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Women Safety System using IoT

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Abstract: *The women's safety system based on IoT is an innovative approach to addressing rising concerns about women's safety. The technology integrates several sensors and devices to the Internet of Things (IoT) to create a smart and automated environment that protects women. The system detects strange movements or sounds using sensors and informs authorities or the user's emergency contacts in real time. Wearable gadgets and smartphone applications are also included in the system, which may track the user's position and provide notifications when they are in danger. The system's purpose is to make the atmosphere safer for women and give them the confidence to walk around freely without fear.*

Keywords: Arduino UNO, GSM, GPS, Esp32 camera**.**

I. INTRODUCTION

The Internet of Things (IoT) is a network of physical things that are integrated with electronics, circuits, software, sensors, and network connection, such as gadgets, automobiles, and buildings. This network enables these devices to gather and share data while also allowing them to be managed remotely, resulting in increased efficiency and accuracy in computer-based systems. One use of this technology is a portable gadget meant to combat physical harassment of women. This gadget has a pressure pull button that may be activated when a woman detects insecurity in a stranger. When triggered, the gadget transmits signals of the victim's whereabouts to the phone numbers of their parents or guardians that were previously registered in the device. This device is especially crucial since women are frequently subjected to abuse, harassment, and assault in public places and even in their own homes, which can undermine their sense of independence and confidence. As a result, there is a critical need in society for women's protection.

II. EXISTING SYSTEM

The system architecture depicted in comprises of an Arduino controller as the primary source, which receives input signals from the sensors. Temperature LM35 sensor, MEMS accelerometer, heartbeat sensor, flex sensor, and sound sensor are among the sensors mentioned in the design. The application serves as the women's alert system. For security purposes, the applications include an SOS number that will notify the victim's family members. This solution allows more than one person to control the device's operation, and the switch's authentication feature helps to cut fault rectification time.

III. PROPOSED SYSTEM

A portable gadget with a pressure pull switch. When an assailant is going to assault the ladies and detects any insecurity from a stranger, he or she can pull the trigger on the gadget with some external force. When the trigger is pushed, the gadget activates and begins the process of transmitting signals of the victim's whereabouts to their parents/guardians' cell phone numbers programmed in the device. The camera records the video/photo and transmits it to the appropriate number, where it is saved. Bluetooth and Node MCU were used to make the connection between the trigger button and the device wireless.

IV. METHODOLOGY

The Arduino board comes with an SD card. This slot allows us to insert an SD card and utilise it as a storage device for our devices. The SD card, like a hard disc in a computer, serves as the primary storage medium for an Arduino board.

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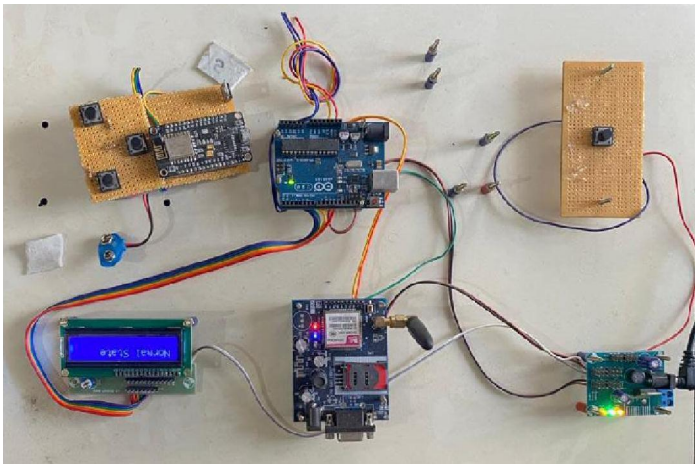

Fig 1 All devices

The Raspbian operating system has been put onto the Arduino board. It also contains onboard memory ranging from 256MB to the different components on the Arduino board. The Arduino is a single computer board the size of a credit card that can perform numerous activities similar to a standard computer, such as spreadsheets, games, word processing, and HD video playback. The panic button A panic alarm is an electrical device meant to help notify someone in an emergency scenario when there is a hazard to people or property.It also has a built-in level translator, allowing it to work with microcontrollers with greater voltages than the usual 2.8V.

This is a 5v Micro USB power connection that may be plugged into any compatible device. GSM The SIM800L module supports a quad-band GSM/GPRS network and can transmit GPRS and SMS message data remotely.

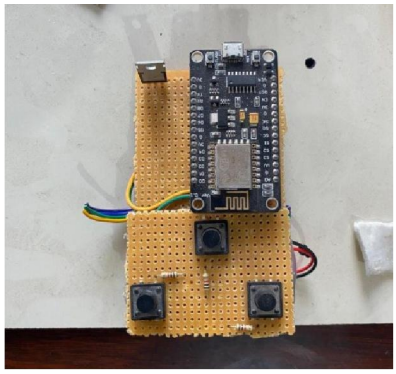

Fig 2 Trigger buttons & NodeMCU

The SIM800L interfaces with the microcontroller over the UART port and supports SIMCOM enhanced AT commands.

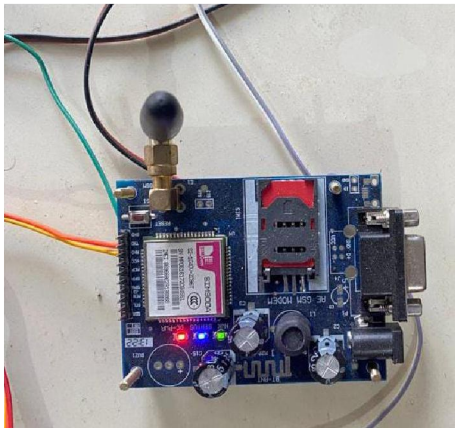

Fig 3 GSM

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Aside from that, the board supports the A-GPS approach known as mobile positioning, which obtains the position via the mobile network. This characteristic distinguishes it as a tracker module.

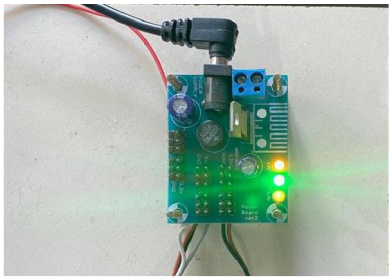

Fig 4 5VPower supply

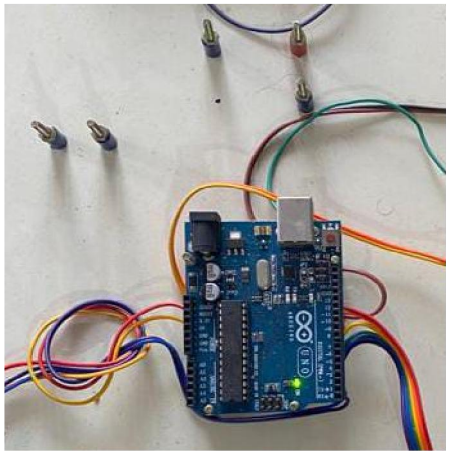

Fig 5 Arduino UNO

When someone calls for assistance, this gadget is engaged.The 5MP Arduino 3 Model B Camera Module Rev 1.3 with Cable is outfitted with a flexible cable for connecting to the Arduino 3 Model B.

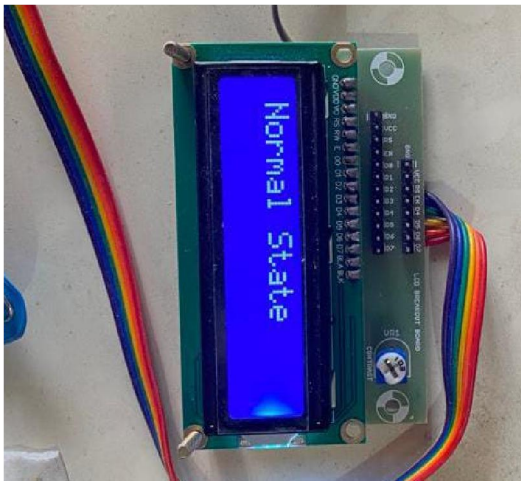

Fig 6 LCD display

The high-definition 5MP camera not only takes great images but can also record video.

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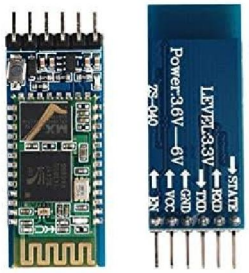

Fig 7 Bluetooth

Fig 8 ESP32 camera

This Arduino Camera Module is a specially developed Arduino add-on.

V. ARCHITECURE DIAGRAM

This project creates a women's safety system that uses GPS and GSM modules to deliver the current location data of women in danger. The IoT gadget will monitor the victim's current position.

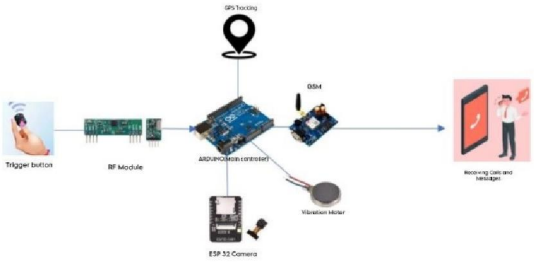

Fig 9 Architecture diagram

VI. OUTPUT RESULT

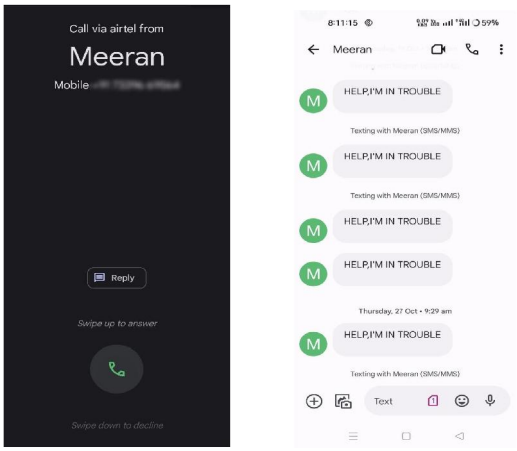

Fig 10 Receiving Alert Phone Call and message

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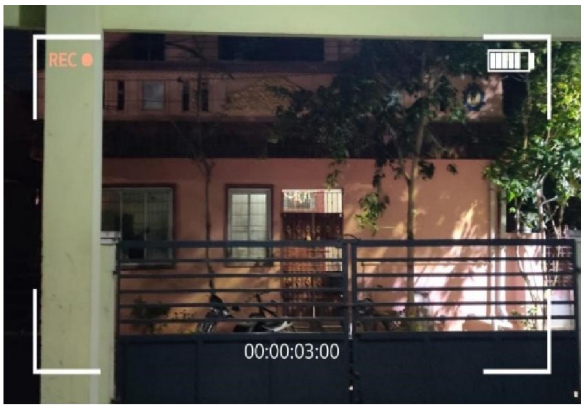

Fig 11 Camera Video Monitoring

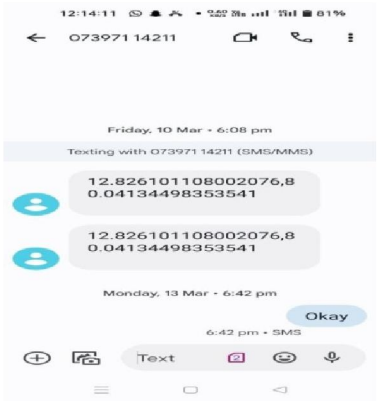

Fig 12 Receiving the User location

VII. CONCLUSION

The primary goal of this research is to ensure that every lady in the general public feels safe and secure while going around at night, on streets, going to schools, universities, working environments, and so on. By utilising ongoing application and an updated gadget, we can begin to address the issues on a level. With more research and development, it might be used to protect women in everyday situations, as women face several security challenges. This approach is useful in preventing incidents such as attacks and ill persons riding young girls, as well as young ladies being followed or upset. Based on the results of the completed survey, we have created a plan that will serve as a useful tool for the lady and may aid her in providing data from her region to the pre-determined members with SMS at significant danger. Additionally, for verification, audio will be recorded through internet video streaming. In the current environment, every lady has a security concern as a result of the rapidly growing dissatisfaction against women. This framework will help women overcome their phobia of pursuing their professions and jobs.

VIII. FUTURE SCOPE

The safety wrist band can both automatically and manually aid the individual. This is made possible by the wrist band's sensors, which include a stress sensor, a heart rate sensor, and an accelerometer. Alternatively, the individual can do it manually. The continuously measured physiological parameters can be saved on the chip and may be valuable to the user in the future.

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