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V2V COMMUNICATION USING Li-Fi TECHNOLOGY

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3) C.RAMYA SRI (20TC0203) 4) S. VISHNU VADHANA RAJI(20TC0231)
DEPARTMENT/YEAR : ELECTRONICS AND COMMUNICATION ENGINEERING / FINAL YEAR ECE B
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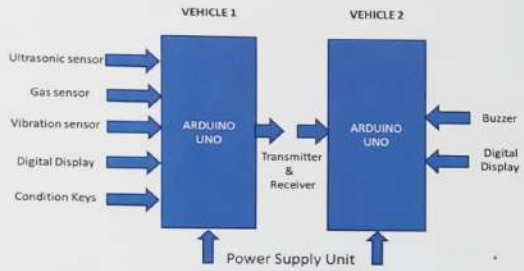
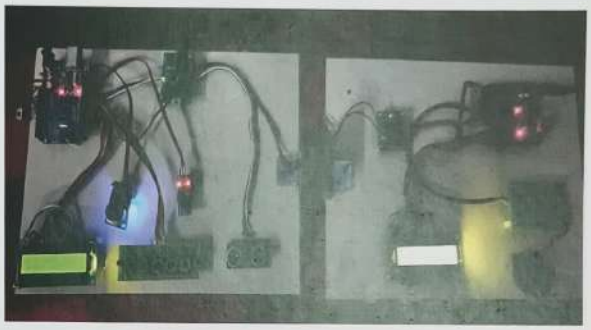
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

ABSTRACT

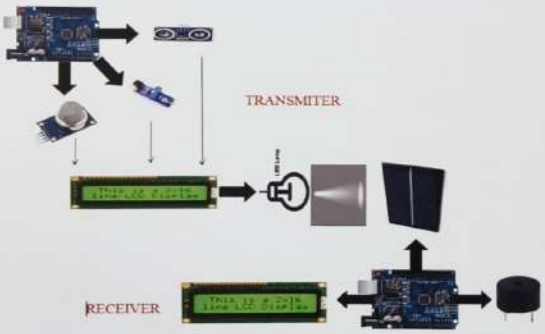
Vehicle-to-Vehicle (V2V) communication refers to the technology that enables cars to communicate wirelessly with each other. This form of automotive wireless communication facilitates the exchange of information such as position and speed between vehicles, allowing them to take proactive measures to prevent collisions. The use of Wi-Fi technology for V2V communication has been found to have negative environmental impacts, affecting plants and animals. This has led to the development of Li-Fi (Light Fidelity) technology, which uses light for data transmission, as a potential alternative. Li-Fi technology is considered cutting-edge and has applications beyond automotive communication. The report outlines a project that implements V2V communication to enhance road safety, employing sensors like ultrasonic, gas, and vibration sensors, as well as an LCD display and Li-Fi transmitter and receiver. In case of an emergency in the leading vehicle, the following vehicle is alerted and will stop accordingly. this suggests future enhancements, such as implementing Li-Fi technology in classrooms. This would involve transmitting data stored on a server through LED lights on the classroom ceiling to Li-Fi receivers .



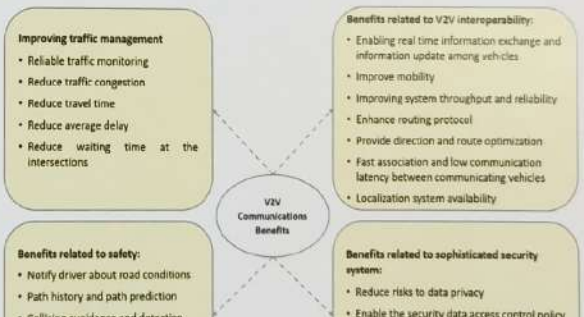
PROPOSED BLOCK DIAGRAM



EXPERIMENTAL RESULTS WITH VARIOUS CONDITIONS

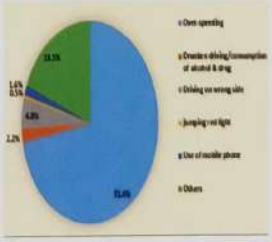


V2V MODEL USING Li-Fi



BENEFITS OF THIS PROJECT

SENSORS USED IN THIS PROJECT



REDUCED INCIDENTS AFTER V2V COMMUNICATION USING Li-Fi

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NAAC A

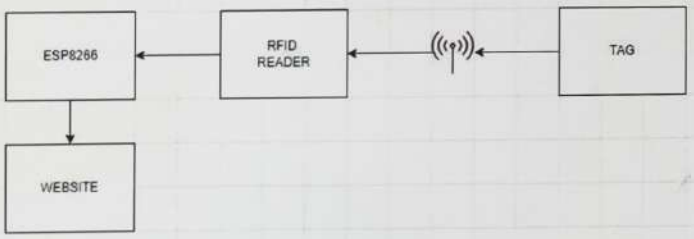
IOT BASED STUDENT ATTENDANCE MONITORING SYSTEM

Name of the Students: Santhosh kumar.K , Soruban.S , Sri haran.B
Dept/Yr: ELECTRONICS AND COMMUNICATION ENGINEERING / IV YEAR
Name of the Guide: Dr.R.Sofia

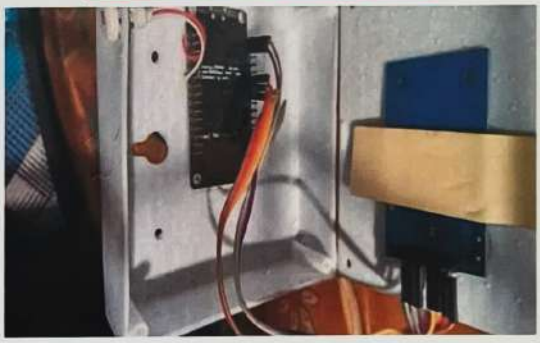
ABSTRACT

This paper proposes an innovative solution for attendance monitoring in educational institutions: an IoT-based system integrating RFID/NFC technology. Students tap their cards upon entering class, triggering real-time attendance recording and wireless transmission to a centralized server. Optional biometric authentication adds security. Benefits include efficiency gains, reduced administrative workload, and improved student accountability. Overall, this system promises to revolutionize attendance tracking in education, fostering a culture of responsibility and engagement among students.

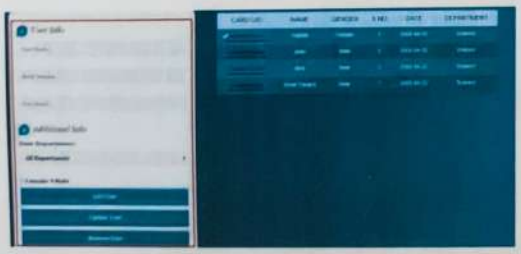
BLOCK DIAGRAM

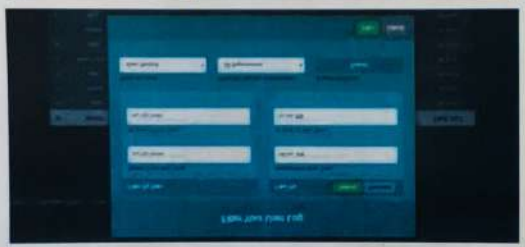


PROPOSED MODEL



WEB PAGE





SDG GOALS

ADVANTAGES:

1.Real-time Monitoring: Provides instant access to attendance data for faculty and administration.
2. Efficiency: Streamlines administrative tasks, saving time and resources.
3. Cost-effective: Long-term savings through reduced administrative overhead.
4. Parental Engagement: Allows parents to monitor their child's attendance remotely.

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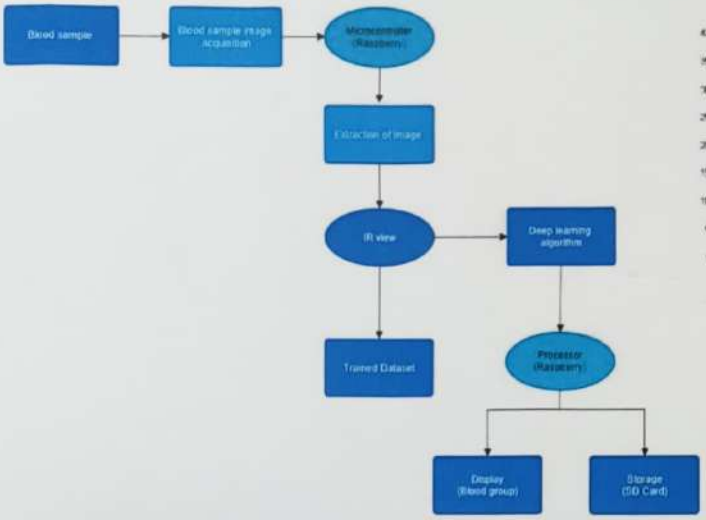
AUTOMATED BLOOD TYPE IDENTIFICATION USING IMAGE PROCESSING AND DEEP LEARNING

Name of the Students: 1.) Iswariya.P 2.) Prabadevi .V 3.) Snega.S
Dept/year: Electronics and Communication Engineering
Name of the Guide : Dr. V.Gowthami

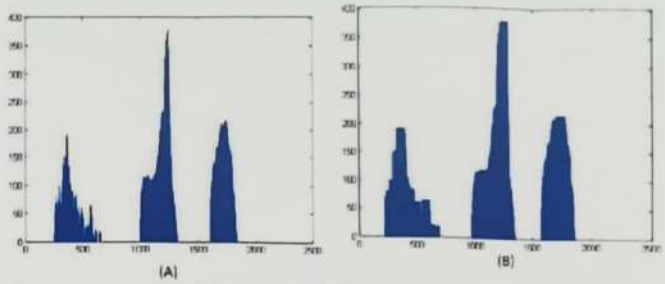
ABSTRACT

Blood group detection traditionally involves complex methods and manual interventions. However, recent advancements in computer vision and Deep learning have enabled automated approaches. This study proposes a novel method utilizing microscopic blood cell images for blood group detection. Employing advanced computer vision algorithms, such as object detection and recognition, blood cells are identified within microscopic images. Subsequently, image processing isolates and enlarges the blood cells for detailed examination. Deep learning algorithms, specifically trained for blood group classification, predict the blood group based on identified cell features. This innovative approach offers real-time, accurate, and consistent results, eliminating the need for manual interventions. Its seamless integration into existing diagnostic systems enhances user- friendliness. This approach has the potential to revolutionize blood group detection, making it more efficient, accurate, and widely accessible.

BLOCK DIAGRAM OF THE PROPOSED MODEL



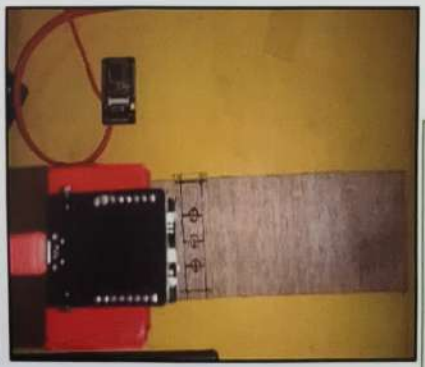
GRAPHS OF ACCURACY AND LOSS OF THE TRAINING AND VALIDATION



ADVANTAGE

Non-Invasive	Traditional methods, making it less painful and more comfortable for the patient.
Rapid results	The process can be automated and results obtained quickly, reducing waiting times and enabling faster medical interventions if necessary.
Accuracy	Advanced image processing algorithms can analyze the images captured by the camera to accurately determine the blood group, minimizing the risk of human error.
Cost-effective	Compared to traditional blood testing methods, using a camera may be more cost-effective in terms of equipment and materials required.

COMPARISION OF THE EXISTING MODEL AND PROPOSED MODEL PREDICTION



SUSTAINABLE DEVELOPMENT GOALS

Automation of blood group detection primarily aligns with (SDG 3) - **Good Health and Well-being.**.It directly contributes to improving healthcare outcomes by enhancing the accuracy and efficiency of blood typing processes. Automated systems can streamline the process of blood typing, reducing human error and speeding up the identification of blood types. This ensures that patients receive the correct blood transfusions, which is crucial for their health and well-being, especially in emergency situations. Additionally, automation can free up healthcare professionals to focus on other aspects of patient care, ultimately improving overall healthcare outcomes.

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SMART CLEAING ROBOT WITH MOPPING AND DRYING

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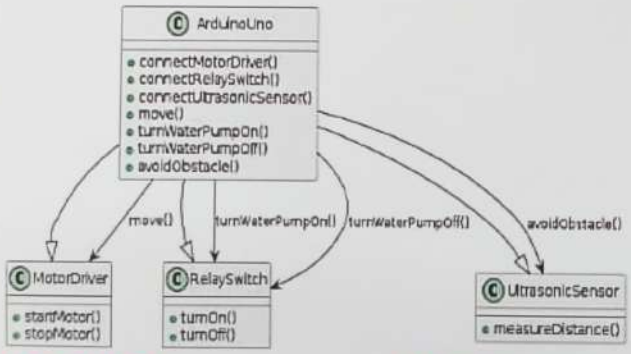
Name of the Guide: Mr. V. RAJESH

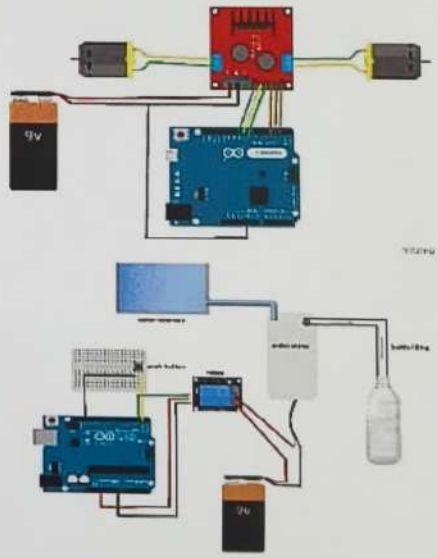
ABSTRACT

This project focuses on the development of an autonomous cleaning system utilizing Arduino Uno microcontroller, motor driver, and a relay switch to control a water pump motor. The system is designed to perform multiple tasks including moving, mopping, and drying, thereby offering a comprehensive cleaning solution for various surfaces. The Arduino Uno acts as the brain of the system, executing programmed instructions to coordinate the operation of the motor driver and relay switch. The motor driver facilitates precise control of the movement of the cleaning apparatus, allowing it to navigate through designated areas efficiently. The relay switch, in conjunction with the water pump motor, enables the dispensing of water for mopping and subsequent drying of the cleaned surface. By integrating these components, the system achieves autonomous cleaning functionality, making it suitable for both household and commercial applications. Additionally, the modular design of the system allows for scalability and customization to meet specific cleaning requirements. Overall, this project offers a cost-effective and versatile solution for automated cleaning tasks, enhancing efficiency and convenience in various environments.

BLOCK DIAGRAM OF THE PROPOSED MODEL



CIRCUIT DIAGRAM



FRONT VIEW

TOP VIEW

RIGHT SIDE VIEW

DOWN SIDE VIEW

Advantages

- Very basic and simple automated system
- Low initial cost
- Very low maintenance
- Low energy consumption

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ACTIVE PROSTHETIC ANKLE AND ADAPTIVE EQUIPMENT FOR BIKE RIDING IN LOWER LIMB AMPUTEES

Name of the Students: 1. O.G. Abinesh 2. K. Dheena 3. S. Saravanan

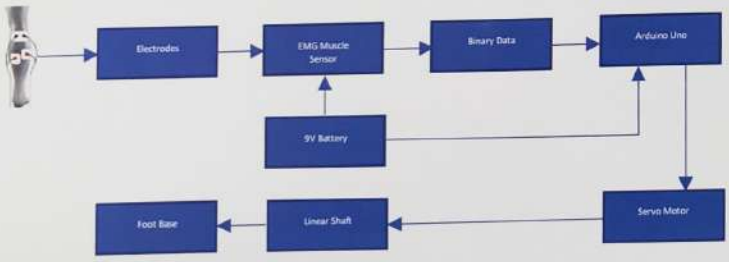
Dept. /Yr.: Electronics and Communication Engineering / IV

Name of the Guide: Dr. R. Valli

Abstract

This invention shows the creation and design of assistive technology devised for mobility and recreational purposes among people with lower limb amputations. Our project is entitled "Active Prosthetic Ankle and Adaptive Equipment for Bike Riding in Lower Limb Amputees" and it seeks to solve the problem of allowing amputees to ride bicycles independently without fear. To make this happen, we will come up with a combination of hardware bits together with software algorithms that will form an active prosthetic ankle as well as adaptive equipment specifically made for riding bikes. We choose the Arduino Uno microcontroller, EMG muscle sensor, gyroscope accelerometer sensor servo motor and rechargeable battery as our main components. The active prosthetic ankle makes use of real time detected muscle signals by EMG sensors so that it can adjust foot position dynamically which improves stability while cycling because one may feel comfortable at times than others depending on their body shape or height etcetera.

Proposed Block Diagram



Product Image (Proposed)

Advantages

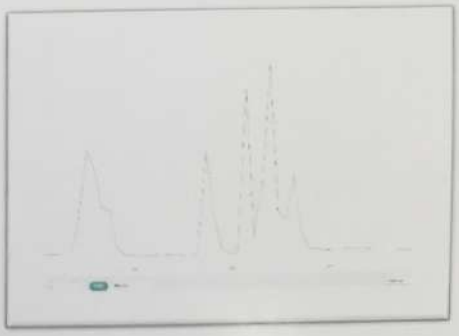
1.Improved Mobility: Enables natural and intuitive ankle movements, enhancing mobility for activities like walking and biking.

2. Dynamic Adaptability: Adjusts in real-time to changes in terrain and user activity, ensuring stability and comfort.

3. Customized Control: Allows for personalized settings to optimize comfort and performance based on individual preferences.

4. Enhanced Rehabilitation: Facilitates targeted training and rehabilitation,

Promoting muscle activation and functional recovery for improved long-term outcomes



SDG Goal-3 (Good Health and well-being)

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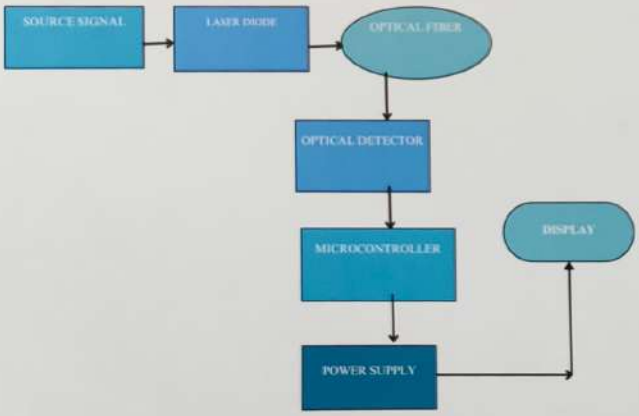
OPTICAL FIBER-BASED SPECTROSCOPIC ANALYSIS FOR ORE MINERAL IDENTIFICATION

Name of the students : 1. DEVANAND.S 2.SANJAY . K 3. VIGNESHWARAN.S
Dept/Year: ELECTRONICS AND COMMUNICATION ENGINEERING/IV-B
GUIDE NAME: DR.S.VINOTH

ABSTRACT

Accurate identification of metal ores is essential for optimizing resource utilization and extraction efficiency in mining and mineral processing. Conventional methods often involve complex chemical analyses or labor-intensive procedures. In this study, we introduce a novel approach utilizing optical fiber-based spectroscopic analysis for rapid and non-destructive ore mineral identification. The methodology involves preparing a solution of the metal ore in distilled water, which is then subjected to a focused laser beam through an optical fiber. The interaction of the laser beam with the ore solution generates diffraction patterns, captured by an optical detector, providing valuable spectral information about the ore composition. Data analysis is conducted using sophisticated computer programs, including MATLAB, to extract characteristic signatures indicative of specific minerals present in the ore sample. The optical fiber-based spectroscopic analysis offers several advantages over conventional methods, including rapid analysis, non-destructive sampling, and minimal chemical waste production. Furthermore, the flexibility of optical fibers enables remote sensing and real-time monitoring, making it suitable for on-site ore exploration and mining operations

BLOCK DIAGRAM OF PROPOSED MODEL



COMPARISON OF THE EXISTING MODEL AND PROPOSED MODEL PREDICTION

ADVANTAGE

1. **Fast and Real-Time:** Enables immediate ore identification and continuous monitoring, accelerating decision-making in mining.
2. **Non-Destructive** and Eco-Friendly: Preserves samples and minimizes chemical waste, benefiting the environment.
3. **Precise and Accurate:** Delivers high-resolution data for optimal ore processing and yield improvement.
4. **Cost-Efficient and Scalable:** Lowers ongoing costs and adapts easily from small to large-scale operations.
5. **Remote Sensing:** Analyzes ores on-site, even in remote locations, avoiding sample transport delays.

SUSTAINABLE DEVELOPMENT GOALS

The development and implementation of optical fiber-based spectroscopic analysis for rapid and non-destructive ore mineral identification directly contribute to achieving SDG 9 by fostering innovation in the mining and mineral processing industry. By enabling more efficient resource utilization and extraction processes, this technology supports sustainable industrial practices, reducing environmental impact and optimizing resource management. Moreover, its potential for remote sensing and real-time monitoring enhances the accessibility of advanced analytical techniques, particularly in regions with limited infrastructure or resources, promoting inclusivity and economic development in the mining sector.

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SUSTAINABLE DEVELOPMENT GOALS

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SMART PATIENT HEALTH MONITORING SYSTEM USING IoT

Name of the Students: SUVETHA P, SANGAMITHRA B, BHUVANESHWARI L
Dept/Year: ELECTRONICS AND COMMUNICATION ENGINEERING /FINAL YEAR
Name of the Guide: Dr.SHANKAR A, ASSISTANT PROFESSOR, DEPARTMENT OF ECE

ABSTRACT

The fundamental element of people's needs is health monitoring during frequent interval of time. Human faces a haul of surprising death and plenty of diseases because of varied diseases that may be due to lack of treatment to the patients at right time. The main objective of this project is to develop a reliable and sensible patient health observance system victimization IoT so that the Medical experts can monitor their patients at right time. The health sensors will be either worn or be embedded into the body of the patients, to unendingly monitor their health so that data collected in such a fashion will behold on, analyzed, and well-mined to try and do the first prediction of diseases. With use of GSM based device an attention observance system is developed which may offer period on-line data regarding physiological conditions of a patient's primarily information's monitored by Health sensors, Arduino and Information acquisition system. The patient's temperature, heartbeat rate, Pressure level, Graphical Health Information hold on by the system and sent to the doctor's and patient's devices.

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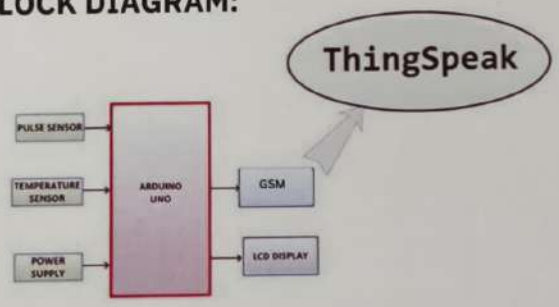
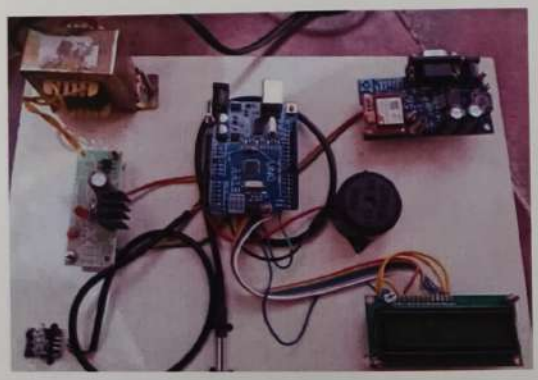


GRAPH OF PATIENT'S DATA :

PROPOSED MODEL:



ADVANTAGES:

- Simple system to monitor the health parameters
- Response time is good
- Cost effective system
- Easy to implement

SDG MAPPING:

Goal 3 of the Sustainable Development Goals aims to ensure healthy lives and promote well-being for all at all ages. A smart health monitoring system utilizing IoT can contribute by remotely tracking vital signs and health parameters, providing real-time alerts for potential health risks, thus enhancing access to quality healthcare and improving health outcomes.

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FABRICATION OF AMMONIA GAS SENSOR

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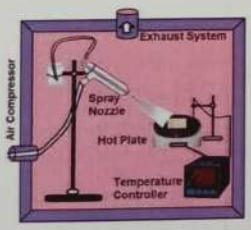
Dept/Year: ELECTRONICS AND COMMUNICATION ENGINEERING / FINAL YEAR

Name of the Guide: Dr.VINOTH S , AP/ECE

ABSTRACT

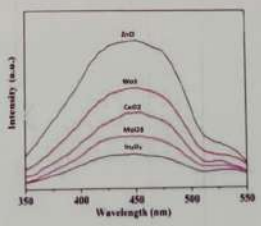
Ammonia gas sensors are essential for numerous industrial, environmental, and healthcare applications, necessitating the development of efficient and sensitive sensing platforms. In this study, we present the fabrication and characterization of an ammonia gas sensor utilizing the spray pyrolysis technique. The sensor was fabricated through a straightforward and scalable process involving the deposition of thin films onto a suitable substrate using spray pyrolysis. The performance of the fabricated ammonia gas sensor was systematically evaluated under controlled conditions. The sensor exhibited remarkable sensitivity to ammonia gas, with a detection limit of lower ppm concentrations. Furthermore, the sensor demonstrated excellent selectivity towards ammonia gas, showing minimal interference from common environmental contaminants. The sensor's response to varying concentrations of ammonia gas was characterized to assess its dynamic range and linearity. The fabricated sensor exhibited robust performance over extended periods, indicating its suitability for continuous monitoring in real-world scenarios. Overall, the ammonia gas sensor fabricated through spray pyrolysis offers promising performance characteristics, including high sensitivity, selectivity, and stability. The scalable nature of the fabrication process makes it suitable for mass production, paving the way for the development of cost-effective and reliable sensing platforms for diverse applications. The results demonstrate the sensing nature is higher as compared to commercial gas sensor. Developing advanced sensors capable of accurate and reliable detection of ammonia concentrations is essential for enhancing workplace safety environmental monitoring, and product quality control, driving innovation in sensor technology.

Spray Pyrolysis



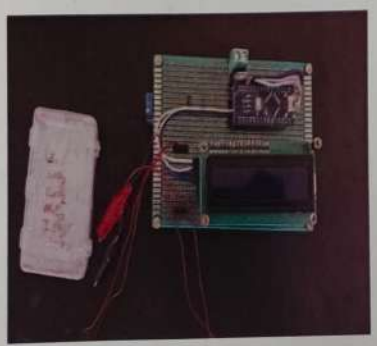
Fabricated Thin Film

Output of Thin Film

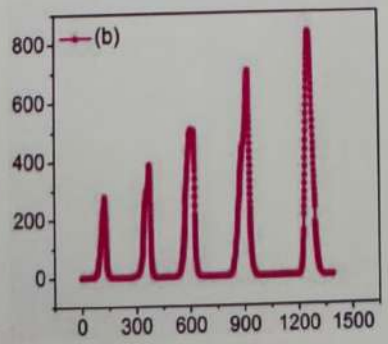


Schematic diagram for gas sensing

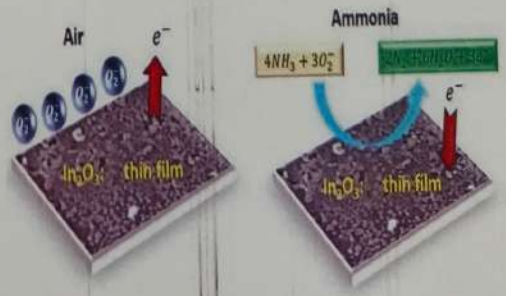
Ammonia Gas Sensor Setup



Sensing Output



Mechanism of ammonia



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BATTERY DISCHARGE MANAGEMENT

7 AFFORDABLE AND CLEAN ENERGY

Name of the Students: S.Prasaanth tamby,M.mukesh ,J.Abinash.
Dept/Year: ELECTRONICS AND COMMUNICATION ENGINEERING / IV yr .
Name of the Guide: Mrs.VITHIYA B.Tech.,M.Tech

ABSTRACT

Battery Discharge Management for optimizing battery efficiency especially in applications in EV vechicles where reliable power storage is essential. This project introduces an advanced approach integrating Depth of Discharge (DOS) and State of Charge (SOC) processes with a Hall Effect current sensor capable of handling up to 200 Amps. The system is designed in the range of batteries including 12V, 24V, and 48V, enhancing reliability and determining the efficiency of the batteries across various applications. The utilization of the Battery Monitoring System (BMS), a comprehensive tool facilitating real-time monitoring, historical analysis, and predictive capabilities. By accessing BMS, users can assess battery performance, predict discharging time, and evaluate efficiency with precision. The mechanisms enable proactive maintenance actions, ensuring optimal battery health and prolonging lifespan. By implementing the DOS and SOC processes alongside high-precision current sensing, this approach offers a robust framework for managing battery discharge effectively.

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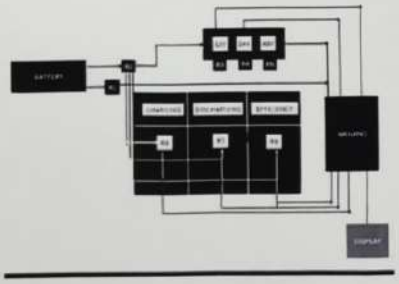

OUTPUT:

COMPARISON OF EXISTING AND PROPOSED MODEL

ADVANTAGES:

- We can integrate with charging stations
- Better accuracy than existing model
- Calculate the battery efficiency
- easy to use
- We can motinor the doc and soc

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NAAC A

EV CHARGING AND MONITORING USING IOT

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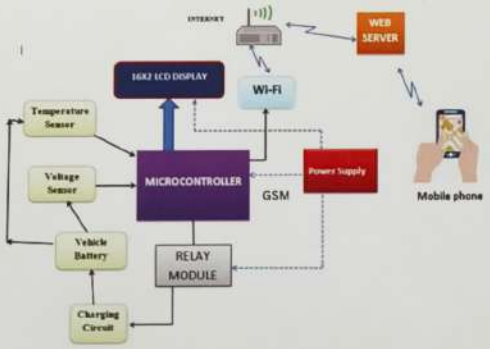
Dept/Year: ELECTRONICS AND COMMUNICATION ENGINEERING / IV YEAR
Name of the Guide: Mr.S.GOWSHAMEED, B.Tech., M.Tech.

7 AFFORDABLE AND CLEAN ENERGY

ABSTRACT

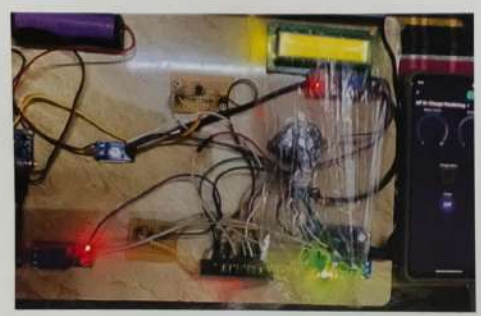
The need for efficient and reliable charging infrastructure has become increasingly paramount. In this context, the integration of Internet of Things (IoT) technology offers transformative possibilities for EV charging and monitoring systems. This paper explores the design, implementation, and benefits of an IoT-enabled EV charging and monitoring system.The proposed system leverages IoT devices to enable real-time monitoring and management of EV charging stations. Key components include smart charging stations equipped with IoT sensors, communication modules, and a centralized control platform. Through seamless connectivity and data exchange, the system enables various functionalities such as remote monitoring, scheduling, and optimization of charging processes.

BLOCK DIAGRAM:



GRAPH :

COMPARISON OF EXISTING AND PROPOSED MODEL



ADVANTAGES:

- Simple system to monitor the health of battery.
- Immediately update in the IOT cloud web server.
- Easy to implement.
- Cost effective system.
- Predictive maintenance.