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Modern self-defense system for women by using Electric shoe and location tracker.

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ABSTRACT:

Today's modern world is full of offence against the women. So much of young and teenage girls are going to harsh by rapist. Our responsibility is to save the women and reduce the risk of sexual abuse. In this system we use micro controller with power supply,GPS(Global positioning system),GSM(Global system monitoring), a button and shock circuit in a shoes.The button based tag is fixed in watch or jackets of women. Whenever the button is clicked by the women, it reaches the circuit. The GPS and GSM module track the current location of the women and sends the location to the police tracker and registered numbers. There occurs some time delay for the police force to reach the location, so in order to face the violence from the rapists. A electronic shoe is introduced by us which contains a shocking circuit. The women is to switch on the button on the shoe and attack the abuser. The shock circuit's current shock blocks the nervous system and the women is secured.

Keywords: Microcontroller, Security button ,GSM module, GPS module, shock circuit, Electric shoe.

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. It is an embedded compact device. The device contains a GPS and GSM module, it fixed in the watch of the woman. Whenever the button is pressed by the woman, immediate messages are sending to the guardian and to police station with location. So the physical stage of victim is noticed.

2. EXISTING SYSTEM:

Keeping the same concern in mind many developers have come up with innovative applications.

a)VithU app: This is an emergency app initiated by a popular Indian crime television series "Gumrah" aired on Channel in this app when the power button of the Smartphone is pressed twice consecutively, it will begin sending out alert messages with a link to the location of the user every two minutes to the contacts .

b)ILAsecurity: The co-founders of this system,McGivern, James Phillips andNeil munn,have designed three personal alarms that can shocks and disorientPotential attackers and draw attention to dangerous situations.

c)Using pressure sensors: The proposed system is to design portable Consists of Ardunio Board, threshold of the pressure sensor crosses, the device Wi-Fi.

d)SHE(Society Harnessing Equipment): This garment has an electric circuit that can generate 3800kv of current which can help the victim to escape. In case of multiple attacks, it can send up to 82 electric shocks.

3. PROPOSED SYSTEM:

The system tracks the location information from the GPS and prepares a text SMS containing the present location information and send SMS through GSM modem to the police control room and distress message to the preprogrammed mobile number. Using the information supplied by this system, the location using GPS and can be traced through Google maps. Thus the girl will be safe and she feels protected.

The system provides a new approach which provides a method for providing security to the women from kidnapping. Here an electric shoe is introduced whenever the woman found that she in danger, a button in the shoe is to be pressed by the woman this activates the shock circuit in the shoe and continuous flow of power in the shoe. She will attack the enemy using her shoe, provides a self- defense system.

4. BLOCK DIAGRAM:

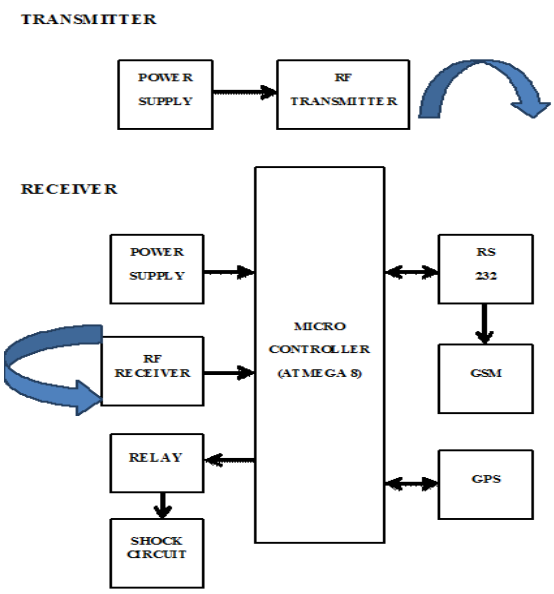

Fig4.1: Hardware block diagram

5. HARDWARE DESCRIPTION:

5.1GSM Module:

Global System for Mobile communication(GSM) SIM card is inserted inside the mobile device to send and receive the messages using GPRS. The GSM SIM card number is registered with the system.GSM is used to send data from control unit to base unit. We can use GSM 800A which operates at frequency 900MHz.It has up link band of 890MHz to 915MHz and down link Band of 935MHz to 960 MHz GSM takes advantages of both FDMA & TDMA. In 25MHz BW, 124 carriers are generated with channel spacing of 200 KHz (FDMA). Each carrier is split into 8 time slots (TDMA) [9]. At any given instance of time 992 speech channels are made available in GSM 800L.

Fig5.1: GSM module

5.2 GPS Module:

Global positioning system (GPS) is a navigation and precise positioning tool, which tracks the location in the form of longitude and latitude based on Earth by calculating the time difference for signals from various satellites to reach the receiver.In six different orbits approximately 12500miles above the earth, 24 MEO (Medium-Earth Orbit) satellites revolve around the earth 24 hours and transmit location every second. It receives the data of location and transmits it to the Arduino. The Arduino thereby receives the signal from GPS and hence it performs further operations.

Fig 5.2:GPS module

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5.3 ATMEGA8:

The AVR is a modified Harvard architecture8-bitRISC single chip microcontroller which was developed by Atmel in 1996. The AVR was one of the first microcontroller families to use on-chip flash memory for program storage, as opposed to one-time programmable ROM, EPROM, or EEPROM used by other microcontrollers at the time.The AVR is a modified Harvard architecture machine where program and data are stored in separate physical memory systems that appear in different address spaces, but having the ability to read data items from program memory using special instructions.

Fig5.3 : At-mega8

5.4 RS232:

Due to its relative simplicity and low hardware overhead (as compared to parallel interfacing), serial communications is used extensively within the electronics industry. Today, the most popular serial communications standard in use is certainly the EIA/TIA–232–E specification. This standard, which has been developed by the Electronic Industry Association and the Telecommunications Industry Association (EIA/TIA), is more popularly referred to simply as "RS–232" where "RS" stands for "recommended standard". In recent years, this suffix has been replaced with "EIA/TIA" to help identify the source of the standard. We use the common notation "RS–232".

6. WORKING PROCEDURE:

The prototype presented in this paper makes use of AVR Software for coding purposes. All the components like battery, GSM, GPS, Watch module etc., are all interfaced to Atmega processor using AVR software and the prototype operates based on the codes being given to the processor. The microcontroller acts as an embeddedcomputing system and controls the activities of all the subsystems. It is interfaced with Emergency Switch, GPS Receiver, GSM modem. On pressing a button in a tag , a messageregarding the threat can be sent to the nearest police station and the family members whose contacts have been preloaded. The police station receives the message and user location tracking is been provided by GSM, GPS modules.The device contains a GPS and GSM module, it fixed in the watch of the woman.

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Whenever the button is pressed by the woman, immediate messages are sending to the guardian and to police station with location.

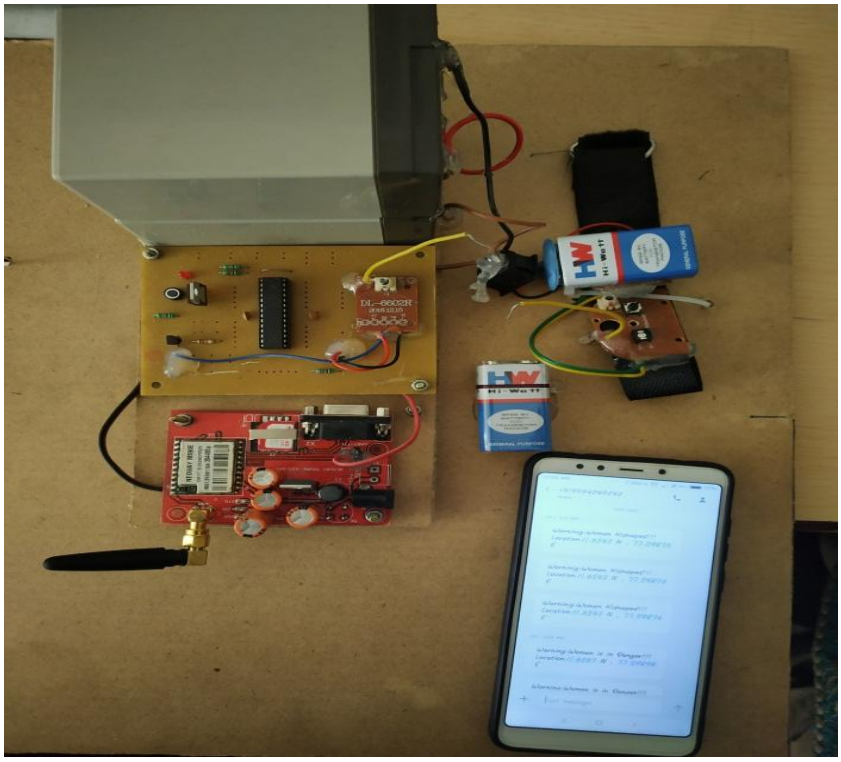

Fig6.1: Working prototype

The shock circuit's current shock blocks the nervoussystem , that which is placed on the shoe. When a button is pressed by the women a continuous flow of electricity passes, which attacks the nervous system of the enemy.

Fig6.2: Push button in the shoe **Fig 6.3: Electric shoe**

7.EXPERIMENTAL RESULTS:

The program for our proposed model is coded in Embedded C language and is built using MPLAB software. The program is further tested in AVR software. The GSM module is not available inprotest so we can use virtual terminal component to check the output of the GSM. The simulation output is given below.

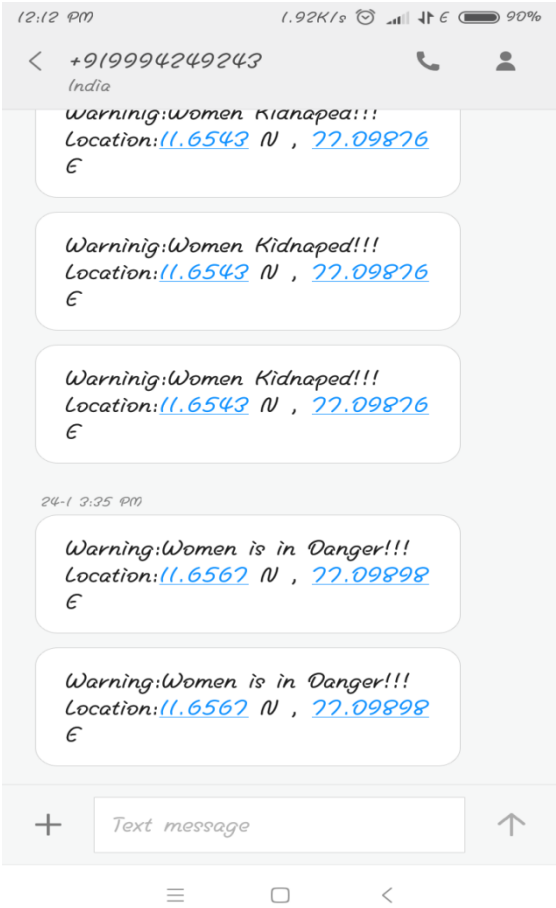

Fig7.1: Notification SMS

Output: Using AT commands the GSM modem is able to send the message to the predefined numbers. Usually we prefer for informationtransfer to one or two numbers. But if necessary to send the message to many numbers, it is also possible. The numbers must be stored in the program of the microcontroller and must be dumped using the kit. The only problem is that it takes time to send message if the predefined numbers are more than three. Thus in the above output image we are able to see the transmission of message from the GSM modem to the predefined numbers using the virtual terminal.

8.CONCLUSION:

Being safe and secure is the demand of the day. Our effort behindthis project is to design and fabricate a gadget which is so compact initself that provide advantage of personal security system. This design will deal with most of the critical issues faced by women and will helpthem to be secure. Existing systems provide the mechanism

to track the vehicle but no other emergency mechanism is proposed. The proposedmechanism provides viewing the location of the victim in terms of latitude and longitude which can further be tracked using Google maps. This system helps to decrease the crime rate against women.Women's security is a critical issue in current situation. These crimes can be brought to an end with the help of real time implementation ofour proposed system.

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