



IJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** VI **Month of publication:** June 2022

DOI: <https://doi.org/10.22214/ijraset.2022.44009>

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IOT Based Women Safety System

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Abstract: Today in the current global scenario, the prime question in every girl's mind, considering the ever-rising increase of issues on women harassment in recent past is mostly about her safety and security. The only thought haunting every girl is when they will be able to move freely on the streets even in odd hours without worrying about their security. suggests a new perspective to use technology for women safety. "848 Indian Women Are Harassed, Raped, Killed Every Day!!" That's a way beyond HUGE number! We propose an idea which changes the way everyone thinks about women safety. A day when media broadcasts more of women's achievements rather than harassment, it's a feat achieved! Since we (humans) can't respond aptly in critical situations, the need for a device which automatically senses and rescues the victim is the venture of our idea in this paper. We propose to have a device which is the integration of multiple devices such as accelerometer, vibration sensor and pulse sensor. The hardware comprises of a device which continuously communicates with Smart phone that has access to the internet. The application is programmed and loaded with all the required data which includes Human behavior and reactions to different situations like anger, fear, and anxiety. This generates a signal which is transmitted to the smart phone. The software or application has access to GPS which is pre-programmed in such a way that whenever it receives emergency signal, it can send help request along with the location coordinates to the respective person.

Keywords: Accelerometer, vibration sensor, pulse sensor, Smart Phone, GPS

I. INTRODUCTION

In the present situation of India, women are equally contributing to the nation compared to men, The only problem women face in today's world is safety. So, in this project we are proposing a smart band model especially for women safety. So, for safety of Women we will introduce a smart band model which contains various sensors which will measure different parameters continuously. Nowadays internet of things (IOT) is new and very fast developing concept. It is very much useful for police, through which they can monitor and track different crimes. A propelled framework can be assembled that can help women when they are in harm's way. we are using PIC 16F877A which is a low cost and can be portable and we using a GPS. In our project using two ways of connecting to the concerned authorities. In first when women in danger she can press a button then the SMS will send to the concerned contact number with the current location and image of the victim. In second the existing device is redone to become familiar with the individual example of temperature, Heart Rate of the human body then find out the threshold. When these both are in the above threshold value then it automatically sends a message to concerned authorities. whenever women feel she is in danger the data like her current location, an image of the victim, and IOT alert will be sent to the concerned people. women will say for example help them also the data will be sent.

A. Problem Statement

- In the present situation of India, women are equally contributing to the nation compared to men, The only problem women face in today's world is safety.
- So, in this project we are proposing a "smart device especially for women safety".
- So, for safety of Women we will introduce a device which contains various sensors which will measure different parameters continuously.

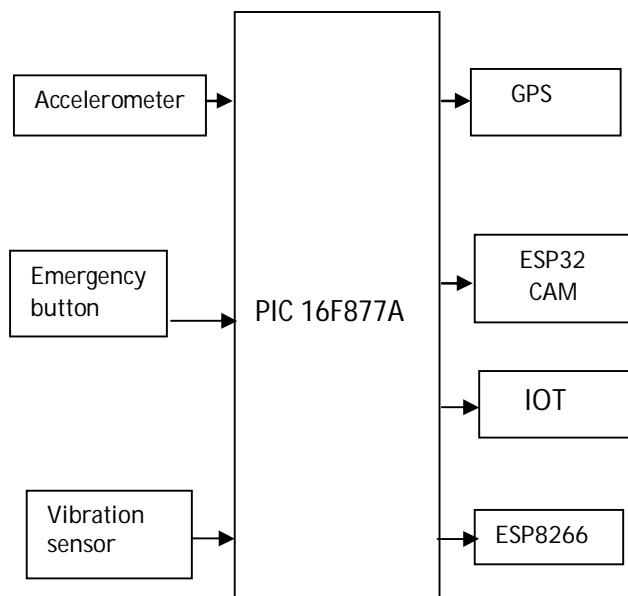
B. Objective of the Project

To provide a reliable security system for a woman when she is alone or feel unsafe. To track the current location of the women and view the live captured images when she is in danger.

C. Impact

Women and girls experience and fear different forms of sexual violence in public spaces, rape and femicide. Hence, for safety of Women we will introduce a smart band model which will help her to stop atrocities happening around her.

II. BLOCK DIAGRAM



A. Working

- 1) Women safety has always been an issue even in these modern times with so much advancement in technology
- 2) To build a safety device to act as a rescue and to prevent from harm at the time of hazard is highly necessary especially for women. This project consists of PIC16F877A and ESP32 CAM module
- 3) The exact location of the women can be sent to our remote device using IOT technology
- 4) At first, we have to know where the emergency can happen.
- 5) The emergency is determined with the help of Vibration sensor, Accelerometer, Emergency Button and she can be easily tracked with help of GPS
- 6) ESP 32 CAM is used to capture the live video at the time of emergency and send to respective person.
- 7) When sensors crosses particular threshold value, with the help of the app we can see alert Messages and live captured images. App is going to be developed with the help of MIT APP INVENTOR

III. HARDWARE COMPONENTS

- PIC16F877A
- Emergency button
- Vibration Sensor
- Accelerometer
- Esp8266
- Esp32 Cam
- GPS

A. Pic16f877a

It has totally 40 pins and there are 33 pins for input and output. PIC16F877A is used in many pic microcontroller projects

PIC16F887 Specifications:

- Power supply voltage 2.0-5.5V
- 35 input/output pins
- 256 bytes EEPROM memory
- 368 bytes RAM memory

- 10-bit resolution
- 3 independent timers/counters
- Fixed voltage reference (0.6V)
- Enhanced USART module,
- Supports RS-485, RS-232 and LIN2.0

B. Emergency Button

When the person is in emergency ,Emergency button can be used to send the immediate messages to respective person

C. Vibration Sensor

The vibration sensor is also called a piezoelectric sensor. These sensors are flexible devices which are used for measuring various processes.

D. Accelerometer

Accelerometers are devices that measure acceleration, which is the rate of change of the velocity of an object. They measure in meters per second squared (m/s²) or in G-forces (g).

E. Esp8266

The ESP8266 module works with 3.3V only, anything more than 3.7V would kill the module hence be cautions with your circuits. The best way to program an ESP-01 is by using the FTDI board that supports 3.3V programming

F. Esp32Cam

ESP32-CAM is a WIFI+ bluetooth dual-mode development board that uses PCB on-board antennas and cores based on ESP32 chips. It can work independently as a minimum system. ESP32-CAM can be widely used in various IoT applications. It is suitable for home smart devices, industrial wireless control, wireless monitoring, QR wireless identification, wireless positioning system signals and other IoT applications. It is an ideal solution for IoT applications.

IV. SOFTWARE COMPONENTS

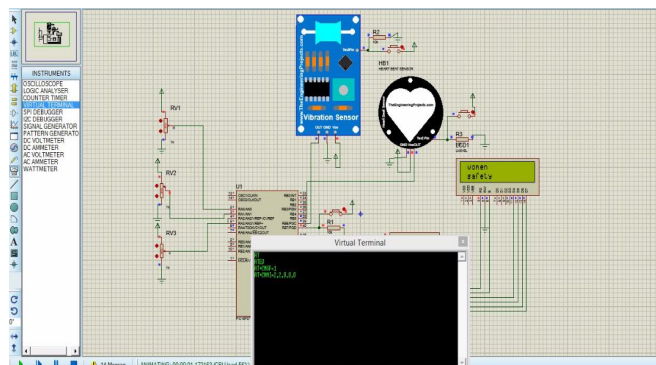
A. MPLAB Software

MPLAB supports project management, editing, debugging and programming

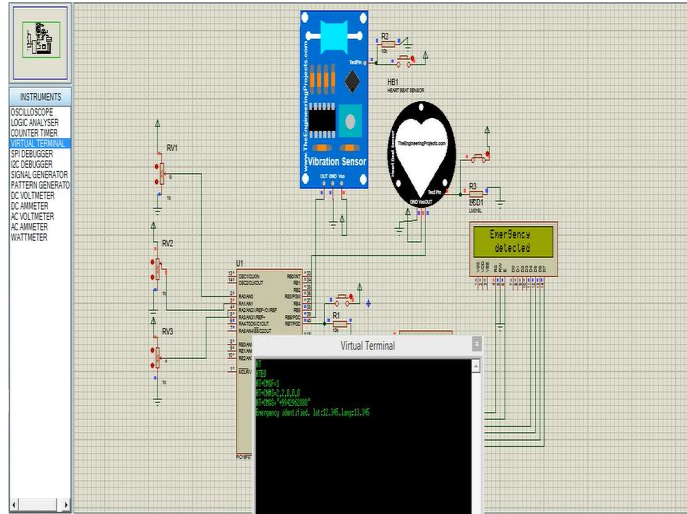
B. MIT App Inventor

- 1) MIT App Inventor is a web application integrated development environment. This website offers all the support we can learn how to build our own apps
- 2) Users of the App Inventor platform benefit from being able to repurpose the computational thinking skills they learn to interface with physical space in the external world

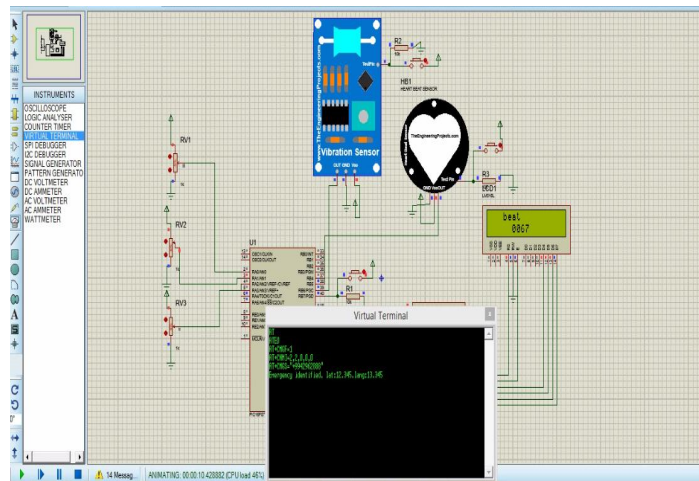
V. SIMULATION



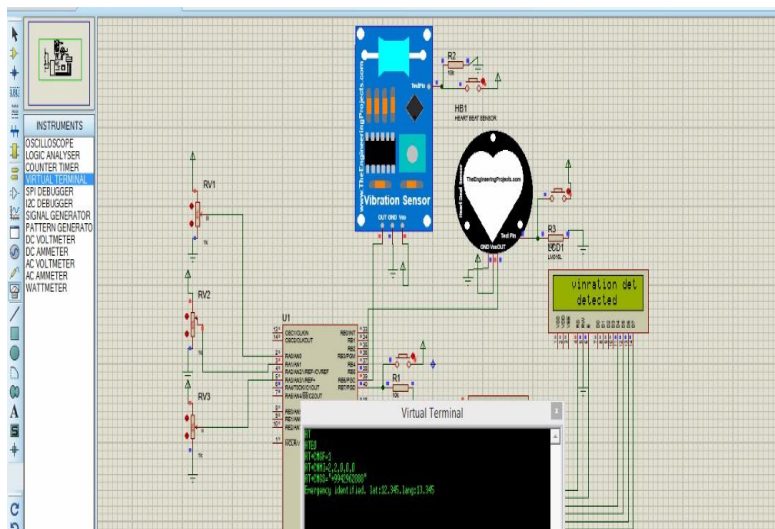
A. LCD Display of Accelerometer



B. LCD Display of Heart Beat Sensor



C. LCD Display of Vibration Sensor





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45.98



IMPACT FACTOR:
7.129



IMPACT FACTOR:
7.429



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