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Ciggy Monitoring and Alerting System

Dr.S.Sumathi[1], A.Anna Swarna Snowba[2], A.Aparna[3], S.N.Infant Sahaya Scally[4], D.Lavanya[5]

Professor, Department of Electronics and Communication Engineering, Adhiyamaan College of Engineering, Krishnagiri District, Tamil Nadu, India.[1]

U.G Scholars, Department of Electronics and Communication Engineering, Adhiyamaan College of Engineering, Krishnagiri District, Tamil Nadu, India. [2, 3, 4,5]

ABSTRACT: These days, smoke alarm systems are widely used and installed in a variety of locations, including homes, offices,and banks. When they spot the smoke, they sound a loud alarm to let everyone know. But what if no one is home or is awake to hear the alarm, which can be the case at night or when nobody is home. Therefore, in order to alert the appropriateauthorities in the event of a smoke, we are currently installing Ciggy monitoring and alerting, which not only sounds an alarm but also sends an SMS alert to the appropriate parties. This technique can also be used to automatically alert the smoke service in the event of a smoke. Here a MQ135 sensor is used to find the smoke/smoke, and an ESP8266 Node MCU will be used to sound the alarm and send SMS messages using the ThingSpeak. The nodes in this network create their own WiFi. When this node detects a smoke/smoke, it transmits a signal to a central node, which is prompted to send an SMS to the user and in LCD display. Once this SMS has been sent, the central node notifies the user and activates a local buzzer to notify the home. The beep won't stop until the temperature is really low. As soon as the temperature returnsto normal and the amount of smoke drops, it automatically stops buzzing.

KEYWORDS*:* Ciggy Monitoring and Alerting System, ESP8266 Node MCU, MQ135 Sensor, ThingSpeak, Buzzer, LED.

I.INTRODUCTION

The Ciggy Monitoring and Alerting System uses the ESP8266 and the ThingSpeak is a modern and innovative approach to smoke safety and home automation. Smoke accidents can be catastrophic, and early detection is crucial for preventing loss of life and property. In this project, we leverage the power of the ESP8266, a versatile Wi-Fi-enabled microcontroller, and the ThingSpeak, a user-friendly mobile platform for IoT applications, to create a smart and efficient smoke detector system.

Traditional smoke detector systems are often expensive and lack remote monitoring capabilities. This project addresses these limitations by combining the ESP8266's connectivity and sensing capabilities with the ThingSpeak's ease of use. TheESP8266 is equipped with sensors to detect smoke and monitor temperature, ensuring a comprehensive approach to smokedetection.

When smoke or abnormal temperatures are detected, the system triggers an alarm and instantly notifies users via the ThingSpeak on their smartphones. Users can access real-time data, control the system remotely, and receive critical alerts, making this system not only a smoke alarm but also a valuable home automation tool. The system's cost-effectiveness anduser-friendliness make it an accessible and reliable solution for enhancing smoke safety in homes and businesses, providingpeace of mind to users even when they are away.

II. RELATED WORKS

[1] IoT Based Automatic Smoke Alarm System A.T. Jeevanandham a, *, P. Sivamurgan a Vel Tech Rangarajan Dr Sagunthala R&D Institute of Science and Technology, Chennai, Tamil Nadu, India.* Corresponding Author:atjeeva18@gmail.com DOI: https://doi.org/10.34256/bsr2015

The plain signals collected at the sensor end are converted into computerized signals that are then communicated to the Arduino and a smaller scale controller using the temperature sensor, fire sensor, and a simple to advanced converter. The small-scale controller is tuned to activate the ringer when the temperature and fire reach an edge value. The data is concurrently sent from Arduino to the ESP8266 Wi-Fi module. After that, the ESP8266 will transmit the pertinent information to the IOT platform so that authorized users can take the required actions to extinguish the fire.

The work force can learn details about the place where a fire is detected thanks to a device's unique identifier, or gadget id.

[2] P. NAVEEN, (37130282) who carried out the project entitled WIFI CONTROLLED SMART FIRE EXTINUGUISHING ROBOT Under my supervision from September 2020 to April 2021

You are going to construct this project to create a special fire protection system for residential and commercial structures. To connect the sprinkler, temperature, and fire sensors to the microcontroller, you will need Node MCU. The microcontroller will be programmed such that, for example, whenever the fire sensor detects fire in the air, an SMS will be sent to the appropriate authorities. The microcontroller will quickly check the room's temperature after sending an SMS.If the temperature rises above a specific point, water sprinklers will immediately turn on. The sprinkler will remain on untilthe temperature drops below the recommended level. Information about sprinkler status, including how long it was in operation, temperature, fire level, etc.

[3] Node MCU based Fire Detector System Jenil Dosani1*, Nikunj Makwana2, Archana Chaugule3 1,2,3InformationTechnology, Shah and Anchor Kutchhi Engineering College, Mumbai, India *Corresponding Author E-mail Id:-jenil.dosani@sakec.ac.in

About 7% of all house fires start in a bedroom. All plush goods are damaged as a result, and lives are lost as well.An IOT technology is used to manage this type of risk in order to prevent it or to lessen the harm caused by a fire outbreak. The answer to this kind of problem is an IoT fire detector built on Node MCU. With the help of Node MCU, which is coupled to a fire sensor and buzzer, we have added a fire indicator to this model. The fire sensor picks up any fire producedas a result of ingestion of any gas or fire. It has a buzzer interface that emits a warning sound. A small amount of fire froma burning candle, a fire lamp, or a cigarette that may be used in any home can also trigger a fire warning. When the temperature drops to a comfortable indoor level and the amount of fire declines, the buzzer automatically stops. The Node MCU fire finder works best since it quickly alerts the admin or user about the fire through the ThingSpeak module if it detects fire or fire. The user receives the alert notification via smartphone if a fire occurs.

[4] The Design of Microcontroller Based Early Warning Fire Detection System for Home Monitoring Hery1, Calandra A. Haryani2, Aditya R. Mitra3, Andree E. Widjaja4,1,2,3,4 Information System, Universitas Pelita Harapan, Tangerang, Indonesia1hery.fik@uph.edu, 2calandra.haryani@uph.edu, 3aditya.mitra@uph.edu, 4andree.widjaja@uph.eduAccepted 18 December 2021

Disasters like fire can happen anytime, anywhere, as a result of unintentional or deliberate causes. Without fail, homes are particularly prone to fire. Modern technology, like the Internet of Things (IoT), can be used to detect fire and fire in order to foresee the disastrous impacts of fire that might devastate homes. The goal of this project is to develop a fire detection sensor-based early fire detection system for home monitoring utilizing an Arduino microcontroller and Node MCU ESP8266. When it detects fire within a property, an early warning fire detection system is expected to alert the homeowners. This detection system can help to considerably minimize the risk of fire-related harm, fatalities, or propertyloss. The article will cover the test findings and the planned system.

[5] An intelligent system for forest fire risk prediction and firefighting management in Galicia This research has been funded by the European Regional Development Fund (ERDF) project 1FD97-1122-C06-01 and by the SpanishComisión Interministerial de Ciencia y Tecnología (CICYT) under project REN-2001-3216-CO4-01.

This article outlines an intelligent system for the full management and control of firefighting operations in Galicia.
The organization of firefighting operations and the restoration of the damaged area are both supported by rule-based systems. The decisions are driven by the desire to minimize costs in terms of human life and the depletion of natural resources. It is mostly based on meteorological and geographic data. The Common KADS development technique was employed.

[6] Vicente F. B., Carbajal N., Felipe L. and Martínez L. P. 2014 Estimation of Total Yearly CO2 Emissions by Wildfires in Mexico during the Period 1999-2010 Advances in Meteorology Article ID: 958457, 2014

This research suggests a wireless sensor network-based wildfire monitoring and detection system. This method uses fire, humidity, and temperature readings to detect fires. The competent authority receives a warning message via cellular network as soon as a fire is detected, which includes the likely location of the incident. Communities living close to national parks or forests can use their mobile phones to send alerts to the appropriate authority via the same system if they see illicit activity or wildfires, which will increase the system's efficacy. The only thing needed for the system to workperfectly is for woods or national parks to have cellular network coverage so that short message services may be provided.The Arduino microcontroller, a number of temperature, relative humidity, and fire sensors, as well as wireless network connection modules, are used in the development of the system prototype. The message service is designed at the control

center using the Telerivet messaging platform. The experimental findings support the suggested system's potential toidentify wildfires in real time.

[7] Alkhatib A. A. A. 2014 A Review on Forest Fire Detection Techniques International Journal of Distributed Sensor Networks Article ID: 597368
Forest fires are a major threat to biologically healthily grown forests and environmental protection, in addition to resulting in the terrible loss of life and important natural and individual properties, including hundreds of residences and thousands of hectares of forest. Thousands of forest fires occur worldwide each year, resulting in catastrophes that are unimaginable. This subject has long been of interest to researchers, and a large number of extremely well-researched solutions are already accessible for testing or even to be put to use. Try to. This paper will provide a comprehensive overview of all the technologies that have been employed in the detection of forest fires, along with in-depth analyses of their approaches and methodologies. There are a plethora of research and market-available methods and systems. For a better understanding, the paper goes over all the techniques and provides instances of research experiment outcomes and some market product ways. Outcome. Every technique has benefits and drawbacks of its own. There is a thorough discussion following each kind. In summary. A comprehensive table summarizing a comparison of the four approaches isincluded at the conclusion.

[8] Viegas D.X. 1993 Fire Behaviour and Fire line Safety Annual Mediterranean Burns Club 6.
In order to highlight the intricacy of forest fire propagation and the dangers involved in combating fires, the key physical components of the process are explained. The several ways that fire spreads and the associated heat transmissionmechanisms are explained along with how they affect the people who operate on the fire line. In order to highlight the significance of having an appropriate evaluation of fire behaviour, along with training and appropriate protective equipment, in order to prevent this sort of disaster, a few study cases of fatal forest fire accidents are described.

[9] Breejen E. D. et al 2003–2012 In Proceedings of 3rd International Conference on Forest Fire Research and 14thConference on Fire and Forest Meteorology (Luso, Portugal) A
It's critical to identify fires in homes to protect against property loss from both naturally occurring and artificiallystarted fires. Since identifying fires might mean the difference between life and death, it will prove to be extremely important. Although there is always a chance of a fire, having a fire alarm helps to ensure the safety of the family. Some people do not think that they need to purchase a fire alarm system. All they believe is that they will smell the flames and run out of time. These days, a structure may burn down in an average of just 60 seconds. By the time you smell fire and decide to run inside, the fire has most likely already spread throughout the house. A collection of wired and internet-connected computers is known as the Internet of Things (IoT). Any physical device, from a car to a toaster, can be considered "Stuff" in the context of the Internet of Things. These devices can be connected over the Internet to enable us to alter or collect data from them. In order to detect fire and notify the watchman and fire officials of its presence, a variety of sensors will be used in this article. Additionally, adding a sprinkler to it, which releases water when fire detectors detecta fire, is a common preventive measure.

III. EXISTING METHOD

In order to detect the presence of smoke, smoke, or any other sort of aerosol, a miniature smoke alarm system is used. Additionally, it aids in alerting danger, and thanks to its alarm sound, accidents can be avoided. To prevent catastrophic smoke mishaps, we may also use this kind of smoke alarm system in homes, buildings, industries, and other significant locations. Less expensive than a thermal detector, but nevertheless very helpful in the early stages of development because it is unaffected by dusty or unclean conditions. responds more quickly than smoke detectors, requires little maintenance, and is suited for property protection.

IV. PROPOSED SYSTEM

This module will tell the user about the smoke in the space using a ThingSpeak. The MQ135 sensor that senses the current smoke value and delivers it as input to the Node MCU is used in this module. The buzzer sounds when the smoke value exceeds what is considered normal. Node MCU that communicates with the ThingSpeak server to relay the data obtained. The ThingSpeak then sends an emergency message, notifies the user via mobile device, and notifies them of the smoke level issue.

V. BLOCK DIAGRAM

This module will use a ThingSpeak to give information to the user about the smoke in the room. In this module,we use MQ135 sensor that senses the current smoke value and its sends as input to the Node MCU. If the smoke value ismore than the normal then it starts the buzzer. Node MCU that sends the collected information data to the ThingSpeak server. Then the ThingSpeak sends the emergency message and it alerts the user through mobile phone and it alerts aboutthe situation of the smoke level.

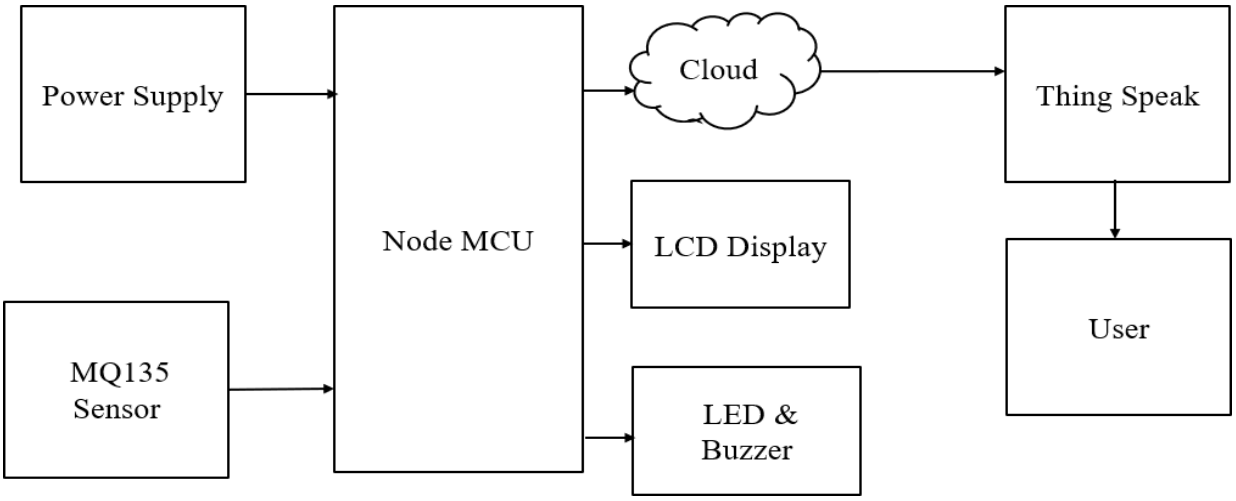

Fig 1. Block diagram for proposed method

VI. EXPERIMENTAL RESULTS

When this system is powered on, the Node MCU board connects to the Blynk cloud through the internet. Then, we can turn ON and OFF this system using the ThingSpeak interface. When the system is activated, the smartphone receives a push notification as soon as the White LED and buzzer is activated in the event of a smoke. Afterward, the system goes back to normal. Then the green LED bulb is activated.

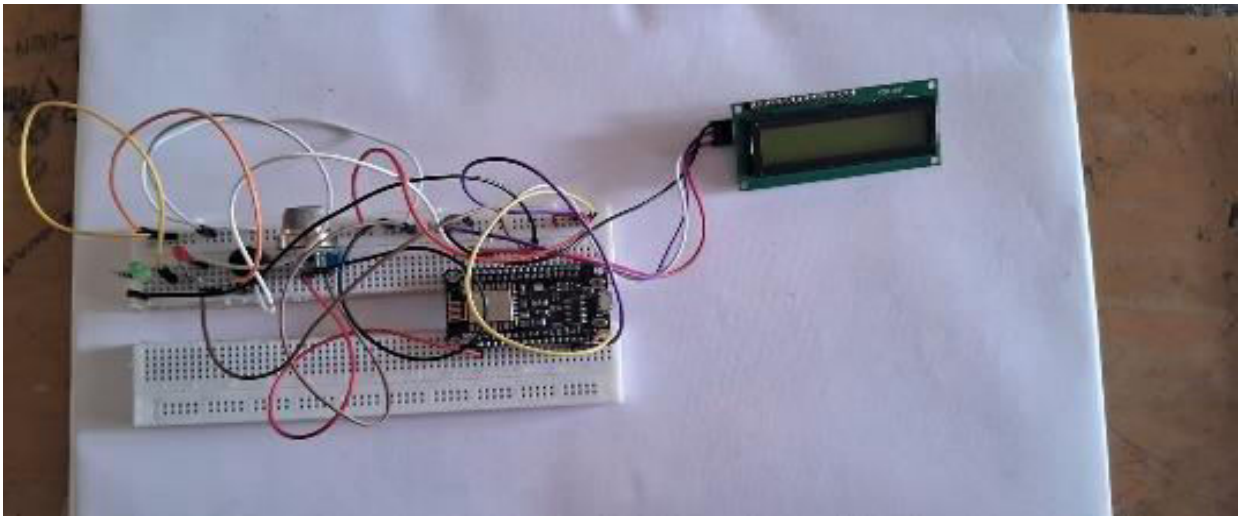

FIG. 1 BEFORE POWER SUPPLY

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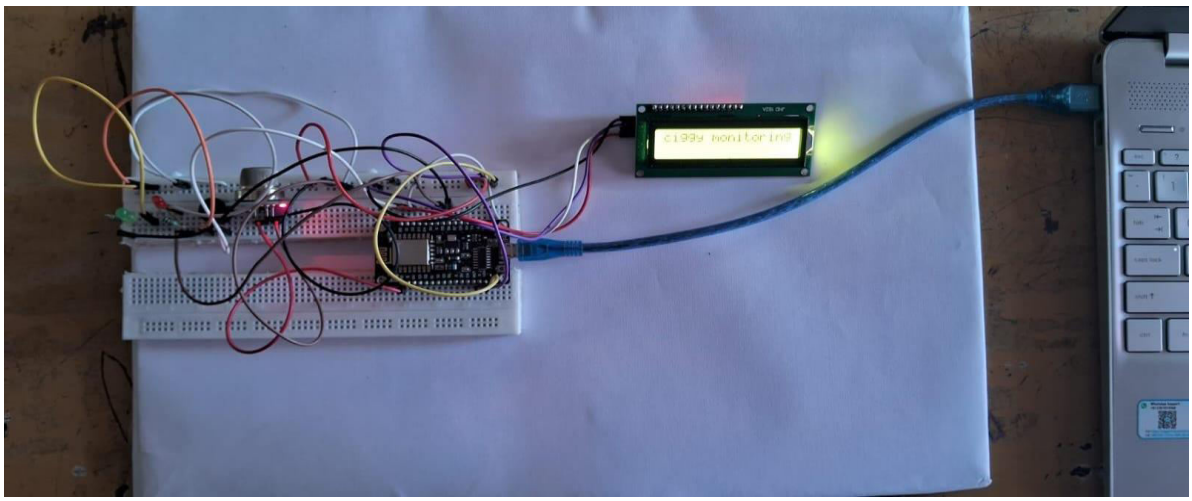

FIG.2 BY APPLYING POWER SUPPLY

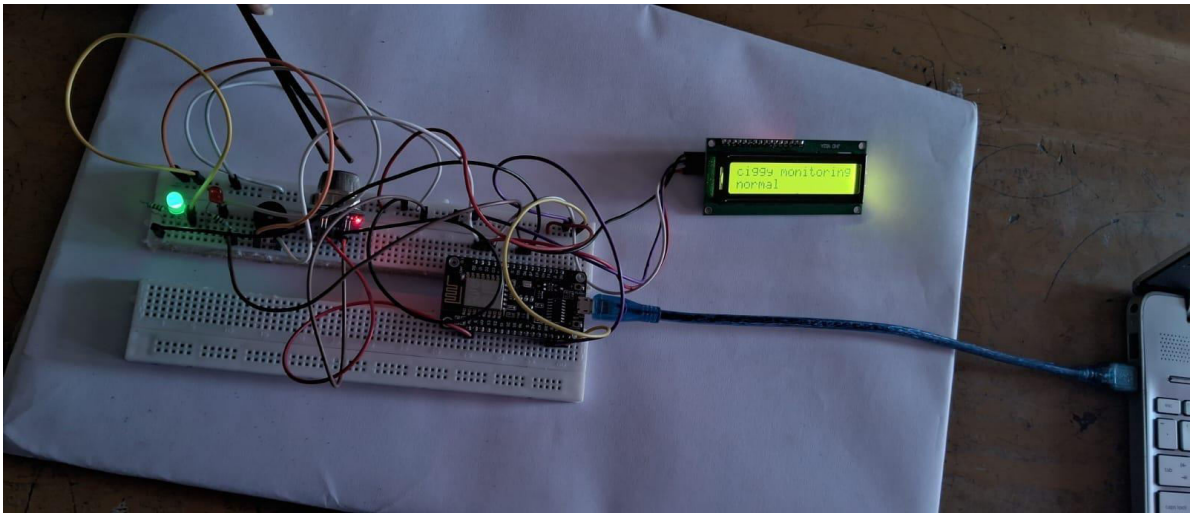

FIG.3 IN NORMAL CONDITION

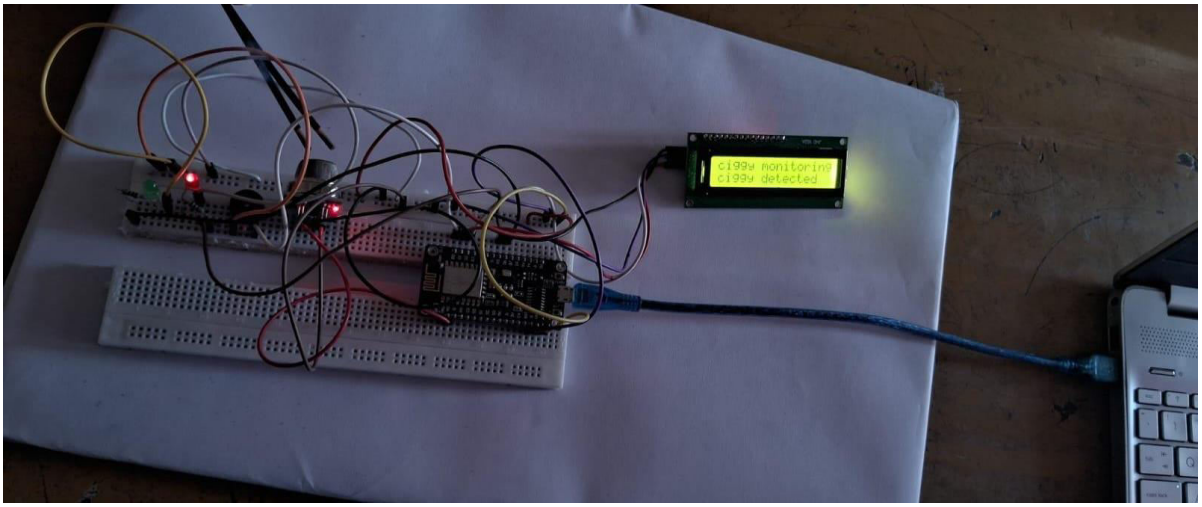

FIG.4 DETECTION OF SMOKE

VII. FUTURE SCOPE

Integration of Emergency Response: For quick action in the event of a smoke, connect the system to regional emergency services or building management. **Mobile warnings and Automation**: Improve the ThingSpeak to offer in-the-moment warnings and make automation features like turning off electrical appliances available. **Cloud Integration**: Store information about smokes on the cloud for remote access and historical tracking. Increasing ease and peace of mind,remote monitoring makes it possible for users to keep an eye on the smoke detection system from any location. Create networks of connected smoke detection systems that can share information and act as a safety net for the community. Regulatory Compliance: Verify that the system conforms with any current and future municipal, state, and federal smoke safety standards. **Energy Efficiency**: To assure the system's sustainability, incorporate power-saving tools and renewableenergy sources. Node MCU and the ThingSpeak have a bright future because they meet the demand for smart, connected,and effective smoke protection solutions, which is on the rise.

VIII. CONCLUSION

A practical and cutting-edge approach to smoke detection and safety is to create a smoke alarm system utilizing ESP8266. The ESP8266 is a strong candidate for future development due to its connection, real-time monitoring, and interaction with IoT platforms features. The system must be trusted, must comply to safety regulations, and must continually improve its smoke detection accuracy. ESP8266-based smoke alarm systems have the ability to improve smokesafety and save lives in a variety of contexts thanks to its user-friendly features, energy economy, potential for IoT integration, and machine learning capabilities. To ensure the system's efficacy in avoiding and responding to smoke crises,it's critical to stay current with new technology and laws.

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*Corresponding Author E-mail Id:-jenil.dosani@sakec.ac.in

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BIOGRAPHY

Dr.S.Sumathi, Professor,
Head of the Department,
Electronics and Communication
Engineering Department,
Adhiyamaan college of
Engineering,
Hosur

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Anna Swarna Snowba.A
Electronics and Communication Engineering Department,
Adhiyamaan college of Engineering,
Hosur

Aparna.A
Electronics and Communication Engineering Department,
Adhiyamaan college of Engineering,
Hosur

Infant Sahaya Scally.S.N
Electronics and Communication Engineering Department,
Adhiyamaan college of Engineering,
Hosur

Lavanya.D
Electronics and Communication Engineering Department,
Adhiyamaan college of Engineering,
Hosur

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