

# DUAL ALERT SECURITY DEVICE FOR WOMEN USING GPS AND GSM MODULES

<sup>1</sup>Gundala Divya Reddy, <sup>2</sup>G DEVIKA, <sup>3</sup> G Saphala, <sup>4</sup> CH Ramya, <sup>5</sup>Dr. Sk. Mahaboob Basha

<sup>1,2,3,4</sup>Final Year B. Tech, <sup>5</sup>Professor,

<sup>1,2,3,4,5</sup>Electronics and Communications Engineering,

<sup>1,2,3,4,5</sup>Geethanjali Institute of Science and Technology, Nellore, India

**Abstract:** Now-a-days, we can see crimes against women are raising. We need to find a solution to safeguard women from all kinds of threats. If we can find the exact location of where there whenever they are in risk, then we can help them in some way. By using GPS, we can find the location. With the help of GSM, we can get track of their location. By designing a device with the help of GPS and GSM, we can get the location of women, and immediately someone can help her. We are proposing a system which consists of two cautions, thereby providing them with more security. For second caution, we are using fingerprint sensor.

**Keywords:** GPS, GSM, fingerprint sensor.

## I. INTRODUCTION

The whole nation grabbed the eye against lady's wellbeing in 2012 due to nirbhaya issue. From that point, government is endeavoring to improve security to ladies. They presented new laws, yet all futile. Violations against ladies raised almost 83% from 2007 to 2016. The raise in the violations is on the grounds that nobody are tailing them. Indeed, even now in the 21st Century, where we are in the quick paced world and new contraptions are being grown yet at the same time ladies' and young ladies are confronting issues. Sometimes, girls will be in dilemma to go out of their home as are not sure about their security and could not locate a safe place for their stay during night. A helping hand would be an assistance for women as they are not physically fit as men. The most ideal approach to dog tails your likelihood of turning into a hoodwink of vicious wrongdoing (theft, rape, assault, aggressive behaviour at home) is to perceive, protection and look into assets to enable you to out of unsafe circumstance. Thus, as to help ladies in any unfortunate circumstances and to make themselves feel safe, we are building up a structure with double alerts.

## II. Related Work:

As of now, we have some solutions for the problems mentioned above. They are:

1. Button press alert system or one click alert system<sup>[1]</sup>
2. Web application<sup>[2]</sup>

The disadvantages associated with these systems are

- 1) For one click alert system,
  - i) We may not get a chance to press the alert button when the attacker attacks from back.
- 2) For web applications, one need to use the phone along with internet connectivity. For that need, we may face some problems like:
  - i) no internet connectivity,
  - ii) The phone battery may die,
  - iii) We may lose the phone,
  - iv) Sometimes, the attackers are aware that the victims may carry phone and they will take it off from them.

Considering all the disadvantages associated with the existing devices we came up with a new device which is an advancement to one click alert system which is described below.

## III. Proposed Method:

As an add on to the existing method, we included one more alert. i.e., our proposed device will consist of two alerts.

1. Panic button
2. Pre activation using finger print module.

With the help of second alert, security for the women gets increased. Because sometimes she may not get a chance to press the panic button directly whenever she is attacked. So, With the help of pre activation she can activate the device priorly and safeguard herself.

## IV. Methodology:

### IV.I Hardware Requirements:

The following are the components which we used:

#### Arduino Mega 2560:

Arduino mega is a microcontroller board that relies on ATmega2560 which contains 54 digital input/output pins, 16 analog inputs, 4 UARTs, a 16MHz crystal oscillator, a USB association, a reset button, power jack, and an ICSP header. Out of 54 digital input/output pins 14 can be used as PWM outputs. ATmega2560 has a flash memory of 256 KB which is used for storing code, SRAM of 8KB and EEPROM of 4KB.

As a microcontroller, AT mega communicates with all the devices on the board and also with the devices which we connect externally and regulates our task. It is responsible for executing all the intended tasks perfectly.

#### GPS:

GPS stands for Global Positioning System. It is used for tracking and navigation. GPS uses trilateration principle. In general, we have GPS satellites which are rotating around the earth. They act as GPS transmitters. The GPS module which we use in mobiles or for any other purpose acts as receivers. When we turn the GPS on, the transmitter sends the signals to the receiver and according to the time taken by the signal to reach to the receiver, distance is calculated and the corresponding latitude and longitude positions are obtained. Here, we are using GPS to track the location of the user and send the details to their well-wishers via GSM.

#### GSM:

GSM stands for Global System for Mobile communication. Here we are using GSM for sending the message to the well-wishers indicating that the person is in trouble and along with location details. In our project, we are using 3G slot for the sim. So, we need to use a network subscriber which supports 3G.

#### Finger Print Module:

In general, fingerprint module is used to scan the finger print. It is used for fingerprint enrolment, image process, characters acquisition, fingerprint template storage etc., Finger print is mainly for security purpose in the fields like information security, identity authentication.

Here in our device, we are using fingerprint module for the pre-activation. Once we save the finger print, then we need to use the same fingerprint for pre activation. Else, we will get error.

### IV.II Software Requirements:

Here we are using Embedded C for programming microcontroller. As we are using Arduino as microcontroller, we use ARDUINO IDE platform for coding the Arduino. Arduino is an open source platform. We will write the code for interfacing all the hardware components and dump the code into the microcontroller. After writing the code connect the microcontroller to the computer using USB cable and then dump the code.

### IV.III Algorithm:

The following is the algorithm for the proposed system:

- Supply the power using power cable.
- GPS gets initialized.
- GSM is initialized.
- Enroll the fingerprint of the user using a switch.
- Reset the Microcontroller using reset button.
- Press the panic button if in dangerous situation.
- Else if afraid that you are not safe, pre-alert the device placing the finger on the finger print module.
- As long as finger is on the module, nothing will be done as you are safe.
- If we remove finger on the module because of any reason, then the message will be sent to the concerned well-wishers and also to the police station. Message will contain the latitude and longitude coordinates of our location.

**IV.IV Flowchart:**

The flow chart of the proposed model is as shown below:

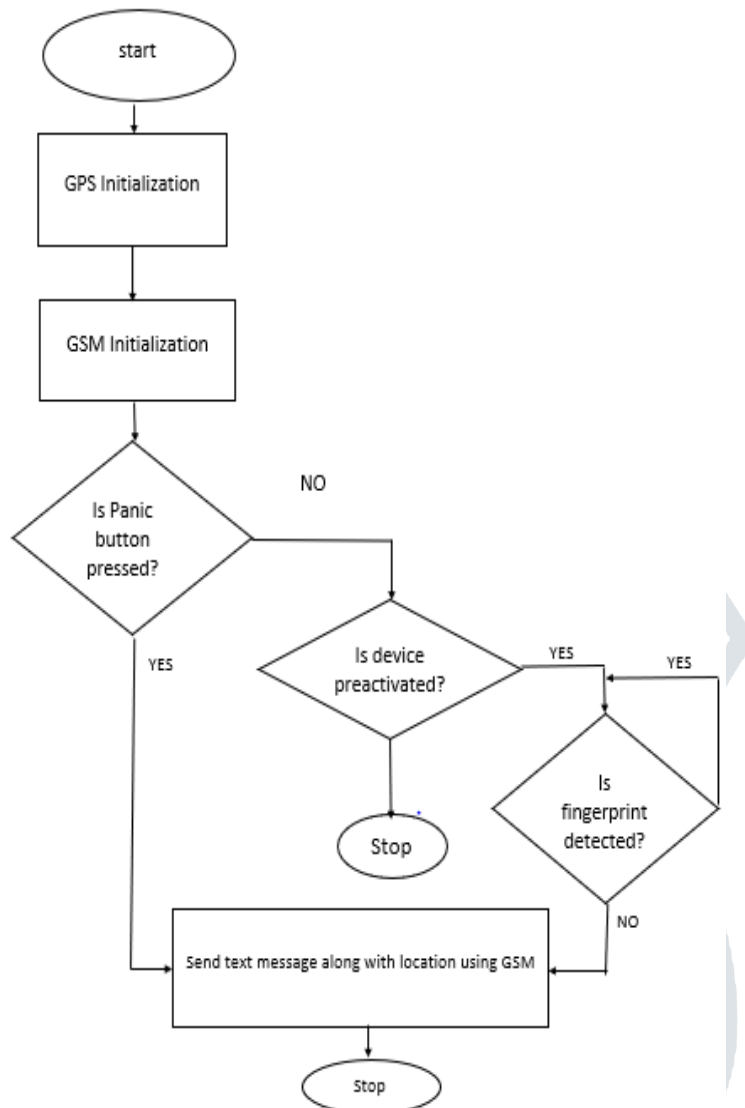


Figure: Flowchart of the Proposed Method

**IV.V Block Diagram:**

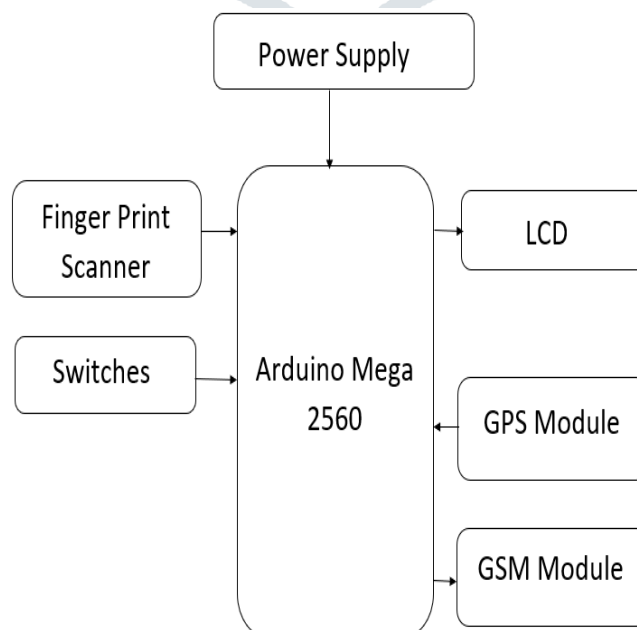


Figure:Block diagram of proposed method

**IV.VI Working:**

As we referenced before, our plan has two cautions. First is the panic mode. On squeezing the panic button straightforwardly, at that point the message will be sent to the enlisted versatile number. Else, on the off chance that, if we initiate the gadget priorly by putting the unique finger impression on the finger impression module, at that point at whatever point we expel the finger on the sensor, a message will be sent to the enrolled phone numbers. We can likewise send the message to the closest police headquarters, so lady may get the prompt help from the police moreover.

**V. Results:**

These are the results which we got.

- [1] On pressing the panic button, we will get the status on the LCD as “Panic Mode” as shown in figure 1
- [2] Then we will get the status as “Message Sent” as shown in figure 2 and the message will be sent to the registered mobile number.



Figure 1

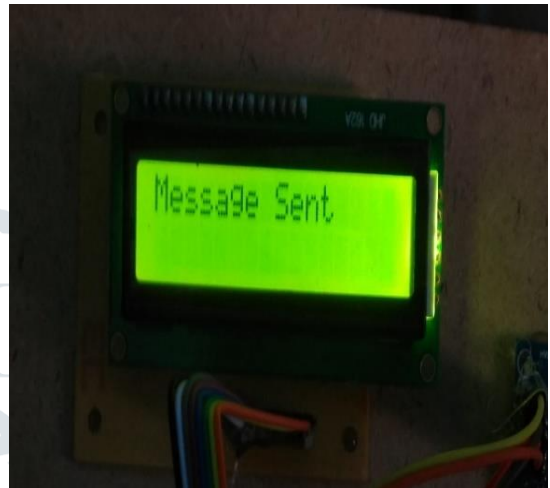


Figure 2

- [3] If we click on the reset button on the Arduino, then LCD will display as “Place the finger on the scanner” as in figure 3.

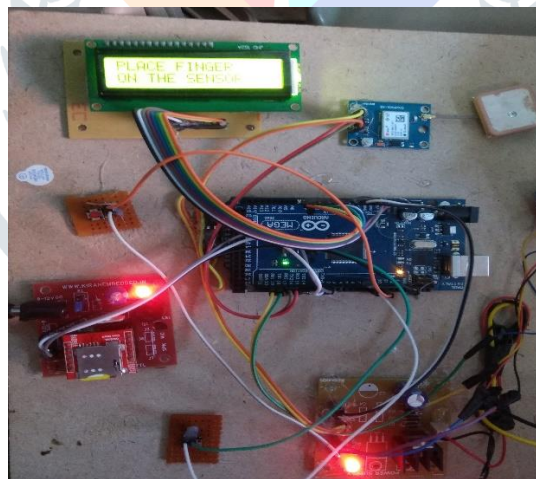


Figure 3

- [4] If the finger is found, it will show the status on the LCD as “the result is found” as in figure 4 and after that the status will change to “Your safe” as in figure 5.

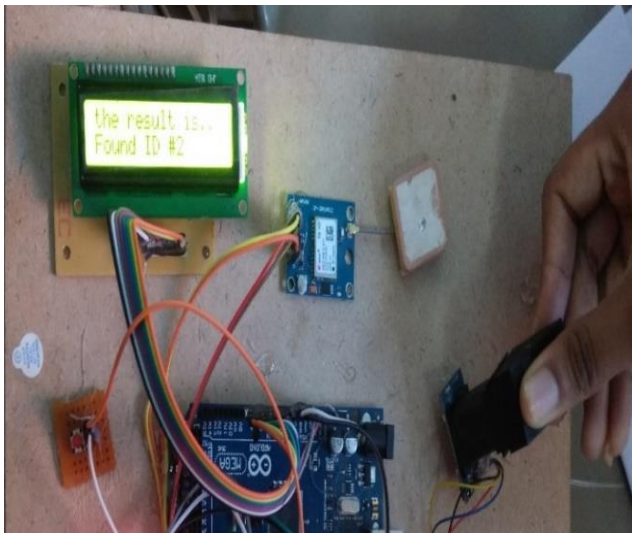


Figure 4

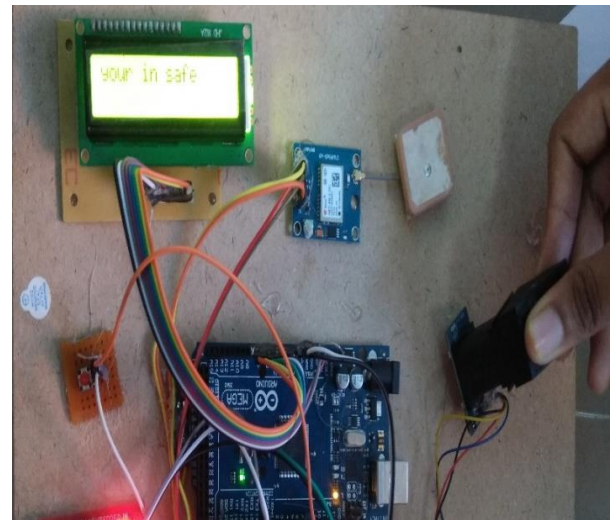


Figure 5

[5] If the finger is not found, the status on the LCD will be “the result is not found” as in figure 6 and the status will change to “Message Sent” as in figure 7.

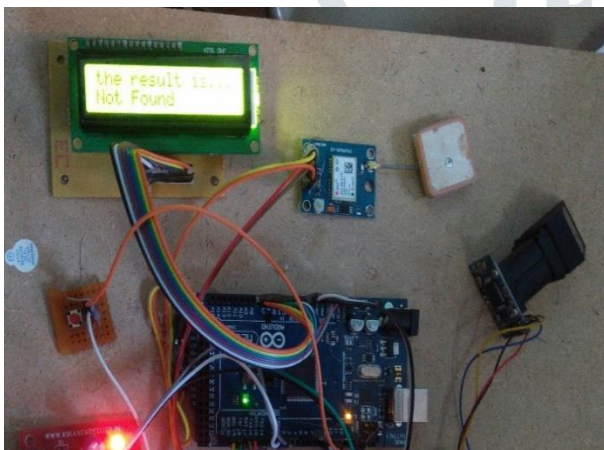


Figure 6



Figure 7

[6] The message send to the registered mobile number is as shown in figure 8.

*Emergency!!! person is in  
trouble*[https://www.google.co.in/maps  
/place/1426.62754 7,07958.68376](https://www.google.co.in/maps/place/1426.62754%2C07958.68376)  
E  
Please take some action soon..  
Thank you

Figure 8

## VI. Conclusion:

The fundamental point of this system is to help the women at adverse conditions by sharing their location data to the cops and their well-wishers. This can be fundamentally valuable for the individuals who works around evening time shifts in light of the fact that a significant number of the ladies are working in MNC's the place they will have nightshifts every now and again. We can additionally include a sound progression, so sound will be recorded and can be sent at single moment.

**VII. References:**

- [1] Kalpana Seelam, K. Prasanthi-A novel approach to provide protection for women by using smart security device, IEEE, 2<sup>nd</sup> International conference on Inventive Systems and Control (ICISC), 2018, Pages (351-357).
- [2] Ravi Shekar Yarrabothu, Bramarambika Thota- Abhaya: An Android App for the safety of Women, IEEE, Annual IEEE conference India, 2015 (INDICON), Pages (1-4).
- [3] Piyush Kumar Verma, Arpit Sharma, Dhruv Varshney, Manish Zadoo-WOMEN SAFETY DEVICE WITH GPS, GSM AND HEALTH MONITORING SYSTEM, International Research Journal of Engineering and Technology (IRJET), March-2018, Volume:05, pages(941-943).
- [4] Toney G, Jaban F, Puneeth S. et al. Design and implementation of safety arm band for women and children using ARM7. 2015 International Conference on Power and Advanced Control Engineering (ICPACE); Bangalore. 2015 Aug 12-14. p. 300-3
- [5] Vigneshwari S, Aramudhan M. Social information retrieval based on semantic annotation and hashing upon the multiple ontologies. Indian Journal of Science and Technology. 2015 Jan; 8(2):103-7
- [6] Chand D, Nayak S, Bhat KS, Parikh S. A mobile application for Women's Safety: WoS App. 2015 IEEE Region 10 Conference TENCON; Macao. 2015 Nov 1-4. p. 1-5.
- [7] Sethuraman R, Sasiprabha T, Sandhya A. An effective QoS based web service composition algorithm for integration of travel and tourism resources. Procedia Computer Science. 2015; 48:541-7.
- [8] Gowri S, Anandha Mala GS. Efficacious IR system for investigation in textual data. Indian Journal of Science and Technology. 2015 Jun; 8(12):1-7.
- [9] George R, Anjaly Cherian V, Antony A, et al. An intelligent security system for violence against women in public places.
- [10] Pantelopoulos A, Bourbakis NG. A survey on wearable sensor-based systems for health monitoring and prognosis. IEEE Transactions on Systems, Man and Cybernetics – part C: Applications and Reviews. 2010 Jan; 40(1):1-12.

