experts in the field of Electronics & Telecommunications. It is even more encouraging if the ACCET-22 can gather researchers from academia, industry and at the same time let students to attend the symposium.

Research and development forms the backbone of our curriculum. The staff and students are engaged in various path-breaking innovative research activities all throughout the year. Every year Electronics & Telecommunications department organizes conference on relevant topics in order to facilitate research in those areas which will lead to necessary metamorphosis in the academia as well.

The virtual conference represents an opportunity for ACCET-22 to inspire attendees with a perspective of hope in prevention research, in therapy and service organization in mental health. We are certain all of you find this conference stimulating, rewarding and meaningful. It is the team-work that makes a big difference and success in organizing conference.

On behalf of MESCoE, I heartily welcome Keynote Speakers, eminent academicians, corporate delegates and all the paper presenters to ACCET-2022.

Congratulations to Dr. P. P. Mane, Head, Department of Electronics and Telecommunication Engineering & co-ordinator Prof. M. M. Dhanvijay and the entire faculty of the Department for constant efforts in maintaining high standards in preparing of this conference souvenir and making it a big success.

Wish you all a great conference!

I wish 'ACCET – 2022' a big success!

19th April, 2022 **Dr. S. S. Sarawade**

PUNE **Principal**

Hon. Vice - Principal's Message

An investment in knowledge always pays the Best Interest.
- Ben Franklin

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 8th National Conference on "Advancements in Communication, Computing and Electronics Technology" (ACCET-22) on 19th & 20th April, 2022.

Nowadays we come across various applications of Electronics and Telecommunication field. The frequent changes in the technology of 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-22.

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 memorable time for all the participants at ACCET-22

Dr. M. P. Dale
Vice-Principal
MES College of Engineering, Pune

HOD's Message

It is a profound moment, to be convening the 8th National conference 'Advancements in Communication, Computing and Electronics Technology' [ACCET-22], 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 Super Computers 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 are brought vast libraries of information into our Web Browsers and made world a more interdependent place.

ACCET-2022 attracts established academicians and research students from around the nation. The research papers published in this proceeding bears testimony to the fact that exciting work is been undertaken in numerous topics related to electronics and a 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. S. S. Sarawade for his constant support and encouragement.

I highly appreciate the efforts of the coordinator Prof. 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 platform, Department of Electronics and Telecommunication Engineering, M. E. S. College of Engineering, Pune has organized the 8th National Conference on Advancements in Communication, Computing and Electronics Technology [ACCET 2022] on 19th & 20th April 2022. It has been a real honour and privilege to serve as the Coordinator of the conference.

The Souvenir of ACCET 2022 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.

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We are thankful to Hon. Principal, Dr. S. S. Sarawade 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-2022 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-2022, 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.

Mrs. M. M. Dhanvijay
Coordinator
ACCET-2022

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IP - 1: Detection of Mucormycosis using Image Processing

Swati S. Pawar, Trupti Badgujar, Vivek D. Ugale, Nishiket R. Surwade, Adita P. Patil, Rutuja Bhamare, Sandip Institute of Technology & Research Centre, Nashik, India

***Abstract*—** Thousands of people have died as a result of corona disease in the last two years all over the world. Corona virus pneumonia is a contagious disease for which no medicine or vaccinations are currently available. Fever, sore throat, headache, and dry cough are the most common symptoms of this illness. Patients who have recovered from covid mucormycosis have been recorded. India is currently dealing with a black fungus outbreak (mucormycosis). We attempted to review a paper on the identification of mucormycosis using image processing in this paper. However, we were unable to locate much work in this area. Instead, we're looking into using image processing to identify diseases so that we can use the same or similar techniques to identify mucormycosis. We also looked at a few papers where mucormycosis was caused by covid-19.

IP-2: Covid - 19 detection using chest X-ray

Swati S. Pawar, Ritika Patil, Vivek D. Ugale, Shubhangi More, Mayur Ingale, Durgesh Ramaiya, Sandip Institute of Technology & Research Centre, Nashik, India

***Abstract*—** Covid-19 according to specialists, coronavirus disease is the world's most difficult problem. The virus mostly infects the human respiratory tract as well as multisystem infections. There isn't any particular vaccination or medication. Available to treat the condition and prevent it from spreading further. Some common confirmatory clinical tests are likewise quite complicated and time-consuming. One of the techniques used is a chest x-ray. Visual reactions related with covid-19 and some viral diseases are important and serve a key role in detecting them. To tackle this problem, we employed CNN in our study. Chest x-ray radiography algorithm it is a form of artificial neural network that has the ability to learn new things.

IoT- 1: IoT in Hydroponics

Swati S. Pawar, Asit Bhate, Vivek D. Ugale, Krushna Dhale, Aniket Kumavat, Sandip Institute of Technology & Research Centre, Nashik, India

***Abstract*—** Humanity's most basic needs are food, clothing, and shelter. These three resources are dependent on each other. As the world's population and pollution rise, meeting all of these basic needs becomes increasingly difficult. It is difficult to meet the food needs of an expanding population due to land scarcity, water scarcity, and climate change. Hydroponic farming is the answer to the problems that traditional farming methods have. In this paper, we looked at various methods for implementing hydroponic farming.

IoT- 2: A survey on Movable Railway Platform for physically challenged & elderly persons

Vivek D. Ugale, Avantika Deshmukh, Swati S. Pawar, Devyani Sarode, Adita P. Patil, Komal Mahajan, Sandip
Institute of Technology & Research Centre, Nashik, India

***Abstract*—** India is evolving in a wiser direction these days, supporting smart cities and smart railway stations. In this regard, we want to take a little step forward by incorporating a domestic railway platform innovation into the Indian railway framework. The goal of this survey is to study the various system available for physically challenged persons and older citizens to traverse a footbridge between two railway platforms. We have gone through the various smart & fully automated movable platform systems& documented some unique & distinct features of the systems.

IoT- 3: Food Dehydration System

Vivek D. Ugale, Pooja Gunjal, Swati S. Pawar, Lajari Khairnar, Sushant Pawar, Sadik Pinjari, Sandip
Institute of Technology & Research Centre, Nashik, India

***Abstract*—** Drying is a dehydration technique used to keep agricultural products fresh for a long time. The most frequent and least expensive option is open sun drying, which involves simply laying the products on the ground, road, carpets, roof, and so on. However, open-air drying has numerous drawbacks, including a reliance on good weather, contamination by dust, consumption by birds and animals, a sluggish drying pace, and damage from severe winds and rain. To tackle these challenges, solar dryers with a contained atmosphere for drying agricultural products have been created.Selection of a suitable drying method and proper input parameters are critical for obtaining high-quality food with low energy usage. Several academics throughout the world have invented new drying methods in recent years to improve product quality, increase drying pace, reduce energy usage, and so on.The survey will be helpful to new researchers entering this essential and quickly growing field of engineering.

AR- 1: Campus Navigation Application Using Augmented Reality

Sandhya Shinde, Niranjan Gaikwad, Suyog Tarvate, Pratap Gautam, Dr DY Patil Institute of
Engineering Management and Research, Akurdi, Pune, Maharashtra

***Abstract*—** For all the new comers to the school field it's tough to search out all the places, whether it is the cafeteria or the library. Therefore, by this analysis, a mobile application is designed for field navigation. The underlying technology on which the application is primarily based is increased reality, that is used to enhance the quality and straightforward use of the appliance, as users may get the knowledge easily. Communication with lecturers was extravagantly faster than within the traditional approach. Increased Reality could be a realistic, direct or indirect read of the physical reality atmosphere whose components

square measure “enhanced” through computer-generated or sensory input like sound, video, graphics, tactile, or GPS information. during this research, we have a tendency to gift a completely unique field navigation APP that uses increased reality to supply users with a replacement and attention-grabbing thanks to meet our field. With advanced increased reality technologies like pc vision and seeing, the knowledge regarding the field atmosphere and its objects is overlaid on the $64000 world and becomes interactive. so as to boost the APP potency, this analysis presents a virtual parcel modelling interface with deep learning to boost the item recognition ability.

AI - 1: Detecting Heart Rate from Head Motions in Video

Sandhya Shinde, Ritesh Anand, Aviranjan Pandey, Kavita Pawar, Dr DY Patil Institute of Engineering Management and Research, Akurdi, Pune, Maharashtra

***Abstract*—** This paper proposes a touchless system for estimating heart rates using Laptop / Desktop cameras. It is based on computing slight and repeated head motions by tracking facial detail points in camera images. However, it suffers from the problem with the movements of the head that holds the camera. To resolve the problem, the proposed system traces surrounding detail points together with facial feature points. This is based on that the movements of the surrounding detail points are mainly resulted by camera problem/network connection. The gesture of background detail points is then used to correct locations of the facial feature points. In experiments, the correction improved the accuracy of heart rate approximate by more than 25%. As a result, the proposed system could estimate heart rates with high delicacy.

RES - 1: Footstep Charger

Sandhya Shinde, Mrunal Jiotode, Chetan Gampawar, Rohan Joshi, Dr DY Patil Institute of Engineering Management and Research, Akurdi, Pune, Maharashtra

***Abstract*—** Footstep Charger is a basic human activity project. Based on walking, just like running. It is a daily walking activity. Examples of conventional sources of energy are CNG, coal, oil, fossil fuel, and natural gas, and similarly, the example of non-conventional sources of energy are ocean energy, tidal energy, hydro energy, bioenergy, solar energy, and wind energy, as many countries are dealing with charging instantaneous energy. The utilization is significant for a highly populated country. Using waste energy of foot power with human motion is vital for growing populated countries.

IoT - 4: Smart Plant Monitoring and Control System

Nihar Hirve, Ketaki Mandavkar, Kumuda Shanbhag, Modern Education Society's College Of Engineering,Pune, Maharashtra, India

***Abstract*—** The Smart Plant monitoring and control system uses Internet of Things which is a network of physical objects ("things") which have some computational intelligence embedded inside it and has a capability of getting connected to the internet for exchange of data with cloud. Cloud computing helps in accessing data anywhere and everywhere in the world over the internet. Cloud computing offers large storage, high computational power, higher efficiency to handle large data load, elastic resource allocation, and quick accessibility at an economical price. By reading and researching different IEEE articles and some local articles, we understood how to make our project and how to work on it. The objective of this project is to offer assistance to farmers in getting Live Data (Temperature, Humidity, Soil Moisture, Soil Temperature) for efficient environment monitoring which will enable them to increase their overall yield and quality of products. This smart agriculture IoT system is controlled by NodeMCU ESP8266 which connects a DHT11 sensor, Moisture sensor, DS18B20 Sensor Probe, LDR, and a submersible Water Pump and functions as it receives the sensor values to take an appropriate action. This paper represents the use of IoT and its applications in the agriculture domain.

IoT- 5: A Review On Implementation Of Internet Of Things(Iot) For Portable Health Monitoring System

Sahil D. Jaiswal, Dr. Nilesh N. Kasat, SIPNA C.O.E.T, Amravti, India

***Abstract*—** Web of Things (IoT) imagines a future wherein anything/anybody/any help can be connected through suitable data and correspondence advancements which will acquire innovative unrest the fields of domestics, shrewd homes, medical services frameworks, products checking and strategies. This task presents the uses of IoT and addresses a few fundamental boundaries and attributes of every one of the utilizations of IoT. In this undertaking, we play profoundly investigated the part of IoT in medical services to onlooker the accompanying boundary, for example, heart beat rate, body tension, temperature and stance conveyance and its innovative viewpoints that make it a reality and inspect the chance of diagnosing patients wellbeing. A cloud based reasonable system has been proposed which will be gainful to the medical care industry executing IoT medical services arrangements with the assistance of android application.

IoT- 6: Real Time Stand Alone Alarm System To Detect Driver Drowsiness

Joezer Ebenezer, Tadaksha Mahesh, Anashwara Pillai, Ayush Mourya, Prof. Manita Rajput,
Fr. C. Rodrigues Institute of Technology, Navi Mumbai, India

***Abstract* —** The major factor for most driving accidents is due to drowsiness. Several deadly accidents can be prevented if the drowsy drivers are warned in time thus, in this paper we present a robust, low cost and intelligent scheme for driver's drowsiness detection that can be easily mounted on any vehicle. This model introduces an accident alert system that awakes the person driving the vehicle. The system is responsible for the driver's drowsiness detection by alarming the driver. In this approach, the driver's facial appearance is captured via a camera installed in the vehicle which will detect all the 68 facial landmarks and determine the state of the driver's eye. In the first step, we monitor the driver's drowsiness state while driving and then alarm the driver if found drowsy. Second step, if the driver is still found drowsy, the system will send the geolocation using the GPS module to the registered mobile number , say a police station or any concerned authority using the GSM module.

IP- 3: Single Hand Single Camera Approach for Devnagari Sign Language (DSL) Recognition

Dr. Mrs. J. R. Pansare, MESCOE, Pune, S.P. Pune University, India

***Abstract*—** This paper emphasizes the Single Hand Single Camera (SHSC) approach used in building Sign Language Recognizer (SLR) for identification of Devnagari Sign Language (DSL) numbers. In 2013, we presented the foundational model for American Sign Language (ASL), which formed the basis for the most widely used sign laguage. Since that time, there have been many advances in the model along with vital factors. Moreover, there is a need to develop such a model for DSL. Therefore, we propose Numeric Devnagari Sign Language Recognizer (*N-DSLR*) for the identification of 10 DSL numerals and their translation into respective Devnagari numbers. In this work, experiments are performed on DSL using various techniques such as region extraction, template matching, and clustering technique in mixed lighting conditions and achieves the detection rate of 99% against a static background in real-time. Additionally, *N-DSLR* is used as an educational tool for hearing and speech impaired children.

Inst- 1: Engineering approach for the improvement of sensor parameters

Mr. B. M. Kharat, Prof. Dr. Vandana B. Malode, Prof. Dr. K.M. Jadhav, Dr. BAMU
Jawaharlal Nehru Engg College Aurangabad, India

***Abstract*—** Modern economy is technology driven, promising revenues that are mind-boggling. Sensor is one such product of biotechnology that is becoming increasingly popular in many fields like environment, monitoring, food analysis, detection of gases, health care and diagnostics [1-4]. Research and development in this field is wide, at the forefront of multidisciplinary science that involve the collaboration of physics, chemistry, biology, electronics, nanotechnology and engineering.

Today, the use of large number of vehicles and machines affects the human life and all living organism. The vast going industries are responsible for producing pollution in the atmosphere. The air pollution is found to be hazardous to human life. Many reducing and toxic gases like LPG, H_2S, CO, hydrocarbon, CO_2 and Cl_2 are also responsible for the many diseases [5, 7]. Recently, gas sensing applications of soft ferrites have been identified for detection of some reducing gases which are used commonly at homes, car, laboratories, industries, service stations [6, 7].

Biosensors have also been developed to detect the wide range of biochemical parameters using number of approaches. Recently, the most fascinating includes immune sensors and nucleic acid sensors [8, 9]. In general, a biosensor is an analytical device which detects, transmits and records the information about physiological biochemical change for the specific analytes by producing a signal proportional to the concentration of the target analytes. A basic biosensor assembly includes the receptors, transducers and processors.

Apart from air pollution, chromium contamination of soil and ground water is one of the significant environmental problems now a days. Chromium is a most common pollutant at hazardous waste sites as well as common inorganic contaminant of the lead. Chromium compounds are commonly used in several industrial processes like leather tanning, textile coloring process, metal plating and alloying [10]. For detecting chromium waste there is need to develop cheap and portable sensors, which could be embedded inside water systems for real time monitoring of chromium ions. Piezoelectric ceramics (PZT) are promising materials for the fabrication and development of these sensors based on transduction to frequency aging [11]. These materials are less expensive and easier to handle and can be used for biological of sensor applications.

Various materials are used for the design, fabrication and development of sensors used for different applications. These materials include prominently the ferrites, piezoelectric ceramics. Ferrites are the promising material which shows both electrical and magnetic properties which are tunable as per the desired applications. On the basis of their excellent electrical and magnetic properties, they are used as a transformer cores, antenna rods, memory chips, permanent magnets [12, 13]. The magnetic nano particles of ferrites are recently used in medical field for targeted drug delivery, cancer treatment [14, 15]. The recent application of ferrites includes catalyst and sensors. The electrical properties of the ferrites are found to be more important and useful in sensor applications. The properties such as DC resistivity, thermoelectric power and dielectric loss show significant dependence of temperature and frequency of applied AC field. The electrical properties are also sensitive to the microstructure, grain boundary and porosity.

The electrical resistance of ferrite composition significantly varies with change in environmental gas changing [16]. It is also sensitive to the humidity, water vapour

dissolved in air. Therefore, ferrite materials are very much useful for gas sensing and humidity sensing applications.

Ferrites are the ferrimagnetic transition metal oxides containing iron oxide as a major part and metal oxide. On the basis of their crystal structure, they are grouped in three classes namely spinel, garnet and hexagonal. Spinel ferrites are the important magnetic materials and are widely studied for numerous applications by number of researchers [17-19]. In the recent years, nano crystalline spinel ferrites have attracted scientist and technologist because of their superior properties compared to bulk counterparts. The nano crystalline ferrites exhibit high electrical resistivity and high porosity apart from high Curie temperature, high saturation magnetization and high coercivity. Thus, the nano crystalline spinel ferrites in thin film form can be effectively employed in sensor applications.

The spinel ferrites in thin film form prepared by chemical methods are found to be most useful for gas sensing applications. The chemical methods include spray pyrolysis; spin coating, chemical bath deposition techniques [20-22]. The spray pyrolysis technique is effective for the preparation of uniform thin film of spinel ferrites. Many parameters in spray pyrolysis technique like nozzle diameter, nozzle pressure, substrate, substrate temperature should be designed carefully and optimized before the deposition of homogenous thin film of high quality.

In summary, there are large numbers of reports available in the literature on the synthesis of spinel ferrite oxide semiconductor for the use of gas sensing applications. These studies revealed that spinel ferrite effectively can be used as a gas sensor at room temperature. However, despite the large variety of available oxide based gas sensors researchers continue to search for more effective gas sensor materials with high sensitivity, fast response time and selectivity to detect gases at lower concentration.

ES- 1: AUTOMATED PILL DISPENSER SYSTEM

Makrand Birajdar, Arsh Firfire, KVL Tanuj, Kedar Kulkarni, Milind Shah Fr. Conceicao Rodrigues Institute of Technology, Vashi, India

***Abstract*—** Medication adherence of the patients has constantly been a severe concern for the healthcare industry mainly because patients have a severe drug misuse problem . The patients, especially the senior citizens forget to take their pills on time. This causes problems of under dosage, sometimes wrong dosage and over dosage. To overcome these issues, we designed an automated pill dispenser based on microcontroller (Arduino) that communicates with RTC module for real time and uses servo motors for dispensing of pills. It is capable of providing maximum of 3 medications per day according to the predefined time.

AI- 2: Student Chatbox

Mrs. Jyoti Sangogi, Ms. Deepali Dhomne, Ms. Dhanashri Chavan, Mr. Vaibhav Dawande,
Savitribai Phule Pune University (SPPU), Pune, India

***Abstract*—** The days of solely engaging with a service through a keyboard are over. Users interact with systems more and more through voice assistants and chatbots. A chatbot is a computer program that can converse with humans using Artificial Intelligence in messaging platforms. Every time the chatbot gets input from the user, it saves input and response which helps chatbot with little initial knowledge to evolve using gathered responses. With increased responses, precision of the chatbot also gets increases. The ultimate goal of this project is to add a chatbot feature and API for Matrusri Engineering College. This project will investigate how advancements in Artificial Intelligence and Machine Learning technology are being used to improve many services. Specifically, it will look at development of chatbots as a channel for information distribution. The program selects the closest matching response from closest matching statement that matches input utilizing WordNet, it then chooses response from known selection of statements for that response.

AI- 3: Video Scene Categorisation Using Deep Learning for Fighting Detection

Mr. R. U. Shekokar, Dr. Mrs. S. N. Kale,SGB Amravati University, Amravti, India

***Abstract*—** This paper is presenting a video classifier build using transfer learning with IceptionV3 (Convolutional neural network model pre-trained on the ImageNet-1k dataset) base model and hybrid transformers on the Peliculas Dataset. This deep learning method is presenting a hybrid model for video classification having applications in scene understanding, video categorization and safety.

AI- 4: Education Loan Prediction Using Machine Learning

Joel Cherian, Selvin Furtado, Aparna Shrivastav, Anshu Gupta, Fr. Conceicao Rodrigues Institute of Technology, Vashi

***Abstract*—** Educational loan approval is a very important process in a banking organization. Each day many applications are submitted and itbecame difficult to find a deserving candidate with good qualification record, credit score and the institute they have applied. So, in this paper we have applied different machine learning algorithms- Logistic regression, decision tree and random forest for loan approval prediction. And result concluded with confusion matrix for false prediction of loan approval.

AI- 5: Smart Surveillance System

Dr. V.G Raut, Renuka Joshi, Rishikesh Patil, Vedashree Dandawate

***Abstract*—** In this paper implementation of a Surveillance System utilizing computer vision, image processing and machine learning is elaborated in detail. The system proposes encoding of the face and comparing the encoded face with the face of the intruders. This encoding approach proves to be the robust method as the emphasis is not on any facial feature, which can prove to be a weak criterion. Implemented system with proposed algorithm using Euclidian distances taken from face as feature vector and CNN for classification gives good classification accuracy. The system also has additional feature of face mask detection. Thus proposed model can handle face mask detection and intruder detection according to the requirement of the user.

AI- 6: Deep Learning Paradigm For Plant Disease Detection

Akshay Tike, Dhairysheel Jadhav, Jambuvant Kadam, Rushikesh Nalbalwar, Dr. A.P. Kale,
Modern Education Society's College of Engineering, Pune

***Abstract*—** Plant diseases are important factors in determining plant yield and quality. Plant disease identification can be accomplished through digital image processing. Deep learning has made significant advances in digital image processing in recent years, far outperforming traditional methods. One of the primary factors determining crop yield loss in crop production and agriculture is the identification and detection of plant diseases. Plant disease research is the study of any visible points in any part of the plant that aids in the differentiation of two plants, technically any spots or colour shades. It is extremely difficult to correctly identify plant diseases. Identification of the disease necessitates a lot of work and expertise, as well as a lot of knowledge in the field of plants and disease detection studies. As a result, image processing is used to detect plant diseases. Disease detection employs image acquisition, image extraction, image segmentation, and image pre-processing techniques.

AI- 7: Predictive Model For Prediction Of Bitcoin Prices Using Recurrent Neural Networks

Shreya Kashid, Harshika Mishra, Stephanie Kedari, Tejas Machkar, Dr. Archana Kale, Modern Education Society's College of Engineering Pune, India

***Abstract*—** Bitcoin is the first cryptocurrency invented in 2008, based on the paper published by Satoshi Nakamoto. Cryptocurrency is considered as a new innovative and creative payment method. It gained popularity due to its decentralized, peer-peer technology, which means that no central authority or individual has control over its circulation and creation. Instead, all transactions created are maintained by the system

itself. It uses blockchain technology to maintain a centralized leisure of all payments. Currently the financial world is undergoing a significant change as the world is trying to adopt modern technologies which are trying to create a currency which will be used in the future, and bitcoin is the first step towards that effort. It becomes important then, to create models which can help predict the value of bitcoin so that investors today can invest their money wisely. This study focuses on the pricing of popular bitcoin currencies using various neural network methods namely Recurrent Neural Network (RNN) and Long Short-Term Memory (LSTM) as well as ten times cross validation. Analysis of various styles from the bitcoin market is performed and important factors are considered and daily price changes are measured by the neural network model. Live streaming data, as well as the database, is considered a test function from a website called coin market cap. Mean Absolute Error (MAE) is considered as a comparative parameter in analyzing the performance of the proposed model with the existing ones. The experiment led to testing hyperparameters to increase the accuracy of the prediction.

AI- 8: Artificial Intelligence based Soft Skills Training Web Application

Rahul Mane, Shubham kale, Swati Kulkarni, Prof. Yogita Ajgar, Modern Education Society's College Of Engineering, India

***Abstract*—** Artificial intelligence and machine learning, which are booming fields, have made major contributions to tackling a variety of industrial and everyday challenges. The advancement of these technologies has had a significant impact on a variety of sectors, allowing complicated tasks to be broken down more efficiently. In this article, we have combined these technologies to create an online platform where people may effectively learn, brush up on, practice, and test their soft skills. Providing a seamless platform of advanced technology and trained models to assist in the grooming of all aspects of one's personality.

AI- 9: Helmet Detection and Number Plate Recognition using Machine Learning

Kishor Rajput, Aniket Pathare, Yogita Ajgar, Pawan Ghumare, Modern Education Society's College Of Engineering Pune ,India

Abstract— Motorcycles have always been the primary mode of transportation in developing countries. Motorcycle accidents have increased in recent years. One of the main reasons for fatalities in accidents is that a motorcyclist does not wear a protective helmet. The most common way to ensure that motorcyclists wear a helmet is by traffic police to manually monitor motorcyclists at road junctions or through CCTV footage and to penalize those without a helmet. But it requires human intervention and effort .So this system Proposes an automated system for detecting motorcyclists who do not wear a helmet from CCTV video footage. First, the system classifies moving objects as motorcycling or non motorcycling.In the case of a classified motorcyclist, the head portion is located and classified as a helmet or non-helmet. Also this paper includes the number plate detection by OCR algorithm.

ES- 2: Auto metro train shuttle between two stations

Ms.Umadevi Dattasamje, Durgesh Bhoge, Pratiksha More, Mayuresh Jadhav, Modern Education Society College Of Engineering, Pune, India

***Abstract*—** The paper possess of a design of Auto metro train shuttle between two stations using ATmega328P.the technology used in driverless train which are in attach with a control system. There are many issues to avoid the accidents due to human faults. This paper provides the information such as new arrival of stations, number of passenger's entry and exit inside the train and runs automatically using the control system without any human being included. This metro train consists of controller that operates the train from one station to another station, and once the train reaches to the station the process repeat itself for further stations.

ES- 3: Design and Development of solar charging station for Electric vehicle

Omkar Janardhan Darwade, Ajay Baliram Mundhe, U D Dattasamje, Shubham Ramesh Nanaware, Modern Education Society's College of Engineering, Pune, India

***Abstract*—** Renewable energy is a type of energy that can be obtained from a variety of sources, including sunshine, wind, tides, and geothermal energy. It generates clean energy from renewable natural resources that can be recharged on a continuous basis. The use of more renewable energy will reduce the price of fossil fuels and the demand for them. Solar photovoltaic energy is widely used for a variety of purposes, including heating, cooking, and power generating. Recent inventions have aided in the development of solar-powered cars. The design and development of a solar charging system for electric vehicles that use a charge controller is detailed in this study. The proposed system's implementation will cut electricity costs as well as charging and discharging losses. In addition, the proposed solar charging system will be one of the steps done to make the campus more environmentally friendly. This study will show how to create a solar-powered electric vehicle system and analyses its performance.

IoT- 7: Fog Computing in Internet of Things

Nihar Hirve, Dr.P.N. Kota, Dr.P.B. Chopade, Modern Education Society's College of Engineering, Pune, India

***Abstract*—** The emergence of numerous IoT devices leads to more data explosion and uncontrollable traffic. Though cloud computing performs well in processing and storing data, most applications in IoT require quicker services. Fog computing extends cloud computing to end devices, in order to better support time dependent, location dependent, massive scale, and latency sensitive applications. In Cloud applications, higher bandwidth is necessary to reduce the latency. Another major challenge in cloud computing is security. For increasing the response time of the system and providing effective security and privacy a concept called fog computing was introduced by Cisco in January 2014. Fogging (fog

computing) helps in the computation of data between end devices and cloud servers. This paper analyses and summarizes fog computing and characterizes challenges like latency, data quality, real-time response, computation, resource allocation, privacy, security, heterogeneity, power management, bandwidth management, and other fog computing issues. These features are supported by the amalgamation of IoT and Fog to extend services to the network edge. This paper presents a survey of IoT and Fog Computing and the benefits of their combination.

IP- 4: Real Time Face Recognition Based Attendance System

Ammit Gangawane, Awanti Chavan, Sakshi Bodre, Yogita Ajgar, Modern Education Society's College of Engineering, Pune, India

***Abstract*—** In today's world when we have all the technologies to revolutionize our life. Thus in this digital era, face recognition system plays a vital role in almost every sector. Hence it's a great idea to develop a system whichcan be controlled and monitored from anywhere. There are many types of good security systems and camera out there for home security but they are much expensive. Face detection and face recognition are very important technologies these days, furthermore we noticed that they got have a variety of uses such as cell phones, army uses, and some high risk information offices. So we decided to make a device that detects and recognize the faceas a student attendance system and can be a substitute for the regular paper attendance system and finger print attendance system. Face detection and recognition is performed using Haar-Cascade classifier. Hence, we have proposed an automated student attendance system based on face recognition. Face recognition system is very useful in life applications especially in security control systems. In this project face of an individual is used for the purpose of attendance making automatically. Attendance of the student is very important for every college, universities and school. Time consumption for this purpose is an important point of concern. This project is based on image processing. In this project face detection and face recognition is used. Face detection is used to locatethe position of face region and face recognition is used for marking the understudy's attendance. The dataset of allthe students in the class is stored and when the face of the individual student matches with one of the faces stored in the database then the attendance is recorded.

IP- 5: Fall Detection For Elderly People Using Image Processing

Sahil Pawar, Rohit Shinde, Om Kadhekar, Prof. Usha Bomble, Modern Education Society's College of Engineering, Pune, India

***Abstract*—** We present a human fall detection method from visual surveillance. In first step, background subtraction is performed using Improved GMM to find the foreground objects. In second step, contour based human template matching is applied to categorize the human or nonhuman object. It helps to detect fall incident by providing sudden change in generated score after matching. Height-width ratio is computed in third step

to decide whether the human shape is changed or not. In fourth step, distance between top and mid center of rectangle covering human is computed, if it is less than a certain threshold, then human fall is confirmed. Finally, if inactive pose of human is continued till 100 consecutive frames, then an alarm is generated to alert the people at home to provide treatment on time. Experiments have been performed on 21 video sequences having different usual and unusual fall incidents. Experimental results show that proposed system works well efficiently and effectively in real-time for recognizing human fall.

Rob- 1: RBSR : Rocker Bogie Surveillance Robot

Kunal Kishor Desarda, Yash Nitin Oza, Shibiludheen, Priyanka Bagul, Modern Education Society's College of Engineering, Pune, India

***Abstract*—** In the modern era, we've emerged as increasingly more self-focused in the field of surveillance and discovery. Surveillance is a very important factor considering humans cannot record video safely in important conditions and hazardous situations like gas leakage in chemical factories, fire outbreaks etc. With emerging times, the face of warfare has changed from guns and ammunition to missiles and technology. Here robots can play a vital role. This paper offers a mixture of elements emerging technologies specifically Robotics and IoT. Most monitoring and tracking robots are not appropriate to traverse on uneven terrain and slopes, however rocker bogies have these functions. These robots can move in any direction and also can climb stairs. They can transfer live streaming and images over a long distance enabling human detection.

IoT- 8: Green House Automation using IOT

Sumit Chaudhari, Bhushan Sapkale, Nikhil Lugade, Prof. Pravin Chopade, Modern Education Society's College of Engineering, Pune, India

***Abstract*—** The world over decades has made considerable advancement in automation. Automation is employed for every sector where it is home, industry agriculture. Greenhouse is the technical approach in which farmers in the rural areas will be benefitted by automatic monitoring& control of greenhouse environment replace the direct supervisions of the human. The paper focuses on the generic architecture which can be applied for many other automation application. The great needs is growing of crops with advancement of technology. Greenhouse are climate controlled structure with wall &roofs &specially designed for off season growing of plants. Internet of things is one of the latest advance in information &communication technologies providing global connectivity &management of sensors devices, users with information. Temperature/Humidity Sensor, Moisture Sensor, Light Sensor efficiently inside the greenhouse by actuating a Cooling Fan, LED, Motor respectively according to the required conditions of the crops to achieve the maximum growth & yield.

IoT- 9: Smart Door Lock System

Ujjwal Ravindra kshirsagar, Harshal Sanjiv Patil, Sanket Anil Vatare, Modern Education Society's College of Engineering, Pune, India

***Abstract*—** Our everyday lives revolve on the concept of automation, and automated systems are claimed to be beneficial since they eliminate the need for human intervention. Our concept is to create and install a smart door lock system that can be used in rental properties, families, and bank lockers to allow only authorized staff access. This idea proposes a smart door system that can be operated by an Android application on a smartphone. Smart door locking systems have gotten increasingly advanced as technology has progressed. The android-based smart door lock system on display here is primarily intended for use in normal mode. Such a system is critical in banks, businesses, and for persons with disabilities. The system also includes features for regular users, such as the ability to control the lock by a single user. The system is particularly valuable because of its cost-effective implementation, sophisticated capability, and easy-to-use interface, as mentioned in the article.

IoT- 10: Emerging Technologies In Iot

Ammit Gangawane, Modern Education Society's College of Engineering, Pune, India

***Abstract*—** In this paper we discussed an overview of Internet of Things (loT) in emerging technologies like Smart Homes, Smart Cities, Iot in Agriculture, Edge Computing & Block Chain Technology. Smart cities use Iot devices through various sensors,etc from these they collect and analyze data. The cities then use this data to improve infrastructure, public utilities and services. In farms, IOT allows devices across a farm to measure all kinds of data remotely and provide this information to the farmer in real time. Edge computing is a for computing the data from local source location rather than main center. Block chain technology is a system of recording information in a way that makes it difficult or impossible to change, hack, or cheat the system. loT plays an important role for connectivity, commonly used appliances in our day to day life through various technologies.

IoT- 11: IoT Based Smart Mirror

Prof. S. S. Pansare, Abhishek Vijay Chougule, Mudasser Aziz Shaikh, Hannure Noor Mohd Hayat, Modern Education Society's College of Engineering, Pune, India

***Abstract*—** Internet of Things (IOT) allows devices to communicate with each other in different and important places at the same time. Smart things are developed in ways that interact with each other, such as smart doors and smart homes. One of the most important IOT applications is the smart mirror. It is a mirror that acts as a reflective surface and as an

interactive screen at the same time. Smart device configuration figured with interactive media knowledge to give agreeable, advantageous and secure individual administrations in home turns out to be progressively critical in the period of data correspondence innovation. The mirror with the glass can be utilized. The graphics on the display come through clearer with two side glasses. Our daily routine life is involved in such a way that optimizing time becomes key factor. On basis of user studies and implementation, the rapid growth of smart devices which gives multiple services of data through a user interface of a mirror. Smart Mirrors replaces ordinary mirrors used daily provides mirror and PC supported data information to user.

ES- 5: Design of Embedded System in Telemedicine using ARM-7

Jayesh Chavan, Rohan Kanade, Yash Mantri, Rekha Kadam, Modern Education Society's College of Engineering, Pune, India

***Abstract*—** With the rapid aging of population and more attention about our health, it's more important to do the physical examination every day, especially for old people. But India is dealing more with this problem. However, as we all know, it's very difficult to have a physical examination in hospital, waiting for half a day is not only a waste of time, but also a challenge to weak ones. So we can use this system, which can collect kinds of physiological signal and convey it using internet, including ECG and temperature, Pulse rate, GPS location. ARM-7 is used in this project; it is real industry-specific processor, with high Performance, small space, low power, can suit most embedded applications. The people in India, particularly in rural and remote areas, are found struggling to receive timely medical treatment. The region of the country is characterized by densely populated communities spread over vast distances and there is a lack of expert physicians in certain sectors of the health service. Telemedicine originally emerged to serve rural populations or anyone who is geographically dispersed, where time and cost of travel make it difficult to receive the best medical care. Nowadays, telemedicine is forming a new structure in health-care services. By using information and communication technologies, in the proposed home based health monitoring system using ARM-7 includes the aspects of acquisition of medical parameters like Body temperature, Pulse rate and ECG. Processing of a collected data using ARM-7(LPC2148) processer and processed data is then displayed on doctors or relatives android mobile phones. Also the data can be displayed on LCD Display. The system is utilizing a low cost component to transmit data like ECG to physician for monitoring;diagnosis and patients care at significantly low cost, regardless of patient's location.

AI- 10: Automated Inspection Line Light Intensity Controller

Aparna A Dhavalikar, Sushali Chavan, Amisha Bhardwaj Indrayni Kadam Modern Education Society's College of Engineering, Pune, India

***Abstract*—** This project proposal aims to design and implement a system that maintains the desired light intensity during the time of inspection imaging with disregard to ambient light interference. The intensity of the external light source is controlled manually by means of a variac. The brightness of the source has to be adjusted when there is change in ambient light.

AI-11: Voice Enabled Personal Assistant for Laptops using Python

Varad Pawaskar, Nirzar Shah, Prof. Dr. Pranoti Mane, Mandar Bhoir
Modern Education Society's College Of Engineering, Pune, India

***Abstract*—** Personal Assistants, chatbots or conversational user interfaces have been known to assist humans in various tasks on a computer or mobile phones. They help in providing better productivity and executing tasks quicker for people who may not know a certain device. A voice assistant simply allows a user to ask questions and is capable of doing simple tasks like opening applications, taking notes, reading out news or playing music.

AI-12: Email Spam Detection Using Machine Learning Algorithms

Ritesh Ichage, Darshil Galiyal, Nikhil Aswale SPPU University
Maharashtra, India

***Abstract*—** Email spam has become a serious issue in recent years, and as the number of internet users grows, so does the number of spam emails. They are being used for unlawful and immoral activities, such as phishing and fraud. Sending harmful links via spam emails, which can destroy our system as well as get access to yours. Spammers can easily create a phoney profile and email account, and in their spam emails, they appear to be a real person. These spammers target those who are unaware of the scams. As a result, it is necessary to recognize spam mails that are fraudulent. This project will identify spam mails using machine learning techniques. This article will explore machine learning algorithms and apply them to our data.

AI-13: Deep Learning Paradigm for Plant Disease Detection

Akshay Tike, Dhairysheel Jadhav, Jambuvant Kadam, Rushikesh Nalbalwar, Dr. A.P. Kale
Modern Education Society's College Of Engineering, Pune, India

***Abstract*—** Plant diseases are important factors in determining plant yield and quality. Plant disease identification can be accomplished through digital image processing. Deep learning has made significant advances in digital image processing in recent years, far outperforming traditional methods. One of the primary factors determining crop yield loss

in crop production and agriculture is the identification and detection of plant diseases. Plant disease research is the study of any visible points in any part of the plant that aids in the differentiation of two plants, technically any spots or colour shades. It is extremely difficult to correctly identify plant diseases. Identification of the disease necessitates a lot of work and expertise, as well as a lot of knowledge in the field of plants and disease detection studies. As a result, image processing is used to detect plant diseases. Disease detection employs image acquisition, image extraction, image segmentation, and image pre-processing techniques.

AI-14: House Price Prediction Model using Machine Learning

Aishwarya Shetiya , Ruchika kshirsagar , Dr. Rekha kadam , Neha Panmand
Modern Education Society's College Of Engineering, Pune, India

***Abstract*—**Usually, House price index represents the summarized price changes of residential housing. While for a single family house price prediction, it needs more accurate method based on location, house type, size, build year, local amenities, and some other factors which could affect house demand and supply. With limited dataset and data features, a practical and composite data pre-processing, creative feature engineering method is examined in this paper. It also provides a brief about various graphical and numerical techniques which will be required to predict the price of a house. This paper provides an overview about how to predict house costs utilizing different regression methods with the assistance of python libraries.

ES-6: Development of a Wireless Intelligent Electronic control System GSM/GPRS Unit Module Configuration for Smart Home Efficient Energy Management System

Sunil. S. Pansare, Ashwini .A. Bandgar, Dyneshwari Kudi, Tanuja. B. Gunavare,
Modern Education Society's College Of Engineering, Pune, India

***Abstract*—** The paper proposes a design and prototyping of an intelligent electronic control unit system intended for the implementation of smart home in urban and rural areas, with the intention to control and monitor energy usage by household electrical appliances. Measurement, verification of power usage, and automated efficient use of Solar power as substitute of primary power supply (Eskom power supply) in South Africa in order to reduce the high energy demand on the national grid and create low cost affordable energy to the consumers. The proposed wireless energy management system will incorporate and interface with the distribution Box (DBox) with intelligent electronic and digital system unit with the purpose to detect presence or absence of primary power (Eskom) integrated together with solar power as alternative power supply to manage available power efficiently for free or at low cost.

ES-7: Smart Door Lock System

Ujjwal Ravindra kshirsagar ,Harshal Sanjiv Patil , Sanket Anil Vatare,
Modern Education Society's College Of Engineering, Pune, India

***Abstract* —** Our everyday lives revolve on the concept of automation, and automated systems are claimed to be beneficial since they eliminate the need for human intervention.

Our concept is to create and install a smart door lock system that can be used in rental properties, families, and bank lockers to allow only authorized staff access. This idea proposes a smart door system that can be operated by an Android application on a smartphone. Smart door locking systems have gotten increasingly advanced as technology has progressed. The android-based smart door lock system on display here is primarily intended for use in normal mode. Such a system is critical in banks, businesses, and for persons with disabilities. The system also includes features for regular users, such as the ability to control the lock by a single user. The system is particularly valuable because of its cost-effective implementation, sophisticated capability, and easy-to-use interface, as mentioned in the article.

ES-8: Temperature based Fan speed control

Madhur Bagwe, Harshawardhan Patil, Pranjal Gaikwad,
Dr. K.S.Tiwari , Modern Education Society's College Of Engineering,Pune

***Abstract*—**Our main purpose for this project is to save energy but it cannot be achieved using old orthodox ways. Automation is the next big thing and we all are steadily moving towards it. Home automation saves energy on large scale. It includes automation of fan, ambient lighting, kitchen appliances etc. In this project we have used LM35, Arduino UNO as our major components to help automate. Our first stage of the project includes the automation of the fan using Arduino UNO where we use LM35 Sensor as temperature input. In second stage we interface light and ultrasonic sensor which helps in detecting objects in the surrounding and executes the changes accordingly with the help of Arduino.

IoT-12: Fog Computing in the Internet of Things

Nihar Hirve, Dr.P.N. Kota, Dr.P.B. Chopade, Modern Education Society's College Of Engineering, Pune, India

***Abstract*—** The rise of various IoT devices prompts more information blasts and wild traffic. Although cloud computing performs well in handling and putting away information, most applications in IoT require speedier services. Fog computing stretches out cloud computing to end devices, to more readily uphold time-dependent, area reliant, huge scale, and latency-sensitive applications. In Cloud applications, higher data transfer capacity (bandwidth) is important to decrease the latency. One more significant test in cloud computing is security. For expanding the reaction time of the system and giving successful security and protection an idea called fog computing was presented by Cisco in January 2014. Fogging (fog computing) helps in the computation of information between end gadgets and cloud servers. This paper analyses and sums up fog computing and describes challenges like latency, information quality, constant reaction, calculation, resource distribution, protection, security, heterogeneity, power and bandwidth management, and other fog registering issues. These highlights are supported by the combination of IoT and Fog to stretch out services to the network edge. This paper presents an overview of IoT and Fog Computing and the advantages of their mix.

IP-6: Pothole Volume Approximation Using Edge Detection Technique

Aaman Mulla, Rishikesh Bagekar, Shantanu Saha Modern Education Society's College Of Engineering, Pune, India

***Abstract*—** Potholes are a nuisance, especially in the developing world, and can often result in vehicle damage or physical harm to the vehicle occupants. Drivers can be warned to take evasive action if potholes are detected in real-time. Moreover, their location can be logged and shared to aid other drivers and road maintenance agencies. This paper proposes a vehicle-based computer vision approach to identify potholes using a mounted camera. Existing literature on pothole detection uses either theoretically constructed pothole models or footage taken from advantageous vantage points at low speed, rather than footage taken from within a vehicle at speed. A distinguishing feature of the work presented in this paper is that a thorough exercise was performed to create an image library of actual and representative potholes under different conditions, and results are obtained using a part of this library. A model of potholes is constructed using the image library, which is used in an algorithmic approach that combines a road colour model with simple image processing techniques such as a canny framework and HSV colour space. Since the image related to road damage includes objects such as potholes, cracks, shadows, and lanes, there is a problem that it is difficult to detect a specific object. In this paper, we propose a pothole classification model using edge detection in road image. The proposed method converts RGB (red green and blue) image data, including potholes and other objects, to HSV colour space, to reduce the amount of computation. It detects all objects except potholes using an object detection algorithm.

ROB-2: Automated Car Parking System

Sanker Rasker, Vedant Bhosale, Modern Education Society's College Of Engineering, Pune, India

***Abstract*—** In metropolitan urban communities, vehicle parking has turned into a central issue in every single occupied region and a decent traffic framework needs a decent stopping framework. As most people today drive everywhere, the parking requirements have therefore increased significantly over the last decade but its demand has not been met in the same proportions. Which leads to people parking at streets and other places which first of all are not safe but also congest the small streets further more. Also, there is something to be said about the parking systems we have currently at our disposal. Various sorts of vehicle leaving are applied overall to be specific are multi-level parking which we can see in Malls or other establishments where people spend time with their families, here the whole parking scenario is dependent on the driver, they may get stuck somewhere and clog up and hold up everyone after them making a mess. The point of this undertaking is to plan and assemble a model of a mechanized leaving framework which will consequently leave and recover the vehicle without the driver. The driver will leave his vehicle on a specific spot and afterward an automated stage will gather up the vehicle and afterward place it in any of the accessible spots. The mechanical arm component is utilized for driving

the stopping stage. After this a RFID card is issued to the driver of the vehicle, also the driver can pick their ideal parking spot on the control board before leaving the vehicle and will be shipped to that parking space. To recover the vehicle, the driver should scan that RFID card for his vehicle on the control board. The framework will recover the vehicle from the parking spot and place it on any convenient spot to the first position where the driver is pausing. Arduino is essentially used to control this whole mechanism in the plan of the model of the robotized parking framework developed to ship and recover the vehicle, to and from, the accessible parking spot in view of the sign from the driver.

COMM-1: Automatic Parking System by Using LIFI

Arisha Abbasi, KshitijaDhamdhere , Salomi Rathod , Prof. M.M.Dhanvijay, Modern Education Society's College Of Engineering, Pune, India

***Abstract*—**This ever growing traffic congestion and uncertainty in the parking availability and payment have thus enforced the need for smart parking systems. A smart parking technology that will help optimize parking space usage, improve the efficiency of the parking operations and help smoother traffic flow. The purpose of parking system a car parking system is a mechanical device that multiplies parking capacity inside a parking lot. Parking systems are generally powered by electric motors or hydraulic pumps that move vehicles into a storage position. Car parking systems may be traditional or automated. The smart parking iot based means smart parking development implies an iot based system that sends data about free and occupied parking places via web/mobile application. The main idea was the creation of smart parking using the internet of things and ultrasonic sensors, where available parking places could be displayed in a web application.

AI-13: Deep Learning Paradigm For Plant Disease Detection

Akshay Tike, Dhairysheel Jadhav, Jambuvant Kadam, Rushikesh Nalbalwar, Dr. A.P. Kale

Modern Education Society's College Of Engineering, Pune, India

***Abstract*—** Plant diseases are important factors in determining plant yield and quality. Plant disease identification can be accomplished through digital image processing. Deep learning has made significant advances in digital image processing in recent years, far outperforming traditional methods. One of the primary factors determining crop yield loss in crop production and agriculture is the identification and detection of plant diseases. Plant disease research is the study of any visible points in any part of the plant that aids in the differentiation of two plants, technically any spots or colour shades. It is extremely difficult to correctly identify plant diseases. Identification of the disease necessitates a lot of work and expertise, as well as a lot of knowledge in the field of plants and disease detection studies. As a result, image processing is used to detect plant diseases. Disease detection employs image acquisition, image extraction, image segmentation, and image pre-processing techniques.

AI-14: House Price Prediction Model Using Machine Learning

Aishwarya Shetiya , Ruchika kshirsagar , Dr. Rekha kadam Neha Panmand
Modern Education Society's College Of Engineering, Pune, India

***Abstract*—** Usually, House price index represents the summarized price changes of residential housing. While for a single family house price prediction, it needs more accurate method based on location, house type, size, build year, local amenities, and some other factors which could affect house demand and supply. With limited dataset and data features, a practical and composite data pre-processing, creative feature engineering method is examined in this paper. It also provides a brief about various graphical and numerical techniques which will be required to predict the price of a house. This paper provides an overview about how to predict house costs utilizing different regression methods with the assistance of python libraries.

AI-15: Student Attendance Management System Using Qr-Code

Paras Veer, Satish Naidu, Aarti Bondre,Aparna Dhavilkar, Modern Education Society's College Of Engineering, Pune, India

***Abstract*—** This paper aims to develop a digital attendance taking system using the QR Code technology. The main goal of this project is to eliminate the manual process of attendance taking mainly in colleges and universities. This system will help provide an efficient automated alternative to the expensive and complex attendance systems being developed and implemented.

In higher education institutions, student participation in the classroom is directly related to their academic performance. However, the majority of student attendance registration is still conventionally done, which is tedious and time-consuming, especially for those courses that involve large numbers of students. Over the years, attendance management has been conducted manually at most of the universities. To overcome the manual attendance issues, we proposed and implemented a smart attendance system with the aim to encourage the potential use of the Quick Response (QR) code as a future attendance management system, to track and record student attendance.

AI-16: ITSM based virtual agent using Service Now

Shubham Iyer, Sonali Ranmale, Prof. Aparna Dhavlikar , Zeba Sameen
Modern Education Society's College Of Engineering, Pune, India

***Abstract*—** Chatbots are emerging as a promising platform for accessing and delivering various services. Chatbot are software agents that are able to interact with humans in natural language. Their intuitive interaction paradigm is expected to significantly reshape the software landscape of tomorrow, while already today Chatbot are invading a multitude of scenarios and contexts. This article takes a developer's perspective, identifies a set of architectural patterns that capture different Chatbot integration scenarios, and reviews state-of the-art development aids.

AI-17: Drowsiness Detection using Machine Learning

Archin Rajendra Badhe, Vaishnavi Sunil Bhongale, Devika Rahul Deshmukh

Savitribai Phule Pune University Pune, India

***Abstract*—**Driver sleepiness detection based on machine learning and gradient statistics is being developed for a real-time application.Face detection, eyeglass bridge detection, eye detection, and eye closure detection are all part of the proposed system.The technology uses machine learning to recognise face position and size, and the geometrical position of the face is used to narrow the search range of the eyes. The proposed detection problem for the eye position is then divided into two modes to determine whether or not the driver wears glasses.Finally, in the eye region, the technology detects the driver's eye condition.The device generates an alarm to notify the driver if the driver closes their eyes for an extended period of time, does not concentrate ondriving, or nods his head.

AI-18: Autonomous Fire Fighting Robot

Prachi Patil, Jyoti Kolhe, Niyati Shende

***Abstract*—** The field of firefighting has long been a dangerous one, and there have been numerous and devastating losses because of a lack in technological advancement. Additionally, the current methods applied in firefighting are inadequate and inefficient relying heavily on humans who are prone to error, no matter how extensively they have been trained. A recent trend that has become popular is to use robots instead of humans to handle fire hazards. This is mainly because they can be used in situations that are too dangerous for any individual to involve themselves in. In our project, we develop a robot that is able to locate and extinguish fire in a given environment. The robot navigates the arena and avoids any obstacles it faces in its excursion.

IOT-14: Implementation of Robotic Chef and Food Quality Evaluation

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***Abstract*—** With advances in the field of robotic manipulation, sensing and machine learning, robotic chefs are expected to become prevalent in our kitchens and restaurants. Robotic chefs are envisioned to replicate human skills in order to reduce the burden of the cooking process. However, the potential of robots as a means to enhance the dining experience is unrecognised.

This article introduces the concept of food quality optimization and its challenges with an automated omelette cooking robotic system.

The design and control of the robotic system that uses general kitchen tools is presented first. Next, we investigate new optimization strategies for improving subjective food quality rating, a problem challenging because of the qualitative nature of the objective and strongly constrained number of function evaluations possible.

Our results show that through appropriate design of the optimization routine using Batch Bayesian Optimization, improvements in the subjective evaluation of food quality can be achieved reliably, with very few trials and with the ability for bulk optimization.
This study paves the way towards a broader vision of personalized food for taste-and-nutrition and transferable recipes.

IOT-15: IOT Based Greenhouse Monitering System

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***Abstract*—** A large part of the world's population depends upon agriculture industry for its source of livelihood. The growth of agriculture industry is bound to the two major parameters; quality and quantity yield of the crops. Greenhouse farming is an excellent method which enables the production of crops with minimum resources and efforts and maximum yield by providing a controlled condition environment. Greenhouse is a methodology to grow crops under controlled environment with continuous monitoring and analysis. In this paper, we proposed an automated smart Greenhouse system with IOT technologies to bring precision in farming techniques. In order to increase the yield and quality of crops, the proposed non-manual system helps to automate the functionality of Greenhouse. This system contains sensors, devices and IOT technology. Using these technologies, data from various sensors will be analysed to help in decision making. It also focuses on incorporating smart irrigation methods and technologies like drip irrigation etc. within the conservatory which can assist farmers in preventing damage to their crops due to unnecessary water logging.

IOT-16: Detection Of Fruit Spoilage Using Arduino

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***Abstract*—** In today's world, fruit spoilage is a crucial problem as consuming spoiled fruit is harmful for consumers. Our project aims at detecting spoiled fruit using appropriate sensors and monitoring gases released by the particular fruit item. A sensor that senses this, issues an alert using internet of things, so that appropriate action can be taken. This has widescale application in fruit industries where fruit detection is done manually. This will increase competition among retailers to sell more healthy and fresh fruit and create a safe world for all consumers a like.This project substantially deals with the emerging technologies alongside the internet of things using Iot and arduino which by the way employs the script programming and also the sensors like MQ2 Sensor,Arduino UNO etc. We develop a fruit quality detecting technique, where the sensor will be associated along the arduino. This project is employed to solve the fruit spoilage problem, with the sensor assistance to identify the spoilage by continuous sensing.

IOT-17: Digital Intelligent Healthcare Wearable system using IoT

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***Abstract*—** New healthcare technology start-ups, IoT is rapidly revolutionizing the healthcare industry. In this project, we have designed the IoT Based Patient Health Monitoring System using ESP8266 & Blynk Application. The IoT platform used in this project is Blynk. Blynk is an open-source Internet of Things (IoT) application and API to store and retrieve data from things using the HTTP protocol over the Internet or via a Local Area Network. This IoT device could read the pulse rate and measure the surrounding temperature. It continuously monitors the pulse rate and surrounding temperature and updates them to an IoT platform. Also we MPU6050 Accelerometer sensor used for patient movement check.

IOT-18: Air Quality Index monitoring over IoT

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***Abstract*—**One of the most alarming issues in modern cities is the air quality level, where air pollution has caused 120 deaths out of 100,000 per year based on a worldwide study (Green Car Congress, 2019). The World Health Organization emphasized that 97% of cities in low- and middle- income countries with more than 100 000 inhabitants do not meet World Health Organization (WHO) air quality guidelines. Due to poor air quality, it will increase potential health risks such as risk of stroke, heart disease, lung cancer, asthma and others as well (citation). Hence, there is a need to install an air quality monitoring system in cities to ensure the air is not contaminated. This can be done by installing sensors to monitor dust particles, carbon dioxide, carbon monoxide, nitrogen dioxide and sulfur dioxide levels and this information can be shared with the public through smart phones, where the smart phone app allows people to monitor real-time data of the current air quality level in the area. Hence, through these implementations, better quality of life can be achieved.

IOT-19: An IOT Based Smart Mirror Using Raspberry Pi With News And Temperature

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***Abstract*--**Effective time management is an essential factor in increasing production of day-to-day life. Integration of technology into people's daily lives has made that time management possible. This is where Home Automation using IoT comes into the picture. In this paper, we demonstrate the function and working of a smart home mirror. Future mirrors are considered to be smart mirrors. The mirror will possess the ability to display date and time, the current weather condition and outside temperature, reminders, to-do lists

and traffic conditions. These features of the mirror will be scraped from the Internet and implemented using the raspberry pi board. The pi board is programmed with the Raspbian operating system. This paper presents the implementation and application of the smart mirror and how it is an integral part of home automation.

IP-7: Pothole Volume Approximation Using Edge Detection Technique

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Abstract— Potholes are a nuisance, especially in the developing world, and can often result in vehicle damage or physical harm to the vehicle occupants. Drivers can be warned to take evasive action if potholes are detected in real-time. Moreover, their location can be logged and shared to aid other drivers and road maintenance agencies. This paper proposes a vehicle-based computer vision approach to identify potholes using a mounted camera. Existing literature on pothole detection uses either theoretically constructed pothole models or footage taken from advantageous vantage points at low speed, rather than footage taken from within a vehicle at speed. A distinguishing feature of the work presented in this paper is that a thorough exercise was performed to create an image library of actual and representative potholes under different conditions, and results are obtained using a part of this library. A model of potholes is constructed using the image library, which is used in an algorithmic approach that combines a road colour model with simple image processing techniques such as a canny framework and HSV colour space. Since the image related to road damage includes objects such as potholes, cracks, shadows, and lanes, there is a problem that it is difficult to detect a specific object. In this paper, we propose a pothole classification model using edge detection in road image. The proposed method converts RGB (red green and blue) image data, including potholes and other objects, to HSV colour space, to reduce the amount of computation. It detects all objects except potholes using an object detection algorithm

IP-8: Change Detection Using Dual Channel Fully Convolutional Network

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Abstract--In this paper, we present a new approach to change detection using heterogeneous images, which means that images are coming out of different imagers. This is a very challenging problem because the image pixels have a drastically different magnitude and characteristics. To address these issues, we propose a novel method based on dual-channel fully convolution network. First, in order to alleviate the influence of differences between heterogeneous images, we employ two different channels to map heterogeneous remote sensing images from satellite and UAV, respectively, to a mutual high dimension latent space for the downstream change detection task. Second, we adopt Hough method to extract the edge of ground objects as auxiliary information to help the change detection model to pay more attention to shapes and contours, instead of colors. Then, IoU-WCE loss is designed to deal with the problem of imbalanced samples in change detection task.

ROB-2: Automated Car Parking System

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***Abstract*—** In metropolitan urban communities, vehicle parking has turned into a central issue in every single occupied region and a decent traffic framework needs a decent stopping framework. As most people today drive everywhere, the parking requirements have therefore increased significantly over the last decade but its demand has not been met in the same proportions. Which leads to people parking at streets and other places which first of all are not safe but also congest the small streets further more. Also, there is something to be said about the parking systems we have currently at our disposal. Various sorts of vehicle leaving are applied overall to be specific are multi-level parking which we can see in Malls or other establishments where people spend time with their families, here the whole parking scenario is dependent on the driver, they may get stuck somewhere and clog up and hold up everyone after them making a mess. The point of this undertaking is to plan and assemble a model of a mechanized leaving framework which will consequently leave and recover the vehicle without the driver. The driver will leave his vehicle on a specific spot and afterward an automated stage will gather up the vehicle and afterward place it in any of the accessible spots. The mechanical arm component is utilized for driving the stopping stage. After this a RFID card is issued to the driver of the vehicle, also the driver can pick their ideal parking spot on the control board before leaving the vehicle and will be shipped to that parking space. To recover the vehicle, the driver should scan that RFID card for his vehicle on the control board. The framework will recover the vehicle from the parking spot and place it on any convenient spot to the first position where the driver is pausing. Arduino is essentially used to control this whole mechanism in the plan of the model of the robotized parking framework developed to ship and recover the vehicle, to and from, the accessible parking spot in view of the sign from the driver.

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