

# Smart Wrist Band for Women Safety

V. Krishna sree, Jeevan Sai, Sri Siri, Ruchitha, Saishma



**Abstract:** It has become quite difficult for today girls to move freely on streets. This has become a constant matter of worry and safety regarding their safety. There has been a tremendous increase the harassments against women these days. 54%of all the harassments registered are women harassments. We can't change the society but we can increase the security of girls. This proposed system for women consists of a wearable safety device which operates with sos button. This project is built using raspberry pi, GSM module and GSM modem. The sos button is provided in the band. If women get into any trouble, then if she presses sos button then the message is sent to registered mobile number. The message along with the location details is sent to the already registered mobile numbers and other emergency contacts. The location of the user is tracked using GPS. The LCD display will display the status of the project. This tracking system is a combination of raspberry pi, GPS receiver and GSM modem. The GPS receiver receives the location data from the satellite in the form of latitude and longitude. When a person presses the sos button, the raspberry pi processor processes this information and send it to the predefined registered mobile numbers through GSM modem. This research work can be applied in the safety sector for women. It reduces the crime rate against women to a major extent. **Key words:** Wrist band Raspberry pi3, GSM, GPS, SOS, LED, and LCD.

## I. INTRODUCTION

With the advancement of society and technology, women have been victims for various crimes and injustice. Today's women are facing a lot of issues regarding their safety as advancement of world and technology has resulted in the advancement of crime rates against the women. Hence it has become the outmost priority of the society to provide the required safety for women. In this project we are putting forward a device i.e. a wearable smart band which is intended for the safety of women. The idea behind it is to prevent the harassments and crimes against women and provide safety through smart phone. As it is not possible to have smart phone with the person all the time, we have introduced a smart wrist band for women safety using a raspberry pi 3 processor. This system consists of an emergency button to send an SMS to the predefine number with the help of GSM. The location of the person can be tracked using GPS [4].

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\* Correspondence Author

V. Krishna sree\*, Engineering ECE Vallurupalli Nageswarao Vignana Jyothi Institute of Engineering and Technology

B Jeevan Sai, Engineering ECE Vallurupalli Nageswarao Vignana Jyothi Institute of Engineering and Technology

Kasha Ruchitha, Engineering ECE Vallurupalli Nageswarao Vignana Jyothi Institute of Engineering and Technology

Gunda Saishma, Engineering ECE Vallurupalli Nageswarao Vignana Jyothi Institute of Engineering and Technology

Kanuri Sri Siri, Engineering ECE Vallurupalli Nageswarao Vignana Jyothi Institute of Engineering and Technology

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The status of the project will be projected on LCD display. This Tracking system is basically a combination of the GPS receiver, Raspberrypi3 processor and a GSM Modem. GPS Receiver grabs the location data from satellites in the form of latitude and longitude [1]. When a person presses the emergency button, the raspberrypi3 processor processes this information and this processed information is sent directly to the predefined mobile number using the GSM modem [5]. The status of the project will be displayed on the LCD display.

## II. PROPOSED SYSTEM

The major factor for the women crimes is the lack of communication from the person being at the danger to the respective concern authorities. Instead if we provide an option for the women at those situations where they can send the information to their emergency contacts and other officials then the above crimes can be reduced. The proposed system for the women safety consists of an SOS button which can be made available for the women in their watches i.e. it is incorporated in their watches by which they can transmit the information to the contacts to which are provided and it also works even if there is no internet. This system consists of a device that can be wearied by the person and the if she presses the SOS button being available then it sends the information to the microcontroller (here in the present case it is Raspberry Pi) and they're by an alert is send to the respective authorities.

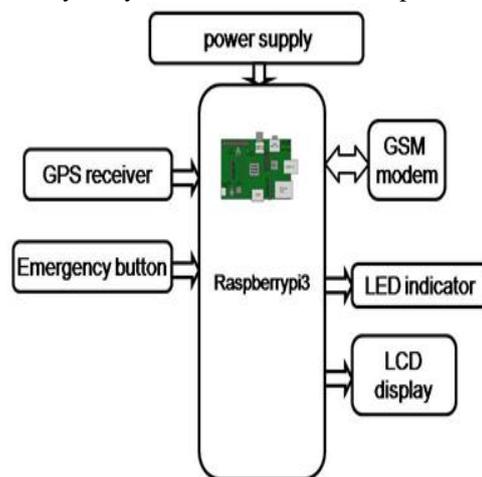


Fig. 1 Block Diagram of proposed system

As shown in the Fig. 1 the Emergency button sends the input to the Raspberry pi if this button is pressed in case of danger, GPS receiver detects the location of the person and transmits the location data to the microcontroller which is raspberrypi and to run this we need an power supply Regulated power supply is used here as in modern world many applications are designed by the ac power but the controller works on a specific dc so to convert the power an RPS is used,

by the data from the inputs that is button and GPS receiver Raspberry pi sends the information by using GSM and an alarm can also be raised in case of the message alert.

Step by step working of proposed system includes:

1. Stimulus to the Controller by the person in danger by means of SOS button.
2. GPS Module provides the location status of the person to Controller.
3. Response as a message to the authorities by GSM Modem.
4. Raising an alarm which can be an alternative in case of mobile failures.

### III. EXPERIMENT SETUP

Hardware components used for the project are as follows:

#### RASPBERRY PI 3 BOARD

The Raspberry pi consisting of ARM1176JZF runs at a frequency of 1.2 Giga hertz, acts as a little personal computer that can be used many applications, Raspberry pi can be coded in Python, c, c ++ , java etc.... but among all Python is best for programming the Raspberry pi because this controller is mainly used in IOT and Automation projects.

#### GPS MODULE

Global positioning system (GPS) is majorly used for the determination of the latitude - longitude of the receiver [2]. GPS serves the above purpose calculating the time difference of the signals from many satellites to reach the receiver, GPS provides the three-dimensional positioning of the receiver throughout the world. It is based on the satellite navigation made by the network of 24 satellites available in the orbit and it works in any weather conditions.

#### GSM MODEM

Global System for Mobile communication Modem is used to send the data from the control part of unit of the system to which it is connected to the base stations and they are by connecting the mobiles. GSM SIM 300 is used basically which operates at 900-Megahertz frequency since because it has an uplink range as 890 Megahertz to 915 Megahertz and a downlink range of 935 Megahertz to 960 Megahertz. GSM has the advantages of both FDMA and TDMA and it also has Improved Spectrum Efficiency, compatible with ISDN and many other telephone company services. Apart from the above discussed components experiment consists of a power supply, LCD display and USB to TTL converter which is used to set the serial communication between the Raspberry pi board to the computer, with suitable interfaces and the required signal levels for each, at last each communication system requires an antenna which is also a part of the hardware. Fig. 2 shows the connections between the hardware used for the experiment This project is implemented using the Linux operating system and python language is used for programming which is easily readable language and easy to interface with other languages.

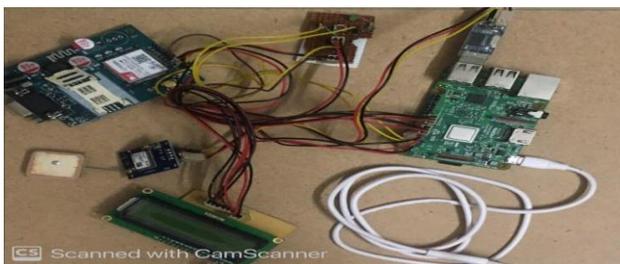


Fig. 2 Connections among components

### IV. RESULTS

S.No	LOCATION	LEVEL	OUTPUT
1	In closed area	Easy	***ALERT*** Need Help At: <a href="http://maps.google.com/?q=0,0">http://maps.google.com/?q=0,0</a>
2	In open area When day is sunny	Easy	***ALERT***Need Help At: <a href="http://maps.google.com/?q=17.489143,78.449611">http://maps.google.com/?q=17.489143,78.449611</a>
3	In open area when day is cloudy	Hard	***ALERT***Need Help At: <a href="http://maps.google.com/?q=17.432025,78.446383">http://maps.google.com/?q=17.432025,78.446383</a>
4	At night	Hard	***ALERT***Need Help At: <a href="http://maps.google.com/?q=17.489143,78.449611">http://maps.google.com/?q=17.489143,78.449611</a>

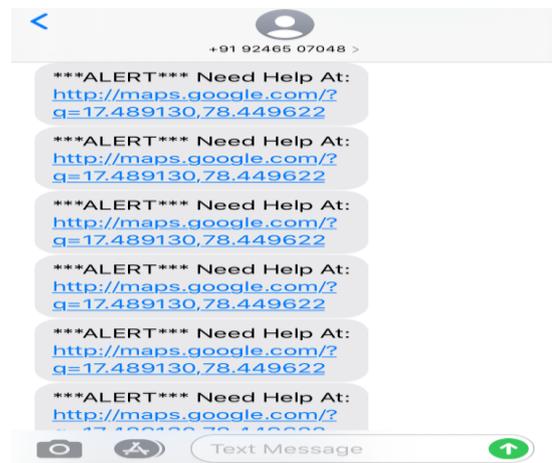


Fig. 3 Output of the project

The project “SMART WRIST BAND FOR WOMEN SAFETY” is intended design and operation of "Smart wrist band" for women safety using Raspberrypi3 processor. The system contains an emergency button to send the emergency message in the form of SMS to the predefine number with the help of GSM. We can track the location of the person using GPS in the form of latitude and longitude. The project status will display on LCD display[3].



Fig. 4 Location mentioned in the output

## V.FUTURE SCOPE

The technology can be further developed by using it in the vehicle tracking and sending message in emergency cases and path of the vehicle can also be tracked. It can also be developed by gathering information from many setup and form it as a cluster and send it to the cloud and get access from their.

## VI. CONCLUSION

The module proposed above on successful execution is expected to send an "SOS" signal or an aware message along with the position of the person to the reserved contact provided by the user as shown in fig.3. The confirmation of the transmission of message can be confirmed by the LED on the device.

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## AUTHORS PROFILE



### B JEEVAN SAI

Engineering final year in ECE at Vallurupalli Nageswarao Vignana Jyothi Institute of Engineering and Technology



### KASHA RUCHITHA

Engineering final year in ECE at Vallurupalli Nageswarao Vignana Jyothi Institute of Engineering and Technology



### GUNDA SAISHMA

Engineering final year in ECE at Vallurupalli Nageswarao Vignana Jyothi Institute of Engineering and Technology



### KANURI SRI SIRI

Engineering final year in ECE at Vallurupalli Nageswarao Vignana Jyothi Institute of Engineering and Technology