Published by :
http://www.ijert.org

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 10 Issue 07, July-2021

Women Security System

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***Abstract*— The Woman Security System(WSS) is used to intimate the parents/concerned person as well as police about the current location of the women who is in emergency and crisis .Our WSS model will help women to protect themselves from harassment in future in India and across the Globe as crimes are increasing day by day. The mai advantage of this device is ,it kept separate from emergency switch button. The emergency switch button is tied to one of the buttons of attire which can be hide from attacker. The main device includes GPS & GSM module. The GPS system will track the current location, while GSM system will send the message to the numbers saved in the system. When system switched on, it tracks location by GPS & send messages to the person who can help her. This security system have the facility to record audio which can be used later for investigation purpose and can send an alert call and message to the pre-set person's contact with the instant location every 2 minutes and can be tracked live using this application.**

Keywords ; WSS, ESP32 CAM,GPS,GSM,ATMEGA328,LED

I . INTRODUCTION

The aim of this project is to develop a self defense system especially for women to protect themselves from physical harassments. This would help to minimize the sufferings of women against attacker.

In the emergency situation ,it is not possible for women to protect herself and operate the smart phones and she cannot press alert button when they are in risk situation and as well as immediately they cannot send their location to the police and family members. In this present era women have equal rights equal rights and women are taking equal responsibility in their workplace .Even women are doing work in all shift. Every day women and young girls are being assaulted, molested, and raped in streets, public transport, public spaces .

This model will help to protect females because this model is done in "JACKET" ,it consist of GPS Tracker which tracks the location time to time. GSM Module is used to send the information to respected persons which number is stored in system. The jacket consist of temperature sensor along with buzzer which beeps at some frequency to give alert notice to nearby people. Also also used electric shock sensor for women protection like when a culprit or rapist or thief attacks a women he will get electric shock so that women can immediately call near people or she can call to her helpers to save her. Here we present implementation of WSS system with following features

- The voice memory chip APR 9600 module produce alert voice and it will create voice sound whenever it is needed.
- It is portable can be carried, which will track the location of women, captures the image of culprit and make alert call to the registered family numbers when the person is in danger
- Temperature sensor is used to measure the temperature of women, it converts the input data into electronic data. The heart rate sensor measures our heart rate in Beats per Minute using an optical LED light source and an LED light sensor. The light shines through our skin, and the sensor measures the amount of light that reflects back.
- ESP32-CAM is a low-cost development board with Wi-Fi camera. It allows creating IP camera projects for video streaming with different resolutions.

II. REVIEW OF LITERATURE

From the perspective of security of women many devices are already in used. All devices have its own features , advantages and drawbacks . A System Smart Safety Device for Women using IoT was presented earlier[1]. This system devices for women require human intervention for activating the device such as pressing the button or shake the device etc. Hardware comprises of a wearable "Smart gadget"[2] which continuously communicates with Smart phone that has access to the internet. The implementation of the smart gadget is basically split into two sections the first part ensures to Capture the image of the Culprit. It will get automatically triggered when any suspected motion came in front of the camera, the device will capture the image of the culprit and send it as an attachment to the concerned E-mail Id along with the location of the Victim.

Another security device proposed a system on Development of Suraksha, a Women Safety Device[3]. The crimes against the women reduced with the help of a device called Suraksha. This paper presented the basic idea underlying Suraksha which is to send a warning giving an instant location of the distressed victim to the police so that

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the incident could be prevented and the culprit arrested This device is not sufficient to protect girl against crime.

In another study, ProTech Implementation of an IOT women security device[4] is presented. Due to increase of crimes rate against women, safety of women is a major concern in this era. For self-defence the device produces shock to the attacker through a nerve stimulator and rings a buzzer on pressing a button which will help person to protect herself. It also allows to record evidence via a video camera which gets activated through the button and stores the footage in the Raspberry Pi. The prototype model consists of a GSM and GPS module which is activated by voice command through an Android Application. When the user will say the "emergency" in his mobile application the device will send SMS alert, containing the location of the user as well as auto dial the pre-set emergency contact number.

A study proposed by B. Sathyasri , it will intimate the parents and police about the current location of the women.[5] A GPS system is employed to trace the present position of the victim and a GSM is employed to send the message to the pre-defined numbers. This work had proposed about the violence against women (VAW) and also different health issues of women. We have designed and presented a skeleton of a user friendly mobile application named Women Empowerment which can contain totally laws associated.

One more women security system is presented Amrita Personal Safety System (APSS), a new technology to protect women from potential rapists and sexual offenders. APSS is an invisible , wearable and easy-to operate electronic device which will help women to communicate with family and police at the first sign of trouble. The device will remain invisible to the criminals, so can be easily triggered by the user with multiple options which will ensure steady and secure communication.

"VithU" is an emergency App , by pressing the power button of our Smart phone 2 times consecutively ,it will start sending alert messages every 2 minutes our contacts which is feed into the app as the designated receivers or guardian.

Jivi2010 is a feature of Jivi mobile ,consists of fully dedicated SOS button designed for women. In case of unfortunate times, person needs to long press the SOS button and immediately 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 that number.

III. HARDWARE AND SOFTWARE USED

WSS model consists of following hardware and software components

- **Arduino** is an open source for integrating electronics with easy to use hardware and software(IDE).
- **ESP8266** is a UART to Wi-Fi module which provides an easy way to connect any small Microcontroller platform like Arduino.
- **GPS** (Global Positioning System) technology is used to monitor the current location of any object or vehicle continuously using satellite signals
- The SIM900A is a common **GSM/GPRS** module found in various cell phones and PDAs.
- **LCD** modules are widely utilized in embedded projects due to their low cost, wide availability, and programmer friendliness. We use LCD display in our daily lives, whether at PCOs or calculators
- The **LM35** series sensors are precision integrated circuit, whose output voltage is directly proportional to the Celsius temperature
- A **buzzer** is a little yet effective component that may be used to bring sound to our project or system
- **Heartbeat sensor** is used to measure the heartbeat of victims Heartbeat of any person will change when he/she is in trouble.
- **Embedded C** is a very useful software extension working on C programming language for different embedded systems

IV. BLOCK DIAGRAM AND FLOWCHART OF WSS SYSTEM

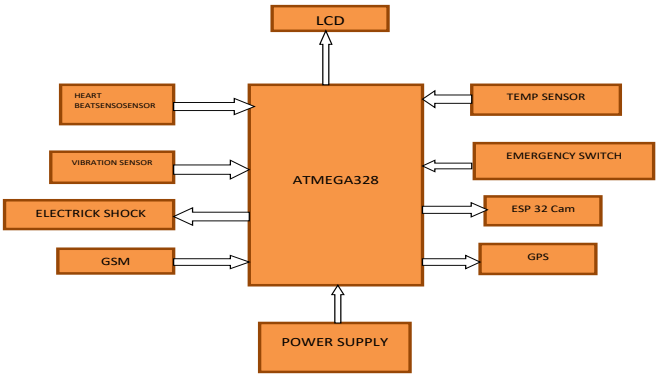

Fig 1. Details Block Diagram of Implementation

In the existing systems , it is mentioned many Android applications having similar feature on this application. Draw backs of all those devices are, victim's location is sent only once to the registered contacts may be in form of SMS, EMAIL etc.

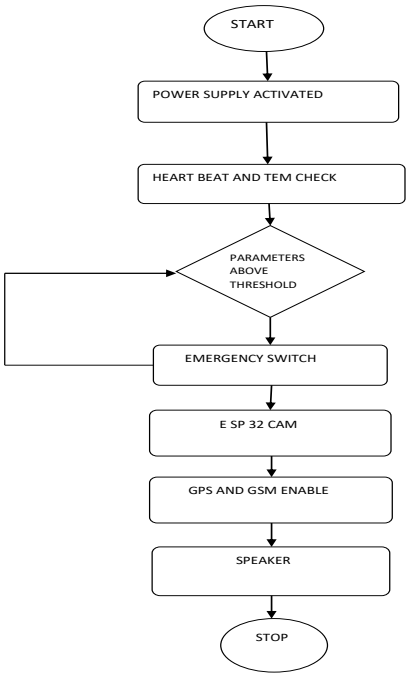

Fig.2 Flowchart of implementation

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
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But in practical situations, the victim may not be at same place , she may be move away from previous place. The unique feature of this model is, location is sent continuously for every two minutes till "STOP" button in the application is pressed .We can set the time also. So, even if the woman can move freely around in the city, because of this feature of continuous location tracking.

On clicking power button of device, app sends live location of the user to the nearest police station and to the family members whose number is saved in system. In case the user clicks the button while in a public transport, the system is able to recognizes the vehicle and marks it red on the map which is being monitored by the police.

Our Proposed Model is wearable device After switch on power supply to device, sensors will start taking readings. This measured reading is sent to Microcontroller continuously. Microcontroller will keep on comparing this readings with the threshold values set to it. This threshold values are different for different person After comparing this threshold values, Microcontroller will generate "Help" message .Here our model generate buzz sound ,using buzzer. GPS is used to track location continuously. We can monitor changes in sensors values continuously as well as position of device can also be tracked and monitored. At the receiver side ,we used laptop, mobile phone, raspberry pi etc. can be used to see sensor values and position. The device at receiver should be connected to internet in order to receive data from transmitter

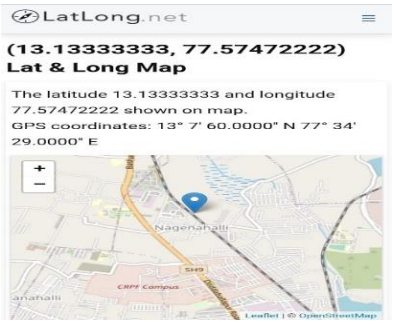
In this project we used ATMEGA328 micro controller unit, GSM, GPS, vibration sensor and voice memory chip APR 9600 program is c embedded and apps for IoT. Programmed in ATMEGA328 for reading location from satellite, when the vibration sensor sense it will send SMS to guardian. This system is design in such a way that through the hand back (system) it will send location to our guardian and voice message will produce. We use detector to detect the vibration of the hand.

By using this we can protect a women, this device which is the integration of multiple devices, hardware comprises of a wearable "The women security system" is used to intimate the parents/concerned person as well as police about the current location of the women who is in emergency and crisis The main device includes GPS & GSM module. The GPS system is used to track the current location, while GSM system will send the message to the saved numbers in the system. When we switched on the device , it tracks location by GPS and send message to the person who can help her.

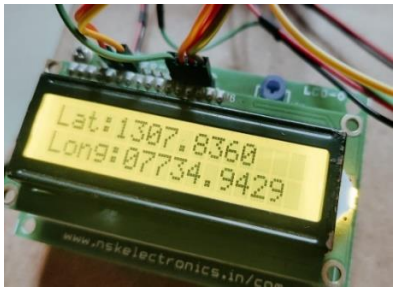
This model can record audio for further investigation and can give an alert call and message to the Pre -set contacts with the instant location every 2 minutes and can be tracked live using our application. Hidden camera detector is also a distinct feature using which we can ensure our privacy.

V. RESULT ANALYSIS

The women security system is used to intimate the parents/concerned person as well as police about the current location of the women who is in emergency and crisis. Current location of the victims tracked by GPS system and displayed on the receiver and send to concern persons through GSM system is shown in Fig. 3. In this system the main device is kept separate from emergency switch button. The emergency switch button is held to one of the buttons of jacket.

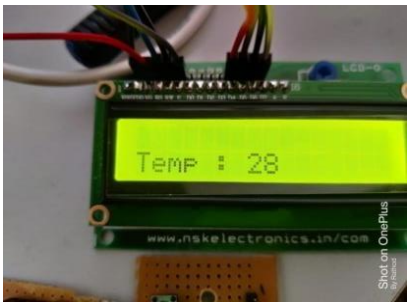


(a)



(b)

Fig3. LCD Display of current location of attacker



(a)

(b)

Fig.4 Image of Alert send to parents when temperature exceeds Threshold

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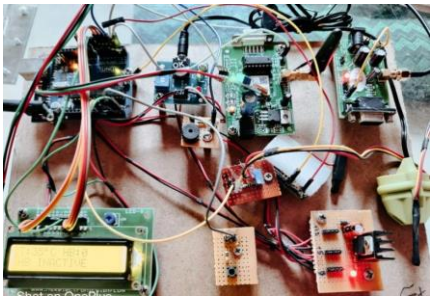

Fig.5 Hardware circuit Implementation

Hardware implementation of WSS is shown in Fig.5 . The main model includes GPS & GSM module. The GPS system will trace the current location, while GSM system will send the message to the numbers saved in the system. When system switched on, it tracks location by Global Positioning System (GPS) & send messages to the person who can help her information received in form of message is shown in Fig.6 through GSM .Using this device we can protect her when any person is in threat.

WSS have the following features

- It is an all-in-one system. There is no need to carry multiple device. GPS tracking feature tracks the user current location.
- It can records audio which will help for further investigations.
- Internet connectivity is not required for this device
- Device ir small and easy to carry .
- Uses of sofistaced componets,device has high accracy.
- We can store new mobile number
- Monitor all hazard and threats.

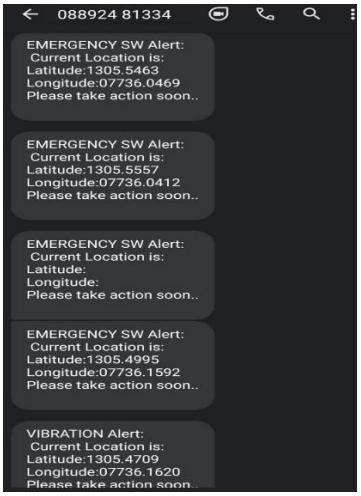

Fig.6 Message sent to authorize person through GSM module

VI. CONCLUSION

This model will help to protect women from attacker as well as help police to arrest them. It will help to track current location and send information to person who can come rescue her .This model tries to overcome all flaws which was in earlier Security system.

ACKNOWLEDGMENT

Authors are thankful to the Department of Electronics and Communication Engineering, Nitte Meenakshi Institute of Technology,Bengaluru-560064 for giving opportunities to do this Project .

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