



INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X

Impact factor: 4.295

(Volume 5, Issue 2)

Available online at: www.ijariit.com

Women protection system using microcontroller and Android application

Gayatri Sanjay Chopade

gschopade123@gmail.com

Shivajirao S. Jondhale College of Engineering, Thane,
Maharashtra

Pournima Fulwade

pournimafulwade@gmail.com

Shivajirao S. Jondhale College of Engineering, Thane,
Maharashtra

Pramod Rodge

pramod.rodge@rediffmail.com

Shivajirao S. Jondhale College of Engineering, Thane,
Maharashtra

Pranit Bandkar

pranitpra510@gmail.com

Shivajirao S. Jondhale College of Engineering, Thane,
Maharashtra

ABSTRACT

Women Protection System aims at helping women from any type of physical attack. A Conductive Belt having magnetic circuit is used which will prevent any kind of attack from occurring. A mobile application is to be implemented that informs the user-defined numbers about the emergency alert and location of the use. This application can be accessed automatically as well as manually. The microcontroller is used to achieve this purpose. The connectivity between the microcontroller and the mobile is maintained through the Bluetooth modem. At the same time, women are facing problems like kidnapping, harassment, molestation etc. A women security issue has become most important. The women security system has considered for providing a solution to different problems. The important part of the system is the prevention of incident & communication through a wireless medium. A security system in which prevention will be the highest event & communication is the second event.

Keywords— *Conductive belt, Microcontroller, Bluetooth modem*

1. INTRODUCTION

Self-defense and self-protection are a much more important priority for women these days. A woman has to fight back against crime to prevent it from happening. Pepper sprays, teaser guns, knuckles, etc, all some weapons used for self defence. They prove to be a failure because of a major negative point as these weapons can protect as long as they are in the correct hands. Women Protection Belt is a device which uses modern technologies of communication. The safety of women is just a touch of the key away. The moment she presses the key her location will be traced and an alert message with the location will be sent to the predefined numbers. In case she is unable to press the key and is unconscious due to any unaware reason, on opening the belt the same process will be carried out.

2. PROPOSED SYSTEM

The basic Principle used for the security system is prevention & communication by using Bluetooth and microcontroller. The prevention of Molestation, kidnapping, murder is most important events than the communication of that event wireless communication. Hence the project is divided into two parts.

- Prevention from the Incident happening.
- Communication of that incident through wireless.

The SMS information can be sent to various people like Cops, friends, Doctor, Family Members. Sorted information will be sent to the concern people i.e. doctor will have information of medical help, police will have information of legal & judicious help of that incident and family members will have information of their daughter wife/mother.

3. DEVICES USED

3.1 Atmega328

The Atmega328 is an 8-bit microcontroller based on the AVR enhanced RISC architecture. It executes powerful instructions in a single clock cycle; the Atmega328 achieves throughputs approaching 1MIPS per MHz allowing the system designed to optimize power consumption versus processing speed.

- 131 powerful instructions
- 32 x 8 general purpose working registers
- The fully static operation performed
- Up to 20MIPS throughput at 20MHz
- On-chip 2-cycle multiplier
- Write/erase cycles: 10,000 flash/100,000 EEPROM
- System programming on-chip by the boot program
- Read while a write operation
- Up to 64 sense channels
- Two 8-bit timer/counters
- One 16-bit timer/counter
- Real-time counter with separate oscillator

- Six PWM channels
- Programmable serial USART
- Master/Slave SPI

3.2 Bluetooth Modem

Serial port Bluetooth module is fully qualified Bluetooth V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband. It uses External single chip Bluetooth system with CMOS technology and with AFH (Adaptive Frequency Hopping Feature). It has the footprint as small as 12.7mmx27mm.

3.3 Buzzer

An electric signalling device that makes a buzzing sound.

3.4 Emergency button

A Push button that activates the system.

4. WORKING OF THE SYSTEM

The Microcontroller Atmega328 is used as a main component which controls all the system. The microcontroller Atmega328 will be programmed using Arduino IDE and burn it into the flash memory. Atmega328 use AT Commands. The Key, Battery of 12v, magnetic switch and Bluetooth modem. The key connected is used in emergency case whenever the victim presses the key immediately the signal goes to the microcontroller contact to Bluetooth modem and sends the alert message and the location where the victim is presently using the android app. Also, the magnetic reed switch which is connected to microcontroller also acts as a key. At the breakpoint of the magnetic switch, signal will be sent to the defined numbers. Same as when the smartphone goes out of the limit of Bluetooth modem then also the signal passed to the microcontroller and message will be sent. The Battery is connected to the microcontroller as well as Bluetooth modem. The android app consists of the 3 parts. In 1st part, the current location of the mobile is calculated and displayed. In 2nd part, the user can define the numbers where the alert message and location will be sent. 3rd part of the module the Bluetooth pair ability is set.

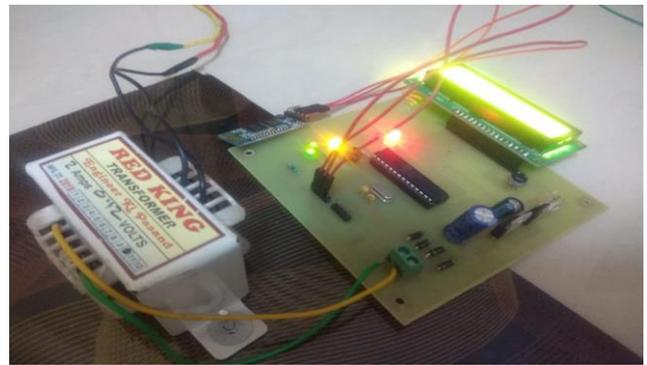


Fig. 2: Conductive belt

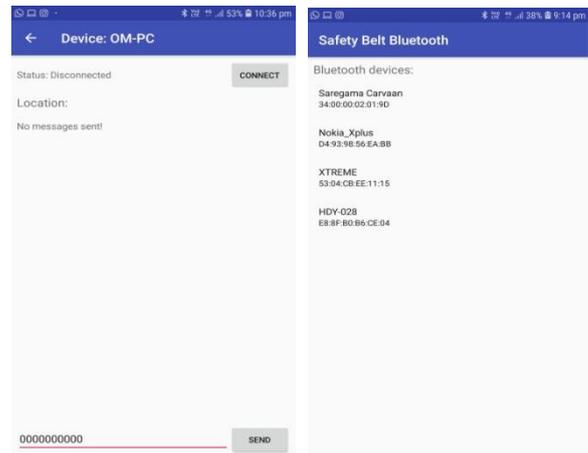


Fig. 3: Screenshots of Android App

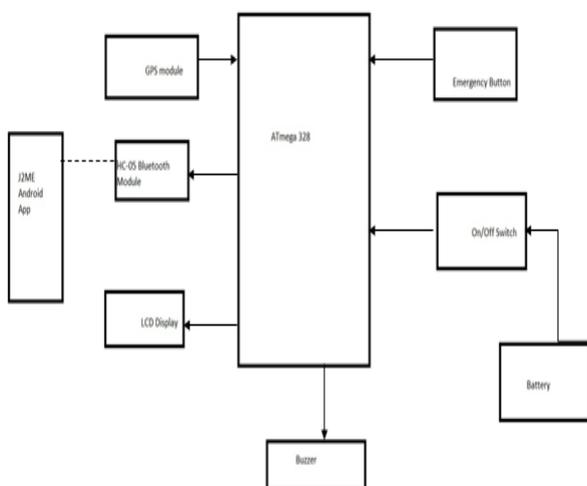


Fig. 1: Working of the system

5. RESULTS

5.1 Various Conditions

In case of a sudden attack, there are three possibilities:

- The mobile is with the person (in the bag or pocket).
- The mobile is thrown away OR the purse is left behind.
- The conductive belt is the break.

6. RESPONSE OF THE SYSTEM

Case 1

a. If the user is able to press an emergency key then the belt side hardware will send a signal to the mobile and mobile will fetch the current location and will send this information to the predefined numbers using SMS method.

b. In case of unconsciousness (due to some drug) If the user is not able to press the key; and if the belt is forcefully opened Or it got torn in the struggle then automatically the Hardware-Microcontroller will generate an alert command to the mobile and it will send the current location and alert SMS to the family.

Case 2

The link between the mobile and the hardware will get disconnected then the mobile will automatically send the location (the last recorded) and alert SMS to the family (user-defined numbers).

6.1 Advantages

- As all the components are easily available so it is easy to design and manufacture.
- Highly accurate, precise and reliable.
- Easy to carry or wear as it can wear on any clothes
- It can be reprogrammed if needed.

6.2 Disadvantages

- Failure of any component can lead to consequences.
- Mobile battery died the system will be not able to send emergency message and location to the defined number.

7. FUTURE SCOPE

- The efficiency of this system can be increased or in fact improved by making the belt waterproof.

- A voice processor can be employed. The voice of the victim will be transmitted as a voice message to the user-defined numbers.
- To increase the security more intensely a shock system can also be added, which gives a shock to the attacker if he tries to touch the belt unnecessarily.
- A spy camera can be added to record the entire situation.

8. CONCLUSION

Being safe and secure is a real struggle these days. Our motive to design this project is to provide some personal security. This design will help women to be secure. This system helps to

reduce the crime rate against women and brought an end with the help of real-time implementation of our proposed system.

9. REFERENCES

- [1] <https://www.arduino.cc/en/Tutorial/HomePage?from=Main.Tutorials>
- [2] http://ww1.microchip.com/downloads/en/devicedoc/atmel-42735-8-bit-avr-microcontroller-atmega328-328p_datasheet.pdf
- [3] <http://www.vogella.com/tutorials/Android/article.html>
- [4] John W. Muchow "J2Me: The Complete reference of Core j2me technology".