WOMAN SECURITY SYSTEM USING EMBEDDED

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Abstract

The system aims to provide real-time protection to women in emergency situations. The system is equipped with a GPS module (Neo 6m v2) which provides the current location of the user. This information is sent to a designated guardian or emergency contact via SMS using the SIM 800L GSM module. In case the user presses the emergency button, the system sends an SMS to the designated guardian with the user's current location and an emergency message.

The system uses the ESP 32 microcontroller to integrate all the components and ensure their seamless operation. The microcontroller ensures that the system is constantly monitoring the user's location and sending regular updates to the guardian. In case of an emergency, the microcontroller sends an emergency alert to the designated guardian. The system is designed to be portable and can be carried by the user at all times. The compact size and low power consumption of the components ensure that the system is convenient to use and can be operated for extended periods on a single charge.

Keyword:- *ESP 32, SIM 800L GSM Module, Neo 6m v3 GPS Module, OLED Display.*

I. INTRODUCTION

Present days Woman safety refers to the measures and strategies put in place to protect women from harm and ensure their physical, emotional, and psychological well-being. Unfortunately, women are often subjected to various forms of violence, harassment, and discrimination in different settings, including at home, in public spaces, and in the workplace. These incidents can have long-lasting effects on women's lives, such as trauma, anxiety, and a sense of insecurity

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II. LITERATURE SURVEY

In recent years, there has been a growing concern about the safety of women in various parts of the world. Women have been the victims of various crimes such as sexual assault,

harassment and violence. To address this issue, there have been several technological advancements that have been made to ensure the safety of women. In this literature survey, we will explore some of the existing technologies that have been developed to ensure the safety of women. Personal safety apps are mobile applications that are designed to ensure the safety of women. These apps can be downloaded on smartphones and can be used to send alerts to emergency contacts in case of danger. Some of the popular personal safety apps include bSafe, Circle of 6, and Life360.bSafe, for example, allows users to send an SOS alarm to their emergency contacts, share their location, and even record audio and video of the situation.

III. EXISTING SYSTEM

Existing system of this project is Woman safety refers to the measures and strategies put in place to protect women from harm and ensure their physical, emotional, and psychological well-being. Unfortunately, women are often subjected to various forms of violence, harassment, and discrimination in different settings, including at home, in public spaces, and in the workplace. These incidents can have long-lasting effects on women's lives, such as trauma, anxiety, and a sense of insecurity.

IV. PROPOSED SYSTEM

The proposed system describes a safety device that gets automatically triggered when a woman is in danger from anywhere at any time. This device has a transmitter and receiver in which the receiver is placed in a bag, and the transmitter is placed in the slipper. When the RF signal between the receiver and transmitter goes low, the device automatically sends SMS to the emergency contacts and provides alert to the nearby people. Here WiFi module and GPS are used. GPS is used to track the location of the women, and the WiFi module is used to send the tracked location as SMS to the emergency contacts. The microcontroller used here is nodemcu ESP32 by which the parents receive the message when the button is pressed or when the sensor reads the input. GPS reads the data for every 20 seconds and sends it to the nodemcu.

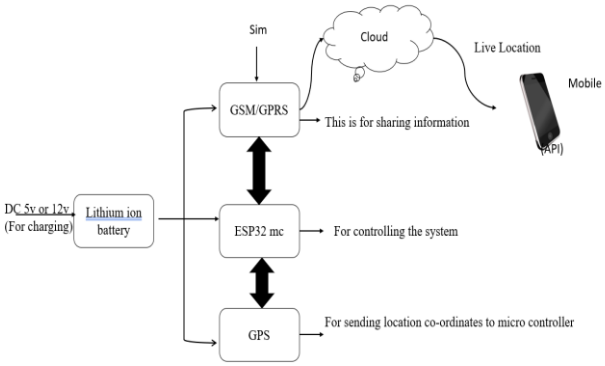

Figure.2: Block Diagram of Woman Security System

V. SOFTWARE

The Arduino IDE is an open-source software, which is used to write and upload code to the Arduino boards. The IDE application is suitable for different operating systems such as Windows, Mac OS X, and Linux. It supports the programming languages C and C++. IDE stands

for “Integrated Development Environment” it is an official software introduced by Arduino.cc, that is mainly used for editing, compiling and uploading the code in the Arduino Device. Almost all Arduino modules are compatible with this software that is an open source and is readily available to install and start compiling the code on the go Arduino IDE Definition 1.Arduino IDE is an open-source software that is mainly used for writing and compiling the code into the Arduino Module. 2.It is an official Arduino software, making code compilation too easy that even a common person with no prior r technical knowledge can get their feet wet with the learning process. 3.It is easily available for operating systems like MAC, Windows, Linux and runs on the Java Platform that comes with inbuilt functions and commands that play a vital role for debugging, editing and compiling the code in the environment. 4.A range of Arduino modules available including Arduino Uno, Arduino Mega, Arduino Leonardo, Arduino Micro and many more. 5.Each of them contains a microcontroller on the board that is actually programmed and accepts the information in the form of code. 6.The main code, also known as a sketch, created on the IDE platform will ultimately generate a Hex File which is then transferred and uploaded in the controller on the board. 7.The IDE environment mainly contains two basic parts: Editor and Compiler where former is used for writing the required code and later is used for compiling and uploading the code into the given Arduino Module.

VI. METHODOLOGY

connect the sim800l module and neo 6m v2 GPS module to the ESP 32 microcontroller as per their pin configurations. Write a code in a programming language like Arduino, Python, or C to receive the location data from the GPS module and send it to the sim800l module via the ESP 32 microcontroller. Power up the system using a battery or power supply unit to make it portable. Develop a user interface using a small display, buttons or switches for activation, and indication LEDs Configure the system to trigger an alert or send an emergency message containing the current location of the user to a designated phone number or emergency contact when the user presses the panic button or any other emergency switches. Use the GPS module to track the user's location in real-time and store it in a database. This data can be accessed by authorized personnel or law enforcement agencies to help in locating the user in case of an emergency. Test the system thoroughly to ensure its functionality and reliability in different situations, and make necessary modifications to improve its performance

VII. ADVANTAGES

- Improved safety
- Peace of mind
- Increased confidence
- Deterrent effect
- Rapid response
- Increased accountability

APPLICATIONS

- Personal safety alarm

- GPS tracking
- Emergency messaging
- Remote monitoring
- Public transportation safety
- Workplace safety
- Elderly safety:

VIII. EXPERIMENTAL RESULTS

Figure.2**:** Final project

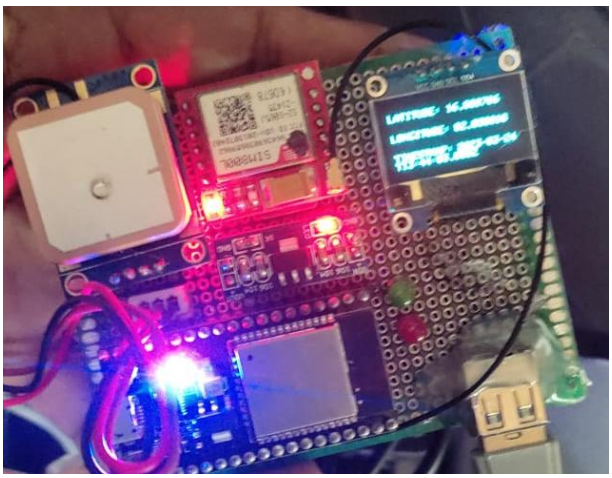

Figure.3: While getting the GPS data

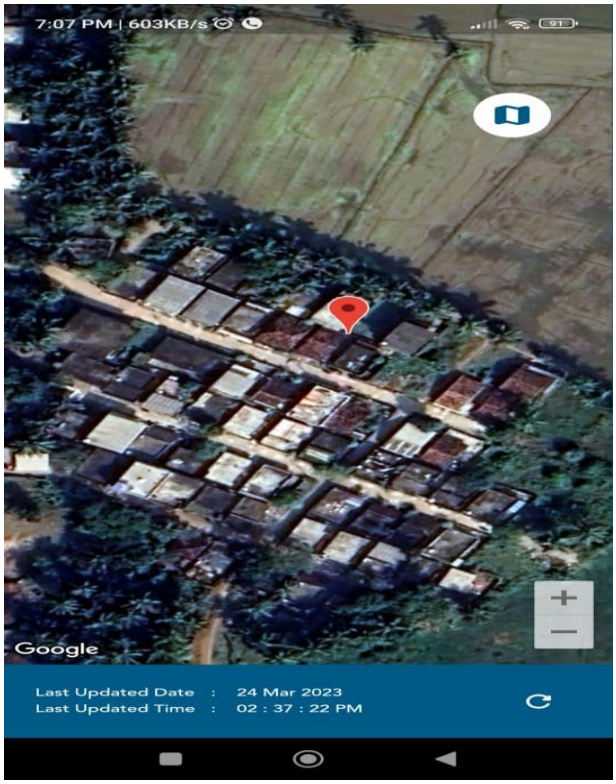

Figure.4: : Location of the user

IX. CONCLUSION

Being safe and secure is the demand of the day. Our effort behind this project is to design and fabricate a gadget which is so compact in itself that provide advantage of personal security system. This design will deal with most of the critical issues faced by women and will help them to be secure. Existing systems provide the mechanism to track the vehicle but no other emergency mechanism is proposed. The proposed mechanism provides viewing the location of the victim in terms of latitude and longitude which can further be tracked using Google maps. This system helps to decrease the crime rate against women.

X. FUTURE SCOPE

In terms of the future scope, there are several possibilities. Firstly, the technology can

be further improved by incorporating more advanced sensors, such as accelerometers or heart rate monitors, to detect and report distress signals automatically. This would eliminate the need for manual intervention and improve the speed and accuracy of the system.

Secondly, the system can be integrated with smart home automation systems, such as Alexa or Google Home, to provide voice-activated emergency alerts and responses. This would make it even easier and more convenient for women to use the system, particularly in situations where they may not have access to a phone or other device.

Thirdly, the system can be integrated with social media platforms and other online services to provide a more comprehensive safety network for women. For example, it could be linked to Facebook or Twitter to allow users to quickly and easily share their location and status with their friends and family in real-time.

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