

WOMEN'S SAFETY SYSTEM USING IOT

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Abstract – Today in the current global scenario, women are facing many problems like women's Harassment. We propose to have a System which is the integration of multiple devices, Hardware comprises of Portable system that endlessly communicates with a sensible phone that has access to the web. This paper covers descriptive details about the design and implementation of "System". The System consists of an Arduino UNO, GSM module (SIM900A), GPS module(Neo-6M), IoT module(ESP8266), Accelerometer Sensor(ADXL345), Buzzer, Panic Button, LCD . In this project, when a woman senses danger she has to press the Panic Button of the device. Once the system is activated, it tracks the current location using GPS (Global Positioning System) and sends an emergency message using GSM (Global System for Mobile communication) to the registered mobile number and nearby police station. IoT module is used to track the location continuously and update it into the webpage. Accelerometer Sensor can detect when she would fall, the buzzer is used as an alarm to alert the nearby people so that they may understand that someone is in need. The main advantage of this project is that this device can be carried everywhere since it is small and also provides safety to Women.

Keywords: Arduino UNO, GSM, GPS, Accelerometer sensor, Panic Button.

1. INTRODUCTION:

In the present situation, women are competing with men in each prospect of society. girls contribute one-half to the event of our nation. however, the ladies have worry of obtaining pestered and killed. of these styles of girls harassment cases are increasing day by day. thus it's important to make sure the protection of girls. During this paper projected model of a system can give a needed safety to girls. The projected model contains a device that will live positions endlessly additionally sends a message with location to a predefined range. IoT (internet of things) may be a comparatively new and fast-developing thought. By victimization IoT-based technology guardians, relatives and police will monitor and track totally different sensors prices and position of a tool. The system is simple for coming up with and moveable.

2. HARDWARE DESCRIPTION:

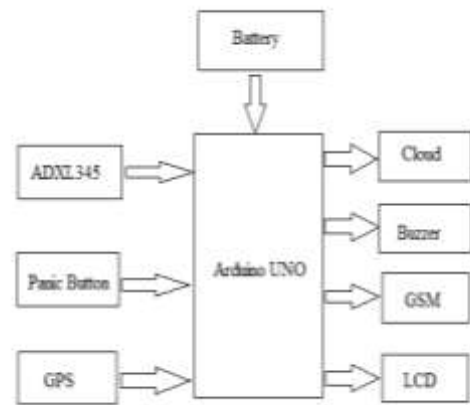


Fig-1: Block diagram

2.1 Arduino:

It is a board based microcontroller on ATmega328P. It has a 16 MHz quartz crystal, 14 digital input/output pins, a USB connection, a power jack. It has a reset button. Simply connect it to a computer with a USB cable get started with AC to DC connection. A typical ARDUINO UNO board can be used for many applications based on the coded program. "UNO" was opted to record the release of ARDUINO software. The version 1.0 of the Arduino is the reference and now updated to later versions. The first in a series of USB ARDUINO boards was the UNO board and the reference model for the Arduino platform.



Fig-2: Arduino UNO

2.2 GSM:

Whenever victim senses unsafe, GSM (Global System for Mobile communication module) immediately sends the message to chosen contacts, and also the police room.



Fig-3: GSM

2.3 GPS:

Global Positioning System GPS module acts as the satellite and receives the data frequently and transmits similarly to the RS32. It is developed by the US department of defense (DOD). The antenna input of the module receives the GPS signals, and a complete sequential data message with the area, acceleration, and time information is pressed at the serial line. The module provides the current date, time, longitude, latitude, altitude, speed, and travel direction among other data and can be used in many applications including navigation, fleet management, tracking.



Fig-4: Neo 6M GPS Module

2.4 Panic Button:

This is a standard 12mm square momentary button. It is used as emergency Switch. This button is great for user input, it contains 4 pins. If the victim is in danger, by pressing the switch the gets activated along with buzzer.



Fig-5: panic switch

2.5 Accelerometer sensor: (ADXL345)

The ADXL345 is a thin, low power, triple axis MEMS measuring device with high-resolution activity. The ADXL345 is well matched to measures the static acceleration of gravity in tilt sensing applications, also as dynamic acceleration ensuring from motion or shock. It additionally detects the presence or lack of motion and if the acceleration on any axis exceeds a user-set level.



Fig-6: ADXL345

2.6 ESP8266 (WiFi module):

The ESP8266 LAN Module is to boot a self-contained SOC with an integrated TCP/IP protocol stack which can offer any microcontroller access to our LAN network.

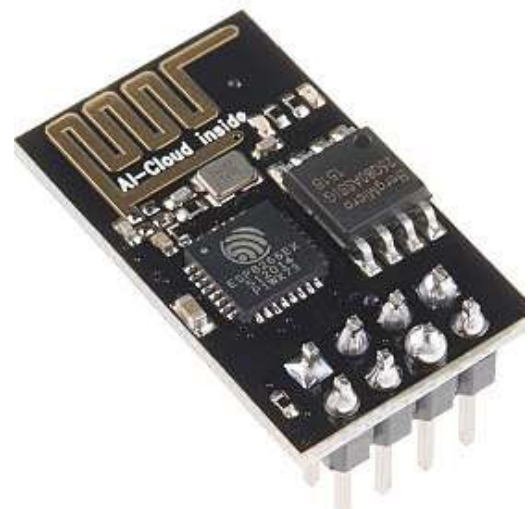


Fig-7: WiFi module

This module includes a durable enough on-board methodology and storage capacity that allows it to be integrated with the sensors and various application-specific devices through its GPIOs with borderline development.

2.8 Buzzer:



Fig-8: 12v Buzzer

A piezoelectric buzzer is an electronic circuit driven with a piezoelectric audio amplifier. It is a readymade loudspeaker contains two pins to attach it to power and ground, which commonly used to indicate if the button has been pressed then the buzzer vibrates.

3. OPERATION:

first, we have to give the power supply to the Arduino board. gsm also needs an external supply. then we have to dump the code into the controller through USB cable. here code is embedded c, Arduino board support c language also. after dumping the code, if the switch is pressed, then the message will send with latitude and longitude to the predefined numbers by using gsm and GPS. if the switch is not pressed, then the sensor will check the positions(x,y, z-axis) of the person, if the positions cross the predefined limit, at that time also the message will also send to predefined numbers. The buzzer also would ring at both conditions. by using the internet of things the position of the person will be updated every 15 seconds. by using LCD we can visualize the output. The wifi module is also used for the IoT.

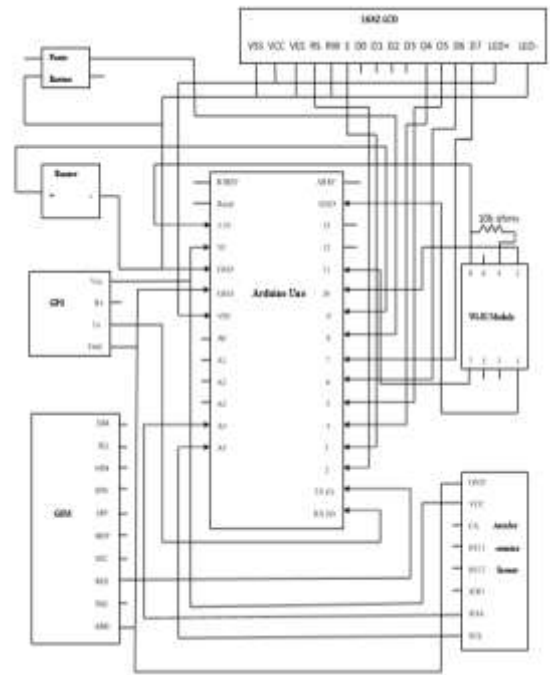


Fig-9: circuit diagram

4. FLOW CHART:

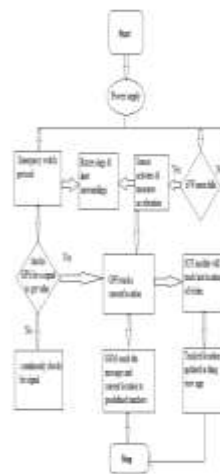
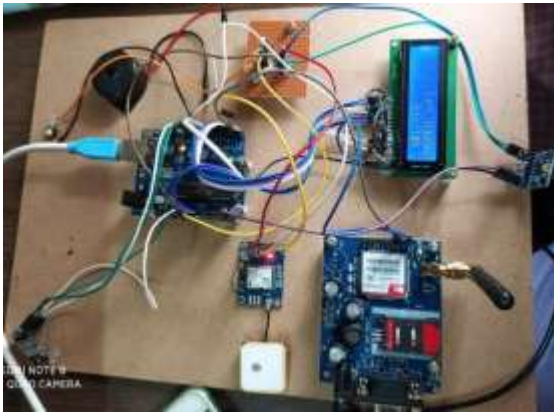


Fig: flow chart

The above flow chart shows how it can go the process step by step.

5. RESULT:

This project, "women's safety system using IOT" is successful in providing safety to women when she is in danger, and this proposed system would work in two ways. By pressing the switch and by using a sensor when she suddenly falls due to health conditions like fainting the sensor will work and alert the surrounding people in these conditions.



LCD displays the Accelerometer sensor Values(x,y)



we can get message as above

6. CONCLUSION:

The proposed design will deal with critical issues faced by women during the night and provide security with advanced technology. While society may or may not change its mindset but this device is will help to feel women independent.

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