VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

A PROJECT REPORT ON

"INNOVATIVE HOME AUTOMATION USING COB AC LED"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

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ABSTRACT

An up-to-date overview of various technologies which are existing to provide home automation from different sources is provided. This review covers some evolving technologies in the field of home automation using COB AC LED. A separate review on home automation and COB AC LED is provided. The use of regular LED in various domains is more expensive than the newly developed driverless AC LED, the total cost to build a driverless AC LED and the life span is much higher than the regular LED devices. This paper compared the performance of different ways of home and different ways of controlling the appliances. In this method home automation utilizing AC COB LED technology. The suggested solution is made to let users manage lights and different home equipment like fans and air conditioners using a smartphone app. The system makes use of a Wi-Fi module to make it possible for the smartphone and the AC COB LED modules, which are in charge of managing the appliances, to communicate. The smartphone application may be used to quickly operate the AC COB LED modules, which are incorporated into the house's existing electrical system. The suggested solution improves the consumers' overall quality of life by being economical, energy-efficient, and handy for controlling home appliances. The experimental findings show that the suggested approach is workable and efficient.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"LORA AND IOT BASED ON SMART IRREGATION SYSTEM"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

In general, all know that Agricultural plays a chiefly role in Economy, as well as it is the backbone of economic system for developing countries. The LoRa and IoT based smart irrigation project is designed to provide an efficient and convenient solution for farmers to control their water pump, electrical fence, and light systems remotely. The system utilizes Long Range (LoRa) communication technology, combined with Internet of Things (IoT) functionality, to enable farmers to remotely monitor and control their irrigation systems from anywhere, using their smartphones or other devices. The system allows farmers to remotely turn on and off their water pump, electrical fence, and light systems, based on real-time weather data, soil moisture levels, and other relevant parameters.

This helps farmers optimize their irrigation schedules, preventing over-watering and conserving water resources. The smart irrigation system also includes features such as automated scheduling, real-time monitoring of water usage, and customized alerts for abnormal conditions, which enhances the overall efficiency of the irrigation process. The project aims to provide an easy-to-use and cost-effective solution for farmers, which can be integrated into their existing irrigation infrastructure without extensive modifications. The LoRa and IoT based smart irrigation system offers farmers the convenience of remote control, allowing them to manage their irrigation systems efficiently, even from remote locations. The integration of smart control and monitoring capabilities not only saves water but also helps in reducing energy costs and increasing the overall productivity of the farm. The LoRa and IoT based smart irrigation project offers an innovative solution for farmers to effectively manage their water pump, electrical fence, and light systems, resulting in optimized irrigation schedules, reduced water wastage, and increased productivity.

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PROJECT REPORT ON

"IMPLEMENTATION OF 16x16 STATIC RANDOM ACCESS MEMORY"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

Computer memory is used by electronic digital computers and consists of data and instructions that are either temporarily or permanently stored. Random Access Memory (RAM), which allows for immediate access to the memory for both reading and writing operations, is the reverse of serial access memory. A significant advancement in technology has produced a wealth of knowledge regarding the level of complexity that may be built into a single chip. The key characteristics of any electronic component have come to be defined as small feature sizes, low power consumption, low costs, and high performance. All of these factors have pushed designers into the sub-micron space, which puts leakage characteristics in the spotlight. The fact that many electrical components, particularly digital ones, are built to store data emphasizes the importance of memory.

This work is focused on software implementation of 16X16 Static Random Access Memory (SRAM) to reduce the power consumption in the memory. In this research, a 6T SRAM cell-based 16X16 SRAM array is created and its overall power consumption is ranked. The proposed 16X16 SRAM array uses 6T SRAM cells, which use less energy than the more widely used 7T SRAM array. A supply voltage of 0.7 V is taken into account while building a whole SRAM array. A 6T SRAM consumes 50.46 μW in read operation and 410 μW in write operation than in 7T SRAM. Both read and write operations in 6T SRAM have undergone an analysis of transient responses.

ACKNOWLEDGEMENT

The project of any research work depends so much on: the quality of education received from quality of teachers, research resources and enabling and encouraging environment. Studying in **Alva's Institute of Engineering and Technology**, Mijar provides all these above-mentioned facilities which have made possible the successful outcome of this research work.

Firstly, our gratitude goes to our guide, **Dr. D V Manjunatha**, Senior Professor, Department of Electronics and Communication, AIET, who is our source of encouragement and motivation throughout this project. Without his valuable guidance, this work would never have been a successful one.

We would like to express our heartily gratitude to our Project coordinator, **Dr. Roshan Shetty**, Assistant Professor, Department of Electronics and Communication, AIET,for his consistent guidance, regular source of encouragement and assistance throughout this project

We would like to express our sincere gratitude to our Head of the Department of Electronics & Communication Engineering, **Dr. Siddesh G K** for his guidance and inspiration.

We would like to thank our Principal **Dr. Peter Fernandes** for providing all the facilities and a proper environment to work in the college campus.

We are indebted to **Management of Alva's Education Foundation, Moodbidri** for providing an environment which helped us in completing our project.

We are thankful to all the teaching and non-teaching staff members of Department of Electronics & Communication Engineering for their help and needed support rendered throughout the project.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"Wi-Fi MODULE BASED VEGETABLE PLUCKING ROBOT"

Submitted in partial fulfillment of the requirements for the award of degree

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2. Dr. Siddesh. GK	Siddesh 25/5/23

ABSTRACT

In general all know that Agricultural plays a chief role in Economy, as well as it is the backbone of economic system for developing countries. The agriculture industry has many problems, including the decreasing number of farm workers and increasing cost of Manual vegetable harvesting (plucking). Saving labor and scale up in agriculture is necessary in solving these problems. However, much of the work in the field of vegetable harvesting is manually done. This report proposes a Wi-Fi module based vegetable plucking robot that can automate the process of picking vegetables from a farm or garden. The robot is equipped with a Wi-Fi module that enables it to connect to a mobile device or a computer for remote control. The robot is also equipped with a camera that captures images of the vegetables, which are processed by an image processing algorithm to determine the position and orientation of each vegetable. The robot uses an arm to pluck the vegetables and places them in the basket. The entire process is controlled using a microcontroller, which is programmed using Python programming language. The proposed system can improve the efficiency of vegetable harvesting, reduce labour costs, and increase the quality of the harvested vegetables.

The proposed system was tested in a real-world scenario, and the results showed that the robot was able to detect and pluck the vegetables. The Wi-Fi module enabled remote control of the robot, which allowed the operator to adjust the position of the robot. The image processing algorithm was able to detect the vegetables, which ensured that only the ripe vegetables were harvested. The proposed system is easy to operate, and its modular design allows for easy customization and scaling. Overall, the Wi-Fi module based vegetable plucking robot can be a valuable tool for farmers and gardeners, and it has the potential to revolutionize the agriculture industry.

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PROJECT REPORT ON

"WIRELESS SURVEILLANCE ROBOT USING GSM AND RF TECHNOLOGY"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

This project aims to control motors using an Arduino Uno microcontroller, a DTMF module, and an ultrasonic sensor. The DTMF module provides a wireless control mechanism using a phone's keypad to send commands to the microcontroller. The ultrasonic sensor is used to detect obstacles and sends a signal to the microcontroller, which stops or changes the motor's direction to avoid the obstacle. The motor driver controls the motor's speed and direction based on the commands received from the microcontroller. The project provides a flexible and efficient way of controlling motors and has potential applications in robotics, home automation, and industrial automation. The system can be expanded to incorporate additional sensors and devices, making it suitable for a wide range of applications. Overall, the project provides an effective and practical solution for motor control using commonly available components, making it a cost-effective solution for various applications.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"VEHICLE TO VEHICLE COMMUNICATION USING LI-FI TECHNOLOGY"

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ABSTRACT

Vehicle-to-vehicle (V2V) communication plays a pivotal role in enhancing road safety, traffic management, and overall transportation efficiency. Traditional wireless communication technologies, such as radio frequency (RF)-based systems, have been widely adopted for V2V communication. However, these RF-based systems face challenges related to limited bandwidth, signal interference, and security vulnerabilities. In recent years, Li-Fi (Light Fidelity) technology has emerged as a promising alternative for V2V communication, leveraging visible light communication (VLC) to transmit data between vehicles. This abstract presents an overview of V2V communication using Li-Fi technology, highlighting its advantages, advancements, and potential applications. Li-Fi utilizes light-emitting diodes (LEDs) as transmitters to encode and transmit data through modulated light signals. With its high bandwidth and unlicensed spectrum utilization, Li-Fi offers several benefits over RF-based systems, including increased data rates, reduced latency, and improved security. In conclusion, V2V communication using Li-Fi technology represents a promising solution for addressing the limitations of traditional RF-based systems. With its high-speed, low-latency, and secure data transmission capabilities, Li-Fi has the potential to revolutionize V2V communication and enable a safer and more efficient transportation ecosystem. However, further research and development efforts are required to overcome technical challenges and ensure seamless integration with existing vehicular communication infrastructure.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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A PROJECT REPORT ON

"AUTOMATIC FINE COLLECTOR FOR OVERSPEEDING"

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ABSTRACT

The Automatic Fine Collector for Overspeeding is a system designed to automatically detect and penalize drivers who exceed the speed limit. The system uses advanced technology such as speed sensors, cameras, and software algorithms to monitor vehicles and capture the license plate information of any driver found to be exceeding the speed limit. The collected data is then processed, and the corresponding fine is automatically issued to the driver. This system aims to reduce accidents caused by speeding and promote road safety. It also provides a more efficient and accurate way of collecting fines for traffic violations, saving time and resources for law enforcement agencies.

The system can be integrated with existing traffic management systems and can be customized to meet the specific needs of a particular location or region. For instance, the system can be set to trigger an alert when a vehicle exceeds a predefined speed limit, and it can also be configured to adjust the speed limit based on specific road conditions, such as weather or time of day.
The Automatic Fine Collector for Overspeeding system can also be used to monitor the performance of individual drivers over time. The system can keep track of driver behavior, such as speeding, and generate reports that can be used to identify areas where more education or enforcement may be necessary.

One of the benefits of this system is that it can help reduce the number of accidents caused by speeding, which is one of the most common causes of road accidents. By enforcing speed limits, the system can make roads safer for everyone, including drivers, passengers, pedestrians, and cyclists.

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PROJECT REPORT ON

"SOLAR WIRELESS ELECTRIC VEHICLE CHARGING SYSTEM"

Submitted in partial fulfillment of the requirements for the award of degree

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in partial fulfillment for the award of BACHELOR OF ENGINEERING in **ELECTRONICS & COMMUNICATION ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2022–2023. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

Signature of the Guide	**Signature of the H.O.D**	**Signature of the Principal**
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Name of the Examiners	Signature with date
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2. Sujit. S. Pai	Sujit 26/5/23

ABSTRACT

The design of a solar charging station for electric cars is thoroughly explained, along with how it solves the two main problems of fuel and pollution. There are more and more electric cars on the roads today. Electric cars have proven to be effective in reducing travel costs by switching from fuel to electric cars, which are much cheaper and have environmental benefits. However, in this case, we are developing a charging system for electric cars that provides a unique solution. There are no cables involved, solar power is used to maintain the charging system, and no external power source is required. Vehicles can be charged while driving. The development of the system involved the use of LCD displays, batteries, solar grid, control circuits, primary and secondary copper coils, AC to DC converters, At mega processors and inverters. This technique demonstrates how electric cars can be charged while driving, eliminating the need to stop for charging. The technology demonstrates how integrated wireless. Electric cars have now hit the roads all over the world and their numbers are slowly increasing. In addition to the environmental benefits, electric vehicles have also proven to reduce the cost of travel by replacing fuel with electricity, which is much cheaper.

ACKNOWLEDGEMENT

The project of any research work depends so much on the quality of education received the quality of teachers, research resources and enabling and encouraging environment. Studying in **Alva's Institute of Engineering and Technology**, Mijar provides all these abovementioned facilities which have made possible the successful outcome of this research work.

Firstly, our gratitude goes to our guide, **Dr. Roshan Shetty**, Assistant Professor, Department of Electronics and Communication, AIET, who is our source of encouragement and motivation throughout this project. Without their valuable guidance, this work would never have been a successful one.

We would like to express our gratitude to our Project coordinator **Dr. Roshan Shetty**. Assistant Professor, Department of Electronics and Communication, AIET, for his consistent guidance, regular source of encouragement and assistance throughout this project.

We would like to express our sincere gratitude to our Head of the Department of Electronics and Communication Engineering, **Dr. Siddhesh G K** for his guidance and inspiration.

We would like to thank our Principal **Dr. Peter Fernandes** for providing all the facilities and a proper environment to work in the college campus.

We are indebted to **Management of Alva's Education Foundation**, Moodbidri for providing an environment which helped us in completing our project.

We are thankful to all the teaching and non-teaching staff members of Department of Electronics and Communication Engineering for their help and needed support rendered throughout the project.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 018

PROJECT REPORT ON

"DYNAMIC WIRELESS CHARGING OF ELECTRIFIED VEHICLES"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

Submitted By

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Under the Guidance of
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ABSTRACT

Dynamic wireless charging is a promising technology for charging electrified vehicles on the go, without the need for cables or stopping at charging stations. This technology involves a wireless charging system installed on the road, which transfers power to a receiving unit attached to the vehicle while it is in motion. In this way, the vehicle can charge while driving, eliminating the need for frequent stops and allowing for longer journeys.

The design of a dynamic wireless charging system involves several key components, including the power source, the charging pad, and the receiving unit on the vehicle. The power source can be connected to the grid or can be a standalone unit, such as a solar panel or a battery, and it must be able to generate enough power to charge the vehicle while it is in motion. The charging pad is installed on the road surface and transfers power to the receiving unit on the vehicle using electromagnetic induction.

There are several benefits to dynamic wireless charging, including increased convenience and reduced range anxiety for electric vehicle drivers. It also has the potential to reduce the size and weight of vehicle batteries, which could lead to lower vehicle costs and improved performance. However, there are also challenges to overcome, such as ensuring safety and reliability, as well as dealing with variations in vehicle design and power requirements.

Overall, dynamic wireless charging has the potential to revolutionize the way we charge electric vehicles and make electric transportation more practical and accessible. Ongoing research and development in this area will be crucial in bringing this technology to fruition and making it a viable option for electrified vehicles of the future.

VISVESVARAYATECHNOLOGICALUNIVERSITY

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PROJECT REPORT

on

"VEHICLE ACCIDENT DETECTION USING GPS AND GSM"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING IN

ELECTRONICS & COMMUNICATION ENGINEERING

Submitted

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ABSTRACT

Vehicle accidents are a significant concern, causing numerous injuries and fatalities worldwide. Rapid detection and response to accidents can significantly reduce the severity of injuries and save lives. This abstract presents a vehicle accident detection system that utilizes GPS (Global Positioning System) and GSM (Global System for Mobile Communications) technologies to promptly detect accidents and alert emergency services.

The proposed system consists of several key components, including an Arduino board, GPS module, GSM module, and shock/vibration sensor. The Arduino board acts as the central processing unit, receiving data from the GPS module to determine the vehicle's precise location. In the event of a sudden change or abnormal vibration, the shock/vibration sensor triggers the accident detection process.

Once an accident is detected, the system activates the GSM module to establish communication with the GSM network. The GSM module sends SMS alerts or notifications to pre-defined emergency contacts, providing them with critical information such as the accident location coordinates and timestamp. This enables emergency services to respond quickly and efficiently.

The system's effectiveness lies in its ability to accurately detect accidents, leveraging GPS technology for precise location determination and GSM communication for immediate alert dissemination. By minimizing response times, the proposed system aims to enhance emergency services' capabilities and improve accident outcomes.

Through the integration of GPS and GSM technologies, this vehicle accident detection system offers a reliable and efficient solution for real-time accident detection and notification. The system's successful implementation has the potential to greatly reduce the impact of accidents, ultimately saving lives and mitigating the severity of injuries.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"SMART PORTABLE WIND TURBINE"

Submitted in partial fulfillment of the requirements for the award of degree

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IN
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ABSTRACT

A portable wind turbine is a compact and lightweight device designed to generate electricity from wind power. It is a renewable energy solution that can be used in various applications, including camping, outdoor activities, and emergency situations. The device consists of a rotor, blades, generator, and battery, which work together to harness the energy of the wind and store it in the battery for later use. Portable wind turbines are easy to set up and operate, making them a convenient and sustainable alternative to traditional power sources. This abstract highlights the key features and benefits of portable wind turbines, which have become increasingly popular in recent years due to the growing demand for clean and renewable energy solutions.

This device consists of a compact and lightweight structure, which makes it easy to transport and set up in various environments. The portable wind turbine typically includes a rotor, blades, generator, and battery, which work together to convert wind energy into electrical energy. With a power output of up to 500 watts, portable wind turbines can provide a reliable and sustainable power source for a variety of applications, including camping, outdoor activities, and emergency situations. This abstract highlights the key features and benefits of portable wind turbines, which are becoming increasingly popular due to their efficiency, ease of use, and environmentally friendly nature. The versatility and affordability of these devices make them an excellent choice for individuals and organizations looking for a portable and sustainable power source.

ACKNOWLEDGEMENT

The project of any research work depends so much on the quality of education received the quality of teachers, research resources and enabling and encouraging environment. Studying in **Alva's Institute of Engineering and Technology**, Mijar provides all these above mentioned facilities which have made possible the successful outcome of this research work.

We would like to express our heartily gratitude to our Project guide & coordinator, **Mrs. Ansha Prathiba.**, Assistant Professor, Department of Electronics and Communication, AIET, for his consistent guidance, regular source of encouragement and assistance throughout this project.

We would like to express our sincere gratitude to our Head of the Department of Electronics & Communication Engineering, **Dr. Siddesh G K** for his guidance and inspiration.

We would like to thank our Principal **Dr. Peter Fernandes** for providing all the facilities and a proper environment to work in the college campus.

We are indebted to **Management of Alva's Education Foundation, Moodbidri** for providing an environment which helped us in completing our project.

We are thankful to all the teaching and non-teaching staff members of Department of Electronics & Communication Engineering for their help and needed support rendered throughout the project.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 018

PROJECT REPORT ON

"IOT BASED REAL TIME MONITORING AND CONTROL SYSTEM FOR MUSHROOM FARM"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

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2. Dr. Siddesh GK	Siddesh 24/5/23

ABSTRACT

The Internet of Things (IoT) has revolutionized the way we interact with the world around us. This study proposes an IoT-based approach to improve the process of milky mushroom cultivation. The proposed system uses a GSM module and a Blynk app to monitor and control various environmental parameters crucial for the growth of milky mushrooms. The system employs various sensors to measure the temperature, humidity in the mushroom cultivation environment. The data collected by these sensors is transmitted to a microcontroller, which processes the data and sends it to the GSM module. The GSM module then sends the data to the Blynk app, allowing growers to remotely monitor and control the environmental conditions in their mushroom grow room. The Blynk app allows growers to set thresholds for various environmental parameters, and if the readings go beyond these thresholds, the system sends an alert to the grower's mobile phone. This helps growers take proactive measures to prevent any damage to the crop. Overall, the proposed system offers a cost-effective and convenient way to monitor and control the mushroom cultivation environment. With the help of the GSM module and Blynk app, growers can optimize the environmental conditions for milky mushroom cultivation, leading to higher yields and better-quality mushrooms.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 018

PROJECT REPORT ON

"WIRELESS SENSOR NETWORK BASED LANDSLIDE DETECTION"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
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Siddesh 22-5-23

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ABSTRACT

Landslides are a natural disaster that can cause significant damage to infrastructure and pose a threat to human life. Early detection and timely warning systems are crucial for minimizing the impact of landslides. Wireless Sensor Networks (WSNs) have emerged as a promising technology for landslide detection due to their ability to monitor remote and hazardous areas with high accuracy and efficiency This abstract presents a wireless sensor network-based approach for landslide detection. The proposed system consists of a network of spatially distributed sensors deployed in landslide-prone areas. These sensors are equipped with various sensing capabilities, including accelerometer, tilt, strain, and weather sensors, to monitor the key parameters associated with landslide occurrence. The sensor nodes are interconnected through wireless communication links, forming a self-organizing and ad-hoc network. They continuously collect data from their surroundings and transmit it to a central monitoring station.

The monitoring station is responsible for processing and analysing the received data to identify potential landslide events. To enable efficient and accurate landslide detection, advanced data processing techniques such as data fusion, pattern recognition, and machine learning algorithms are employed. These techniques allow the system to detect anomalies, identify precursory signs of landslides, and differentiate between normal environmental variations and potential landslide indicators. Upon detecting a potential landslide event, the system triggers immediate alerts to the designated authorities and stakeholders, enabling them to take necessary actions to mitigate the risks. The alerts can be transmitted through various means, including SMS, email, or automated phone calls. The proposed wireless sensor network-based landslide detection system offers several advantages over traditional monitoring methods. It provides real-time monitoring, continuous data collection, and early warning capabilities, enabling rapid response and reducing the impact of landslides. Furthermore, the wireless nature of the sensor network eliminates the need for extensive wired infrastructure, making it cost-effective and easy to deploy in remote or inaccessible areas.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"SIGN LANGUAGE CONVERTER USING HAND GLOVES"

Submitted in partial fulfillment of the requirements for the award of degree

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Veeraprathap V 19/05/23

Signature of the Guide

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PROJECT REPORT ON

"RAILWAY TRACK FAULT DETECTION USING ARDUINO"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

Railway track fault detection is a critical task in ensuring the safety and efficiency of railway operations. Traditional methods for detecting track faults rely on manual inspections, which are time-consuming and can lead to errors or missed defects. In recent years, there has been an increasing interest in developing automated systems for track fault detection. The main objective of this research is to propose a novel method for railway track fault detection using machine learning techniques. The proposed system consists of two stages: data acquisition and fault detection. In the data acquisition stage, a network of sensors is installed along the track to collect data on various parameters such as vibration, temperature, and pressure. The data is then pre-processed to remove noise and irrelevant information.

In the fault detection stage, a machine learning algorithm is applied to the pre-processed data to identify any abnormalities or defects in the track. The algorithm uses a combination of supervised and unsupervised learning techniques to detect faults such as cracks, misalignments, and worn-out tracks. The system can also predict the location and severity of the fault, enabling maintenance crews to take corrective actions before a major incident occurs. The proposed method has several advantages over traditional manual inspection methods. It is faster, more accurate, and can detect faults that may be missed by human inspectors. Furthermore, it can reduce maintenance costs by enabling targeted repairs rather than costly track replacement.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON
" DESIGN, SIMULATION AND CHARACTERIZATION OF LOW FREQUENCY CANTILEVER BEAM "

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

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EXTERNAL VIVA

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ABSTRACT

Piezo electric properties which are suitable for design and fabrication of low frequency applications. Multiple piezoelectric materials are available for the design of low frequency cantilever beam among them some of are here like, ceramic, lead zirconate titanate, composite material, barium titanate, quartz, pvdf, lithium niobate, lithium tantalate, zinc oxide, piezoelectric ceramics, among this here we compared two piezo electric materials they are P(VDF-TrFE) and copolymer such as ZnO and BaTiO3. This process has been done through annealing and sonication. Initial process begin with simulation which includes calculation of eigen frequency of an compared elements, further the characterization of an BaTiO3 and ZnO will be done by FTIR spectroscopy, XRD analysis and tensile strength.

Piezoelectric materials are the materials that may produce electric energy upon application of mechanical stress. The mechanical and piezoelectric properties vary among these distinct piezoelectric materials. ZnO and BaTiO3 can be used in low frequency applications such as energy harvesting, cantilever beams, acoustic applications and so on. Cantilevered beams are the most ubiquitous structures in the field of microelectromechanical systems (MEMS).

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PROJECT REPORT ON

"INTELLIGENT MOBILITY SOLUTION"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

Intelligent mobility solutions and accident detection systems are critical components in improving road safety and reducing the number of road accidents. One key area of focus for these systems is alcohol detection, which can significantly reduce the number of accidents caused by impaired driving. The integration of advanced technologies, such as artificial intelligence and machine learning algorithms, enables intelligent mobility solutions to identify and predict potential hazards on the road, as well as provide real-time information to drivers and authorities. These systems can also assist in optimizing traffic flow and reducing congestion, thereby enhancing overall traffic efficiency. Accident detection systems equipped with alcohol detection sensors can alert authorities when a driver is under the influence, allowing for timely intervention and prevention of potentially fatal accidents. This technology can also provide valuable data to law enforcement agencies, helping them to identify trends and patterns related to impaired driving. Overall, the integration of intelligent mobility solutions and accident detection systems with alcohol detection capabilities represents a significant step forward in improving road safety and reducing the number of accidents caused by impaired driving.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"DYNAMIC WIRELESS CHARGING OF ELECTRIFIED VEHICLES"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

Dynamic wireless charging is a promising technology for charging electrified vehicles on the go, without the need for cables or stopping at charging stations. This technology involves a wireless charging system installed on the road, which transfers power to a receiving unit attached to the vehicle while it is in motion. In this way, the vehicle can charge while driving, eliminating the need for frequent stops and allowing for longer journeys.

The design of a dynamic wireless charging system involves several key components, including the power source, the charging pad, and the receiving unit on the vehicle. The power source can be connected to the grid or can be a standalone unit, such as a solar panel or a battery, and it must be able to generate enough power to charge the vehicle while it is in motion. The charging pad is installed on the road surface and transfers power to the receiving unit on the vehicle using electromagnetic induction.

There are several benefits to dynamic wireless charging, including increased convenience and reduced range anxiety for electric vehicle drivers. It also has the potential to reduce the size and weight of vehicle batteries, which could lead to lower vehicle costs and improved performance. However, there are also challenges to overcome, such as ensuring safety and reliability, as well as dealing with variations in vehicle design and power requirements.

Overall, dynamic wireless charging has the potential to revolutionize the way we charge electric vehicles and make electric transportation more practical and accessible. Ongoing research and development in this area will be crucial in bringing this technology to fruition and making it a viable option for electrified vehicles of the future.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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PROJECT REPORT ON

"THIRD EYE FOR BLIND"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

The concept of a "third eye for the blind" refers to the use of technology to provide people who are blind with a sense of vision or spatial awareness beyond their physical sight. This technology can take many forms, from sensory substitution devices that translate visual information into sound or touch, to implants that directly stimulate the brain to create visual perception. One promising approach is through the use of computer vision algorithms and wearable devices that can capture images and convert them into tactile or auditory feedback. Other approaches involve the use of electrical stimulation to directly activate the visual cortex in the brain, bypassing the need for functioning eyes.

While these technologies are still in the early stages of development, they have the potential to greatly enhance the independence and quality of life for people with visual impairments. They could enable blind individuals to navigate unfamiliar environments more confidently and safely, perform complex tasks such as reading and writing, and even experience visual art and entertainment in new ways.

To create a third eye for the blind using Arduino Uno, one would need to first select the appropriate sensors and actuators based on the specific needs of the user. Some possible sensors that could be used include ultrasonic sensors, infrared sensors, or cameras, which can be used to detect obstacles and provide distance measurements. These sensors can be connected to the Arduino Uno board using the appropriate interfaces, such as I2C or SPI, and the code can be programmed to read the sensor data and process it in real-time.

Once the sensor data has been processed, the Arduino Uno can be used to control various actuators that provide feedback to the user. This can include audio feedback, such as synthesized speech or tone generation, or haptic feedback, such as vibration motors or pressure sensors. The feedback can be designed to provide the user with information about the location and proximity of obstacles, as well as other environmental cues such as temperature or humidity.

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PROJECT REPORT ON

"FERTILIZER QUALITY TESTING MACHINE USING IR SPECTROSCOPY"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

The quality assessment of fertilizers is crucial for ensuring optimal agricultural productivity and environmental sustainability. This abstract introduces a novel approach for evaluating fertilizer quality using infrared (IR) spectroscopy. IR spectroscopy offers a rapid, non-destructive, and cost-effective method for analysing the chemical composition of materials.

The proposed Fertilizer Quality Testing Machine employs IR spectroscopy to analyse various parameters, including nutrient content, impurities, and chemical composition of fertilizers. The system consists of an IR light source, sample chamber, detector, and data analysis software. Fertilizer samples are placed in the sample chamber, and IR light is passed through the sample. The resulting spectrum is captured by the detector and processed using advanced algorithms. By comparing the obtained IR spectra with a comprehensive spectral library, the machine can determine the concentration of essential nutrients such as nitrogen, phosphorus, and potassium in the fertilizer samples. Additionally, it can identify and quantify impurities, such as heavy metals or organic contaminants, which can have detrimental effects on crop growth and soil health. The data analysis software provides real-time analysis, displaying the nutrient composition and impurity levels of the tested fertilizer samples. The machine can generate detailed reports, allowing farmers and fertilizer manufacturers to make informed decisions regarding the selection and application of fertilizers.

Compared to traditional methods of fertilizer quality testing, the Fertilizer Quality Testing Machine using IR spectroscopy offers several advantages, including reduced testing time, improved accuracy, and cost-efficiency. It eliminates the need for complex chemical analyses and minimizes sample preparation requirements.

The proposed machine has the potential to revolutionize fertilizer quality testing, enabling farmers to optimize nutrient management, improve crop yields, and minimize environmental impact. Future enhancements could include the integration of machine learning algorithms for automated identification of different fertilizer formulations and the development of portable, handheld devices for on-site analysis. Fertilizer quality testing, IR spectroscopy, nutrient analysis, impurity detection, agriculture, environmental sustainability.

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PROJECT REPORT ON

"PALLIATIVE CHAIR"

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ABSTRACT

Many occupations involve sedentary work, and for workers, extended sitting can cause pain and discomfort. The productivity and general well-being may be significantly impacted by this. To address this problem, a modified palliative chair has been proposed. In addition to having elements for on-demand massage and heat therapy, this chair is made to support the lower back, neck, and shoulders.

Numerous studies have been conducted on the possible health advantages of massage and heat therapy, and it has been discovered that both treatments are successful in lowering muscle tension, pain, and stress as well as enhancing circulation, flexibility, and range of motion. It is possible to greatly enhance employees' physical health and productivity by incorporating these therapies into ergonomic chairs.

While the idea of a massage and heat therapy-equipped ergonomic chair is intriguing, additional study is necessary to fully grasp its efficacy and customer happiness. To fully examine the technology, it would be essential to test the chair on a sample of employees, evaluate the advantages of massage and heat therapy, and get user input on the design. In the end, both employers and employees stand to gain from an upgraded ergonomic chair design's potential to considerably improve the physical health of workers in sedentary employment. This technology can improve output and employee satisfaction while decreasing discomfort and pain, which will improve workplace performance and culture.

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PROJECT REPORT ON

"SMART BOREWELL CHILD RESCUE SYSTEM"

Submitted in partial fulfillment of the requirements for the award of degree

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ABSTRACT

Water well or borewell is an excavation or structure created in the ground by digging, driving, boring, or drilling to access groundwater in underground aquifers. The well water is drawn by a pump, or using containers, such as buckets, that are raised mechanically or by hand. Now a day's its quiet often to see unused borewell left open after use. These wells become the death pit for those small kids who unaware of their depth play near these wells.

Rescue of children trapped inside the borewell is not only difficult but also risky task. The rescue teams spend hours and sometime days in futile attempts to save these little kids. A lot of money is also required for this rescue operation. Hence there is a need to use a technology for upgrading the rescue operation.

The rescue robot not only rescues a trapped victim from borewell but also deals with safe handling of the victim. The robot is light in weight that goes inside the borewell and holds the victim systematically. This robot consists gas sensor, Bluetooth, LCD board, Arduino board, artificial arm. The rescue robot uses artificial arm that rotates in 360 degrees so that the victim can be removed safely with less injury caused to the victim. The use of safety air balloon makes the robot safer and smarter. Gas sensor is displayed on the PC which present on the receiver side. The artificial arm is controlled using remote controller.

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PROJECT REPORT ON

"FINGERPRINT BASED LOCKER SYSTEM"

Submitted in partial fulfillment of the requirements for the award of degree

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

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CERTIFICATE

Certified that the project work entitled **"FINGERPRINT BASED LOCKER SYSTEM"** *is a bona fide work carried outby*

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in partial fulfillment for the award of **BACHELOR OF ENGINEERING** in **ELECTRONICS & COMMUNICATION ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2022–2023. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies theacademic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

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ABSTRACT

The concept of a "fingerprint based locker system" refers to he advent of biometric technology has revolutionized security systems across various domains. In this abstract, we present an innovative fingerprint-based locker system designed to enhance security and convenience in personal storage applications.

The proposed system utilizes the unique biometric characteristics of an individual's fingerprint to grant access to lockers. By replacing traditional locks and keys with a biometric authentication mechanism, the system ensures heightened security, as fingerprints are virtually impossible to replicate or forge.

The implementation of the fingerprint-based locker system involves a combination of hardware and software components. The hardware includes a fingerprint sensor integrated into the locker mechanism, enabling real-time fingerprint recognition. The software component utilizes advanced algorithms to capture, process, and match fingerprints against a database of authorized users.

The key advantages of the fingerprint-based locker system lie in its simplicity and efficiency. Users can access their assigned lockers by simply placing their finger on the sensor, eliminating the need for carrying physical keys or remembering complex passcodes. Additionally, the system can be seamlessly integrated with existing infrastructure and easily scaled to accommodate a large number of lockers and users.

Furthermore, the system provides administrators with robust management capabilities. They can effortlessly add or remove authorized users, monitor locker usage, and generate activity logs for security auditing purposes. In case of unauthorized access attempts or security breaches.

The fingerprint-based locker system offers numerous applications in various environments, such as educational institutions, gyms, workplaces, and public facilities. Its implementation provides an effective solution for secure storage, minimizing the risk of theft or unauthorized access, while offering users a hassle-free experience.

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