Three days National Conference

on

"Advancements in Communication, Computing and Internet of Things"

(NCACIOT 2022)

27th to 29th January 2022

Organized By

Department of Electronics

Andhra Loyola College

(Autonomous)

Accredited by NAAC A+, 34th Rank by NIRF, MHRD, Govt. of India

Vijayawada - 520 008

In Association with

SOLETE (Society for Learning Technologies)

Message from Rector

I am very much delighted to know that the Depts. of Electronics in association with SOLETE is organizing a Three-Days National Conference from 27 to 29 January 2022 on **"Advancements in Communication, Computing and Internet of Things".** I felt that it is a highly useful and relevant topic in the present-day Scenario. I appreciate the efforts of all the Staff members who are directly or indirectly involved in conducting this Conference. My special appreciation to Mr. B. Balaji Bhanu, Organizing Secretary for taking all possible efforts to conduct this Conference.

I extend my warm greetings to all the participants of the Conference and extend the very best wishes to all the young scholars. I take this opportunity to thank and congratulate Rev. Fr. Dr. M. Sagayaraj, SJ, Correspondent, Rev. Fr. Dr. G.A. Peter Kishore, SJ, Principal, and all the members of the Organizing Committee for making this Conference possible. May God bless all our relentless efforts to keep the flag of ALC high in the sky!

Rev. Fr. P. Bala Showry, S.J.
Rector
Andhra Loyola College
Vijayawada – 520 008

Message from Correspondent

Nature is the art of God-Says **Dante Alghieri**. Therefore, this art of God has to be experienced not only by reading about it in books, but also people walking in the woods and listening carefully, **to what they speak with the voice of God.**

I feel greatly encouraged to see the Dept. of Electronics for conducting three days National Conference on Advancements in Communication, Computing and Internet of Things (NCACIOT 2022) for making available yet another platform for the interested faculty, research scholars and students to learn from the deliberations during the conference.

The emerging trends in IoT are majorly driven by technologies like artificial intelligence, blockchain, 5G and edge computing. Within this interconnected web of technological advances lies in the business value of IoT applications like smart wearable's, smart homes and buildings, smart cities, autonomous cars, smart factories, location trackers, wireless sensors and much more. This level of connectivity helps consumers experience a comfortable secure household that they can control and monitor anytime. IoT also promotes healthcare, cost and energy savings. With the internet of medical things, the healthcare sector has increased its market and patient service. From a business point of view, IoT project succeeds by making operation management more efficient, improves the productivity from resources, and reduces human labor and above all, it provides vast business opportunities.

I do congratulate and place on record the Department staff for their laudable efforts in this regard.

Rev. Fr. Dr. M. Sagayaraj, S J.,
Correspondent
Andhra Loyola College,
Vijayawada -520 008

Message from Principal

I am delighted to wish the very best for the three-day National Conference on Advancements in Communication, Computing and Internet of Things (NCACIOT 2022). I appreciate the Organizing Committee for choosing this very current and relevant topic for the Conference. In today's scenario, the signals and communication play an important role in interaction between two parties to transmit information and facilitate mutual understanding between them. The following are the thrust areas of application- Mobile Tracking, Wireless Systems, Television, Radio, Digital Cinema, Internet Access, Military, Space-based Communication, Telephone Channels and major advancements in communication systems like development of Apps for day-to-day activities. Once again, I congratulate the Faculty of the Department directly involved in choosing the Conference theme, planning various technical sessions and framing of contemporary topics based on latest technology.

The technological advancements in the area of communication technologies are taking place rather rapidly. The Internet of Things (IoT) is an emerging technology that has enabled connection and communication between both virtual and physical objects, thereby improving our quality of life. This conference aims at sharing of knowledge by bringing Academicians, Engineers, Researchers and Industrialists at national level, through their talks and in-depth discussions. The key areas discussed in this Conference are advanced topics in Communication Engineering such as Machine Learning, Communication for Indian Railways, etc. I am sure that this Conference will provide a platform for all the stakeholders to share and gain in-depth knowledge in the recent research trends in the field of Communication Systems and IoT.

Rev. Fr. Dr.G.A.P.Kishore, S.J.
Principal
Andhra Loyola College
Vijayawada – 520 008

Message from Vice Principal

It is the matter of great pleasure and happiness to see that Loyola Electronics department is organizing its First National level Conference on "**Advancements in Communication, Computing and Internet of Things**" (NCACIOT 2022). The objective of the conference is to provide a platform for a profound discussion and presentations on state-of-the-art research, development, innovations and implementations of Communication and Internet of Things by the researchers nation-wide. There has been a tremendous advancement and innovations in Communication which is incomparable to what emerged traditionally. We use cell phones many times during a day-often, without even realizing it. Looking to its huge hope and dimensions, NCACIOT 2022 brings together academics, industrial experts and education leaders from all over the nation to discuss an incredibly wide array of topics ranging from Foundation of advancements in Communication, computing and Internet of Things. I would like to express my sincere thanks and appreciation to the renowned Professors and prominent Researchers for having agreed to deliver the keynote session and share their knowledge during the Conference. My warmest thanks go to the organizing committee colleagues including the technical program committee members, the paper reviewers for their invaluable work in shaping the technical program and not the least all the authors who kindly submitted their papers to NCACIOT 2022. In summary, no doubt you all will appreciate the unique combination of cutting-edge technical program, with wonderful organization of the conference.

Rev. Fr. S. Raju, S.J
Vice Principal
Andhra Loyola College
Vijayawada – 520 008

Message from Vice Principal

I would like to extend a warm welcome to you all to participate in this conference **Organized by Loyola Electronics Dept.**

The objective of this conference is to provide a forum for faculty, researchers, engineers and the students to present and discuss the latest technology advancements as well as future directions and trends related to communication technologies and Internet of Things with good computing methods.

Due to the rapid growth of technology, the problem of storing, processing, and accessing large amounts of data has arisen. Great innovation relates to the mutual use of the Internet of Things and cloud technologies. In combination, it will be possible to use powerful processing of sensory data streams and new monitoring services. As an example, sensor data can be uploaded and saved using cloud computing for later use as intelligent monitoring and activation using other devices. The goal is to transform data into insights and thus drive cost-effective and productive action.

The future of the Internet of Things (IoT) is limitless. It is no longer limited to computers, tablets, and smartphones; now a multitude of devices are connected to the internet. Researchers have transferred almost every analog device into a digital one. However, today almost every digital device is on its way to being a "smart" device. Apart from computers and watches, today washing machines, door locks, toasters, and vacuum cleaners come under the umbrella of the Internet of Things. It is projected that by 2025, there will be more than 21 billion IoT devices operating across the world. IoT is not separate from the Internet, but an expansion of it - a way of intelligently fusing the real and cyber worlds. This gives the idea about the future of inter-connectivity. It doesn't take a genius to figure out that artificial intelligence (AI) will be a dominating force in the future.

Rev. Fr. G. Rayappa, S.J
Vice Principal
Andhra Loyola College
Vijayawada – 520 008

Message from Convener (NCACIOT 2022)

On behalf of the Organizing Committee of the National Conference on Advancements in Communication, Computing and Internet of Things (NCACIOT 2022), It gives me immense pleasure to welcome all the participants, delegates, keynote speakers, resource persons and my beloved students of Loyola Electronics Department (LED). It is the matter of great pleasure and happiness to see that LED is organizing its First National level Conference.

Topics covered in this conference include

Key Note address: Bi-functional, Multiband, and Switchable active meta surface integrated wearable antennas for WBAN applications

Topics : The Role of Real -Time Big Data Analytics Shaping up Internet of Things

: Importance of Cluster based routing protocols for Wireless Sensor Networks

IoT Technology for smart applications

High Speed Mobile Communication Corridor for Indian Railways.

The conference received many submissions from all over India, out of which the best selected papers presented during these three days. The Conference Proceedings will be published by Elsevier SSRN. NCACIOT 2022 is an effort of Andhra Loyola College, Management, our beloved Jesuit fathers. All the paper submissions have gone through a careful anonymous review process aided by Technical Program Committee members and Advisory Board. The NCACIOT 2022 Conference includes prominent Keynote addresses by Prof. BTP Madhav, Professor, Assoc. Dean (Academic Research) KL Deemed to be University, Dr. N. Srikanth, Associate Professor, Department of ECE, St Peters Engineering College, Hyderabad, Dr. Mohammed Ali Hussain, Professor and Assoc. Dean R & D, Dept. of Electronics and Computer Engineering, KL Deemed to be University, Dr. Lakshmi Narayana Thalluri, Associate Professor, Department of ECE. Andhra Loyola Institute of Engineering and Technology, Sri. Shubham Kant Rai, The Manager, RailTel Corporation of India, New Delhi.

I would like to thank everyone who has given his or her time, energy and ideas to assist in organizing this event including all members of organizing committee, Technical Program Committee members and all the advisory Committee members and our distinguished keynote speakers who have agreed to address the conference attendees. I also wish to thank all our students and department staff. It is through the collective efforts of these individuals and organizations that we are able to bring this conference a great event! Looking for the great success of the Conference to enrich the knowledge.

B. Balaji Bhanu
Convener (NCACIOT 2022)
Andhra Loyola College
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Index

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A Survey on Cerebrovascular Disease Prediction using Machine Learning Techniques

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Abstract

Machine learning (ML) is a branch of artificial intelligence (AI) that employs software implementations to examine the highest level of accuracy in order to predict stroke .The goal of this research was to find and examine the Machine Learning algorithms that are employed in stroke prediction. When the blood flow to a portion of the brain is interrupted or diminished, brain tissue is deprived of oxygen and nutrients, resulting in a stroke. Within minutes, brain cells begin to die. There are two types of brain stroke: ischemic stroke (a blocked artery in the brain) and hemorrhagic stroke (a blood vessel leaks or bursts). To review the Machine Learning approaches utilized for Stroke Predictions, we looked at previously published research publications. The death rate, morbidity, and functional result are all predicted outcomes, according to the majority of the studies. The most commonly used techniques to predict the stroke are Support Vector Machines, Random Forest, Decision Trees, Logistic Regression, KNN, XGBoost and Artificial Neural Networks. The best result has been offered based on the determination of precise attributes to utilize as causes of stroke. The purpose of this survey is to predict symptoms and changes in patients' health at an early stage so that stroke can be observed later. For the prevention of major causes of stroke, the prime time of 0-90 minutes will be regarded the prime period. Despite this, just a few predictors and classifiers produced reporting standards for medical sector tools, none of which were useful. As a result, the goal of this study was to examine the accuracy of several Machine Learning algorithms for stroke prediction.

Keywords: Stroke prediction, Machine Learning Techniques, Artificial Intelligence, Ischemic Stroke, Hemorrhagic Stroke.

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Smart Gym Mobile Application

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ABSTRACT

In today's pandemic outbreak, people adapting to a fit and healthy life. A daily workout routine is essential for a healthy life; still, some people take this fact for granted that they need to have some physical activity daily. So, so we develop a "SMART GYM MOBILE APPLICATION "for a gymnasium in which user can maintain previous records about health and fitness. User can also maintain tracks and runtime for burning calories to follow diet and good physic. After specific period i.e. when certain amount of data gets enter into database, system will automatically recommend user for workout and diet by giving him report through his profile. Normally gyms used to maintain manual hard papers which is difficult to access and maintain, through this mobile application user can access his/her profile anywhere and at any time to their convenience.

Keywords: Mobile Application, Fitness, Database.

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Advancements in Digital Communication

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Abstract:

Usage of benefits of electrical communication has become an inseparable part of our lives now. They are various technologies of digital communication have the recent advancements in the same field. The communication system followed up by basic modulation techniques like amplitude, frequency and phase modulation. The analog and digital conversion basic technique basics about sampling theorem, quantization, pulse code modulation. The digital modulation techniques like ASK, FSK, PSK, BSK, QASK. These covers the problems of occurrence of noise in various modulation systems and method of reducing it like coding for error correction and detection. They are the various latest advancements in the field of digital communication, the new graphene technology that has the potential to break current limits in digital communication which demonstrated at the university of California, the advancement in under water acoustic digital communication as per the paper published in IEEE in the oceanic engineering and the recent developments using phase shift keying on high frequency. Technology advancements in communication are drastically changing and influencing the people they communicate in their lives.

Keywords: Modulation, Pulse code modulation, Delta modulation, Sampling theorem, Quantization, acoustic communication.

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Smart Farming System Using Sensors and Internet of Things

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Abstract:

Agriculture is a major backbone to the world economy. But due to inefficient practices, the yield is affected. As we know the land is shrinking and the pressure on the natural resources are increasing. There is a need to produce more food and conserve more water for the rapid increase of population. Smart farming is an emerging field with the Internet of Things (IoT) as an evolving technology that connects various devices and shares various sensors information like soil humidity, soil temperature and pH. These soil parameters are very essential to improve majority of crops production. This paper it is proposed to develop a smart agriculture system that uses advantages of cutting-edge technologies such as Arduino, IoT and wireless sensor network. Evolving technologies like IoT and smart agriculture using automation. The system has the potential to be useful in water limited geographically limited area.

Key words: IoT, WSN, Smart Agriculture, Gateway Sensors.

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Water Level Indicator Using Ultrasonic Sensor and Arduino

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ABSTRACT:

The water level management has been a major issue so new methods has to be adopted to control the water level. Here our proposed system works better than existing system. Majority of earth's surface is covered with water but less than 5% is useful. So, water conserving has become a major issue so certain water management steps are to be taken. Measuring water level is an important task from government and residence side. Thus, existing management systems has to be updated. In this paper, we investigate the water level management using ultrasonic sensor which detects the amount of water present in the tank and returns the percentage of water present in it. The quest to save electrical and water resources, we developed an automatic water level controller with pump switching system for both overhead and underground tanks. This module monitors and displays level of water in a tank. When water is at the specified lowest level, pump is automatically turned ON to refill until the tank is filled to its maximum capacity, then pump is turned OFF thereby saving both inadequate electrical and water resources. The design consists of Power supply, microcontroller, sensor, display and pump units. Arduino UNO, a microcontroller, which is commercially available, is replaced with a cost effective, electronically and environmentally rugged assemblage from available cheap components. The 20kHz ultrasonic distance sensor, remotely senses level of water by measuring length of emptiness or fullness of the tank from recorded time of arrival of echo from water surface. This length is interpreted and displayed by programme based microprocessor in percentage (%) of the capacity on Liquid Crystal Display (LCD) unit.

Keywords:-Arduino Uno Microcontroller, Ultrasonic Sensor, Power Supply, water level.

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Design and Implementation of Heartbeat Rate and SpO2 Detector by Using IoT for Patients

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ABSRACT:

In this modern days, development of smart healthcare system is an emerging area of research on the Internet of Thing (IoT). The majority of the individuals who are living in provincial territories are not able to get medical services because of the absence of specialists, emergency and private clinics. Likewise, notwithstanding a little medical issue, the individuals get wavered to get counsel from a specialist due to travel, cost, and time. The heart is the most vital organ in the human body, and the heartbeat rate is an essential aspect of human metabolism. Pulse oximetry is the non-invasive measurement of the oxygen saturation (SpO2) in the heart.

However, most of the available heart rate measurement tools are rather expensive and only available in hospitals, and accurate measurement of SpO2 in a rural area may not be possible immediately to measure the level of oxygen level in the human body. In this proposed system, Beer's Law used to implement the Heart Beat Rate, and SpO2 detector used to measure SpO2, heartbeat rate and temperature range. Two different light wavelengths (Red Led and Infrared Led) are used to measure the actual difference in the absorption spectra between HbO2 and Hb.

The SpO2 probe placed on the person's finger and the other end with a micro controller to calculate the number of pulses and the amount of the SpO2 present on their body. The measurement range of the SpO2, Heart Beat Rate and Temperature are viewed via OP APP (Outpatient Android Application) and the same is viewed by the doctor in the other end through the cloud. Besides, the interaction will be done between the clinician and patient through video conference in the same OP APP.

KEY WORDS: Heart beats measurements, pulse measurements, temperature ranges, and medical issues.

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POLYTRONICS

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Abstract

For many years plastics were accepted just as INSULATORS and were used preponderantly for shielding copper wires. currently the rising new technology Polytronics, changes our viewpoint in visualizing the conducting polymers as a cloth of electronics. Microelectronics technology in conjunction with semiconductor is versatile enough to simple rolling from circuits that consume less power and specially they will be factory-made at a fraction of price concerned in creating semiconductor chips. This technology has range of approaching areas of interest wherever heap of analysis goes on to manufacture electronics parts on plastic substrates which might permit producing of gadgets through simply printing. In this paper I might prefer to impart my concepts on INKJET PRINTING TECHNOLOGY that plays main role in printing compound circuits, ELECTRONIC PAPER, construction and producing of Plastic batteries, medicative applications of Polytronics victimization RUBBER CIRCUITS and ELECTRO ACTIVE compound and ORGANIC crystal rectifier (OLED). If this technology emerges much, the planet of physical science can take a replacement leap. In today's world of ever-expanding technology, Polytronics goes to alter the total world of client physical science and kind the principal root for the most important advancement within the style of electronic circuits and manufacture of computer circuit boards (PCB).The era of compound physical science has taken an excellent begin and every one the technological firms have turned their entire analysis towards Polytronics. we have a tendency to hope that, within the forthcoming years Polytronics can accelerate the pace of the technological advancements and describe a replacement dimension within the close to future.

Keywords:

Polymers, Optical device fabrication, Micromechanical devices, Flexible electronics, manufacturing processes, production systems, Substrates, Electronic circuits, Silicon, Plastics.

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TRANSMISSION OF DATA WITH ARDUINO USING LI-FI TECHNOLOGY

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ABSTRACT:

- Whether you're using wireless internet in a coffee shop, stealing it from the guy next door, or competing for bandwidth at a conference, you're probably frustrated at the slow speeds you face when more than one device is tapped into the network. As more and more people and their many devices access wireless internet, clogged airwaves are going to make it increasingly difficult to latch onto a reliable signal. But radio waves are just one part of the spectrum that can carry over data.

- **What if we use other waves to surf to internet?**

- One German physicist, DR. Harald Haas, has come up with a solution he calls "Data Through Illumination " -taking the fiber out of fiber optics by sending data through LED light bulb that varies in intensity faster than the human eye can follow. It's the same idea behind infrared remote controls, but far more powerful.

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FULL BODY SANITIZING MACHINE using ULTRASONIC SENSOR

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ABSTRACT:

As we know the deadly Coronavirus is spreading very fast in many variations even in this 2022 across the world but still, the way to stay protect and safe is in the form of taking precautions of wearing masks washing/sanitizing hands at regular interval and maintaining social distancing. In the rouse of the COVID-19 Pandemic, the dangers of cross-contamination remain high. The Coronavirus is known to stay lively on lifeless surfaces for a prolonged period. Thus, the need of the hour is to introduce machines that would capably eliminate the virus and encumber the rapid spread of it. The "Full Body Sanitizing Machine" – a Personnel Sanitization Enclosure (PSE) that can efficiently eradicate the risks of infection in high traffic areas without any human interaction using ultrasonic sensor. The ultrasonic sensor have wide application in distance measuring or obstacle identification using this logic this machine can be developed. Now, we can take the customer disinfection process by Full Body Sanitizing Machine which can be constructed very easily and is also very cheap to construct. It is a Door and tunnel kind, in which 2 sides bounded with the S.S. sheet and the extra 2 edges are exposed for entry and exit purposes and it can also be walled with plastic sheets. When human arrives in the tunnel or machine, at that time the ultrasonic sensor, which is placed at top centre and senses human body or any obstacle is arrived the sensor detects and gives output to the motor and motor gets activated and the whole system triggers and all 8-10 sprayers get triggered and starts to spray towards the centre of the tunnel and all 8-10 sprayers spray on the human body and it will routinely stop after 10-15 seconds. When Sprayer stops then humans can leave from the front side means the exit side. So, this machine can sanitize 4-5 humans in a minute and 250-300 humans in an hour. This could be manufactured both in the Tunnel form as well as in a single frame. This report focuses on the development and analysis of these types of tunnels as the time progresses in the pandemic of coronavirus without any effective vaccine these things are going to be in great demand.

Keywords: Covid-19, Sanitization, Ultrasonic Sensor, Motors, Sprayers.

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Color Identification Sensor - Its Applications.

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Abstract:

A Color Sensor, as the name recommends, is a gadget that faculties or recognizes hues. A shading sensor makes utilization of an outer wellspring of discharging light (a variety of four light transmitting diodes to be exact) and afterward breaks down the light reflected over from the protest with a specific end goal to decide the question's shading. Shading sensors will give a precise shade of the question. An extensive variety of uses can be done utilizing shading sensors like arranging of items in light of their shading, quality evaluation frameworks, shading improvement in printers and so on. We can design an Arduino Color Sensing and detection application, which has the capability to detect distinct colors. TCS3200 shading sensors for this reason. Prologue to shading sensor, circuit chart and working of the Arduino Color Sensor venture are clarified further. Checking objects on production lines or conveyors: photoelectric sensors can detect items' sizes to spot any errors, or simply spot their absence, as well as picking up problems like misaligned caps on bottles. They are widely used in the food and pharmaceutical industries, and in packaging plants. Counting small objects: in some production environments, small items will fall from a vibrating conveyor belt into a packaging system or bag – and a photoelectric sensor can count them.

Detecting colors: By scanning independently in red, green and blue light, with applications in multiple processes in the printing and packaging sectors.

Monitoring bigger areas for objects with light grids: instead of using multiple sensors, a 'light grid' uses parallel beams of light to cover a two-dimensional area.

Measuring distance: with multiple sensors, a triangulation process compares reflected laser beams and can be used to accurately determine position and distance, for example, to check the location of manufacturing systems, or in automated transport applications.

Logistics and materials handling: automated warehouses with robotic pickers or trucks rely on position and object sensing to operate efficiently and safely.

Automatic doors: in buildings or public transport, photoelectric sensors detect when someone is standing by a door.

Keywords: TCS3200, Triangulation Method, Shading Sensors, Photoelectric sensors

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Bluetooth Anti Theft Personal Tracker Key

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ABSTRACT:

Current smartphones are provide lots of the capabilities of traditional personal computers (PC's) and, in addition offer a large selection of connectivity options, such as IEEE 802.11, Bluetooth, GSM, GPRS, UMTS, and HSPA. This plethora of appealing features has led to a widespread diffusion of smartphones that, as a result, are now an ideal target for attackers. Mobile phone robberies and extraction of personal data has becoming a growing concern. Hence there is a need of a system which will indicate immediately that the theft is taking place and produce an alarm to scare the thief and also make surrounding people note of such incidence. This can be implemented using Bluetooth module which will be kept inside the pocket. The Bluetooth module is paired with the Bluetooth of the mobile. Here the mobile contains based 'Locate beacons' software to connect and measure the BLE beacons distance. The other end i.e. hardware device contains a microcontroller interfaced with BLE beacon. If the connectivity between mobile and Bluetooth module is more than two meters, mobile sends the command and gives the alarm and vibration continuously. At the same time in mobile also toggle the light and sound to identify the mobile location. This hardware device is small and looks like a key chain to keep in pocket. This anti-lost device adopts latest Bluetooth 4.0 low consumption technology, and through corresponding app to realize all the functions. It can effectively protect your kids, pets or valuables from being stolen or lost within 10m effective distance range, when out of this range your phone and this I-Tag will automatically ring for a timely warning. It can also be used as a excellent remote control selfie shutter and recorder. The location function is extremely perfect for road nerds to exactly find their cars. What's more you can preset 8 devices in one phone at the same time. The Ultra small size and light weight ensures maximum convenience and portability.

Key words: Smart phones, Bluetooth module, Controller, Distance

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IoT Based Farming

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Abstract: Smart farming is an emerging concept, because IoT sensors capable of providing information about their agriculture fields. This work combines Image Processing and IoT to monitor the plant and to collect the environmental factors such as humidity and temperature. In image processing, a recognition system capable of identifying plants by using the image soft their leaves have been developed and with the help of the images, use of pesticides can be controlled. The system runs preprocessing and Feature extraction techniques on the image before a pattern matcher compares the information from this Image with the ones in the database in order to get potential matches. Based on the pattern recognition a leaf can be identified as healthy or diseased. The main aim of this project is to make farmers easily Identify the diseases of plants by developing an application.

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Design of Ventilator Using Arduino for Covid Pandemic

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ABSTRACT

People use lungs for respiration. They use push mechanism in each breath. Inhalation and exhalation process takes place. The ventilator here we design is to help people during Covid situation. It is very cheap and affordable. When people suffer from lungs or breathing problem this can be used for emergency situation. Motor mechanism is used to push the air bag. When oxygen level counts are low this mechanism can be performed. Small screen is used to display the oxygen levels. The entire system is driven by an Arduino microcontroller and a buzzer is fitted to detect any low levels of oxygen count.

Keywords: DIY ventilator, emergency, air bag, breathing problem, BPM, respiration.

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Advanced Footstep Power Generation

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Abstract:

This project is to develop a new source of renewable energy with low-cost budget with the help of Arduino Uno as the microcontroller. The footstep power generation system is to capture the typically wasted energy surrounding a system and transforming it into electrical energy. The technique used in gaining the energy is via piezoelectric materials. This method employs piezoelectric components where deformations created by dissimilar means are directly transformed into electrical charge through piezoelectric effect. Afterwards, the electrical energy can be regulated or stored for further use. In this project, we are generating electrical power as a non-conventional method by simply walking or running as the input source. The piezoelectric sensor will then send the signal into the Arduino Uno and transform it into electrical energy. The LCD will then displayed the amount of voltage generated by the circuit. The highest voltage generated in this project is 8.29 V. Then, the voltage stored in the battery can be used to charge the mobile phone. The results shown that this footstep generation system is very important for utilization in today's world.

Keywords - Piezoelectricity, Footsteps , Power generator, Energy conservation, Force or Pressure.

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The Role of Emergency Communication Systems in Disaster Management In India With Special Reference To HAM Radio

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ABSTRACT

National Institute of Amateur Radio popularly known as HAM radio established in the year 1983 has been involved in providing such second line communications during various emergencies in the country over the last one and a half decades. The volunteers of NIAR have rendered selfless support to the administration in several Cyclones, Floods, Earthquakes, Rail/Road/Air accidents all over the country. Some of the major incidents are the Uttarkashi, Latur and Gujarat Earthquakes, Beechpalli Road accident and Cyclones & Floods in AP,2014 Cyclone Hud Hud, Visakhapatnam. and other states, Orissa Super cyclone, Amaranth Yatra tragedy, Tsunami in Andaman, Aila Cyclone In a developing country like India it is more than necessary to use such technologies, which is not only cost effective but also maintain a resource of skilled and talented personnel at village level. Where people themselves can better organize for their local needs which is the main criterion during disasters. with years of experience and knowledge of emergency planning and preparedness NIAR adopted a new concept to provide quality public service communications were CW, SSB and Digital communications work together. The systems such as Disaster Relief Vehicle is found are most ideal for emergencies wherein both emergency medical care and communication can be provided at the site of incident as well as transport of health workers and Amateur Radio operators.

Amateur (HAM) Radio is often used for emergency communications as a means of second line of communications when disasters disrupt normal communication facilities. Amateur radio operators are often called-in to support immediate communication needs, coordinating with various agencies working for disaster management. The members of National Institute of Amateur Radio (NIAR) have been actively involved in establishing two-way communications supporting various government and non-government organizations when an incident of natural / man-made disaster occurs.

Keywords: HAM, NIAR, CW, SSB,emergency communication, second line communication, disaster management

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Improved Iterative Model on Noise Reduction Scenario for Speech Models with Tree Classifications

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ABSTRACT

One of the classifications of the current design models which effects the noise and speech are have to analyzed and predicted based on machine algorithms. Since Existing algorithms provide a design for the classifications on the different types of speeches utilized in either daily speaking or medical fields. In order to improve the accuracy and precision of speech classification, a speech classification method based on the Ensemble Approach to ensure the design criteria with the accuracy of 38% of design model and its analysis based on the proposed noise reduction approach for signal to noise ration of 10dB case. Our design criteria is to estimate the noise and other features with design model and its feature capabilities with regard to time of interval of the audio data precision. Finally we compare the accuracy and confusion chart of the two different scenario of the design model with noise and without based on the Ensemble classification criteria.

Keyworsds: Mel Frequency Cepstral Coefficients (MFCC), Decision Tree, Support Vector Machine(SVM),Boosting, Automatic Speech Recognition.

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Novel Algorithm to Detect Tsunami caused by Travelling Ionospheric Disturbances

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Abstract

Ionosphere is part of Earth's upper atmosphere between 48km and about 965 km. Where Ultraviolet and x-ray solar radiation ionizes the atoms and molecules thus creating a layer of electronics. Travelling ionospheric Disturbances result in changes in the Total Electron Content and ionospheric electron density distribution. Travelling ionospheric Disturbances are a wave like propagating irregularities that alter the electron density environment, because of that it produces the Tsunami. These Travelling ionospheric Disturbances are driven by Acoustic Gravity waves travel through the deep ocean. These Acoustic Gravity waves transferring energy from the upper surface to sea floor and across the oceans. The parameter for detecting Travelling ionospheric Disturbance is Total Electronic content (TEC). Total Electronic content is measured in units of **10^{16} electrons meter per square area**, where 10^{16} electrons/m² = 1 TEC unit. In the previous studies, so many Artificial Neural network approaches are implemented for detecting the Travelling Ionospheric disturbances. But not predicted accurately speed of the Travelling Ionospheric Disturbances, since it failed to find out the TID's at other time points and also have the high operational cost. In this proposal, Convolution Neural Network with Deep learning, we can identify the parameters are caused for Travelling Ionospheric Disturbances and optimize the parameters with zero error rate and to prevent loss of life and property. The Convolution Neural network with Deep learning technique identifying and evaluate the Total Electronic Content, find out the TEC anomalies and classifies TEC anomalies accurately that are cause for the Travelling Ionospheric Disturbances and Max pooling technique in convolution neural network reduces the operational cost. This can be applied for complex models and complicated data processing. Using CNN with deep learning gives good accuracy.

Keywords: Travelling ionospheric Disturbance, Total Electronic content, Acoustic Gravity waves, Convolution Neural network, Deep Learning, Max Pooling

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Internet of Things - Healthcare Applications

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Abstract

The fields of computer science and electronics are combined to result one of the most prominent technological advances in the form of realization of the Internet of Things. Among many of applications enabled by the Internet of Things (IoT), smart and connected health care is a particularly important one. IoT eliminates distance barriers and can improve access to medical services that would often not be consistently available in distant rural communities. The impact of IoT in healthcare, although still in its early stages of development has been significant. Networked sensors, either worn on the body or embedded in our living environments, make possible the gathering of good information indicative of our physical and mental health. This paper tries to review and comprehend the applications of IoT in custom-made healthcare to achieve excellent healthcare at affordable costs. We have explained in brief what IoT is, how it functions and how it is used in combination with wireless and sensing techniques to implement the desired healthcare applications. Here, we highlighted the opportunities and challenges for IoT in realizing the vision of the future of health care.

Keywords— *Internet of things, healthcare, remote health monitoring, wireless sensor networks etc.*

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Recognition of Handwritten Digit Using Deep Learning and CNN

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Abstract— Handwritten recognition is the noteworthy and important. All the handwriting digits are not in same size, same thickness, same position and direction. We have to face different problems while we are writing handwritten digits. The written digits has the uniqueness and importance for the various styles of different industries for the extra influence in presence of digits. The handwritten digits is mainly used in many real time programs like bank cheques and tax documents. The main purpose of the project is to detect the handwritten digits is used in machine learning algorithms like TKINTER, NAVIE BAYES, PLOTTED algorithms and so on. And we are using deep learning calculations like CNN by utilizing keras with numpy tensor flow and pillows. By using these libraries we have to get some different accuracy values like 97.50%, 90.01%, 85.60% by obtaining Navi bayes and plotted algorithms.

Handwritten digit recognition will have to gain more attention in various methods of pattern recognition and machine learning algorithms due to the various applications of various fields. Handwritten digit recognition has specific domain has to be applied. Various techniques has to be proposed for symbol recognition in handwritten digit recognition. In coming years for character recognition is a server key to create paper less works by processing the existing documents. This project presents a detailed view of handwritten digit recognition.

Keywords—Scikit-learn, Classifier, keras, TensorFlow, MNIST, Python, Deep learning, Neural networks, Digit recognition, Navi bayes, Plotted algorithms

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Triple Octagonal Microstrip Patch Antenna for Satellite Applications

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Abstract - In continuation of the endeavor for miniature antennas for satellite communications a compact Triple Octagonal Microstrip Patch Antenna has been designed and its results analyzed. The proposed antenna has a substrate and one side of the substrate consists of a rectangular radiating patch having triple octagonal shaped slots and other side having a ground plane. Keeping in view of the space constraints in satellite applications the proposed antenna is well with the industry set rules. This antenna is suitable for C, X, Ku, K and Ka band applications. This engineered antenna has almost achieved omni directional radiation pattern showing considerable gain across the desired microwave frequency bands.

Index Terms – Triple, Octagonal, VSWR, Return Loss, Radiation Pattern, HFSS.

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Value Stream Management through an Integration model of Agile and DevOps

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Abstract— The software Companies are transforming the way they operate to increase the probability of success of the project and delight their customers. The delivery estimates must use a realistic solution scoping with all functional and non-functional requirements. The best approach is demonstrating reduced costs, improving the speed, implementing the workflow and automating the internal processes to increase customer satisfaction. With a well-supported model, the organization will reach the level of maturity on which each successful project will be built with experience and credibility. The model will deliver a value by addressing a complex process that involves multiple teams with long workflows to complete the project within the estimated schedule and budget. There is a need for the projects to embrace DevOps and agile methodologies to drive innovation, speed and adaptability to provide a greater value to their customers for uplifting their level of gratification. This paper attempts to highlight the reasons due to which projects can fail and the strategies that can be adopted to prevent such failures.

Index Terms—Agile, DevOps, Value Stream, DevOps Metrics, DevOps Optimization.

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Kidney Stone Identification and Scoring with Combined Deep Learning and Thresholding Methods on Non contrast CT Images

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Kidney stone disease is one of the most common health problems, although the frequency varies between different countries a common complaint worldwide, causing many people to admit to emergency rooms with severe pain. Various imaging techniques are used for the diagnosis of kidney stone disease. Specialists are needed for the interpretation and full diagnosis of these images. Computer-aided diagnosis systems are the practical approaches that can be used as auxiliary tools to assist the clinicians in their diagnosis. In this paper, develop and validate a deep learning and thresholding-based model for automatic kidney stone detection and scoring using NCCT images. Abdominal non contrast computed tomography (NCCT) images need to be retrospectively archived for three parts: a segmentation dataset ($n = 167$), a hydronephrosis classification dataset ($n = 282$), and test dataset ($n = 117$). The model consisted of four steps. First, the 3D U-Nets for kidney and renal sinus segmentation were developed. Second, the deep 3D dual-path networks for hydronephrosis grading were developed. Third, the thresholding methods were used to detect and segment stones in the renal sinus region. The stone size, CT attenuation, and tract length were calculated from the segmented stone region. Fourth, the stone's location was determined. The stone detection performance was estimated with sensitivity and positive predictive value (PPV). The hydronephrosis grading and stone size, tract length, number of involved calyces, and essence grading were estimated with the area under the curve (AUC) method and linear-weighted κ statistics, respectively. The proposed model shows more accuracy using NCCT images in detecting Kidney stone even small size it can identify correct regions of interest on the images for accurate decision making and it can automatically detect and score stones in NCCT images. DL methods which are popular can be employed to address other challenging problems in urology.

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A Study on Diabetic Glaucoma Detection Techniques and Methods in Machine Learning

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Nowadays, Diabetic Glaucoma is a major cause of vision loss for diabetic patients worldwide. Detection of diabetic glaucoma in the early stage is essential to avoid further effects on the eye. Unfortunately, diabetic glaucoma is not a reversible process, and treatment only sustains vision. Physical tests like pupil dilation, optical coherence tomography, and visual acuity tests can be used to detect diabetic glaucoma but are time-consuming and affect patients as well. The early detection process uses retinal fundus images and provides appropriate treatment and thus prevents vision loss. Over the past few years, machine learning-based techniques and methods have achieved better performance in many areas, especially in medical images analysis and classification. The machine learning methods are used to extract features such as exudates, hemorrhages, microaneurysms, etc., from retinal images analysis and they are highly effective. The machine learning techniques are used in retinal images detection and classification of the existence of diabetic glaucoma and evaluating its severity. In this paper, we reviewed and presented machine learning techniques and methods are explored for diabetic glaucoma or diabetic retinopathy. this paper is having the scope for research work and to provide better solutions for predicting diabetic glaucoma earlier to prevent the severe effects of the disease.

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I – KIT SYSTEM

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Abstract:

Interview is defined as the conversation between the interviewee and the interviewer. Interview is a most experience condition faced by students. It is must that we should prepare hard to crack it, to face an interview we should mentally and physically fully prepared it also essential that an interviewer must have idea of some general knowledge questions and basics. It is seen that just a moment before an interview or the term of three months before it students had thousands of questions in their mind. A little sense of fear, they started feeling nervous and at the time of interview they get disqualified, means that fear plays an very negative role in an interview so it is very essential to throw it out from our mind.

It aims for students to prepare for their interviews in effective way and it is not only meant for study purpose, it is also for to push them in technically and it is a user-friendly web application. It is a whole toolkit which comes under aptitude, technical part, conceptual part, previous papers for individual companies to prepare.

The optimized quality content is very much necessary for efficient and effective interview preparation. In particular, for the working professionals, who often don't have that much time to go through every single topic or subject in detail in multiple websites-all they require is a optimized and quality learning resource like this complete Interview Preparation course that can help them to get completely prepared for the interview efficiently. The course is designed while keeping this factor also in mind.

Keywords:- Interview, knowledge, web application, questions, aptitude, kit.

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Automatic Door Opening System Based on Human Body Temperature

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Abstract **-** The proposed work is about an integrated sensors platform for non-contact temperature monitoring of a person's keeping in view of the COVID pandemic situation. In this work it is described the design and implementation of automatic controller for the door to open depending on the temperature. The door opens when any human body temperature is detected nearer to the door with the help of contactless sensor (MLX90614SE). If the detected body temperature is above the normal, then sound of alarm is listened by the security persons for immediate action. The total setup contains an Arduino Uno Microcontroller, sensors, speakers and buzzer. This setup is installed at the entrance of an office or an organization to check the temperature of individuals before they are entering into that vicinity.

Keywords: Temperature, Buzzer, Pandemic, Contactless sensor.