



WWJMRD 2018; 4(3): 222-226  
www.wwjmr.com  
International Journal  
Peer Reviewed Journal  
Refereed Journal  
Indexed Journal  
UGC Approved Journal  
Impact Factor MJIF: 4.25  
E-ISSN: 2454-6615

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## Self Defense System for Women Safety with Location Tracking and SMS Alerting Through GPS & GSM Networks

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### Abstract

The main aim of the project is to provide security for woman. The purpose of the project is to provide security for woman. In case of emergency situations woman will press an emergency button which will activates the GPS for location tracking and a SMS is sent to the police and family members of woman along with time. This proposal document describes a quick responding, cost protection system for an individual and especially for women using which a woman in distress can call for help just with the press of a button on this smart gadget. The women wearing this device as a watch or band, in case of any harassment or when she finds that someone is going to harass, she presses a switch that is located on the watch or band or when the women has fallen the information about the attack and location information is sent as SMS alert to a few predefined emergency numbers And soon help is on its way by providing the instant location of the distressed victim to the police so that the incident could be prevented.

**Keywords:** Electric shock generator, GPS, GSM, LED, SMS.

### 1. Introduction

Women all over the world are facing and even subjected to unethical physical harassment. Security for women is still a major issue as the number of crimes and harassment over women and girls is increasing day – by - day. In this age of technology, mobile phone is one of the gadgets that almost everyone like and uses to keep in touch with family and friends. All they need is a device that can be carried everywhere easily.

This proposed project deals with a quick responding, cost protection system for an individual and especially for women using which a woman in anguish can call for help just with the press of a button on this smart gadget. Self Defense module for women safety with location tracking It has the ability to help women with technologies that are embedded into a compact device. It has the potential to help women with technologies that are embedded. It is specially designed for women safety and protection. It has a control button that will be used by women to inform nearby police when they are in distress. This watch directly gets connected to the satellite through GPS when activated. Then the location is transferred through the GSM, it also contains a shock mechanism to produce non- lethal electric shock in emergency situations to deter the attacker.

In this sense, the use of context -aware technology is an essential aspect in these developments to perceive stimuli from the context and react to it autonomously. An environment capable of recognizing the presence of people, and locating them. Activity context is the base to our technology to demonstrate all its potential. There are many approaches that propose electronic tele monitoring systems aimed at tracking victims and aggressors in order to reduce risk situations. Though these approaches are based on locating and data transmission technologies such as GPS and GPRS. This module directly gets connected to the satellite through GPS when activated. Then the location is transferred through the GSM and this device is also provided with a shock mechanism to produce non - Lethal electric shock

**2. Existing system**

The existing systems available and surveyed as Systems designed as a mobile application for the android mobile Dongare Uma, Vyavahare Vishakha and Raut Ravina proposed a voice keyword recognizing app to recognize the user and activate the app functionality even when the mobile keypad locked. The GPS module tracks the longitude and latitude to trace an exact location of a user and sends the pre-stored emergency message including location to the registered contact numbers. The Audio Recording module starts the recording of the conversation for five minutes and stored as evidences. The message goes in queue if network problem and Send when network gets available. A notification is generated for successful deliver message. Also user can select contact through voice based contact list and make a call. Note: The spoken keyword converted into a text to compare with the registered keyword

**3. Objectives**

Self defence and alert system for individuals to avoid crimes in alone or being in badly lit areas:

1. Implementation of a real time monitoring device can solve the problem to an extent.
2. The basic approach is to intimate instant location and a distress message to the cops and registered number like parents, friends, media, and women cell etc. so that unfortunate incidents would be averted and to provide real time evidence for swift action against the perpetrators of crime against women
3. Shock mechanism to produce non-lethal electric shock In emergency situations to deter the attacker.

**4. Design Overview**

Block diagram of our proposed system is as shown below:

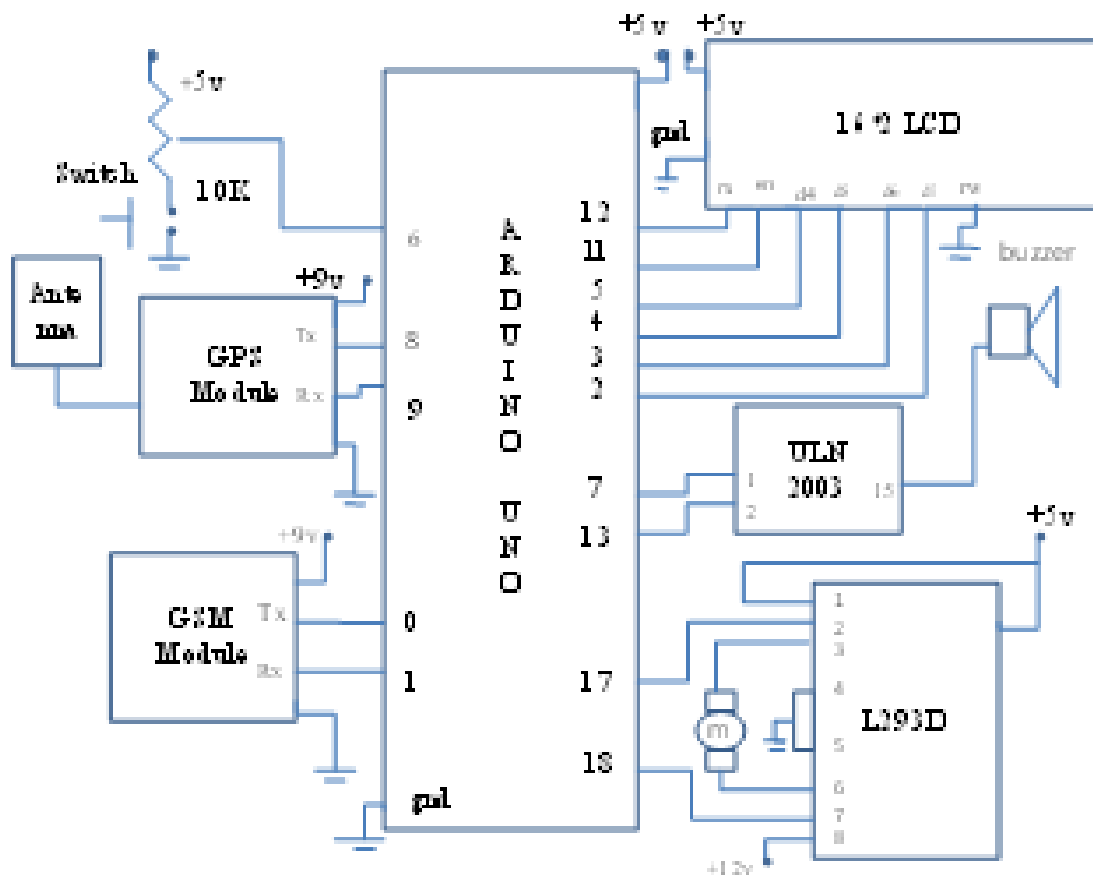


Fig.1: Block Diagram

The block diagram of system consists of following blocks

**4.1 Battery**

9v battery is used to power the circuit. The block diagram of system consists of following blocks:

**4.2 Push Switch** When it is pressed then it will send signal to microcontroller, then microcontroller will send the

GPS co-ordinates via GSM to the police station or to the family members.

**4.3 Arduino:** Arduino is an open source computer hardware and software company, project, and user community that designs and manufactures single-board micro-controller and microcontroller kits for building digital devices and interactive objects that can sense and control objects in the physical world



Fig.2: Arduino

#### 4.4 GPS

It can be interfaced with normal 5V Microcontrollers with the help of the in built 3V-5V converter. The interfacing is made easier with the help of low pin count. The 4 Pins are 5V, TX, RX, and GND. This standalone 5V GPS Module does not require external components. It consists of internal RTC Back up battery and can be directly connected to USART of the

microcontroller. The current date, time, longitude, latitude, altitude, speed, and travel direction / heading among other data, are provided by the module and can be used in a many applications including navigation, fleet management, tracking systems, mapping and robotics



Fig.3 GPS Module

#### 4.5 GSM

GSM is a digital mobile telephony system. It operates at either the 900MHz or 1800MHz frequency band. SIM900 can fit almost all the

Space requirements in the M2M application with dimensions of 24mm x 24mm x 3 mm



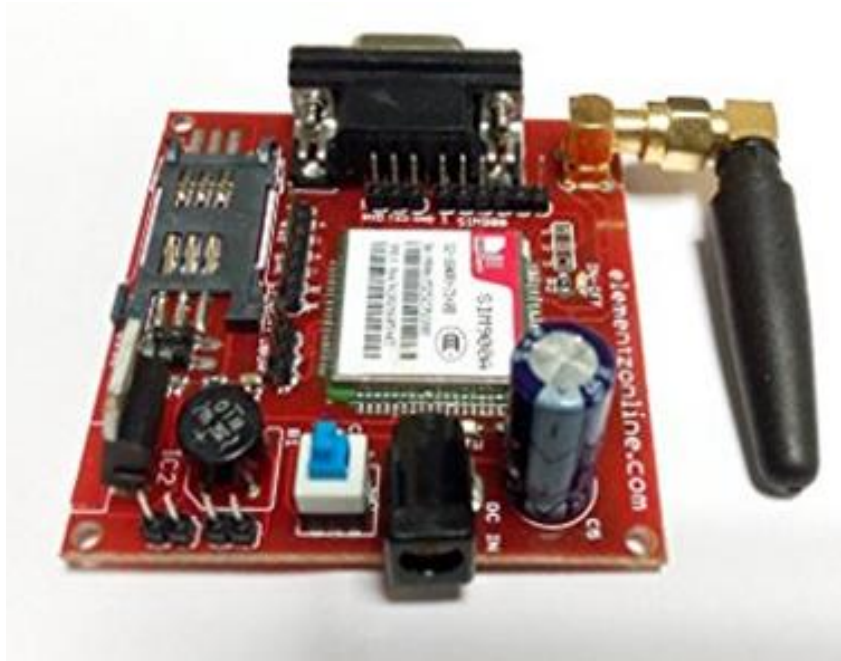


Fig.4: GSM Module

#### 4.6 Shock Generator Circuit

Electric shock generator is an electronic device that produces voltage around 1200mv & current of 3microamp. Electronic shock generator is fixed into the sandal. Whenever the push button is triggered the

shock is generated on to the tip of the sandal. In shock generator circuit the concept of mosquito bat is used. It consists of AC to DC converter, oscillator and a net or Grid

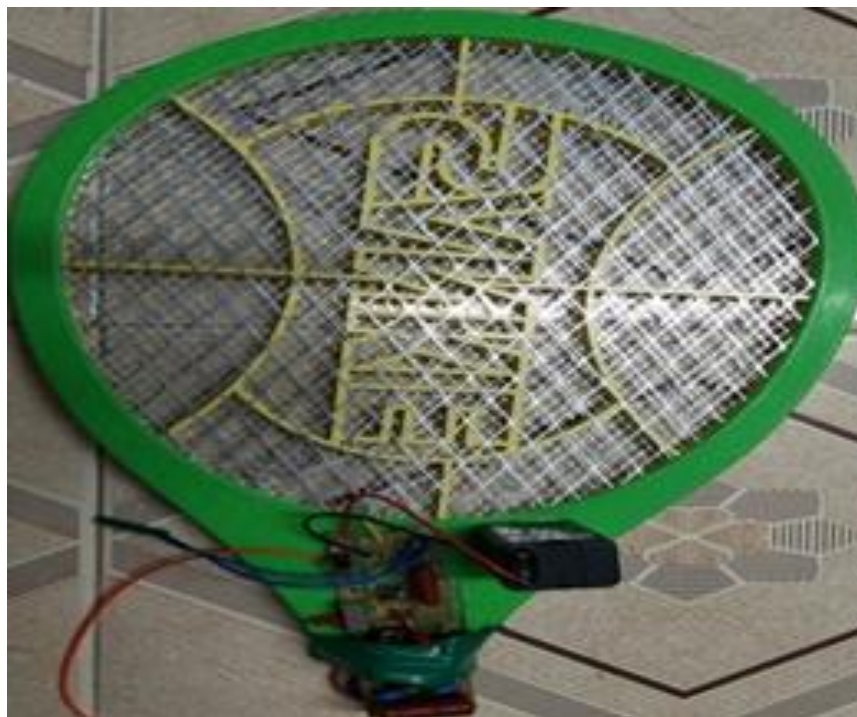


Fig.5: Shock Generator Circuit

4.7 **LCD** In 1968, RCA Laboratories developed the first liquid crystal display (LCD). Since then, LCD's have been implemented on almost all types of digital devices, from watches to computer to projection TVs. LCD's operate as a light "valve", blocking light or allowing it to pass through. An image in an LCD is formed by applying an electric field to alter the chemical properties of each LCC (Liquid Crystal Cell)

in the display in order to change a pixel's light absorption properties. These LCC's modify the image produced by the backlight into the screen output requested by the controller. Through the end output may be in color, the LCC's are monochrome, and the color is added later through a filtering process. Modern laptop computer displays can produce 65,536 simultaneous colors at resolution of 800 X 600.

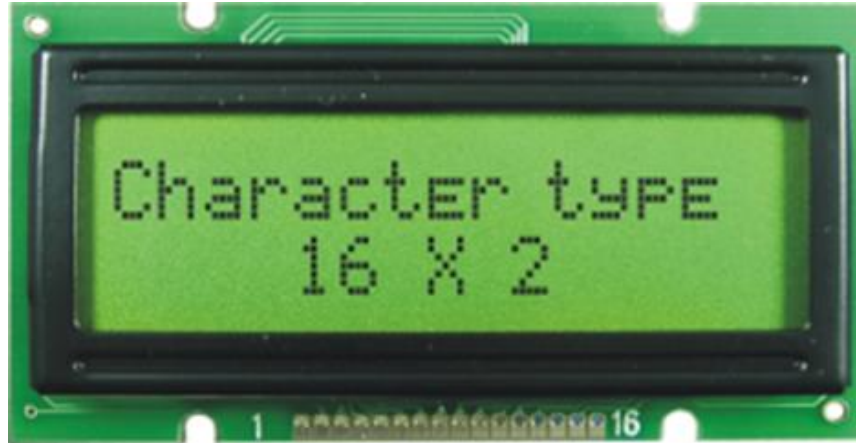


Fig.6: LCD Display

## 5. Future Scope

In Future, We Also Interface This System With Smart Phone Or Mobile

## 6. Applications

- It will be used for safety of women's.
- It will be used for child tracking during school time.
- It will be used in vehicle tracking & safety system.
- It can be used for wild life tracking.

## Conclusion

The proposed design will deal with critical issues faced by women in the near past and will help to solve them with technically sound equipment's and ideas. This system can overcome the fear that scares every woman in the country about her safety and security.

## Acknowledgment

We would like to thank sincerely to our guide Mrs. K.N.L. Vamsi Priya for her invaluable guidance, constant assistance, support and constructive suggestions for the betterment of this project work. We would like to express our deep sense of gratitude to our HOD sir Dr.K. Jagadeesh Babu for his continuous efforts in creating a competitive environment in our college and encouraging throughout this course and also giving us the opportunity to embark upon this topic and for his continued encouragement. We also wish to thank all the staff members of the department of ECE for helping us directly or indirectly for the project work.

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