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Review on Women Security System

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Abstract:- In global scenario, women have gained freedom to work outside. Despite the freedoms that women have been given, they still need to be worried about the problems they are going to face when they are alone. While the harassment against women is serious problem in current scenario, Women do not have to become victims for that, by using security systems and applications, women may be able to protect themselves from critical condition. This paper addresses the different models proposed for women security and does a comparative analysis of the same.

Keywords:- *AVRatmega328P, Global System for Mobile communication (GSM), Global Positioning System (GPS), Shock Generator, Switch Button, Spy Camera, Intrusion Detection, Area Zone Module, Fake Call, Alarm, LED, Buzzer, RS232.*

I. INTRODUCTION

Though our country is independent still many women are enclosed in boundaries because of increasing crime rate in India. The IT and corporate sectors are evolving rapidly. And sometimes the company requires them to work even at night shifts. At night shifts most of the women feel insecure to work due to the increasing physical harassment on women. It is observed that most of these cases happen when women are alone. Hence it becomes important to develop systems which help the women to fight even if she is alone. If a system could inform victim's family about her current location, the chances of victim being helped are greatly improved. Today there is many cases which are happening to women. No one can predict such situations, so it is necessary to keep all the safety devices ready, to escape from critical condition. This paper presents review on different systems developed to help women and provides the critical analysis of different approaches used for women security.

II. DIFFERENT MODELS FOR WOMEN SECURITY

A. Portable Device for Women Security

The paper [1] proposes portable hardware device which consist of AVR Atmega328P microcontroller, GSM Module, GPS Module, Shock Generator Circuit and RS232.

- *AVR ATmega328P:*

It is single chip microcontroller created by Atmel. It has low power consumption and 32kb flash memory.

- *GPS Module:*

It is used to get position information. The location information consists of latitude, longitude, time stamp etc. Here SIM28m GPS is used.

- *GSM Module:*

GSM acts like a mobile device which is used to send message and make voice call to predefined mobile number.

- *Shock Generator Circuit:*

It produces voltage around 1200mv and current of 3microamp. Shock generator circuit is used to provide electric shock to the attacker.

- *RS232:*

It is used for transferring and receiving the serial data between two devices. Here it is used to have serial communication between GSM and GPS modules.

The shock generator is kept inside the sandal. All other circuit is placed inside the bag. In case of emergency women will press the button. After the button is pressed shock is generated at the tip of the sandal. The microcontroller will send signal to the GSM and GPS using RS232. GPS receives signal form the satellite and calculates the latitude and longitude values and sends it to the GSM. GSM continuously sends text message containing location of the victim to predefined numbers. The multiple number can be added while programming, if message is not viewed by first person the message will be sent to the next number and so on.

B. Women Safety Device and Application-FEMME

The model proposed in the paper [2] consists of both application and hardware unit. When the emergency button of device is triggered once, the GSM sends location of victim to the police. If the emergency button is double clicked, the system starts recording the audio and also sends the location of the victim. If the emergency button is long pressed GSM sends message and calls to the police. Using GPS module, the location of the victim is traced. Audio recorder is used to record the audio at the incident. Hidden camera present in rooms can be detected using hidden camera detector using RF signal.

The application consists of four options and they are SOS, women safety, video recorder and hidden camera. By selecting the options needed user can invoke the actions related to that options. If the user triggers the emergency button, the application sends location of the user and audio recorded to the emergency contacts.

C. All in One Intelligent Safety System for Women Security

The paper [3] proposes a women security device which has an advanced feature. The user needs to store the emergency contact numbers. The system is activated either by pressing key or voice command. After the system is activated location of the victim is sent to the registered contacts. By using the link given in the message, the location of victim can be traced through Google map. The call made by registered contact member after receiving the message will be automatically accepted.

- *Global Positioning System (GPS) Module:*

GPS makes use of signals sent by satellites in space to accurately determine its position on Earth. It receives information like latitude, longitude, time etc. from the satellites.

- *Spy Camera Detection Module:*

It detects hidden camera placed in changing rooms, hotel rooms etc. In case the hidden camera is detected notification is sent to the user about unsafe place.

- *Intrusion Detection Module:*

This module is attached to the door of the house. When the intruder tries to open the door, the GSM module sends an alert message to the registered number. At the receivers end the application pop up the notification about the danger. The system waits for the acknowledgement from the user until some pre-determined time, if user fail to respond then the system activates the alarm at home side to get the attention of the surrounding people.

- *Area Zone Module:*

The Nano sensor is attached on to the kid cloths or jewellery. The user has to set range for kid. If kid goes out of predefined range, the alarm is activated at parent side.

- *Electric Shock Generator Module:*

It generates electric shock which can be used for self-defence.

- *Audio Recording Module:*

When emergency button is pressed, the Audio Recording is activated which records the audio of that situation and mail it to registered email. Audio record can be used as evidence for further investigation.

- *Fake Call Module:*

In order to escape from uncomfortable situations, women can use this feature to get fake call.

The above women security system can also be developed as a application and it consist of Area zone module, Fake call module and SOS.

D. A Mobile Based Women Safety Application (I Safe Apps)

The paper [4] developed an android application to help women. Application has six options they are Add guardians, SOS, Fake call, Video call, First aid and Instructions. By clicking on the option “Add guardians” it takes to the other page and it has two options they are “Add from contacts”, “Add new contacts”. By clicking on Add from contacts application takes information from phone contacts. If Add new contacts is selected then it allows to enter the contact name and contact number by ourselves. By touching the SOS option call is made to emergency contacts and location of the person is sent through the message. Another important option is Fake call. Fake call can be used to escape from uncomfortable situations. Video can be recorded by clicking on the option “video call” which is sent via mail. By clicking on the First aid option user can get the first aid information about the various problems like heart attack, burns, bleeding etc. If the person has clicked on the option unconscious then it navigates to the other page where the information about it is present. The “Instructions” option provides brief description of using the application.

E. AVR Microcontroller Based Wearable Jacket for Women Safety

The paper [5] proposed a portable device which is placed in a jacket. It consists of switching unit, GPS Module, GSM Module, LED Module and Buzzer Module.

A. Switching Unit:

The system has two switches, operations performed by each switch is as follows

- *Switch 1:*

For continuously sending location to the emergency numbers one after the other with delay of one minute. And used for activating alarm and flash light.

- *Switch 2:*

Used to send the location continuously to emergency contacts.

B. GPS Module:

GPS needs 5V power supply to run. It provides the latitude and longitude values of the user.

C. GSM Module:

It is used to send the location of the user to predefined contacts.

D. LED Module:

LED module runs on 12V power supply. It flashes light into attacker's eyes which causes the attacker to lose his veering.

E. Buzzer Module:

Buzzer Module runs on 12V power supply. It activates the siren to get the attention of the surrounding people.

III. COMPARATIVE ANALYSIS OF THE DIFFERENT APPROACHES

	Ref. paper1	Ref. paper2	Ref. paper3	Ref. paper4	Ref. paper5
TYPE	Hardware	Hardware and Application	Hardware and Application	Application	Hardware
MICROCONTROLLER USED	AVR Atmega328P	ARM controller	NO	NO	ATmega8A
GPS MODULE	YES	YES	NO	NO	YES
GSM MODULE	YES	YES	YES	NO	YES
SHOCK GENERATOR CIRCUIT	YES	NO	YES	NO	NO
AUDIO RECORDER	NO	YES	YES	NO	NO
VIDEO RECORDER	NO	YES	YES	YES	NO
SPY CAMERA DETECTOR	NO	YES	YES	NO	NO
INTRUSION DETECTOR	NO	NO	YES	NO	NO
AREA ZONE MODULE	NO	NO	YES	NO	NO
FAKE CALL	NO	NO	YES	YES	NO
AUTO RECEIVING CALL	NO	NO	YES	NO	NO
FIRST AID	NO	NO	NO	YES	NO
BUZZER	NO	NO	YES	NO	YES
LED MODULE	NO	NO	NO	NO	YES

IV. CONCLUSIONS AND FUTURE WORK

This paper has done a comparative analysis of different approaches for women security. Each approach has its unique features to provide security for women. But altogether there need to be single system to help women. So, the future work should have the key concerns of including the unique features from different approaches into the single system and making device compact in size so it will be easy to carry.

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