ISSN 2347 - 3983
Volume 8. No. 10, October 2020
International Journal of Emerging Trends in Engineering Research
Available Online at http://www.warse.org/IJETER/static/pdf/file/ijeter788102020.pdf
https://doi.org/10.30534/ijeter/2020/788102020

# Elegant Welfare of Women Using Internet Of Things

**B.Lalitha [1], T.Srinivasa Rao [2] ,K.Bhavana [3] ,Dr.S.Sateesh [4]**
[1]Prasad V Potluri Siddhartha Institute of Technology, Kanuru,Vijayawada, Andhra Pradesh, India
[1]Department of Electrical and Electronics Engineering, lalithaurz@pvpsiddhartha.ac.in,
[2]Prasad V Potluri Siddhartha Institute of Technology, Kanuru,Vijayawada, Andhra Pradesh, India
[2]Department of Electrical and Electronics Engineering, srinuthumati@gmail.com
[3]Prasad V Potluri Siddhartha Institute of Technology, Kanuru,Vijayawada, Andhra Pradesh, India
[3]Department of Electrical and Electronics Engineering, bhavana.kadiyala1@gmail.com
[4] DVR & Dr.HS MIC College of Technology , Kanchikacherla, India, Andhra Pradesh, India
[4]Department of Electrical and Electronics Engineering, sateeshsukhavasi@gmail.com

## ABSTRACT

With the advancement of technology and science, there is a solution for every problem and cure for every disease. But some problems remain same. One of those is women safety and security. With the increase in attacks on woman day by day, steps can be taken to eradicate this problem, with the help of technology. The proposed device is a smart band with an integration of various hardware and software components. This smart device is to be has to be interfaced with a smart mobile with the help of BLE & GSM. An application acts as an interface between smart device and smart mobile. The application has access to GPS & messaging services so whenever the emergency signal is received, it sends the information with location to the nearest cob station & emergency contact list, also an alarm is activated seeking for help and alerting the people nearby. The emergency signal will be generated with the data received by the pulse sensor, temperature sensor and motion sensor. These sensors detect the condition of women in those situations. The heart rate is sensed by a pulse rate sensor and any abnormal movement is sensed by motion sensor. The heart rate of the person in this situation is high, that helps to make decisions when the woman is victimized. The cost and size of the device has been reduced by integration of Smart band with Smart phone.

**Key words :** Arduino, GSM, GPS.

## 1. INTRODUCTION

The Women and girls violence is growing day by day. These are due to gender discrimination and inequality. Gender-based violence problem is increasing day by day. Presently in the entire world 35 percent of women are facing harassments physically or mentally. Women of all ages, religion and caste continue to be the victims of sexual violence, etc.[2].,

With the advancement of technology and science, we are able to find a solution for every problem and cure for every disease. But some problems remain same. One of those is women safety and security. With the increase in attacks on woman day by day, we can take steps to eradicate this problem with the help of technology. People cannot respond immediately in critical situation, so this device helps to rescue in such situations [3].

In India's recently rape cases has been increased. Many situations of women violence have been discussed and solutions to this problem are done by using the present technology. Prevention is better before the crime taking place[4].Codes like *91# are used for providing emergency needs, which alerts the cop control These applications are used by a single click and the task is done. There may be situations even the girl cannot pick her phone [1].

As a step towards the eradication of crimes against women and overcoming the drawbacks of previous applications, in our project a smart band is designed which consists two sensors that is temperature sensor and pulse rate sensor[5]. The smart wrist band communicates continuously with the smart mobile. This smart wrist band is an advanced system that detects the location and health condition of the victim and enables us to take action, based on indications given in the electronic gadgets like sensors [1]. Here we are using concept of IOT so it can detect real time condition of women in critical condition. This idea is completely safe and comfortable and easy to use.

## 2. BLOCK DIAGRAM OF ARDUINO INTERFACING WITH OTHER HARDWARE COMPONENTS

The smart device comprises of a smart band which is an integration of various hardware and software components. The main component in the block diagram is Arduino Uno. The Arduino Uno is the brain of the device. The temperature sensor, pulse sensor, panic button, pressure sensor act as input by giving input signal to Arduino Uno. Buzzer and a smart phone installed with SOS application act as an output device, the Bluetooth module acts as an interfacing unit between the smart device and the smart phone. LCD is used

to display the heart beat and the temperature of the victim. The block diagram of Arduino interfacing with other components is shown in figure 2.1

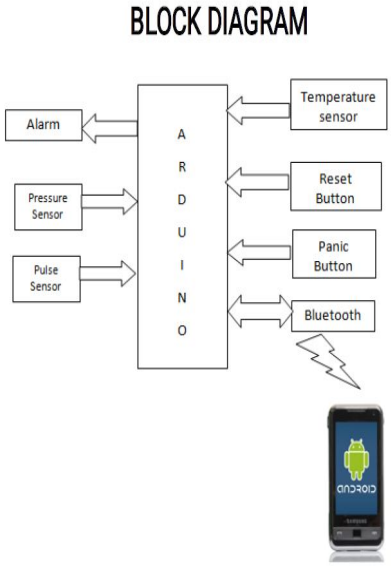


**Figure 2.1**: Block Diagram of Arduino interfacing with other hardware components.

An SOS application is used; a signal is sent to the smart mobile. This generates a message to the mobile through GPS and the cops receives the information .The pulse and temperature sensors constantly monitor the pulse and temperature of the victim, whenever the victim is attacked, these two parameters vary abnormally. Therefore after receiving the input from the sensors, the Arduino sends a signal to the smart phone which consequently alerts a message to emergency contact list. And the buzzer is also activated to alert the vicinity [7]. The Pressure sensor works when pressure is applied on the wrist or on the smart band. The panic button is for manual operation. The pulse and temperature sensors constantly monitor the pulse and temperature of the victim, whenever the victim is attacked, these two parameters vary abnormally. Therefore after receiving the input from the sensors, the Arduino alerts a signal to the application in the smart phone which consequently alerts to emergency contact list. And the buzzer is also activated to alert the vicinity[6].The Pressure sensor works when pressure is applied on the wrist or on the smart band. The panic button is for manual operation.

Hardware requirements for implementation of the function module:

- Regulated Power Supply
- Arduino Uno Micro controller Board,
- Temperature Sensor
- Pulse Sensor
- Push Button
- LCD
- BLUETOOTH
- Panic Button
- Reset Button
- Buzzer
- Smart Phone

## 3. ARDUINO UNO AND COMPONENTS USED IN MODEL

It consists of 14 digital input/output pins, 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power port shown in Figure 3.1 and Fugure 3.2.

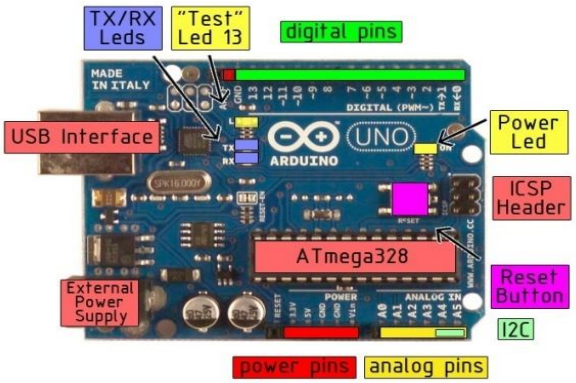


**Figure 3.1**: Arduino Uno

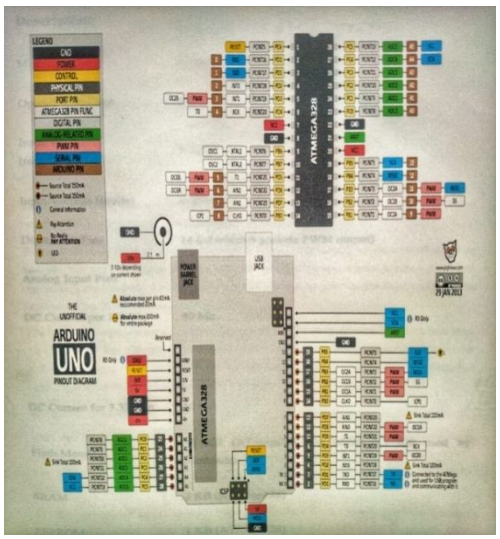

**Figure 3.2:** Architecture of ATmega328p

### A) PULSE SENSOR

A Pulse Sensor, gives heart-rate sensor to use in Arduino as shown in Figure 3.3.

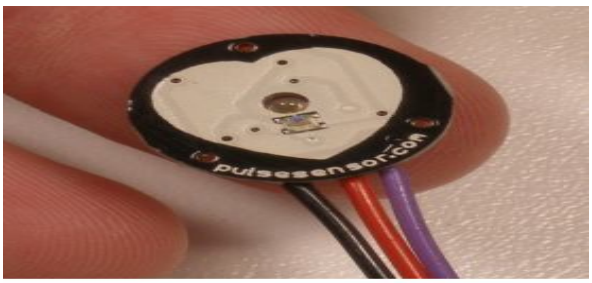


**Figure 3.3:** Pulse sensor

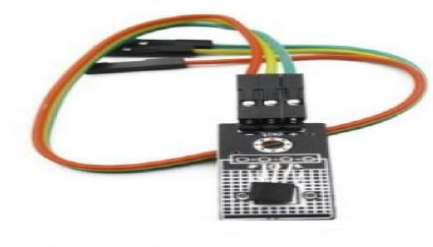

**Figure 3.4:** Temperature sensor

**B) PRESSURE SENSOR:**

**Figure 3.5:** Pressure sensor

This converts pressure into an analogue electrical signal shown in Figure 3.5. The smart phone is loaded with an application which acts as an interface between the smart band and smart phone. The Bluetooth module is used for the communication between smart band and the smart phone. In case any danger situations occurs it read the GPS of the mobile and it send the GPS locations to the victim's parents, guardians and police.

**C) GSM (Global System for Mobile communications)**

GSM is a cellular network that detects the cells and connects to smart mobiles.

**D) THE GSM NETWORK**

The GSM network is shown in Figure 3.6.

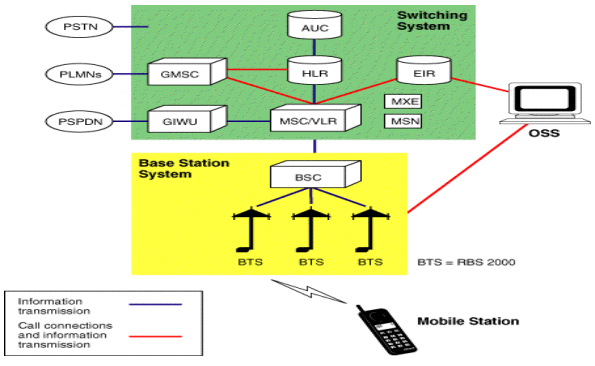


**Figure 3.6:** GSM Network

**E) GPS**

The Global Positioning System (GPS) is the only fully functional Global Navigation Satellite System.

## 4. CIRCUIT DIAGRAM

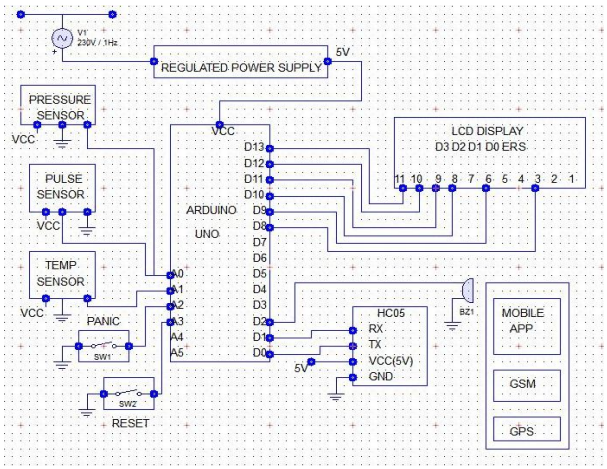


**Figure 4.1:**Circuit Diagram

**A.DESCRIPTION:**

The 230 volts supply is given to the adapter which it converts it into 5 volts dc supply through rectifiers, the dc 5 volts supply is given to the VCC pin of the Arduino kit. The LCD is connected to Arduino i.e.

•D11 pin of LCD is connected to the D13 pin of Arduino.

•D10 is connected to D12
•D9 is connected to D11
•D8 is connected to D10
•D6 is connected to D9
•D3 is connected to D8

The Bluetooth module is connected to the Arduino and it transfers data through TX which is connected to D0 and receives data from Arduino by RX which is connected to D1 in figure 4.1.

Buzzer is connected to D2 and another pin is grounded.

Pressure sensor input is given by $V_{CC}$ and output is connected to $A_0$.

Pulse sensor input is given by $V_{CC}$ and output is connected to $A_0$.

Temperature sensor input is given by $V_{CC}$ and output is connected to $A_1$.

Panic button is connected to $A_2$ and Reset button is connected to $A_3$.

## 5. OPERATION

Proposed smart device is a combination of hardware and software components. Along with the Arduino Uno, pulse sensor and temperature sensor play a major role as shown in the Flowchart 5.1. The heart rate of the victim is normally high which is used to take decisions when woman is victimized. This smart

device in figure 5.2 is inserted to a smart phone with BLE& GSM. An SOS application is used, which accesses to GPS & messaging service[5]. By hardware implementation ,obtained message notifications are shown in figure 5.3.

The pulse sensor and temperature sensor constantly monitor the Beats per Minute and Temperature of the body. The sensors take physical input and give output in the form of voltage to the Arduino Uno. The Arduino UNO after reading the input runs the program loaded in it. If the values exceed the limits in the Arduino code, then an emergency signal is generated.[6] This emergency signal is then sent to the mobile application. The SOS application then sends alert messages to emergency contact list and police.

Whenever the panic button is pressed, the Arduino sends an emergency signal to the application to send alert messages and the buzzer is activated to alert the vicinity. The alert messages are sent every 1 minute and buzzer is in ON condition until RESET button is pressed. The RESET button stops the both activities immediately.[7] The pressure sensor also serves similar purpose. It is a much sensitive button; therefore it can be easily pressed to send alert messages figure 5.3. Upon receiving the messages, the police and relatives can take suitable measures to rescue the victim in time.[8]

### A) FLOW CHART

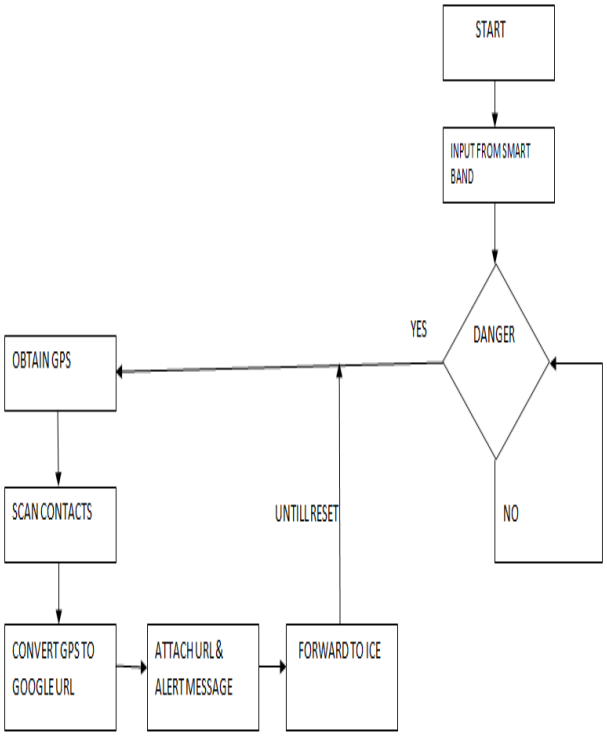


**Figure 5.1:** Flow Chart for the proposed system

### B) HARDWARE IMPLEMENTATION

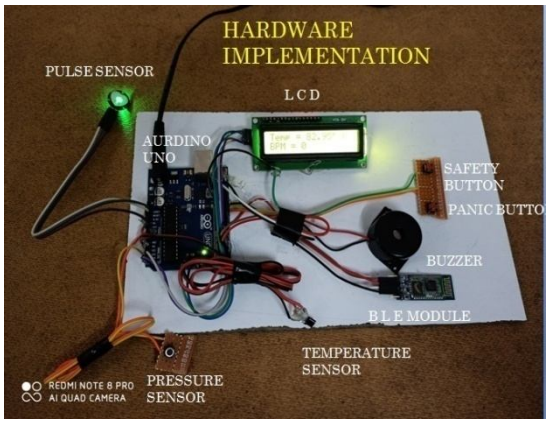


**Figure 5.2:** Implemented hardware for the proposed system

### C) MESSAGE NOTIFICATIONS

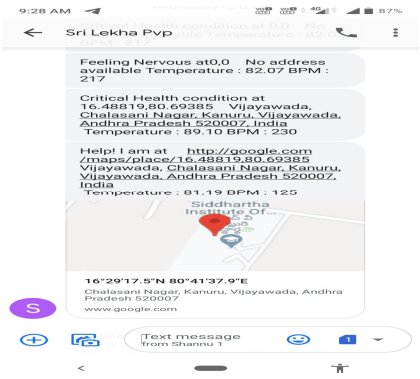


**Figure 5.3:** Message notifications

## 6. CONCLUSION

Despite existence of a number of special legislation for providing protection for women, crimes against women have increased. Women continue to be victims of various crimes. The need of the hour, we believe, is to ensure greater security and justice for women and girls, within a larger framework of humane, just and equitable society.

The Smart device can do operations with abnormal issues on women in current scenario and helps to solve through technologically sound devices. A smart device with smart phone has been used to get messages if attacked. This smart device comprises of pulse rate sensor and temperature sensor. The pulse sensor and temperature sensor constantly monitors the pulse and temperature of the victim respectively. Whenever the victim is attacked, the Arduino sends a signal to the application in the smart phone which consequently sends message to the emergency contact list. More chances are there to reduce the crime by implementing this system. Buzzer is used to alert the vicinity. A Message through GPS and GSM technology helps the victim in these situations.

**REFERENCES**


1. G.C.Harikiran,Karthik Menasinkai, Suhas Shirol, "**Smart security solution for women based on Internet Of Things**", International Conference on ICEEOT, IEEEXplore, 24-Nov-2016.
2. Monisha,M.Monisha, G.Pavithra and R.Subhashini, **"Women Safety Device and Application FEMME**", Department of Information Technology, Sathyabama University, Chennai - 600119, Tamil Nadu, India, India Journal of Science and Technology, Vol. 9(10) | March-2016.
3. Abhijeet Paradkar, Deepak Sharma "**All In One Intelligent Safety System For Women Security".** International journal of computer applications (0975-8887), Volume 130-No.11, November 2015.
4. Dr.Sridhar mandapati, sravya pamidi, sriharitha ambati "**a mobile based women safety application (i safe apps)"**, iosr-jce, e-issn:2278-0661, p-issn:2278-8727, volume 17,issue 1, ver- I (jan-feb.2015), pp 29-34.
5. K.Bhavana, B.Lalitha, T.SrinivasaRao, Dr.M.V.Ramesh "**Goods Segregation Robot for Industry**" IJETER, Volume 8, ISSN:2347-3983,August 2020.
6. Srinivasarao.T, K.Bhavana, B.Lalitha, S.Sateesh, P.Muthukumar "**Implementation of Automatic Speed Control System for E-Vehicle**",IETER, Volume 8, ISSN:2347-3983,August 2020.
7. B.Mohan,M.V.Ramesh,M.Ravi Kumar,T.Srinivasa Rao, P.Muthukumar "**Dual axis solar tracking system with LDR**" IJETER, Volume 8, ISSN:2347-3983,August 2020.
8. B.Vijaylakshmi, Renuka.S, Pooja Chennur, Sharangowda.Patil "**Self defense system for women safety with location tracking and sms alerting through gsm network**" IJRET, eISSN: 2319-1163|pISSN:2321-7308.