INTELLIGENT SECURITY SYSTEMFOR WOMEN BY USING ARDUINO

Mr. V. Nanthakumar[1], Ms. G. Hariprabha[2], Ms. D. Jasmine[3], Ms. B. Keerthana[4]

[1]Assistant Professor, Department of EEE, Sengunthar Engineering College, Tiruchengode, Tamil Nadu, India.
[2,3,4]Student, Final Year Department of EEE, Sengunthar Engineering College, Tiruchengode, Tamil Nadu, India.

---***---

ABSTRACT - *In our country, even though it has power and an economic development, but still there are many crimes against women. The women can be brought to an end with the help of our project "INTELLIGENT SECURITY SYSTEM FOR WOMEN BY USING ARDUINO".This device is a security system, specially designed for women in distress. We found a two switch security device. She can press the button that is attached to the device and the location information is sent as an SMS alert too few pre-defined emergency numbers in terms of latitude and longitude with electric shoe are attached in this device. The Arduino UNO is using this device. It is used as GPS and GSM module. The program is developed in embedded language. It is real time response for the girl can be safe and she can feel protected.*

KEYWORDS: Arduinocontrollers**,** flex sensor, MEMS accelerometer, GPS module, GSM module, Temperature sensor, pulse rate sensor.

1. INTRODUCTION

Even in this modern world is not secure to step out of their house and mostly affected for women because the crime is increasing in our country like abuse, violence, harassment, etc., the most of the corporate and IT sector companies are not safe in night shift. So employers of women are insecure.

The proposed device is more like aSafety system,In case of emergency, an advanced system can be built that can detect the location and health condition of person that will enable us to take action accordingly based on electronic devices like GPS receiver, GSM, pulse rate sensor, flux sensor, temperature sensor and MEMS accelerometer. So we can use number of sensors to detect the real time situations.

2. EXISTING SYSTEMS

These are many electronic devices and systems are used to provide security for women. This spy **camera**is the most method for providing security which is unreliable. The existing systems are of wired systems and most of them are alarming systems .which is conventional and cannot communicate efficiently. We are already used an existing model is **vith U app** that, at the click the button of your smartphone 2 times consecutively begins sending out alert messages every 2 minutes to your contacts. The message says "I am in danger" and "I need help". Please follow my location. Then is another model is used**the stun gun**this small gun charger an attacker with an electric shock. The shocks weakens the attacker temporarily, giving you sample chance to escape the scene.

When its trigger is pulled, a stun gun pumps about 700,000 volts into the attacker's body. Same stun guns are small enough to be canceled i0n a pack of cigarettes. They run on lithium batteries and can be carried either in handbag 00s or held in waist straps.

The last model is used as**fight back app**is a very basic app similar to ones listed above. The app is the Face book status update. Apart from providing SMS and Email options to alert the other person during distress, this app also updates your face book status. The main drawback of these applications and services is that the initial action has to be triggered by the victim, which often in situation like these doesn't happen. This paper presents new method to provide protection for women or children by ringing the buzzer and send the location to the nearby police station where the victim is present.

3. PROPOSED SYSTEM

The proposed system is to design a portable device based on Arduino controller are used. As a mainsourceand it receives input signals from the sensors.This system is especially for the women safety and overcomes the disadvantages of existing system. When the women are in danger it can be intimated immediately to the control rooms. Transmitter part contains heartbeat sensor, temperature sensor and vibration sensor. They collect the signal information from women's body and give it to the processor. After processing, it transmits the signal over network to receiver which is the control room. The instant Mick and amplifier strengthen the voice the women shout above the threshold limit. It is very effective for women safety purposes, crimes against the women are reduced by

implementing this model. The immediate notification messages are sending to the guardian and control room of police station. It is very much advantageous for society.
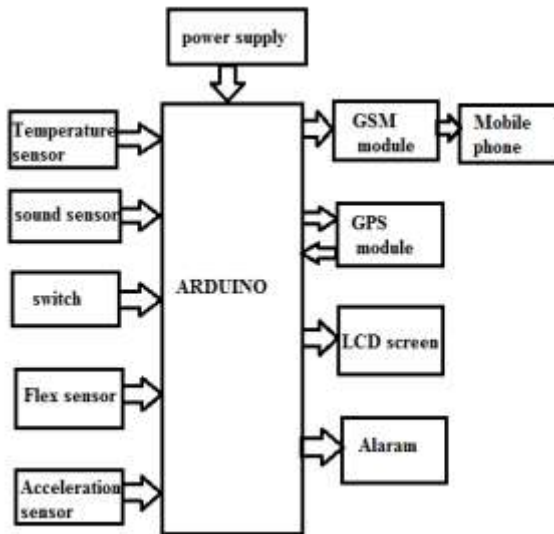

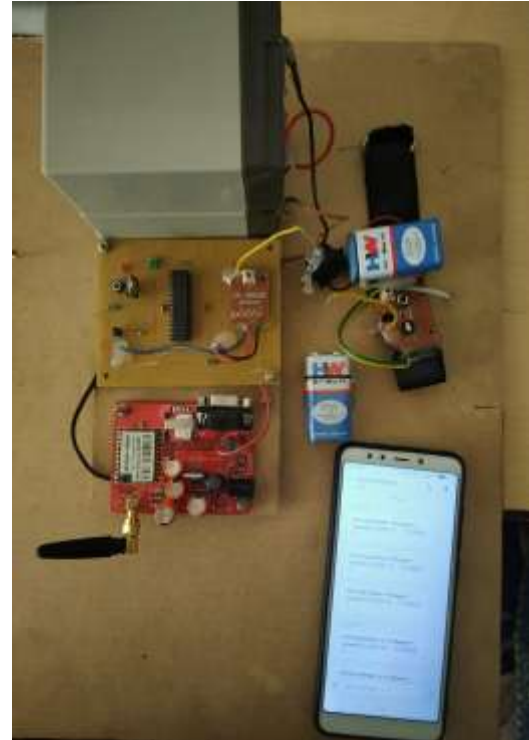**Fig -1: Architecture of proposed system**

4. WORKING PRIN.CIPLE

The principle behind this is to detect body parameter signals from the respective sensor which are in contact with the women who are in threat condition and hence after detecting signals, the sensor transmits the output electrical signals to the controller. The Arduinoreceiver the signal from the sensor as an analog input signal and hence it generates the output parameters of each sensor and displays it on the LCD display. The sensors used in the proposed system are flexed sensor, temperature sensor, MEMSaccelerometer, soundsensor, pulse rate sensor. Each sensor is used to detect signals of human women who are in abnormal situations. If values of any sensor signal crosses the threshold limit indicating that the women is in threat and according to victim condition, when the 4 sensors out of 5 sensors crosses the threshold limit the buzzer is activated. Hence the GPS transmits the location to the arduino and transmits the signal to the GSM.

Finally thealert message"I am in danger "or "a woman is in danger" along with the Latitudinal and longitudinal location is sending to the registered contact number. This activation of sensor and buzzer traces the location of victim using GPS and the help of GSM 800L used sends the message of location to the corresponding contacts with a 10 seconds delay.

Fig -4.0: Prototype Model

5. HARDWARE DESCRIPTION

5.1GPS MODULE:

Global positioning system is navigation and precise positioning tool, which tracks the location in the form of longitude and latitude, based on earth by calculating the time difference for signals various satellites to reach the receiver. In six different orbits approximately 12500 miles above the earth, 24 MEO (medium earth orbit) satellites revolve around the earth 24 hours and transmit location every second. It receives the data of location and transmits it to the arduino. The arduino thereby receives the signal from GPS and hence it performs further operations.

5.2 GSM MODULE:

Global system for mobile communication (GSM) SIM card is inserted inside the mobile device to send and receive the messages using GPRS. The GSM SIM card number is registered with the system GSM is used to send data from control unit to base unit. We can use GSM 800A which operates at frequency 900MHZ. A GSM module is another name is GPRS module is a chip or circuit that will be used to establish communication between a mobile device or a computing machine and a GSM or GPRS system.

Fig -5.2: GSM module

It has up link band of 890MHZ to 915MHZ and down link band of 935MHZ to 960MHZ. GSM takes advantages of both FDMA and TDMA. In 25MHZ BW, 124carriers are generated with channel spacing of 200 kHz (FDMA). Each carrier is split into 8 time slots (TDMA). At any given instance of time 992 speech channels are made available in GSM 800L.

5.3 ARDUINO:

Arduino UNO is a microcontroller board based on the AT mega 328. It has 14 digital input/output pins of which 6 can be used as PWM output, 6 analog inputs, a 16 MHZ. ceramic resonator, a USB connection, a power jack, ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with an AC to DC adapter or battery to get started. The arduino comprises of 28 pins, where there 20 I/O pins. There are 14 digits pins and 6 analog pins. Here in this system all the respective sensors are connected to the analog pins of arduino. The analog pins A0, A1, A2, A3, A4, and A5 from port B of arduino are used for interfacing with the sensors. The digital pins (2, 3, 4, 5, 6, 7 and 8) ports C of arduino are used here to connect to the data lines of respective LCD display. The power supply of 5V is supply to the arduino through the USB cable.

Fig -5.3: Arduino

5.4 FLEX SENSOR:

Resistive flex sensors are can be used to measure bending or flexing with relatively little effort. Their lightness, compactness, robustness, measurement effectiveness and low power consumption make the sensors useful from anti fold application in diverse fields in relation to the human body, we consider the utilization of resistive flex sensors for the measurement of physical activity and for the development of interaction vices driven by human gestures.

Fig -5.4: Flex sensor

5.5 MEMSACCELEROMETER:

An accelerometer is an electromechanical device that is used to measure acceleration and the force producing it. Many types of accelerometers are available in the market today. Due to its small size and robust sensing feature they are further developed to obtain multi axis sensing. One of the most commonly used MEMS accelerometer is the capacitive type. The capacitive MEMS accelerometer is famous for its high sensitivity and its accuracy at high temperature. The device does not change values depending in the base materials used and depends only on the capacitive value that occurs due to the change in distance between the plates. It two plates are kept parallel to each other and are separated by a distance `D', and if `E' is the permittivity of the separating material, then capacitance produced.

5.6 SOUND SENSOR:

The sound sensor module provides an easy way to detect sound and generally used for detecting sound intensity.

Fig -5.6: Sound sensor

6. EXPERIMENTAL RESULTS

The prototype of the women security system is shown in below fig. The signals from temperature, flex, MEMS accelerometer, sound sensor and pulse rate sensor are detected successfully and send to arduino. When four out of five above sensors crosses their threshold values the buzzer buzzes and the values are displayed on LCD as shown in fig.
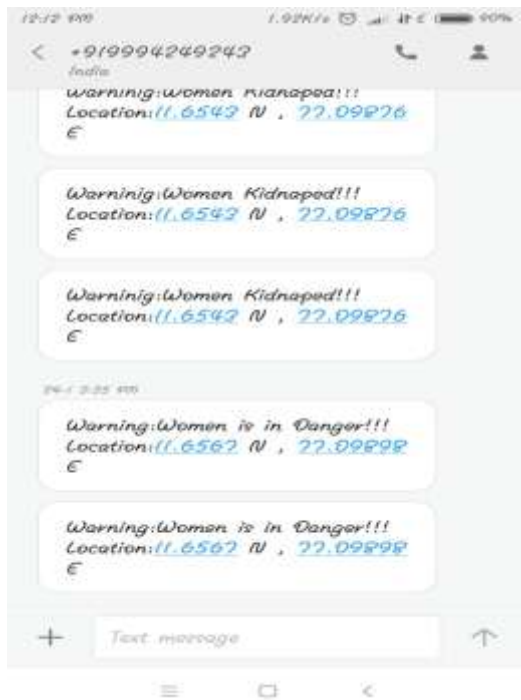

Fig -6: Alert message

7. CONCLUSION:

This paper is all about the existing applications for women security and comes out with an innovative idea for security and protection for women and more research is possible with introducing intelligent technology where people and object form a network. This will help to solve them technologically with compact equipment and ideas. Using screaming alarms and also alerting the emergency contacts by sending the message with the location is helpful for women's security. This system can overcome the fear that scares everywoman in the country about her safety and security.

REFERENCES

[1]Dr. Velayutham.R, sabari.M, SomaRajeswari.M, "an innovative approach for women and children's security based location tracking system" international conference on circuit power and computing technologies IEEE [ICCPCT] 2016.

[2]Dhole, "mobile tracking application for locating friends using LBS", international journal. Innovative research in computer and communication engineering, volume: 1, issue: 2, April 2013.

[3] B.Chougula, "smart girl's security system", international journal of application or innovation in engineering and management, volume 3, issue 4, April 2014.

[4] Anupriya, Deshpande, MadihaMehrish "effect of Premenstrual syndrome on cardiovascular parameters and body weight in first year medical students "Journal of evaluation of research in human physiology/ volume 2/issue 1/June 2016.

[5] Kasim. M, A.Aubidy, Ahrad. M, D.erbas, Abdullah, W.A-Matlin Real- time patient health monitoring and alarming using wireless-sensor-network.13th international conference on systems, signals and device 2016.