

All In One Protective kit For Women

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Abstract — Although a lot of women safety systems are already available in the market but still a more sophisticated system is required to provide more safety and security. Thus in this project an alternative method is designed for women security that may serve as a better alternative to rest of the available security methods. This project mainly focus on self defence on women. Here the system is designed around Arduino micro-controller that uses GPS, GSM, switch, shockwave generation circuit for self defence and mems sensor for better security.

Index Terms — Arduino micro-controller, GPS, GSM and MEMS Sensor, Shok generator.

1.INTRODUCTION

Women safety is a very big concern in a country like INDIA where women are playing an outstanding role in each and every field.

India is a peace loving country and one of the safe destination for the tourists across the world. However, a few incidents in recent past brings to attention that there is a need for women safety. Many women's in developed countries still fear to go outside alone due to number of cases of violence against women. To make women safety safer many attempts have been made but, still a safer and secure system is needed that can ensure safety during public transport and in general. This,project presents a system that is capable of providing more security and safety to the women.

2.METHODOLOGY

Fig. below shows the block diagram of security system for women safety.

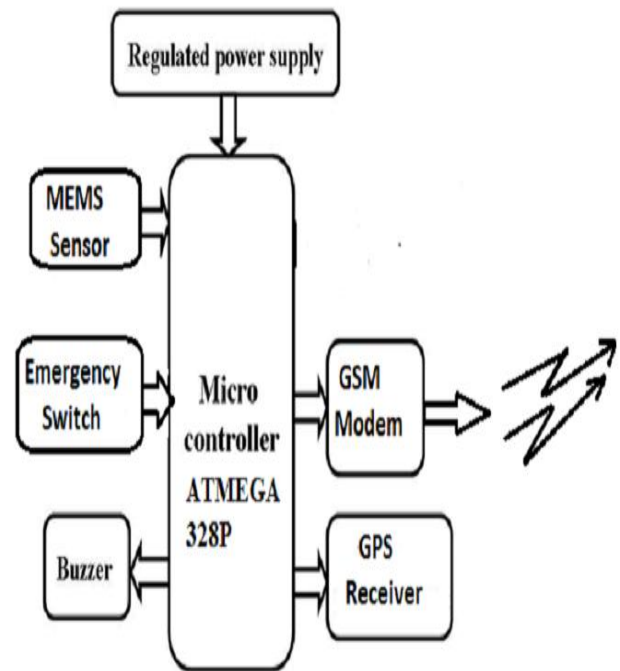


Fig 1: Block diagram of Women safety system

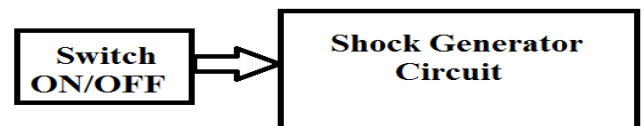


Fig. 2 Block Diagram Of Shock Generator Circuit

The device is intended to be made into two parts. Fig 1 shows the block diagram of women security. Fig 2

shows the block diagram of shock generator circuit. As shown in the fig.1 the circuit is designed around microcontroller ATMEGA 328P. Here switch can be press manually by the women when she is in danger situation. By pressing that switch Sytem automatically get activated and buzzer starts ringing so that people around her got attention towards her. Simultaneously global position sytem i.e GPS receiver connected to the microcontroller extract position from satellite in the form of latitude and longitude, and send it to women family member mobile through GSM module.

If women not able to press switch then MEMS sensor is used to sense any mishappening with women according to the extraordinary movement of her body. And system gets activated and similar process is repeated.

Second section emphasis on women self defence as shown in fig.2. There is handgloves wear by women in her hand so that by pressing switch current is generated and she can give shock to the attackers. And that shock generator circuit works on mosquito bat concept.

3.THEORY OF TECHNIQUES

A. Arduino Uno :

Arduino Uno is a microcontroller based board that consists of ATmega328P microcontroller as its central part. The ATMEGA 328P is an AVR family of microcontroller that has 14 digital I/O pins (out of which 6 have PWM support), 6 (A5-A0) analog input pins, 2 pins (RX and TX) for serial communication, 2 pins for (I/O_{ref} . and A_{ref}) for ADC and 3 pins (3.3V, 5V and V_{in}) for supply voltage.

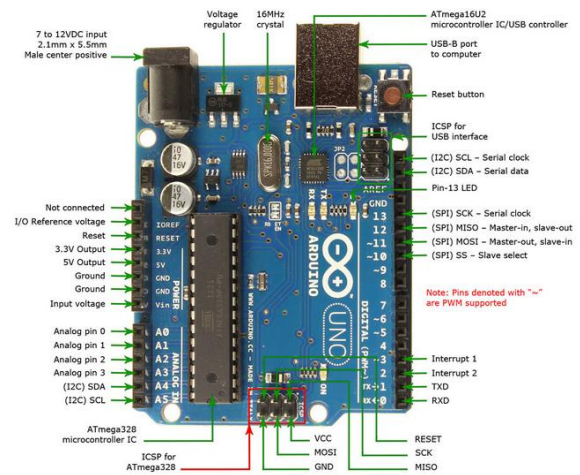


Fig: 3 Arduino UNO board

The ATmega328P has a total of 32 KB of flash memory, 2 KB of SRAM and 1 KB of EEPROM with a clock speed of 16MHz. Each I/O pin in ATMEGA 328P can receive or provide 20mA current. The maximum value of current which an I/O port can withstand is 40mA.

An innovative feature that is provided in Arduino Uno is it is reset by the software running on concerned computer rather than pressing a reset button physically before an upload.

B. GSM Module:

A GSM stands for Global System for Mobile. In a GSM Module a GSM Modem is connected to a PCB and a various number of outputs are taken from the module. There are a number of GSM modules available in the market out of which we have selected SIM 900 for our project. In SIM 900, the term 900 represents that the communication is supported in 900MHz band as most of the mobile networks work in 900MHz ISM band.



Fig: 4 GSM SIM 900 Module

The GSM module can be connected with the Arduino in two different ways. The first method to connect GSM with Arduino is to use its serial communication pins RX and TX. In this method the RX of Arduino is connected to the TX of GSM, TX of Arduino is connected to the RX of GSM and the ground pin of Arduino to ground pin of GSM. The second method to establish connection between Arduino and GSM is to use PWM any two PWM pins instead of RX and TX. But in both the cases the communication is serial.

C. GPS Module:

GPS stands for Global Positioning System. A GPS is used to determine the exact location of a device/person.



Fig: 5 GPS Module

The location may be in either 2-D form or 3-D form. In 2-D form only Latitude and Longitude are calculated while in 3-D form Latitude, Longitude and Altitude all three are calculated. Once the exact location is determined then other information such as speed and exact distance can also be calculated.

D. Shock Generator Circuit:

Shock generator is a circuit that produces shock waves of around 1200mv & 3 micro-amperes. The Electronic shock generator may be fixed into the sandal. Whenever the push button in the shock generator is pressed the shock waves are generated on the tip of the handgloves. Here, the concept of mosquito bat is implemented in shock generator circuit.

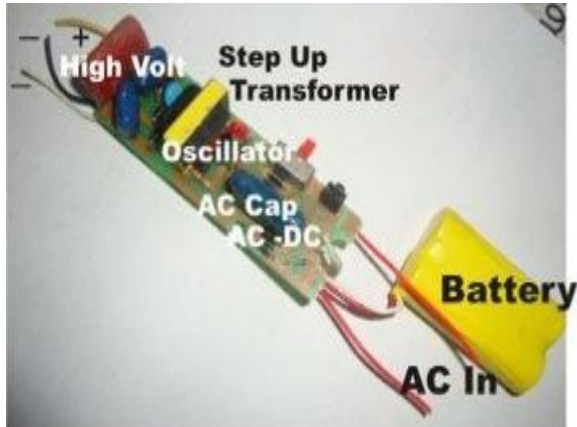


Fig: 6 Shock Generator Circuit

4. RESULT

This project illustrates the safety of women. To deal with the problem of security issues of women the circuit is designed so that women feel safe while going alone at night. This project gives self-dependence to women by giving shock by shock generator to the attackers. And by GPS receiver we can find the position of women in the form of latitude and longitude.



Fig: 7 Shock generator ckt

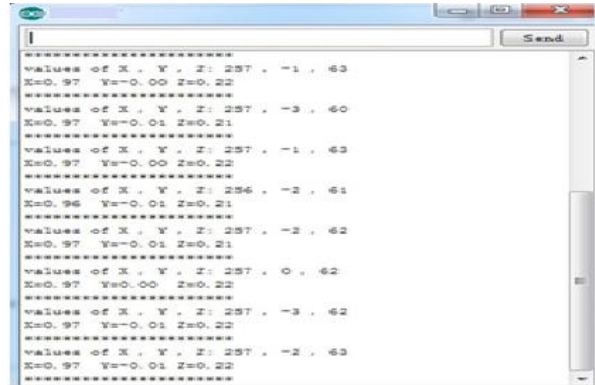


Fig:8 Mems sensor reading

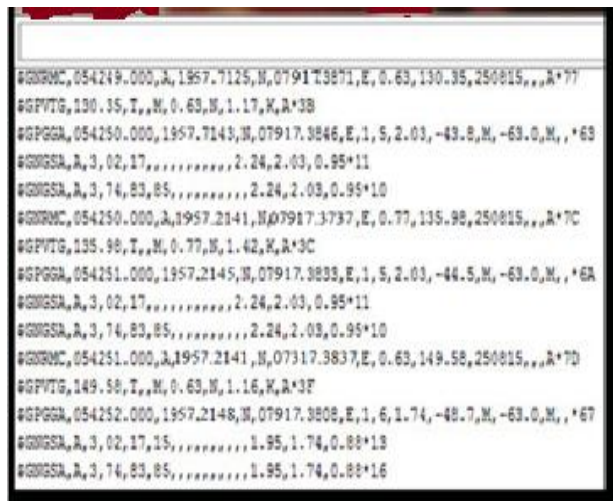


Fig:9 GPS readings on serial port of Arduino

Latitude 19.572141

Longitude 79.173737

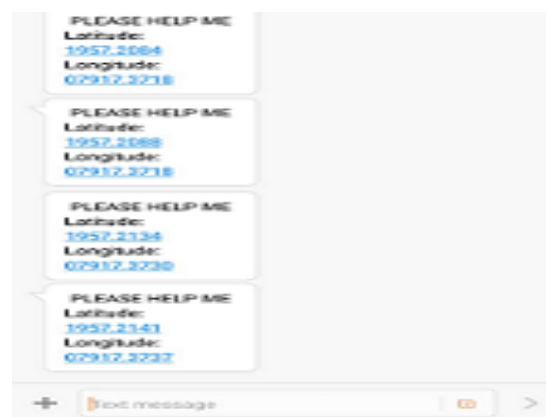


Fig: 10 Msg send to mobile by GSM

5.CONCLUSION

In this research an intelligent and sophisticated Women safety is implemented and tested. The results show that the system ensures complete women safety during public transport. And system provides self defence to the women by giving shock to the attackers.

6.REFERENCES

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