IJESRT

INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH TECHNOLOGY
BLACKBOX-WOMEN'S"SAFETY DEVICE

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ABSTRACT
In today's time safety of women, safety of children, safety of senior citizen is a major concern for society. Every hour and every day the news headlines are filled with crime incidents, depicting victim's plight. But here the question arises who will come for help during such situation. With wide variety of technologies available in the market still the percentage of crime and the time required to gain justice is not reducing. Thus to solve this problem we concluded that BLACK BOX would be the best suited technology for such circumstances. Black box consists of three section, self defense mechanism (shock circuit / stun gun circuit), transmitter and receiver section (RFID tag, GSM modem, Microcontroller 89S52) and audio recording tool. The objective of this project is to design a gadget that can act as a rescue device and can prevent innocent people from harassment. Our endeavor behind this project is to design and fabricate a gadget which is compact in itself that provide advantage of camouflage.

KEYWORDS: Black Box, Microcontroller, GSM modem, RFID tag, Shock circuit.

INTRODUCTION
Indian society, today are becoming the most vulnerable section as far as the safety and security is concerned. When we turn the pages of newspaper, we come across many headlines reporting cases of sexual assault, molestation, rapes, human trafficking, ill treatment of women in houses, violence against women in remote areas, murders, kidnapping etc. This certainly implies that there has been an increasing trend of such crime in present generation. From the past few days we are experiencing an increment in the cases of eve teasing and pick pocketing etc. in this project we are trying to approach towards certain preventive solution. This would mean to have multipronged strategy with the participation of multi stake holders of society.

As good citizens, we have a fundamental duty to contribute towards bringing an order to ensure a safe and secure for all so that everyone can enjoy their human rights and fundamental rights with sense of pride, freedom and confidence.

Safety is the most wanted power for everyone's in today's world. Technology is the best way to achieve it. That's why we decided to develop a gadget that can act as a rescue device and protect at the time of danger. We are providing with such device which can help one to protect them in danger time.

Our endeavour behind this project is to design and fabricate a gadget which is so compact in itself that can provide advantage of security. The gadget also contain self defence tool which is a shock circuit. In this project we provide key points of the gadget and its application in danger time. So, far we didn't saw any special security device which can be used by every one for their safety in critical time. We have made a circuit which when enable gives an electric shock to the attacker. We can give an electric shock number of times. We have also provided a GSM modem which sends a SMS to the concerned persons when the RFID tag is touched on the RFID receiver this will sent a signal to microcontroller 89S52. The IC89S52 is interfaced with the GSM modem. This device will work as safety equipment especially for women, children's and senior citizens. This circuit can be fitted in a purse at the product level it can be compact as a mobile phone.

COMPONENTS

- RFID Tag- There are two basic types of chips available on RFID Tags, Read-Only and Read-Write. Read-Only chips are programmed with unique information stored on them during the manufacturing process. The information on Read-Only chips can never be changed.

- AT89S52 microcontroller- In our BLACK BOX, there is circuit containing micro – controller AT89S52 which is the heart of the circuit. The AT89S52 is a low-power, high-performance CMOS 8-bit microcomputer with 8K bytes of Flash programmable and erasable read only memory (PEROM). The device is manufactured using Atmel's high density non volatile memory technology and is compatible with the industry standard 80C51 and 80C52 instruction set and pin out. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional non volatile memory programmer. By combining a versatile 8-bit CPU with Flash on a monolithic chip, the Atmel AT89S52 is a powerful microcomputer which provides a highly flexible and cost effective solution to many embedded control applications.

- GSM modem- A GSM modem can be dedicated modem device with a serial, USB or Bluetooth connection, or it can be a mobile phone that provides GSM modem capabilities. For the purpose of this project GSM modem is used to send message to the recipients stored in the SIM. GSM modem supports one or more of the protocols in the GSM evolutionary family, including the 2.5 technologies GPRS and EDGE, as well as the 3G Technologies WCDMA,UMTS,HSDPA and HSUPA.

- The GSM modem exposes an interface that allows applications such as NOW SMS to send or receive messages over the modem interface. The mobile operator charges for this message sending and receiving as it is was performed directly on a mobile phone. To perform this task, a GSM modem must support an 'extended AT command set' for sending/receiving SMS messages

- RS 232- RS232 Is defined as the "Interface between data terminal equipment and data communication equipment using serial data exchange." This definition defines data terminal equipment (DTE) as the computer while data communication equipment (DCE) is the modem. A modern cable has pin to pin connections, and is designed to connect a DTE device to a DCE device.RS232 are normally available in 4,9 or 25 cabling options. We are using RS232 with 9 pin cable which does not have many of the uncommonly used pin.

- MAX 232- The MAX232 is a driver/receiver that includes a capacitive voltage generator to supply TIA/EIA-232-F voltage levels from a single 5-V supply. Each receiver converts TIA/EIA-232-F inputs to 5-V TTL/CMOS levels. These receivers have a typical threshold of 1.3 V, a typical hysteresis of 0.5V, and can accept±30-V inputs. Each driver converts TTL/CMOS input levels into TIA/EIA-232-F levels

- 7805- These fixed-voltage regulators are designed for a wide range of applications. These applications include on-card regulation for elimination of noise and distribution problem associated with single-point regulation. Each of these regulators can deliver up to 1.5 A of output current. The internal current limiting and thermal shutdown features of these regulators essentially make them immune to overload. In addition to use as fixed regulators, these devices can be used with external components to obtain adjustable output voltages and current, and also can be used as the power-pass element in precision regulators.

- Shock circuit (ST coil)- In the circuit shown below we use a Step up coil to step up 5Vdc to 190Vdc, polyester capacitors are connected in series to increase output voltage.
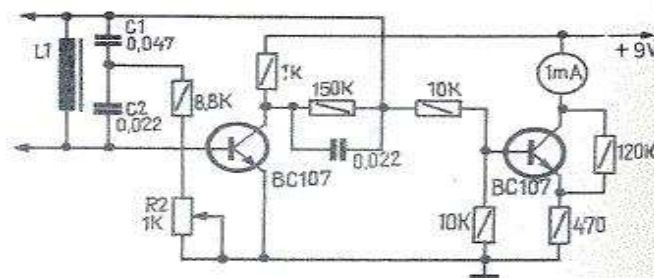

Figure 1.Circuit diagram of shock circuit of Blackbox

WORKING

When the RFID Tag is touched on the RFID reader, reader gets activated and sends the signal to the microcontroller 89S52. RFID is a method of identifying unique items using radio waves. The RFID which we are using here is of active type and it covers a good coverage area range of 300 feet. We are using it in ultra high frequency band whose frequency range is from 2.4 GHz to 2.5 GHz and 850 MHz to 950 MHz. But this 850 to 950 MHz frequency range is used only in those countries where this frequency range is not allocated for telephony system. The signal is send through MAX 232 IC on RXD pin of microcontroller IC. We have a "HELP" message stored in the memory of microcontroller. This message will be send to the GSM modem in the form of signal. Again, this transmission will be done through MAX 232 IC. This signal will be transmitted from TXD pin of microcontroller IC and will be received on RXD pin of GSM modem. GSM modem uses AT Commands for communication. Then, the help message will be send through antenna to the numbers stored in the programming of GSM modem. The numbers stored will be of guardians or friends and police. Message which will be received by family or friends and help being provided by family or friends. Self defense tool is used in this project for preliminary stage safety if the person feels that he or she is in danger by pressing the button on the shock circuit it will produce high voltage of 190 Volts DC. This high voltage shock can make a person unstable for few minutes. This will help the victim to escape and reach a safe place. There are many self defense tools available in market like stun gun, shock circuit and many others. In the circuit shown below we use a Step up coil to step up 5Vdc to 190Vdc, polyester capacitors are connected in series to increase output voltage.
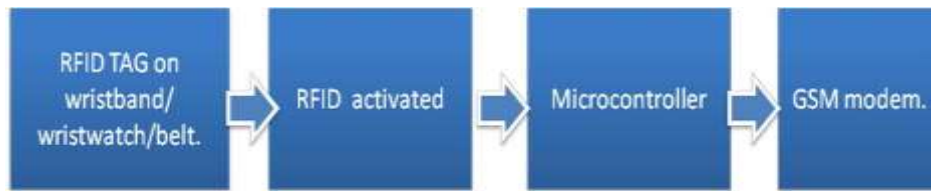

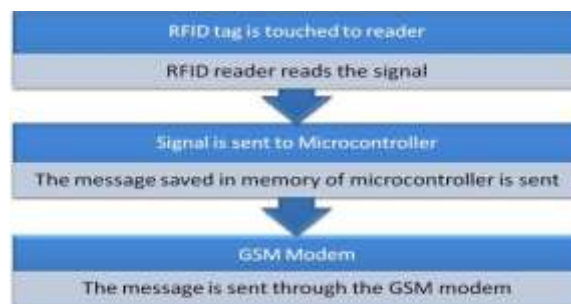*Figure 2. Block Diagram of basic working of Blackbox*

Figure 3. Flowchart of basic working of Blackbox

Figure 4. Blackbox implemented

Figure 5. Shock-Circuit with Blackbox

ADVANTAGES

Blackbox will be the best suited device that can be used in the present scenario considering the integration of advantages of both hardware as well as software.

CONCLUSION

The With help of this project, the Black box is able to provide security to individual in critical conditions, the black box sends the message to the family members or the recipients whose number is stored in the memory of the microcontroller through the GSM modem. The self defence tool gets enable as we press the button and gives a high voltage DC shock to the attacker. This would stop the crime to happen which was the main objective of this project.

REFERENCES

[1]   IJERMT March 2014 Vol 1-Issue-2 (ISSN:2348-4039) Pg no.107-113
[2]   (Health Monitoring device).
[3]   Research Article: IJERA ISSN:2248-9622,Vol 4,Issue-3(Version1) March 2014.pp.823-826.(Women's safety app.)
[4]   International journal of Information & Computation Technology ISSN 0974-2239 Volume 4, Number 8(2014) http://www.irphouse.com