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Review on ARM based Self Security System for Woman and Physically Challenged

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Abstract - *As per the current news headings and crime report in now are days global situation, the security of a physically challenged and lonely walking person's in an odd hour. The major question among all those person's mind is only one question that is when we all walk on streets and cab's without thinking about their security. As per the recent survey of Indian National crime records bureau total 3,38,954 crime records were reported in 2016, This is as per the recent data available. This paper gives a way of providing a new kind of self-security for both adults as well as children. This idea will yield by building a portable and handy to use device. And this system contains only few components which are easily replaceable if any damages occur to the device. And hoping for the best change in the new and upcoming crime report and news headlines.*

Key Words: **Self-Security, emergency call system, mobile application, Smart watches.**

1. INTRODUCTION

In today's society it's frequently seen that Girls are getting exploited by Men in different ways. Teenage and immature girls are facing lot of problems associated with their security. In this regard this solution is a boon which provides not only security for the girls but also creates awareness in the society against increasing Girls and women's exploitation with the help of latest Technology.

This paper mainly provides a short survey on the security of a physically challenged and children's as well as adults concern. And it creates a new feeling in all those people's mind regarding their security. And for the future advancement of this idea may yield more and more safety measures for the victims. In our idea there are two levels of security is involved, One is first level of security which maybe for the shorter duration but it may help for escaping from the crime spot, For that we are providing a sudden shock when a attacker try to touch you or grab a victim, Along with this shock we also providing a sprinkler for spraying the pepper spray on the attacker face and calling surrounding people by creating alarm sound and second level of security is informing the emergency alert prestored information to their loved ones along with nearby police station and hospital for tackling the attacker. Along with prestored message we are sharing victim's current live location through GPS tracker and capturing the images and streaming of a live video of crime scene is done.

And here one more important feature is automatic activating the system by the help of onboard sensors, that maybe temperature sensor or piezoelectric sensors mounted on the system. If a preset value or a given threshold is exceeds the body temperature the temperature sensor will senses and automatically trigger the system and take the all necessary precautions.

2. Literature Review

[1] In this paper the live positioning of a victim is implemented by the help of a GPS/GSM module. And it uses short message service system (SMS) for sending emergency message to the intended persons like police stations and nearby hospitals.

And also, the victim in this situation needs to carry mobile phone with them that to proper internet connection then only the tracking of victim's location is achieved by using GPS and GSM modules. And it has an alternate emergency automatic SMS service, it is as shown in bellow figure:01.

Fig -1: Live location.

[2] This idea in the paper mainly acts as a security alert system based on android. The system first checks whether the Bluetooth is ON. If it encounters that the Bluetooth is ON,

then the signal is received by the mobile. The current location is retrieved by the GPS system. There should be a prestored emergency number and a prestored custom message like Please Help me. Then the current location along with the custom message is dispatched to the emergency phone number and then the message is further posted to police station through the GPS system.

[3] This paper aims to provide security to women by designing a wearable security device. This task is achieved by analysing body signals like body temperature, skin resistance. Hardware components used are temperature sensor, Triple axis accelerometer, Skin resistance sensor, a microcontroller. It is basically based on the science that when a person is in danger, adrenaline secretion from adrenaline gland increases several aspects in the body like body temperature, dilation of pupil, increased heart beat etc. The triple axis accelerometer gives the body position data. It is programmed in such a way that it will take appropriate action automatically based on the sensor data when women are in danger. The AT Mega (microcontroller) chip is interfaced with sensors and Wi-Fi module.

Data obtained from sensors are analysed using MATLAB and also the data is sent to open source cloud platform to monitor data in real-time.

[4] In this modern society women are facing lot of security problems like sexual harassment, threat issues, murder and etc. In homes, on streets, in public areas and even offices, women are facing lot of security problems. The main idea of this survey paper is to design and implement a small system which is transportable and will protect women. Here we are using RFID (Radio Frequency Identification) and GPS. Along with AT89C52 microcontroller to contact the 6-8 peoples already available in database.

When the attacker will target the women, if she presses the button then the information will be sent to the phone numbers prestored in the kit via GSM and the longitude versus latitude based current position of the victim shared via GPS system.

[5] Now a day's women are facing a lot of difficulties in society. Countries like India there are many cases are filed every day which is related to women security. In order to avoid such cases like sexual harassment, murder and etc

We aim to make women stronger to face like such odds and fight against victims. Thus, in this paper and additional idea for this existing concept is shock generator when a person attacks on women sudden he will get sudden shock strongly by this she will protect herself. This Shocker is as shown above figure:02.

Fig -2: Vibration Motor

[6] In this paper the security of women is achieved by building a smart watch which is multifunctional and also portable along with stylish body.

Here it uses the sensors (temperature sensor, motion sensor), GPS and GSM, along with buzzer for producing a loud alarm sound.it is as shown in figure:03. And the working of system is done through mounted sensors when the victim is under attack the sensors will senses the abrupt change in the victim's body condition and sends the emergency signal to the system for producing high pitch of ALARM loud sound and victim's location is shared with their cared ones.

Fig -3: Smart watch.

[7] In this paper the security of women is discussed as one step above to the earlier paper's method that is here also for tracking GPS module and measuring body temperature, temperature sensor and for first level of security like loud alarm buzzers are used along with these facilities it gives the movement of the victim to the target person for more clarity in finding exact location.

[8] In this paper the security for both children's as well as adults is described, it provides a pressure switch with its

system for identifying the victim's location and an emergency SMS alert to the parents/guardian's.

This system is also portable and handy to use for both children's and adults. It works based on the amount of pressure on the pressure switch and decides the turn on or off of the system.

[9] In this paper the main components are like Raspberry pi and small buzzer, and for evidence purpose small recording cameras are available, Women are facing many difficulties in this society. There are many applications to protect the women. In this paper we were introduced a new technique for safety and security of women. It is structured in the form of a ring shape and it consists of a Raspberry pi zero and small cameras and also include small buzzer, When the attacker target the women, if she press the switch present on the wearable device its gets activated and the buzzer gets turn on and it sound extremely and camera capture the image of the attacker.

[10] This paper mainly aims to design foot device for women security, The Arduino ATmega 328 is embedded with various peripheral devices and sensors. The sensors used here are piezo electric sensor and the heartbeat sensor. Piezo electric sensor records vibration in terms of touching of feet for 10 times in time limit of 5 seconds or checks whether emergency button is pressed or not and Heartbeat sensor senses unusual rise/fall in heartbeat.

Whenever the system encounters that the switch is pressed the buzzer will start producing of sounds. The GPS/GSM systems are used for detecting the current location of the women. The current situation of the female could be recognized by their family through women security mobile application. Through Wi-Fi system the connection will be established between the system and mobile application.

[11] This paper mainly aims to design a device that provides security for women based on IoT. The hardware's used here are Arduino and Raspberry pi which are connected in series with each other. Various sensors like heartbeat, tilt and vibration sensors are behind interfaced with the Arduino. Raspberry pi is being interfaced with the cloud and the alert system. Raspberry pi 3 is as shown in below figure 04.

Heartbeat sensor which is interfaced with Arduino is used to heartbeat of the women if any sudden change in the heartbeat is detected then immediately information is sent to the Arduino. Tilt sensor is used to measure the tilt in multiple axes of a reference plane. Similarly, Vibration sensor is used to measure the changes within acceleration, pressure etc. All this information from the sensors are sent to the Arduino.

Fig -4: Raspberry pi 3.

The cloud system is used to store the present condition of the person who have the device, it is being checked at every 20ms.If there is a critical condition behind found regarding that person, then immediately the information is passed to the nearer police station with the aid of GPS system.

[12] This paper proposes a unique device for women protection which can attached to a cloth as button. It uses microcontroller, GSM and GPS modules, camera, buzzer in hardware section and Python for programming. It has 2 modules. One which records the video of the attacker and other one provides location data which can be sent to friends and family and sends message to the nearby police station in case of emergency.

The device has to be switched on manually by the person. When it is switched ON it will make a short video of the attacker which is sent to a web server preferably police server, Alerts surrounding people with alarm and also sends location data to friends and family.

Arduino is the core of the device to which all the other hardware's are interfaced.

[13] In this paper the safety measures for women's is done by using temperature sensor for measuring body temperature and GPS for live tracking, buzzer for alarm and also some new features like pepper sprayer for first level of safety measure. A piezoelectric buzzer is an audio signal device which produces a loud alarm beep sound, It uses mechanical and electro mechanical signals. Buzzers are mainly used in alarms and timers and mouse and keypad touch etc.

Fig -5: Buzzer.

A piezo electric element may be triggered by using piezoelectric with audio amplifiers. And these alarm Sounds used to indicate that a key has been pressed are a click, a ring or a beep. And also, here temperature sensor will provide the automatic system on based on some threshold given to the system. And for adding some more features to this existing system we are sharing an innovative idea for the first level safety along with some evidence collecting measures too, by providing the webcams in the smart portable system.

[14] This paper mainly aims to design IoT based 3-Way women safety device. Raspberry pi is interfaced with various input/output devices. The power is supplied to Raspberry Pi by the power supply module. A signal is received by the Raspberry pi as soon as the button is turned on. With the aid of relay module, the system automatically activates buzzer and nerve stimulator.

Later it verifies any audio command in terms of voice has been received. Then it activates voice activation module. Video camera, speaker and MIC are used to access evidences in video format. The GPS and GSM system are used to track the live location.

[15] This paper mainly aims to design a device which helps in self-protecting for women. The key components used here are microcontroller, power supply, GPS/GSM module, WIFI module, Electric shock circuit and the type of Microcontroller used is ARDUINO NANO is interfaced with various peripheral devices.GT-511C3 is a fingerprint module, Fingerprint of an authorized person is stored in the fingerprint module.

On identification of fingerprint of an authorized person, The device will generate an electric shock through the electric shock circuit to the opposition for few seconds so that the person could defend himself. As soon as the device encounters an authorized fingerprint it immediately generates an alert message through GPS/GSM system to his/her closed ones. The main condition for all these processes is that the power supply should be in ON state.

Fig -6: GPS module.

The GPS module we shown above figure specification is leadtek GPS 9952 (LR9552) is a highly compact and a sensitive device with onboard small sized antenna module, with receiver.

[16] The main aim of this paper is to provide protection to women by designing a smart band which is connected to a phone that has Internet facility. Main components used are trigger, vibrating sensor, GPS module, GSM module, Neuro simulator, buzzer, IoT module and a microcontroller. The Arduino Mega-ATMega2560 with a 12V power supply is the core of the device and all other hardware components are interfaced with it. The power supply should always be ON.

The device has to be switched on manually by the person when she is in danger by pressing the trigger. Once the system becomes ON

It tracks the current location with the help of GPS module and sends messages to nearby police station. Neuro simulator gives electric shock signals to the attacker. Also, buzzer generates an alarm to alert nearby people that someone is in need of help.

The location is continuously tracked and updated into the webpage using IOT module. Electric shock will be produced by Neuro simulator, If somehow the device get infected vibrating sensor mounted on the system will send the previous location of the victim.

The device is very small and can be carried everywhere. Or power its wit.

3. CONCLUSION

After reviewing a bunch of papers, we came to a conclusion that a new and better single and portable handy device with a less price by using a new advanced web cameras and relay buzzers, sprinkler and for the better performance in any environment condition ARM microcontroller is using as a main chip and few sensors for automatic action and also one button switch is provided on the system for manual operation. And by on-board GPS we can track the live location of the victim and in the emergency message we will send live location too through the open source clouds like ADAFruite, Firebase, etc. The emergency message is sent to the all members of that cloud. Those are Police, Parents of the victim or guardian.

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