Scope

Technical Magazine

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ACCREDITED WITH GRADE

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE
KAKATILA EDUCATION SOCIETY
★ WARANGAL ★

Estd - 1980

Department of Electronics & Instrumentation Engineering

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE

WARANGAL - 506015

(An Autonomous Institute under Kakatiya University, Warangal)

SCOPE

Technical Magazine

Electronics & Communication Engineering

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

KAKATIYAINSITUTEOFTECHNOLOGY &SCIENCE: WARANGAL-15

VISION

ToprovidequalityeducationinElectronics&InstrumentationEngineeringbynurturing the students with strong technical, analytical, practical skills and ethics to make them engineering professionals who cater to the societal needs with a high degree of integrity and social concern.

MISSION

1. Toprovideprogressiveandqualityeducationalenvironmentwiththehelpofdedicated faculty and staff by fully utilizing the information technology aiming at continuous teaching and learning process.

2. To produce engineering graduates fit for employability with a competence todesign, develop, invent and solve instrumentation engineering problems.

3. To make the students ethically strong by inculcating sense of brotherhood.

4. To make the students research oriented by providing latest technical knowledgeand thus cater to the changing needs of industry and commerce.

PREFACE

This magazine summarizes the current state of Electronics and Instrumentation Engineering, providing an arena for the student community to showcase their technical talents in a great way. Keeping in view of the present era of technological revolution in the field of Instrumentation Engineering, the students of E&IE department, KITS Warangal presents you **SCOPE**.

We acknowledge the essential contribution of the reviewers, whose efforts are deeply appreciated.

We feel that such technical magazine is very well required as it helps in updating the knowledge of future engineers.

The Department of E&IE is very much thankful to the Management for their continuous support and encouragement for making the TechnicalMagazine **SCOPE**.

Program Outcomes (POs)

1. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem Analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences

3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to man-age projects and in multidisciplinary environments.

12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSO's)

PSO1: An ability for immediate professional practice as an Electronics & Instrumentation Engineer.

PSO2: An ability to use fundamental knowledge to investigate new and emerging technologies leading to innovations in the field of Electronics & Instrumentation Engineering.

Mini Project Abstracts

COLOR SORTING MACHINE USING NODEMCU

In the present 21st century every industry is moving towards automation to reduce the risks and avoiding the labor problem, this 21st century is the industrial century. In many of the small- and large-scale industries the products produced are sorted based up on their color like in sorting the agricultural products like grains, …etc. and also in some of the plastic goods products producing industries, using manual sorting creates problems and takes significant amount of time and manpower. So to overcome the problem we can use Internet of things, IoT enables us to sort the final products based on color easily, accurately and using less manpower. By using NodeMCU ESP8266, a WiFi microchip used for IoT applications and also used to connect the devices and transfer data using Wi-Fi protocols. And to classify the products based upon their color we will be using TCS3200 color sensor, this sensor detects the color frequency by lighting 4 LEDs and the photodiodes present on it. We will be using the servo motors for precision control of the angular or linear position, in this project we use this for directing the way via

cardboard for a particular product based upon its color. The count of the products can be monitored in the platforms like ThingSpeak or in some of the apps like Blynk, ThingBoard…etc In this project, the development and explanation of the use of Internet of Things (IoT) for sorting the things depending upon their color is verified.

B19CI015
T. Arpitha

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IOT-BASED SMART WATER NETWORK MANAGEMENT

"Internet of Things (IoT)-based technology has been implemented in several aspects of the water delivery system. This is in accordance with the Smart Water Network Management program, which intends to offer a framework for improving water supply system operating performance and monitoring. The applications of the Internet of Things (IoT) for monitoring the water supply network are presented in this, with a focus on water quality and leakage monitoring. The technological constraints of IoT- based technologies are also highlighted in these applications. The future of internet of Things-based technology in water network management seems bright. Nonetheless, further research is needed. improve the system and applications problems Generally, Low-Power, Long-range sensing and communications are used"

B19CI041
A. ROHITH

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IoT BASED WATER QUALITY MONITORING SYSTEM

Water contamination is the main driver for some sicknesses on the planet. It is important to quantify water quality involving sensors for anticipation of water contamination. There are various cycles and factors influencing the water quality during transmission and dissemination which are minimal perceived. The viable and proficient arrangement of Water Quality Monitoring (WQM) are basic execution for the issue of dirtied water all around the world, with expanding in the advancement of Wireless Sensor Network (WSN) innovation in the Internet of Things (IoT) climate, continuous water quality checking is remotely observed through ongoing information obtaining, transmission and handling. This task presents a reconfigurable shrewd sensor interface gadget for water quality checking framework in an IoT climate. The shrewd WQM framework comprises of Arduino UNO microcontroller, sensors; IoT and Wireless Fidelity (Wi-Fi) based remote correspondence module.

The proposed WQM framework gathers the five boundaries of water information like water pH, water level, turbidity, conductivity and water temperature in equal and in genuine time premise with rapid from numerous different sensor hubs. This framework is coordinated with the IoT innovation for continuous water quality checking. It means to decide the pollution of water, purges the water and furthermore programmed proportion of boundaries progressively utilizing Arduino UNO. This framework is adjusted with extra sensors and diminished cost. The outcomes show that the proposed framework beats the current ones and creates improved observations.

B19CI013
Deepshika

RFID BASED CONTACTLESS DOOR ACCESS

The scope of this proposed project is to provide contactless door access. It gives a fast reaction and is very secure. This project depends upon radiofrequency identification. It is a significant region of the future and is increasing hugely. In this, RFID-based door access control utilizing Arduino is created. We can access the door without making any contact with it. We use an RFID ID tag and RFID reader, which is used to match the data on the tag with the data in the database

program which leads to movement of the door by confirming whether the data is correct/incorrect. It gives access to the IDs that have already been registered. This is a way to contactless handle the doors. In this way, you do not even give access to everyone. Only someone with a registered RFID ID can have access to it.

In the present project, an attempt is made to develop a system that can help you to access doors without coming in contact to it but by just using radio frequency identification.

B19CI004
Daniya Zaki

HEART RATE MONITORING USING ARDUINO

In this COVID pandemic situation, health conscious has increased a lot in people. Temperature monitoring, heart rate monitoring, SPO2 levels monitoring, these are the three things' People are continuously monitoring every day.

Temperature can be monitored by using thermometers. Heart rate can be monitored using a Pulse sensor. In this project we are going to design a simple pulse sensor using Arduino.

B19CI001
P. Uday Teja Reddy

TEMPERATURE MONITORING AND ANOMALY DETECTION USING RASPBERRY-PI

The Purpose of this project is to provide a solution for Temperature monitoring system along with Anomaly detection and alerts over preferred platforms like Telegram, SMS, Email, WhatsApp etc. for Anomalous temperatures. To implement the proposed project, IoT based system is developed with the Message Queue Telemetry Transport abbreviated as MQTT a robust communication protocol and other requirements such as LM35 temperature sensor and a Node-MCU Microcontroller as it consists of ESP8266 that enables us to Connect to the internet. To detect anomaly Z-score Algorithm is Used as it is a short and a rapid algorithm to detect anomalies in the data.

The benefaction of this Project is an Internet of Things (IoT) system that can measure and monitor the temperature of any Device or any other object and provides alerts if there are anomalies in the temperature measurement.

B19CI047
J. PRASHANTH REDDY

IOT BASED SMART VEHICLES FOR FUEL CONSUMPTION

IoT is completely employed in run-of-the-shop impacts and its position is creating little by little. This paper sets the gospel and updates of an IoT and open rested vehicle energy works out, for case, satisfying energy checking and GPS by and large around the fresh arrangement. The proposed IoT trick checks how monster energy is by exercising an ultrasonic energy finder. Right when the vehicle tank of energy comes to a specific position, the automobilist cautions through open new development and looks for the closest siphon area for reloading energy. The proposed structure employed GPS following for showing the continuing area of the vehicle and seeing the closest material siphon locale. By no means, similar to a normal construction for the energy position checking. It contrasts by seeing the energy position giving give the declaration to withdraw the vehicle from e any spot with the upgrade of (IoT). hence restores the data of energy entering inside the tank. The essential backing off driving this gimmick is to help energy theft feting password and track the material siphons hard our region likewise show the expenditure of the energy as shown constantly.

B19CI035
DEEPIKA REDDY

IOT BASED ALCOHOL DETECTION SYSTEM AND ENGINE LOCK SYSTEM MODULE

Drunk driving is a particularly harmful habit because it causes drivers' cognitive habits to become altered. Intoxicated driving is responsible for 50–60% of road accidents, according to a World Health Organization report released in 2008. In recent years, drunk driving-related traffic incidents have grown more widespread. As a consequence, it is evident that driving while drunk endangers public safety. Many technologies and techniques have been adopted to lessen the incidence of road accidents caused by intoxicated driving. An alcohol sensor, a 5v battery power source, a DC motor for engine operation, and a buzzer make up the alcohol detector. As it detects alcohol molecules in the air surrounding it, this gadget displays the results of the alcohol sensor and displays a warning letter.

B19CI025
G. HARSHINI

DEVELOPMENT OF OVERHEAT EARLY DETECTION SYSTEM

This project projects a way which is advancement of already being used temperature detector in many industry work places. This 'Automatic Overheat Early Detection System' sees that machine does not work in overheat scenarios. It works with IoT and rings the buzzer and alert the user if machine the temperature rises. The temperature is detected using a DHT11 temperature and humidity sensor. This model also uses a fan which is a coolant, and the fan which is used, runs with the help of a battery.

The fan is connected to a relay which acts as a switch, in this case ON and OFF the fan based up on the already preset temperature. Based on the temperature detected, if it exceeds, the already set limit, some actions that are discussed above like, ringing the buzzer which alerts the user and switching on the fan are performed.

B19CI048
B. BHARGAVI

IOT BASED WATER FLOW RATE TRACKING USING NODEMCU

Assuming you have at any point visited huge scope producing organizations, the main thing you will see is that they are all mechanized. Soda Industries and Chemical enterprises need to gauge and evaluate the fluids continually that they are taking care of during this robotization interaction, and the most well- known sensor used to quantify the progression of a fluid is a Flow Sensor. By utilizing a stream sensor with a microcontroller like Nodemcu , we can compute the stream rate, and really look at the volume of fluid that has gone through a line, and control it as required. Aside from assembling businesses, stream sensors can likewise be found in the farming area, food handling, water the board, mining industry, water reusing, espresso machines and so on. Further, a water stream sensor will be a decent expansion to projects like Automatic water distributor and savvy water system frameworks where we want to screen and control the progression of fluids. In this undertaking, we will construct a water stream sensor utilizing Arduino. We will interact the water stream sensor with Arduino and LCD, and program it to show the volume of water, which has gone through the valve. For this specific task, we will utilize the YF-S201 water stream sensor, which utilizes a corridor impact to detect the stream pace of the fluid.

B19CI046
B. THANMAI SRI

ANTI-SLEEP MONITORING DEVICE

The Anti-sleep monitoring device mainly focuses on the safety of a driver and passengers while they are travelling. We frequently see many accidents that take place due to the irresponsibility of driver. In most of the cases the reason behind those accidents is due to drowsiness, i:e because of insufficient sleep of person who is driving. So this makes everyone hold in risk.

So as to overcome this major issue this anti-sleep monitoring device is developed. This device has a capability to warn the driver of the vehicle if he closes his eyes for a certain period of time. This device produces an instant alarm, which makes the driver get rid of drowsiness. Even there are many different applications where this project can be used.

B19CI034
K. VISHNU VARDHAN REDDY

SMART PLANT MONITORING SYSTEM USING NODEMCU

Plant observation is seen collectively of the foremost necessary tasks in any farming or agriculture based mostly atmosphere. This paper automates plant observation and sensible agriculture exploitation IoT within the Node MCU system platform. The most purpose of this paper is to produce comfort to the farmer by reducing the manual work by rising the general performance of the system while not the user's direct interaction. The necessary parameters for the standard and productivity of plant growth area unit soil and air

temperature, humidity, daylight and soil wetness. The plant health and growth info should be provided to the user endlessly by observation and recording these garden parameters. All the sensors utilized in this project area unit interfaced with the Node MCU. And this info concerning the plant may be directly monitored and controlled by the farmer through their sensible phone exploitation IoT. This sensible agriculture system can give convenience and luxury to the user by sensing and dominant the parameters of the plants while not their physical presence. Any automaton supported device may be wont to install the sensible agriculture application. The softwares used area unit Arduino IDE & Blynk IoT platform. Arduino IDE is employed for compiling and uploading the program to Node MCU and Blynk IoT platform is employed for displaying of temperature, humidity, gas pressure & soil wetness and may be accessed from any distance. This can facilitate the farmer to grasp the relation between the plant growth and mentioned plant parameters…

B19CI007
P. Divya Sri

SMART NOTICE BOARD USING NODEMCU ESP8266

We created an IoT-based smart notice board for this project. A cloud-connected display will be waiting for a message from the user at all times. The data will be automatically posted to the LCD if the user uploaded data in app. The user can upload the message to the LCD using the Node MCU ESP8266.The user can give the data to the LCD wherever on the globe. This will reduce the time it takes to update the data as well as the amount of information transferred to the end user. Node MCU, 16*2 LCD Display, I2C, Mini Breadboard, Jumper Wires, and PVC Boards are used to build the wireless notice board display. Because the electronic notice board is wireless, it eliminates the need for wires, is simple to use, and uses less energy.

B19CI065L
CH. GANESH

SMART BLIND STICK

Blind person finds it difficult to detect the presence of any obstacles in their way while moving from one place to another and it is very difficult to find the exact location of the stick if it have been misplaced. smart cane it is gone change their life very much such a way that stick gone detect any obstacle with in a rage 50cm as we configured it can bring up to 300cm it is an iot project we have used Arduino UNO we dumped code in it so the Arduino will Triger the ultra-sonic sensor and we can keep a safe distance it will blind people confidence such a way that they
can travel across the world with confidence and without any help.

B19CI006
T. HRUSHIKESH