"SECURITY SYSTEM BY USING STUN DEVICE FOR WOMEN'S SAFETY"

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Abstract:

The paper proposed here is based on Electroshock weapon technology. This technology uses a temporary high-voltage, low-current electrical discharge to override the body's muscle-triggering mechanisms. The recipient is immobilized via two metal probes connected by wires to the electroshock device. The recipient feels pain and can be momentarily paralyzed while an electric current is being applied. This device is so useful for college girls and a working woman's who works in offices as well as in call centers for their safety against thieves and in unhealthy conditions. The electroshock device can be wearer anywhere on body with the help of belt. The GSM (Global System for Mobile communication) and GPS (Global Positioning System) technologies are used to inform and locate the affected person.

Key Words: Stun Device, Electroshock weapon, GSM Module, GPS Module

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Introduction:

Now a day's women's safety is the major issue in India and also in other countries. There are several app reduce the risk of sexual assault on women by informing control center and their associates through SMS (Short Massaging Service) and GPS (Global Positioning System) system [1]. Only massaging of the location and informing to police is not sufficient for the safety of the woman. There is a need to defense the actual situation as any informed person will take some time to reach the identified location. In this paper we have implemented women safety system on AT89C51 microcontroller which uses electroshock weapon technology to paralyze the victim for some time. This system also tracks the location of the victim using GPS and sends emergency messages using GSM (Global System for Mobile communication) [5] to the concerned person and police help line number. The interfacing of GSM and GPS is done through MAX-RS 232. The GSM & GPS technology have been inherently used for location awareness by taking Longitudinal & Latitudinal values of the geographical location of the GPS receiver and sends them in the form of SMS [7].

Literature survey:

There are some systems proposed by using microcontrollers with RFID, GSM and GPS modules. A. Al-Mazloum et al [1] proposed a "GPS and SMS-Based Child Tracking System Using Smart Phone". Here, they used GPS and GSM module to send alert message and location of the child to the parents or respective persons so that the missing person can be tracked. GPS offers outstanding capabilities in locating position which can be used to in locating missing or lost childrens. Ashwini Nikam et al [2] designed a module which will help the girl to protect herself. The module will be fitted to the girls' sandals. When the module is activated, hooter will be blown so that people present around will come to help the girl/ women. And SMS will be send to her guardian and to the police helpline along with the location using GPS and traceable through Google Maps. A "Smart Girls Security System" has been designed by Prof. Basavaraj Chougula and Archana Naik [5]. This system consists of Arduino Board, GSM/GPS modules, screaming alarm and pressure sensors. When the threshold of the pressure sensor crosses, the device will get activated automatically and the SMS is send with the location information of the victim. Another prototype device is designed by Shaik Mazhar Hussain and Shaik Jhani Bhasha [6] using microcontroller 8051, RFID and GSM based technology. In this system the women

wearing a watch or band is embedded with active RFID tag with on/off switch. When switch is on, the information is passed to RFID reader which communicates with microcontroller and then "help" message is sent to four predefined contacts through GSM module.

Mr. Mangesh Kumar and Mr. Raj Kumar [3] have been introduced the Emergency application for women called "IPROB". In this system they presents an alert system for PROB detection using Android based smart phone with an integrated tri-axial accelerometer. IPROB is very powerful software especially developed for the safety of girl. On shaking a smart phone above threshold value, alert message is sent to the person's parents or guardians if they also have a smart phone.

All the above systems are very useful but provide only information to the concerned person. There is nothing to defence the unhealthy situation on the spot. Anything can be happen in the mid time.

Methodology

Hardware Implementation:

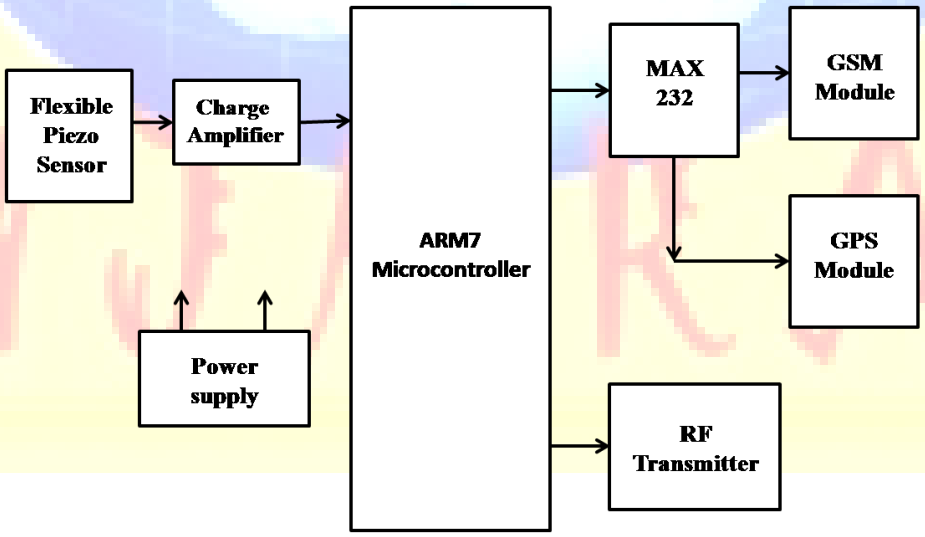

Figure 1: Block Diagram (Section I)

The whole system consists of two separate sections. First section is used to activate the GSM, GPS Modules and stun device through microcontroller. The second section consist RF receiver and stun device.

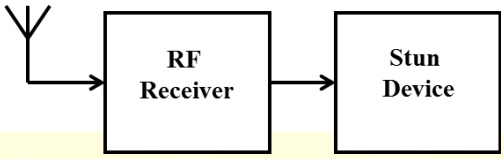

Figure 2: Block Diagram (Section II)

The Microcontroller:

The LPC2148 microcontroller is the widely used IC from ARM-7 family. The ARM7 is a general purpose 32-bit microprocessor, which offers high performance and very low power consumption. Due to its small size and low power requirement this microcontroller is ideal for small size system requirements. It has 32-bit timers, single or dual 10-bit ADC, 10-bit DAC, PWM channels and 45 fast GPIO (General Purpose Input Output Register) lines with up to 9 edge sensitive external interrupt pins which make this microcontroller suitable for industrial controls.

Flexible Piezoelectric Sensor:

The minerals such as tourmaline and quartz could transform mechanical energy into an electrical output. The voltage induced from pressure is proportional to that applied pressure. Materials like tourmaline, gallium phosphate, salts, and quartz are used in piezoelectric sensors. The flexible piezoelectric sensor is a rectangle element of piezo film with silver ink screen printed electrodes. In this type of sensor the piezo polymer tail extends from the active sensor area as flex circuit material. This gives a very flat, flexible lead with a connector at the end.

The piezo sensor is connected with microcontroller through charge amplifier to increase the strength of signal generated from sensor. GSM and GPS modules are connected with microcontroller via MAX232 IC. The stun device is made up of timer IC 555. The IC 555 works as an oscillator and step-up transformer or a diode-capacitor voltage multiplier achieves an

alternating high-voltage discharge or a continuous direct-current discharge. Output voltage is claimed to be in the range of 100 V up to 6 KV. It will cause a half-second shock duration will intense pain and muscle contractions. Two to three seconds will often cause the recipient to drop on the ground. The leads of stun device can be wired anywhere on the body of the wearing person. AA or AAA size batteries can be used as a power supply for the system.

Whenever piezoelectric sensor receives pressure on it, micro-controller receives a signal at one of its port pin. As soon as microcontroller get signal from sensor it activates GSM and GPS modules to send the helping message with location information on the preloaded mobile numbers. At the same time one signal is passed to RF transmitter connected to the microcontroller. The RF transmitter transmits signal to RF receiver of second section where stun device is placed. This will turns on the stun device and shock will be applied to anyone who touches the leads of stun device. The electroshock given by this stun device is not so harmful but still it is enough to paralyze the victim for some time by contracting the body muscles.

Conclusion

The design proposed here will help the women in critical unhealthy conditions. Self-defense is the best way to avoid any uncertain condition occurred at any place rather than waiting for someone to come and help. The main drawback of this design is its weight. But it can be reduced if SMD (surface mounting devices) components are used in circuits. The user of this system cannot misuse the stun device as its activation is controlled by microcontroller.

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