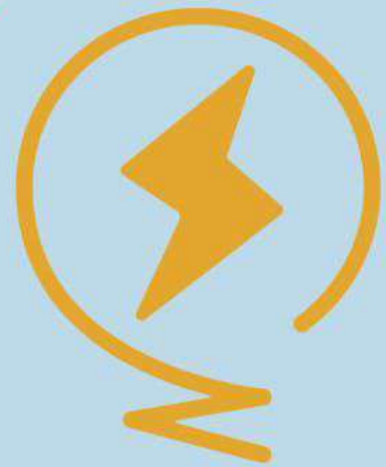# ROHINI

COLLEGE OF ENGINEERING AND TECHNOLOGY

Approved by AICTE and affiliated to Anna University.(An ISO Certified Institution)

International Conference on

AUTOMATION, INTELLIGENT COMPUTING AND COMMUNICATION

[ICAICC'22]

Organized By

Department of Electronics & Communication Engineering

Rohini College of Engineering and Technology

2021-INTERNATIONAL CONFERENCE ON AUTOMATION, INTELLIGENT COMPUTING AND COMMUNICATION(2021-ICAICC)

ORGANIZED BY:

Rohini College of Engineering and Technology

Palkulam, Kanyakumari –Dist., Tamil Nadu

25 August 2021

2021- INTERNATIONAL CONFERENCE ON AUTOMATION, INTELLIGENT COMPUTING AND COMMUNICATION

Editors

DR. S.GANESHRAM

DR. P.K. ARUNESH

Preface

Conference World and AR Research Publication is fast growing group of academicians in Engineering, Sciences and Management. AR Research Publication is also known for fast reply and zero error work. Conference world has organized a various conferences at renowned places namely Delhi University; New Delhi, Jawaharlal Nehru University; New Delhi, PHD Chamber of Commerce and Industry New Delhi, YMCA New Delhi, India International Centre New Delhi Sri Venkateswara college of Engineering and Technology, Andhra Pradesh, Dhananjay Mahadik Group of Institutions (BIMAT), Shivaji University, Maharashtra, Vedant Engineering Kota and many more places across the country.

We are very pleased to introduce the proceedings of the *2021-International Conference on Automation Intelligent Computing and Communication.* As for previous conferences, the theme was the link between the information provided by conference world and the use made of this information in assessing structural integrity. These were the issues addressed by the papers presented at the conference. The level of interest in the subject matter of the conference was maintained from previous events and over 78 suitable papers were submitted for presentation at the conference.

Papers were well represented in the conference to arouse a high level of international interest. Three countries were represented in the final program from Europe, North America and Asia. In the event, the conference was highly successful. The presented papers maintained the high promise suggested by the written abstracts and the program was chaired in a professional and efficient way by the session chairmen who were selected for their international standing in the subject. The number of delegates was also highly gratifying, showing the high level of international interest in the subject. This is also indicated by the large number of countries, 01 represented by the delegates. This Proceeding provides the permanent record of what was presented. They indicate the state of development at the time of writing of all aspects of this important topic and will be invaluable to all workers in the field for that reason. Finally, it is appropriate that we record our thanks to our fellow members of the Technical Organizing Committee for encouraging participation from those areas. We are also indebted to those who served as chairmen, without their support, the conference could not have been the success that it was. We also acknowledge the authors themselves, without whose expert input there would have been no conference. Their efforts made a great contribution to its success.

BRIEF HISTORY OF THE COLLEGE

Rohini College of Engineering and Technology is the most prestigious institution established by a well-known industrialist and philanthropist, Shri.K.Neela Marthandan in 2012. More than 2750 students are pursuing their studies in 6 Under Graduate and 5 Post Graduate programmes. Anna University has recognized Department of Mechanical Engineering as the Research Centre. The academic system followed is Outcome Based Education. The faculties are well experienced and 21 faculty members are having Ph.D.

About Conference

This Conference will explore the new horizon of innovations from distinguished researchers, scientists, and eminent authors in academia and industry working for the advancements in Science, Engineering and Technology from all over the world. ICAICC-2021 aims to bring together Academicians, Scientists, Research Scholars and Students, to share and disseminate information on knowledge and scientific research works related to Automation, Intelligent Computing and Communication topics and confers the practical challenges encountered and the solutions adopted. The conference will create a path to establish a research relation for the authors and listeners with opportunities for promoting research and developing technologies.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION

ENGINEERING

Organizes

INTERNATIONAL CONFERENCE ON AUTOMATION, INTELLIGENT COMPUTING AND COMMUNICATION

ICAICC – 2021

PROCEEDINGS

A Real Time IoT Based Cardaic Monitoring Using Sensor Network

[1]Dr.R.B Benisha, [2]Ranjitha R, Nivedhitha S V, Nivetha C M,

[1] Assossiate Professor, Rohini College of Engineering and Technology

[2] Student, Rohini College of Engineering and Technology

Wireless Sensor Networks (WSNs) for healthcare have emerged in the recent years. Wireless technology has been developed and used widely for different medical fields. This technology provides healthcare services for patients, especially who suffer from chronic diseases. Services such as catering continuous medical monitoring and get rid of disturbance caused by the sensor of instruments. Sensors are connected to a patient by wires and become bed-bound that less from the mobility of the patient. In this paper, proposed a real-time heart pulse monitoring system via conducted an electronic circuit architecture to measure Heart Pulse (HP) for patients and display heart pulse measuring via smartphone and computer over the network in real-time settings. In HP measuring application standpoint, using sensor technology to observe heart pulse by bringing the fingerprint to the sensor via used Arduino microcontroller with Ethernet shield to connect heart pulse circuit to the internet and send results to the web server and receive it anywhere. The proposed system provided the usability by the user (userfriendly) not only by the specialist. Also, it offered speed andresults accuracy, the highest availability with the user on an ongoing basis, and few cost

Automatic Energy Meter Using GSM Module

[1]Mr.Prem kumar, [2]Nandhini K, Varshini T, Santhiya M, Lisha C M,

[1] Assistant Professor, Rohini College of Engineering and Technology

[2] Student, Rohini College of Engineering and Technology

The technology of e-metering (Electronic Metering) has gone through rapid technological advancements and there is increased demand for a reliable and efficient Automatic Meter Reading (AMR) system. This paper presents the design of a simple low cost wireless GSM energy meter and its associated web interface, for automating billing and managing the collected data globally. The proposed system replaces traditional meter reading methods and enables remote access of existing energy meter by the energy provider. Also they can monitor the meter readings regularly without the person visiting each house. A GSM based wireless communication module is integrated with electronic energy meter of each entity to have remote

access over the usage of electricity. A PC with a GSM receiver at the other end, which contains the database acts as the billing point. Live meter reading from the GSM enabled energy meter is sent back to this billing point periodically and these details are updated in a central database. A new interactive, user friendly graphical user interface is developed using Microsoft visual studio .NET framework and C#. With proper authentication, users can access the developed web page details from anywhere in the world. The complete monthly usage and due bill is messaged back to the customer after processing these data.

Smart IoT Based Greenhouse Monitoring using Cloud GSM Topology

[1]Mr.Prem kumar, [2]Ramya R, Seetha M, Vaishnavi R, Punitha A

[1] Assistant Professor, Rohini College of Engineering and Technology

[2] Student, Rohini College of Engineering and Technology

Internet of things (IoT) is a promising technology which provides efficient and reliable solutions towards the modernization of several domains. IoT based solutions are being developed to automatically maintain and monitor agricultural farms with minimal human involvement. The article presents many aspects of technologies involved in the domain of IoT in agriculture. It explains the major components of IoT based smart farming. A rigorous discussion on network technologies used in IoT based agriculture has been presented, that involves network architecture and layers, network topologies used, and protocols. Furthermore, the connection of IoT based agriculture systems with relevant technologies including cloud computing, big data storage and analytics has also been presented. In addition, security issues in IoT agriculture have been highlighted. A list of smart phone based and sensor based applications developed for different aspects of farm management has also been presented. Lastly, the regulations and policies made by several countries to standardize IoT based agriculture have been presented along with few available success stories. In the end, some open research issues and challenges in IoT agriculture field have been presented.

RF Controlled Spy Robot With Night Vision Camera

[1]**Mr.R.V.Nagarajan , [2]Theres rishiba V, Renjana K, Suvitha D**

[1] **Assistant Professor, Rohini College of Engineering and Technology**

[2] **Student, Rohini College of Engineering and Technology**

This system uses RF remote controlled vehicle which has a camera that will be needed for spying purposes. The system proves to be very beneficial in places where humans cannot be sent for spying purposes such as military places as there can be some risk involved. The vehicle in this system has a night vision enabled camera. This vehicle can be operated wirelessly using RF remote. Here the camera send signals to the receiver used and the place that will be captured by the camera can be displayed remotely on a PC and can be recorded for further reference. In this system we use 8051 microcontroller in order to control the system which will be interfaced to the receiver. In this both the RF remote and the vehicle is battery powered. As the user sends commands through RF remote using the push buttons on the remote, these commands are then sent to the receiver. The receiver then sends these commands to microcontroller which processes these commands which determines in which direction the vehicle moves. The RF remote has 4 push buttons for forward, backward, left and right which will make the vehicle move in the direction specified.

A Self-Powered, Real-Time, Lorawan IoT-Based Soil Health Monitoring System

[1]**Dr.M.Reji, [2]Kasthoori K, Sona leeta T, Safrin S, Neela K,**

[1] **Assossiate Professor, Rohini College of Engineering and Technology**

[2] **Student, Rohini College of Engineering and Technology**

Typical soil health assessment requires intensive field sampling and laboratory analysis. Although this approach yields accurate results, it can be costly and labor intensive and not suitable for continuous tracking of soil properties. Advances in soil sensor and wireless technologies are poised to replace physical sampling and offline measurement with in-field monitoring. This article reports the development, deployment, and validation of an Internet-of-Things (IoT) system for continuous monitoring of soil health. The end nodes of the proposed system, called soil health monitoring units (SHMUs), are solar powered and can be installed on a field for extended periods of time. Each SHMU transmits soil temperature, moisture,

electrical conductivity, carbon dioxide (CO_2), and geolocation data wirelessly using long-range wide-area network (LoRaWAN) radio technology. Data are received by a LoRaWAN gateway, which uploads it to a server for long-term storage and analysis. Users can view acquired data through a Web-based dashboard. The following significant experiments were carried out to validate the developed system: 1) a network consisting of eight SHMUs was deployed at an agricultural field site for several weeks and soil health metrics were analyzed using the soil health dashboard; 2) the flexibility of the system was demonstrated by the addition of an extra CO_2 sensor allowing an additional variable directly linked to soil health to be recorded; 3) a wireless communication range of 3422 m was estimated at a transmission power of 10 dBm by deploying the developed system on a large field; 4) the average current consumption of a SHMU (including its associated sensors) was estimated to be 13 mA, at this rate, the onboard Li-ion battery is able to sustain a SHMU for several days; and 5) a 7 cm ×6.5 cm solar panel was able to fully charge the onboard battery in 14 days while supplying power to the SHMU.

Rfid Based Toll Tax

[1]Mr.Denvar Pravin Joy, [2]Rijas K, Paulwin J, Sethu ram T K, Muthu sudalai E,

[1] Assistant Professor, Rohini College of Engineering and Technology

[2]Student, Rohini College of Engineering and Technology

The RFID Based Highway Toll Tax Collection System allows vehicle drivers to pass the toll tax booths without stopping at the toll booths. The toll amount is deducted from the RFID card. This RFID card is rechargeable and the account is stored on the records. The automatic toll collection system will have two benefits. The first benefit is that the movement of traffic will be much faster as the user will not wait to give the money because the driver has to just show the RFID card in front of the card reader. And then the RFID based automatic gate control system will open the gate to pass through. The second benefit is that the driver doesn't have to carry the money each time. He/she will just recharge the RFID card by a certain amount and will use this card each time he travels. This is a little bit similar to using credit cards.

ZigBee based small-world home area networking for decentralized monitoring and control of smart applainces

[1]Dr.R.B Benisha, [2]Jino D, Mahendren R, Mani kandan S,
[1] Assossiate Professor, Rohini College of Engineering and Technology
[2] Student, Rohini College of Engineering and Technology

This paper deals with the unique development of decentralized monitoring and control of smart electric appliances using ZigBee mesh topology for home area networking (HAN). All the communication nodes within the entire user's home are tied with ZigBee communication while the running status of individual smart equipment is displayed in a portable in-home-display (IHD) and/or in a smartphone through Wi-Fi Internet connectivity. In order to reduce the number of ZigBee nodes, a group of smart appliances is interfaced with one ZigBee module through a smart controller board while that controller unit will be housed inside the local switchboard. Few of such controller units are required for all the smart appliances for their monitoring and control. The maximum number of such controller units is thus equal to the number of maximum switch board in that house. Small World Mesh topology for ZigBee-based HAN with node degree greater than unity is used to provide the communication redundancy so that if any one of the ZigBee fails, the other portions can work uninterruptedly. The ZigBee Controller boards, IHD, and ZigBee to Wi-Fi gateway based small world HAN network is established in our laboratory which resulted in reduced transmission delay and robust network connectivity.

Faulty Product Rejection in Coveyor Belt Using Raspberry pi

[1]M.Reji, [2]Arumugakrishnan V R, Aswi faisal S, Ayyappan N, Bala krishnan K R,
[1] Assossiate Professor, Rohini College of Engineering and Technology
[2] Student, Rohini College of Engineering and Technology

In any industry, quality control is an essential and inevitable part of the process. Defect detection in paper is one of the most important quality control measures in the paper manufacturing process. This work aims at identifying the spots and tracking down the holes in the paper. The use of Image processing and Laser sensor is a dominant technology to recognize defect in the paper. The existing methodology is based on the scanning slide concept. This uses a scanning slide and detects the black spots as it moves from one end to another. The main drawback in this technique is that the spots on one end of the paper are missed when the scanner

is on the other end. The proposed methodology aims at a fast and precise solution for detection of defects. In this method, laser sensors and high definition camera are introduced to sense micron sized spots and minute holes in the paper. The results show a considerable improvement in terms of precision and speed when compared to the existing methodology. This work is successful in detecting the defects and hence improving the quality of paper. Keywords: Paper, Scanning slide concept, Camera, Black spots, Raspberrypi.