Design and Development of "SHAAHASIK BHARATH" -A Women Safety Device

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Abstract—Now in the current challenging world, Personal security in India has become an issue of importance for everyone, especially for women. The advancement in recent technologies can have a huge impact in reducing crime rates. This project provides a new perspective to protect women by using recent technologies. The system is provided as a supporting device, this helps the women who is in unusual situation can activate the device, when being activated the device tracks the location of the victim using real time GPS (Global Positioning System) tracking and sends emergency messages using GSM (Global System for Mobile communication), to three emergency contacts. The system also incorporates a screaming alarm that uses real-time clock, to call out for help. The main advantage of this system is that the user does not require a Smartphone unlike other devices using mobile application. Many sensitive cases filed in India has triggered the whole nation and that was the greatest motivation for this project.

Keywords: GSM, GPS, Security, Screaming alarm.

I. INTRODUCTION

In the short span of years our India has gone through much more changes. And women in India matched an equal status with men . This status of women has been developed by many reformers, the history of women in India has been eventful. In modern India, women have adorned high offices in India including that of the President, Prime Minister, Leader of the Opposition and Speaker of the LokSabha. Although, women in India continue to face social challenges and are often victims of abuse and violent crimes .The global pool has reported that, India is the "fourth most dangerous country" in the world for women, and the worst country for women among the G20 countries. This project focuses on a security system device that is designed to serve the purpose of providing security to women so that they never feel helpless while facing such social challenges. The system consists of various modules such as GSM shield (SIM 900A), Arduino ATMega328 board, GPS (GY-GPS6MV2), screaming alarm (APR 9600), a set of pressure sensors for activation and power supply unit. This was an enhancement project of " SaahasikBharath", an android application that serves as an security app to women in critical situation and tracks the location of the victim using GPS system and send the location to trusted number. Many sensitive cases filed in India has triggered the whole nation and it was the high time we women need a change.

II. Existing System

Keeping the same concern in mind many developers have come up with innovative applications. Few of such applications are as follows 1.VithU app: This is an emergency app initiated by a popular Indian crime television series "Gumrah" a hired on Channel[V]. 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 fed into the app. SHE (Society Harnessing Equipment): It is a garment designed by three engineers from Chennai. 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. Since the fabric is bilayer, the user is not affected. It can also send emergency messages. Amirtha personal security system: Device worn on the body, employs location aware technology that can function both indoors and outdoors where the speed of communication is minimal. Broadcasting Emergency Alert for Help on SOS Network The basic purpose of this system is to broadcast the message by using SOS network for seeking help of person who is nearer and able help him\her, but this system also send the information or alert to nearby intercrop, here text message have specified for different type of help as ambulance, fire bridge, etc. and also in this system some preferred mobile number (example: family, friends, etc.) embedded which only user defined.

Wireless Electronic Notice Board Using GSM Technology The proposed system is a combination of hardware as well as software. The hardware module constitutes of GSM modem,

computer interface, microcontroller, monitoring system, and LCD and GLCD display. The software module also consists of MATLAB based GUI so as to monitor the information to be displayed on notice board efficiently as well as enter in the notices through the computer were the GUI is been used.

Design and Development of "Suraksha" This paper explains the basic idea underlying suraksha which is to flash a warning giving an instant location of the distressed victim to the police so that the incident could be prevented and the culprit apprehended. This would help reduce crime against women. This paper also summarizes other significant works in this field and hence forth discussed suraksha device in a greater detail.

B"Safe&B"Secure The prime objective of "B'SafeB'Secure" is to create a fully pledged android application designed for women's safety and security. "B'SafeB'Secure" has an unobtrusive screen that is simple to operate, that is two taps will send out a predefined text message "I'm in danger please help me", to the registered contacts of your choice which automatically includes address and exact location of yours. Even in the absence of network the application will send messages by retrieving last accessible location. This app also contains a pre-programmed national hotline numbers which will trace the locations and contacts of nearby hospitals and police stations. Thus this app isnot only helpful for women but also can be used by a common person, who faces an unexpected emergency or accidents.

III. SUPPORTING SYSTEM

The present and proposed work explains about an innovative idea for women security which has become mandatory now –a-days. In this system, women wearing a wrist watch on her hand or wearing a locket in her neck is embedded with some RFID Intelligence system with emergency button on it. Such RFID system here proposed is Passive Reader Active Tag(PRAT) where the passive reader is embed in mobile phone and Active Tag is embed in wrist watch or locket. The active tag is run by a switch where by pressing the switch (emergency button) the active tag will be activated and the passive reader can only receives the radio signals where the active tag is a battery operated one. The active tag which is embed in wrist watch or locket is switch dependent that is based on switching on/off it is going to activate and sends the information(Unique ID,Name…).Whenever the user feels stalked and harassed, she can press the emergency button that is kept on wrist watch or locket there by switching on and activating the active tag to be operated with the battery and sends the information, once the RFID reader receives this encoded information ,it

connects to the processor and sends the message "HELP" to 5 predefined contacts in which one is connected to the nearby police cell and other 4 contacts will be connected to the dear ones.

IV. INPUTS AND ALGORITHM

Broadcasting Emergency Alert for Help on SOS Network GSM :A standard GSM modem is utilized here for the sending and accepting of the message. The extent of GSM modem operating recurrence is 900MHz to 1800MHz. This GSM Modem can acknowledge any GSM system administrator SIM card and act simply like a ellular telephone with its own one of a kind telephone number. GPS :GPS remains for Global Positioning system Worldwide Positioning System (GPS) is a system of satellites that consistently transmit coded data, which makes it conceivable to exactly recognize areas on earth by measuring separation from the satellites. The motivation behind utilizing GPS module in the framework is, it consistently transmits serial information like position of a person wearing sensor, regarding scope and longitude, date, time and speed qualities to handling unit.

V. PROPOSED SYSTEM

The proposed system is to design a portable device which resembles a normal chip like device. It consists of ArduinoBoard,GSM/GPS modules, screaming alarm and pressure sensors. When the threshold of the pressure sensor crosses, the device will get activated automatically. Immediately the location of the victim will be tracked with the help of GPS and emergency messages will be sent to three contacts. The screaming alarm unit will be activated and will send out sirens to call out for help.

VI. TOOLS FOR IMPLEMENTATION

Arduino ATMega328 Screaming Alarm Pressure sensor JUSTIFICATION ABOUT PROJECT AND TOOL Many sensitive cases in India triggered attention to all the Indians, and thus provided us a greatest motivation for developing an mobile application for Women's Security "SAAHASHIK BHARATH", and the further enhancement of the security app leads to DESIGN AND DEVELOPMENT OF "SAAHASHIK BHARATH" - A WOMEN SAFETY DEVICE WORKING OF PROPOSE MODEL Modules Description: Activation Module. GPS Location Tracking. GSM –Emergency Alert.

A. Activation Module:

The Activation for the security system relies on press down of panic switch using

pressure sensor. Today, Pressure Sensors are used for control and monitoring in thousands of everyday applications. Pressure Sensors can be alternatively called pressure transmitters, pressure transducers, pressure indicators and piezometers , among other names. Pressure Sensors can vary drastically in technology, design, performance, applications suitability and cost. In a pressure switch, when pressure is applied to the sensor, the sensor either completes the electrical circuit or breaks it. Usually, a pressure sensor acts as a transducer. When the pressure is imposed on it, a signal is generated. The threshold pressure value is set to a limitation. And when the pressure value exceeds the threshold, the supporting device gets activated and imposed to work.

B. *GPS Location Tracking:*

As soon as the device gets activated, the Location (Latitude with direction, Longitude with direction) was being tracked by using the GLOBAL POSITIONING SYSTEM. This is a GPS Receiver (5V Serial) with high gain having 4 Pin 2.54mm pitch strip. The third generation POT (Patch Antenna on Top) is used by the receiver for the GPS module. It can be interfaced with normal 5V Microcontrollers with the help of the in built 3V-5V converter. It consists of internal RTC Back up battery and can be directly connected to USART of the microcontroller. The current date, time, longitude, latitude, altitude, speed, and travel direction / heading among other data, are provided by the module and can be used in a many applications including navigation, fleet management, tracking systems, mapping and robotics. This tracing of victim's location was to identify where she was and to send the location to his prelisted three contacts and nearby police station. The GPS solution enables small form factor devices which deliver major advancements in GPS performances, accuracy, integration, computing power and flexibility. They are used to simplify the embedded system integration process. Thus the GPS System provides a great way for providing security to women.

C. *GSM-Emergency Alert:*

The location obtained by using GPS technology was send to the three trusted parties and to the nearby police station with the help of GLOBAL SYSTEM FOR MOBILE COMMUNICATION. This will send as a message to them using the SIM given in slot. The SIM900 which is a complete Quad-band SM/GPRS solution comes in a SMT module which can be embedded in customer applications.

D. *The GSM has the following advantages:*

Spectrum efficiency is improved and Speech activated by school authority and when they reached the home, the acknowledge message is

quality is high. Provides International roaming and Support for new services. Supports low-cost handsets and base stations (BSs). Compatible with Integrated Services Digital Network (ISDN) and other telephone services.
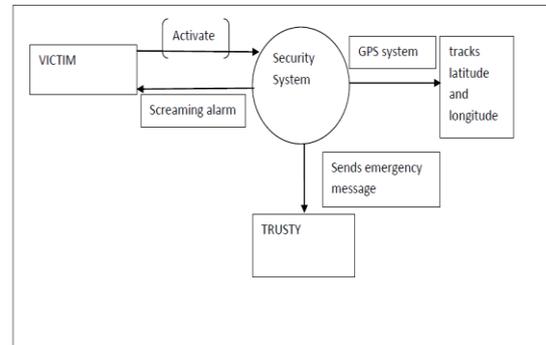
TABLE

TITLE	BASE PAPERS AUTHOR	YEAR OF PUBLISHI
Emergency App Using Real Time GPS Tracking	AkshayMoorthy, Mary Joseph	2015
SMS Based Remote Mobile Phone Data Access System	Tejas Supe1, Akshay Shinde2,Ashwith Shetty3, Prof.Manisha Sonawane4	2016

I. FUTURE SCOPE

As the technological changes or new requirement from user to enhance the functionality of product may requires new version to introduce. Although the System is complete and working efficiently, new modules which enhance the system functionality can be added without any major changes to the entire system. By keeping this

ability of the product I mind, an incremental process model has been used to design and develop the system. Among the various modules few are identified, which couldn't be included in the last increment due to time constraints. These are as follows

Primary School Children Safety:

As the school children safety are major concerns for parents as well as school management due to the recent incidents of child crimes like children missing, abuse etc. This module monitors the child safety when they are travelling in school buses. Once they reached the school the device gets deactivated by school authority and message send the parents that, "the child reaches the school safely". At return journey again the device is

send to the school when parents deactivate the device. The device is capable of audio recording

when activated that can be listening by the parents or authorize person.

Vehicle Safety System Module:

The Safety of four wheeler car is also a major concern in the society due to the increase in the crime rate of stolen car. The intrusion detection module can be modified according to the requirement of vehicle safety system module.

Mobile and other valuables Safety System Module:

The missing rate of mobiles is high while travelling from bus, train or crowed public area. The area zone module functionality further enhances to provide safety. A small device needed to keep either in same pocket or within the range of few centimetres. As you kept the mobile and forget to pick up or someone stolen it then to small range the siren of mobile as well as device gets ON for user attention.

Also the same device can attach to our luggage, hence in case of forgetting to pick back or try to stolen by someone can be easily noticed by the module and make the attention of user through the siren alarm.

Hence, the advance technology makes the system more robust and reliable. As the new modules provide the functionality which enhance the safety and security. Thus it helps to fulfil the purpose of the project.

XI. CONCLUSIONS

The paper presents designing about the critical issues faced by women at present days and will help to solve them technologically with compact equipment and ideas. Using this device, which uses location and messaging for alerting the emergency contacts by sending the messages with the location. This system can overcome the fear that scares every woman in the country about her safety and security.

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