Self Defense System for Women Safety with Location Tracking and SMS Alerting

A. Usha Kiran Reddy 1, P. Sushmitha 2, I. Gayathri 3, K. Sandhya 4, N. Suresh 5

1UG Scholar, Dept of ECE, Bharat Institute of Engineering and Technology, Ibrahimpatnam, Hyderabad, TS, India.
2UG Scholar, Dept of ECE, Bharat Institute of Engineering and Technology, Ibrahimpatnam, Hyderabad, TS, India.
3UG Scholar, Dept of ECE, Bharat Institute of Engineering and Technology, Ibrahimpatnam, Hyderabad, TS, India.
4UG Scholar, Dept of ECE, Bharat Institute of Engineering and Technology, Ibrahimpatnam, Hyderabad, TS, India.
5Associate Professor, Dept of ECE, Bharat Institute of Engineering and Technology, Ibrahimpatnam, Hyderabad, TS, India.

Abstract: The main aim of the project is to provide security for woman. The purpose of the project is to provide security for woman. In case of emergency situations woman will press an emergency button which will activates the GPS for location tracking and a SMS is sent to the police and family members of woman along with time. This proposal document describes a quick responding, cost protection system for an individual and especially for women using which a woman in distress can call for help just with the press of a button on this smart gadget. Self Defense System for women safety is like a Smart Watch for Women. It has the ability to help women with technologies that are embedded into a compact device. The women wearing this device as a watch or band, in case of any harassment or when she finds that someone is going to harass, she presses a switch that is located on the watch or band or when the women has fallen the information about the attack along with the body posture and location information is sent as SMS alert to a few predefined emergency numbers And soon help is on its way! The system will consist of embedded hardware and software co-designed for this dedicated application. The system allows for knowing exact location of the individual, as soon as the trigger key on the belt is pressed. By providing the instant location of the distressed victim to the police so that the incident could be prevented and the culprit apprehended. In case if the caretaker wants to know the present location of the lady, he/she can do so by sending a SMS to the SIM number of the lady which contains a secret password. Then this system responds to such request by sending back a SMS containing location information in terms of Latitude and Longitude.

Keywords: SMS, SIM, APSS.

I. INTRODUCTION

Now a day’s attacks on woman is increasing day by day and in the case of where she can’t take a mobile and dialup to police or other family members, our proposal will be very much helpful in such cases in not only informing about attacks but also in giving the exact location of the women to nearby police station for necessary action. In today’s world, women safety has become a major issue as they can’t step out of their house at any given time due to physical/sexual abuse and a fear of violence. Even in the 21st century where the technology is rapidly growing and new gadgets were developed but still women and girls are facing problems. Even today in India, women cannot move at night in many places and even at day time crowded places hundreds and thousands of incidents of physical/sexual abuse happens to women every day. Among other crimes, rape is the fastest growing crime in the country today. Women will be provided with equipment which is not visible to others the equipment consists of GPS (Global Positioning System) module by which we can get the geographical location and these location values are displayed on the LCD (Liquid Crystal Display). In the case of any emergency conditions she can press a button once then the location information will be tracked and sent to police and family members so that she will be protected in proper time.

II. REVIEW OF LITERATURE

A. VithU app: This is an emergency app initiated by a popular Indian crime television series “Gumrah” aired on Channel. VithU, is an emergency App that, at the click of the power button of your Smartphone 2 times consecutively begins sending out alert messages every 2 minutes to your contacts that you feed into the app as the designated receivers or guardians. The message says "I am in danger. I need help. Please follow my location.”

B. The stun gun: This small gun charges an attacker with an electric shock. The shock weakens the attacker temporarily, giving you sample chance to escape the scene. When its trigger is pulled, a stun gun pumps about 700,000 volts into the attacker’s body. Some stun guns are small enough to be concealed in a pack of cigarettes. They run on Lithium batteries and can be carried either in handbags or held in waist straps.

C. Fight back: Fight Back app is a very basic app similar to ones listed above. However, one unique feature we like about the app is the facebook status update. Apart from providing SMS and Email options to alert the other person during distress, this app also updates your facebook status.

D. Amrita Personal Safety System (APSS): A new technology to protect women from potential rapists and sexual offenders. APSS is an inconspicuous, wearable and easy to operate electronic device that will help women in establishing communication with family and police at the first sign of trouble. The device will remain invisible to the criminals and yet...
can easily be triggered by the user with multiple options, to ensure steady and secure communication.

E. Jivi 2010: This is a feature of Jivi mobile with a fully dedicated SOS button aimed at women. In case of any emergency or unfortunate times, user needs to long press the SOS button and the phone starts calling 5 pre-stored numbers one after the other. In case any of the numbers is busy or does not take the call, a SMS is sent to the number. After this, the phone automatically dials other numbers on the pre-defined list – thereby ensuring immediate help.

III. SYSTEM BLOCK DIAGRAM

A. GPS: GPS (Global Positioning System) technology is used to find the location of any object or vehicle to monitor a child continuously using satellite signals. Three satellite signals are necessary to locate the receiver in 3D space and fourth satellite is used for time accuracy. GPS will give the information of parameters like longitude, latitude and attitude. With the help of these parameters one can easily locate the position of any object. In this GPS technology, the communication takes place between GPS transceiver and GPS satellite.

B. GSM: GSM (Global System for Mobile communications) is the technology that underpins most of the world’s mobile phone networks. The GSM platform is a hugely successful wireless technology and an unprecedented story of global achievement and cooperation. GSM has become the world’s fastest growing communications technology of all time and the leading global mobile standard, spanning 218 countries. GSM is an open, digital cellular technology used for transmitting mobile voice and data services. GSM operates in the 900MHz and 1.8GHz bands GSM supports data transfer speeds of up to 9.6 kbps, allowing the transmission of basic data services such as SMS.

C. LCD Display: This system has a LCD display module for displaying various prompts and status information of the system. It is also used display the title messages and other messages while communicating with the system. A 2-line, 16 character type LCD display module is used. The microcontroller sends the signals to LCD module through its port pins.

D. Power Supply Unit: The power supply unit has to provide a regulated D.C supply to all sections of the system. As it is essential to operate the instrument on batteries since it is used with the person while moving. It consists of rechargeable batteries, filter capacitors and voltage regulators.

IV. SYSTEM DESIGN

V. TESTING RESULT

Fig 3. Shows the latitude of the location of crime.

Fig 4. Shows the longitude or the location of crime.

A. Tracing Location on the Map:
System user can see the vehicle position. The user can see the reports of vehicle speed, ignition status and travelling report. The user must enter the username and password provided at the time of authentication. An internet connection is necessary for reading the vehicle information and the reports of the tracking. A strong communication network is necessary for maintaining the efficiency of the system. To show tracking of the vehicle and position Google maps system is used. An appropriate geographical location is plotted on the basis of available coordinates this will help company unit and police to trace the
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Fig. 8 shows how the location will be given by system on Google Map API.

Fig 5. Shows the message containing location of the coordinates which is received.

Fig 6. See Location on Map.

Applications
1. Can be used for the safety of women.
2. Can be used for the safety of children.
3. Can be used for the safety of elderly aged people.
4. Can be used for the safety of physically challenged people.
5. Can be used as a legal evidence of crime with exact location information for prosecution.

Advantages
1. Safety Device which can be carried by everyone
2. Ultra-low power consumption.

VI. CONCLUSION

This paper reviewed the emergency response system which is helpful for women in the incidents of crime. The key objective is to develop a low cost system which can store the data of the members in the particular locality and provide immediate alert in case of crime against women. This provides women security. Being safe and secure is the demand of the day. Our effort behind this project is to design and fabricate a gadget which is so compact in itself that provide advantage of personal security system. This device will probably be very useful for the women. It is certainly a short term and preventive solution. This will be proved as a multi-pronged strategy with the participation of multi stake holders of society. The creation of a hardware and software prototype has achieved two objectives: validation of the proposed architecture and checking whether the utilized technology is Appropriate for the system. This system will help its users in difficult situation. This system would be highly sensitive and easy to handle. Its quick action response will provide safety and security to individual user.

VII. REFERENCES

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