Women Safety Using Smart Hoodie

NeenuP.A[1], Kharishma Malini.A[2], Praveena.C[3], Santhosh.B[4]

Assistant Professor, Dept. of ECE, Agni College of Technology Chennai, Tamilnadu, India[1]

UG Student, Dept. of ECE, Agni College of Technology Chennai, Tamilnadu, India[2]

UG Student, Dept. of ECE, Agni College of Technology Chennai, Tamilnadu, India[3]

UG Student, Dept. of ECE, Agni College of Technology Chennai, Tamilnadu, India[4]

ABSTRACT: In today's generation women safety has become a major issue to be concerned. Even though women have advanced in the field of education and profession in the recent years. But when it comes to safety, women still are constantly under fear in our society. Here we exhibit women safety using smart Hoodie based on IOT. The idea is to design a light weighted smart hoodie attached with devises such as Arduino UNO , GSM SIM900A module, GPS module,5V Power supply, LCD (16*4), Buzzer , a ESP-32 camera with FTDI programmer and shocking unit which will be present at the back of the hoodie and the cam will be fixed in collar of the hoodie along with the emergency button in forearm. Whenever a woman faces any kind of physical harassment, an emergency button is pressed to activate the device then an alert message will be sent to the respected contacts as well as to nearby police stations along with the live video processing. The main lead of our project isto provide a shocking unit and a live videoprocessing.

KEYWORDS:- ESP-32 camera, FTDI programmer, shocking unit.

I.INTRODUCTION

The purpose of our project is to design a light weighted "HOODIE" which contain advance technology devices that will provide security to women's and help them to escape from any kind of unethical activities .There are many devices and Apps , that have been developed in order to provide safety to women's by using GPS,GSM and many sensor which will measure the pulse rate of victim and gives an alert message to the respected contacts.

The main scope of our project is to provide a shocking unit and a live video streaming, which will make victim easier to escape while facing any kind of social challenges. The idea to develop a SMART HOODIE for a woman is that it's completely comfortable to wear as well as easy to carry out, compared with already existing devices like bulky belts, electric gloves, smart bulky shoes and soon.The smart HOODIE integrated with Arduino UNO, GSM SIM 900A,GPS,LCD(16x2),pulse rate sensor,5v power supply,EPS-32 cam and shocking unit in hardware part and in software part we are using Arduino IDE which is used to display victims pulse rate along with temperature and embedded c program has been used . the overall cost and size are reasonable with advanced technology.The objective of our project focuses on a security system to women so that they never feel helpless while facing any social challenges using SMARTHOODIE.

By using an advanced system that will detect the location and health condition of victim that will enable us to take immediate action according based on electronic gadgets like GPS, pulse rate sensor, IOT and shocking unit. In this paper, section II contains problem statement and preliminaries. Section III contain program analysis and implementing problem. Section IV contain advantage. Section V contain results and Section VI contains conclusion.

II.PROBLEM STATEMENT AND PRELIMINARIES

Many advanced technologies have been discovered in order to reduce the violence against the women, but still they fail to overcome such issues. Therefore, women should come forward for their safety as like they do for their job and education, so this product will help them to be safe at very first step. By analyzing all the disadvantages of existing systems, it is necessary of internet connection to get accessed, Image captured by devices are get stored in SD card, which is not sent to the respective contacts as soon as possible. Although some devices get activated

automatically the information is send to E-mail but not as message to mobile. Some mobile app's need to get triggered by victims which often failed in most emergency cases.

So, in order to overcome these drawbacks, we have come up with"SMARTHOODIE".In these there is no need of internet connection to get accessed. Images captured by the device will be sent to the respective contact immediately and this device get activated automatically in emergency situation without external triggering.

Smart hoodie will efficiently spare the safety for women's .In this paper, smart hoodie consists of advanced technologies like Arduino IDE with pulse rate sensor which will start taking readings of victim pulse and this reading will be continuously sent to the micro controller which will compare this reading with the threshold values given to it. The threshold value can vary from person to person. After the comparison the controller will send a "alert "message to the respected contacts along with the victim's latitude and longitude position. For tracking position GSM/GPS has been used. Live video processing is done and it will be sending to corresponding contacts. In case of worst satiation victim can trigger the shocking unit, which will be located at the back of the hoodie.
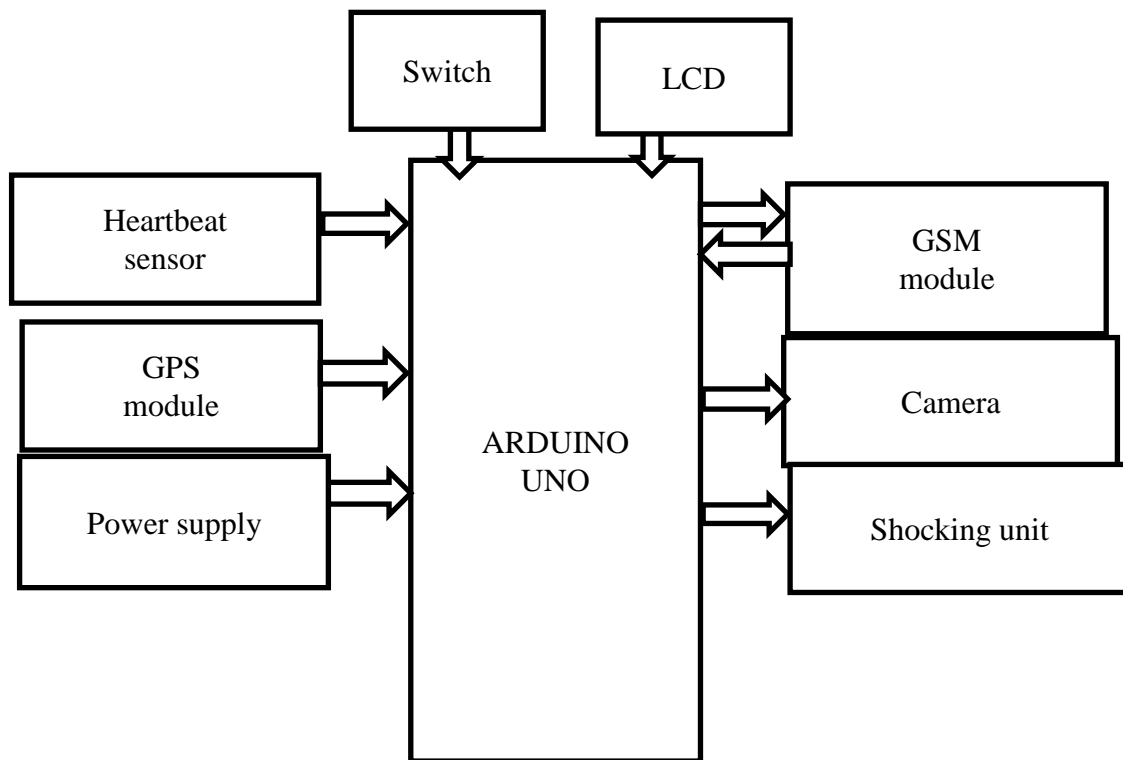

Fig 1 Block diagram of proposed system

III.PROGRAM ANALYSIS FOR IMPLEMENTING PROGRAM

Here we are using Arduino IDE software to implement a program in order to measure the pulse rate and temperature of the victim during the critical situations.
The program start by setting a temperature value as A3 and initializing it.then the corresponding pin modes for input are set in Arduino board.

Fig 2 pulse rate and temperature sensor

Looping function has been used to read the temperature and store the value in Fahrenheit then converting it from Fahrenheit to Celsius by multiplying with0.488.

```
void loop() {

 int a=analog
 Read(temp);
 int b=a*0.488;
 Serial.print("temperature=");
 Serial.println(b);
 delay(1000);
```

Looping with condition has been used to measure the pulse rate. Where we can read and store the value of pulse rate.
Decision making algorithm like If (condition)
{
 Statements;
}
Else

GPS MODULE

Fig 3 GPS MODULE

The location tracking system is very important in this project, since it is done with the help of GPS module. GPS is a satellite-based navigation system consist of network of 24 satellite located in to orbit. This will update the location of the victim continuously to either the police or the family members. The latitude and longitude of the victim is reported via message service (SMS) at various occurrence and at differenttimes.

GSM-SIM900A

Fig 4 GSM-SIM900A

Based on the pulse rate reading, this device will detect the critical situation of the victim and will automatically send the "alert" message to the respected contacts along with the latitude and longitude position with the help of GSM. Here we are using GSM-SIM900A which works on frequency 900/1800MHZ and the communication is done by using AT command. The voltage required is around 3.4V-4.5V.

The SIM900A can have two frequency band which also can set by AT command. It supports UART interface and single SIM card. Therefore, captured images by ESP32-CAM is get stored in this SIM card and can also be displayed in the browser with the help of webserver. It has an ability to carry 64Kbps to 120 Mbps of dataate.

ESP32-CAM [8]

The ESP32-CAM is a very small camera module with the ESP32-S chip contains a Micro SD card slot to store images and can display it in browser by creating a webserver.
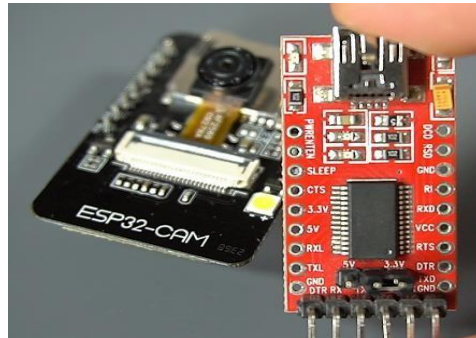
Fig 5 ESP32-CAM with FTDI programmer

FTDI programmer is used to upload the code through the UOR and UOT pins. There are three GND pins and two power pins. GPIO1&GPIO3 are the serial pins which is used to upload the code to the board. GPIO0 pin used to determine whether ESP32 is in flashing mode ornot.

Here we are using Arduino IDE to program the ESP32- CAM board, so Arduino IDE is installed as well as the ESP32- add on.

FTDI programmer is used to connect the CAM with computer by following pins:

ESP32-CAM		FTDIprogrammer
GND	-	GND
5V	-	VCC(5V)
UOR	-	TX
UOT	-	RX
GPIO0	-	GND

After uploading the code, disconnect GPIO from GND in order to print the ESP32 IP address in the serial monitor through which we can access the live video streaming.

IV.ADVANTAGES OF SMART HOODIE

The main advantage of our project is: internet connection is not necessary to track the location of the victim, and it will give us the exact location along with the latitude and longitude position of the victim. This device is easily portable as it is light weighted. Smart hoodie is highly secured with instant protection.
This device is easy to modify consisting of simple Arduino based devices, rechargeable battery. The presence of video streaming will help to reach the victim faster. This system is more efficient with less power consumption, less cost and is easy to handle. There is no need of external triggering of devices.

V. RESULTS AND DISCUSSION

The below figures show the completehardware design of smart hoodie, where heartbeat is continuously monitored and message is sent to the respective contacts.
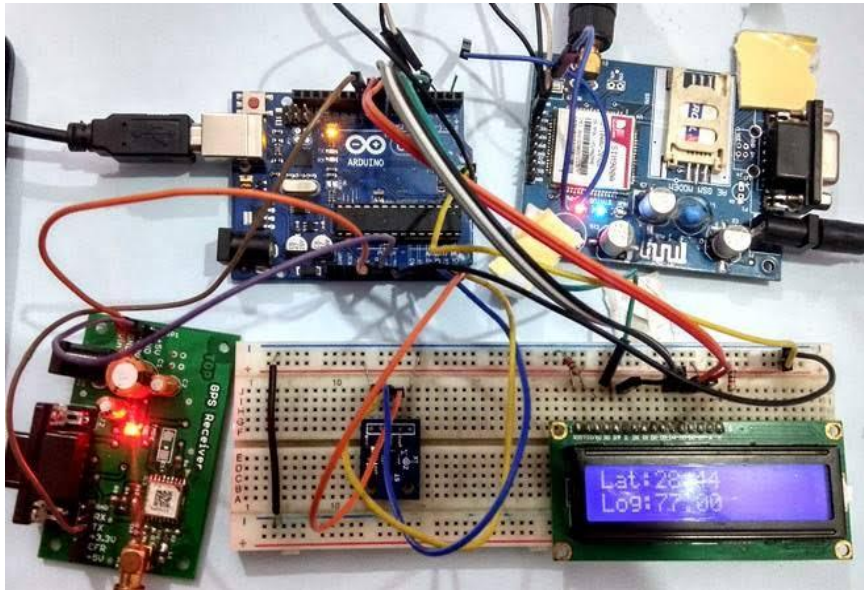
Fig 6 Complete Hardware design of Smart Hoodie

The alert message is sent to the respective contacts along with the latitude and longitude position as shown in fig 7 below :
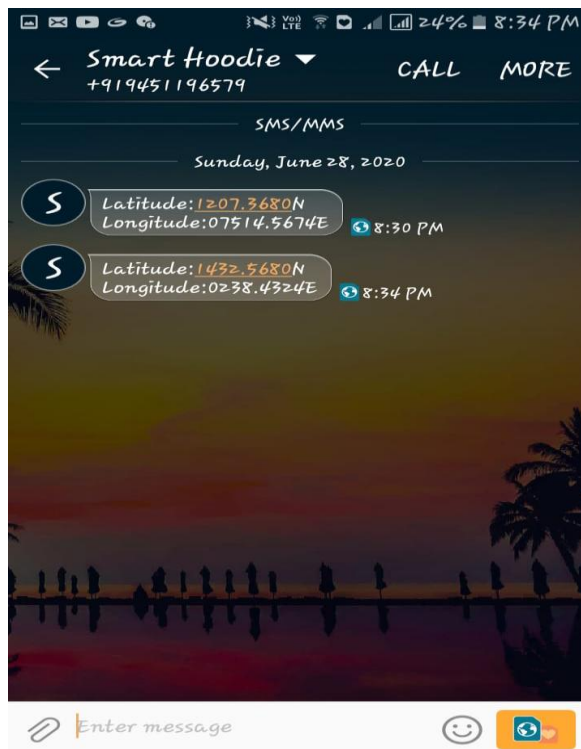

Fig 7 Message received showing location.

VI. CONCLUSION

Smart Hoodie has been designed in order to reduce the violence against the women and to come forward for their safety by facing things fearlessly. This system has been designed after referring to already existing implemented system and overcame the flaws as well. The main advantage of our project is to provide a shocking unit and live video processing in order to escape the victim from critical situation a well as to locate their location even faster.

REFERENCES

[1] Remy George, Anjali Cherian, Annet Antony, Harsha Sebastian, Mishal Antony, Rosemary Babu.T "An Intelligent Security System for Violence against Women in Public Places '', International Journal of Engineering and Advanced Technology (IJEAT)ISSN: 2249 –8958, Volume-3, Issue-4, April2014.

[2] Prof. Basavaraj Chougula1, ArchanaNaik2, Monika Monu3, Priya Patil4 and Priyanka" SMART SECURITY SYSTEM, " Das5 International Journal of Application or Innovation in Engineering & Management(IJAIEM)

[3]   Design of women safety system using RFID,"8051Microcontroller and GSM Based Technology Prototype", Shaik Mazhar Hussain1, Shaik JhaniBhasha

[4] Mr. Vaibhav A. Alone" A Study Based on Women Security System" International Journal of Science, Engineering and Technology Research (IJSETR) Volume 6, Issue 8, August 2017, ISSN: 2278-7798

[5] Prof. G. Muneeswari, Nandita Viswanath, Naga Vaishnavi "Smart Foot Device for Women Safety, 2016 IEEE Region 10 Symposium (TENSYMP), Bali, Indonesia.

[6] G C Harikiran, Karthik Menasinkai, Suhas Shirol "Smart Security Solution for Women Based on Internet Of Things (IOT), International Conference on Electrical, Electronics, and Optimization Techniques (ICEEOT) -2016.

[7] Dhruv Chand, Sunil Nayak, Karthik S. Bhat, Shivani Parikh, Yuvraj Singh, Amita Ajith Kamath "A Mobile Application for Women's Safety:WoSApp

[8]www.esp32-cam-video-streaming-face-recognition- Arduino-ide/