



IOT Based Women Security System

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ABSTRACT

As per the global scenario, we can see that women are in each and every field whether it may be in the field of technology being an engineer, in the field of teaching being a teacher or professor, a doctor, or even in the field of sports, and such there are many more examples where we can see that the percentage of women is increasing as compared to some past years. But, the most important thing that everyone is missing is safety. Women rapes, assaults, and harassment have been increasing a lot. Because of this, many women are not living their dreams, not following their passion, and just losing their hope and just giving up on their dreams and quitting. Therefore, for women's safety, we have proposed our project namely "IoT Based Women Security System". In this project we have used the concept of the IoT and the main components of our project are raspberry pi zero w (wireless), raspberry pi camera, global positioning sensor (GPS), buzzer, and push button. The link to the location will be sent through the mobile application and images will be simultaneously captured and would be sent and stored in the storage of the Google firebase.

Introduction

In this current global scenario, women are paving their wave everywhere in each and every field whether it may be the technical field like engineering or, in the field of sports, being a doctor, or in the field of education such as being a professor or a teacher and many more. To pursue their dreams, women need to go in different places, need to travel, need to work in night shifts, sometimes even need to stay alone, but because of increasing crimes like women harassment, rapes, assaults, and molestations women are not able to follow their passion.

Here is some worldwide data regarding the issues faced by women:

- Almost 15 million girls from the age of 15 to 19 have experienced forced sex or rape.
- 40% to 60% of women have said that they have experienced street harassment, mainly stalking, whistling, catcalling, sexual comments, staring.
- In a survey it shows that almost 39% of women from age 15 and above have experienced sexual harassment in the workplace.

Therefore, here the first majority concern is safety, if provided safety women would be confident about them, they would achieve more in their respective field, get closer to their success, and most importantly be independent.

Therefore, technology has paved its wave in each and every field. Now it's time to add the advantages / the trends of engineering / technology to our need for the safety of women. This project aims to apply the current trend in technology, Internet of Things (IoT) with the main component raspberry pi zero w(wireless).

Literature Survey

For the paper [1], the author has proposed a project using IOT. Therefore, the project is a real-time, portable and secure system that is used to send messages for alert purposes to their family or friends or in police stations. This project consists of components like a raspberry pi zero board, raspberry pi camera, buzzer, and a push-button along with a power supply.

For the paper [2], in this, the authors have made a ring. When the victim is being assaulted, then she can just click the push button which will fetch her current location. And also simultaneously it will capture the images of the happenings, of the attacker.

For the paper [3], the authors have proposed a project using raspberry pi as their main component. They have made a wearable device that could be used by women for their safety purpose.

For paper [4], the authors have made a foot device for the purpose of security for women. If the victim is being felt like something is wrong or is unsafe or being assaulted then she has to just tap her feet for ten or more times than just within five sec. Then the heartbeat will be sensed and the values of that particular device will be sent to a mobile application which will be displayed on 'women security' application. And also simultaneously audio recording would be done which would act as a proof if and when required. Also, the buzzer will be ringed to alert the surroundings. Also, for self defense a knife has been attached to the device.

For the paper [5], authors have proposed a system which consists of a device that resembles a watch. If the victim faces any danger, she needs to press the button which will record the images of that assaulter through a camera which is of raspberry pi. And then these images would be sent as message and mail to the pre-stored contacts, and nearby police station. Also this system will track the location and also the device consists of a shock circuit which can be used by women for the purpose of self defense.

For the paper [6], the authors have proposed the project on designing handbags for women's security. In this, the design accommodates a smart positioning and tracking system. In this, it will face recognition, image capturing system. Also it is integrated with an electric shock and pepper spray.

For this paper [7], the authors have made a smart device. In this it will automate the alert, using pressure sensor, pulse rate sensor and temperature sensor for detection of the possible atrocity automatically using outlier detection is proposed. The system will detect the location and send it to the emergency contacts.

For this paper [8], authors have made a device which shows an overall accuracy of 97.5%. Here, the device will be situated in the footwear; it will be clipped to it. By just tapping the foot four times, an alert will be sent also the location through the Bluetooth low energy to the application of the victims mobile.

Methodology

The proposed system consists of raspberry pi zero w (wireless), raspberry pi camera, global positioning system (GPS), buzzer, push button.

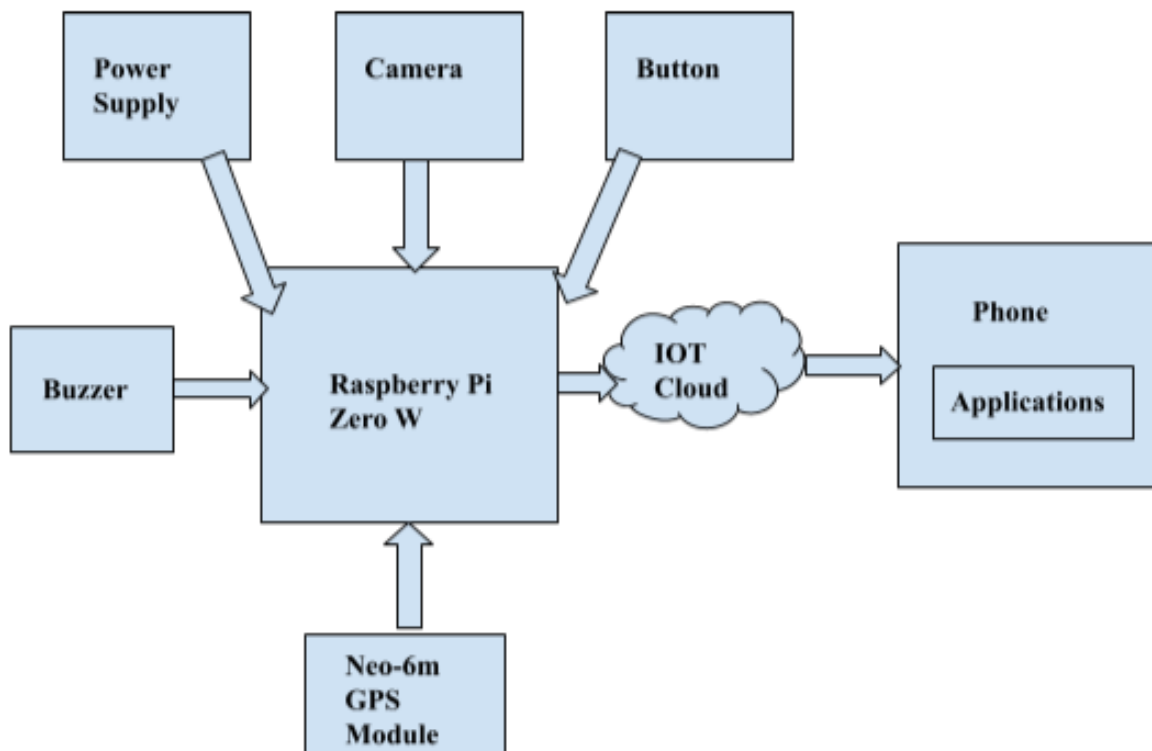
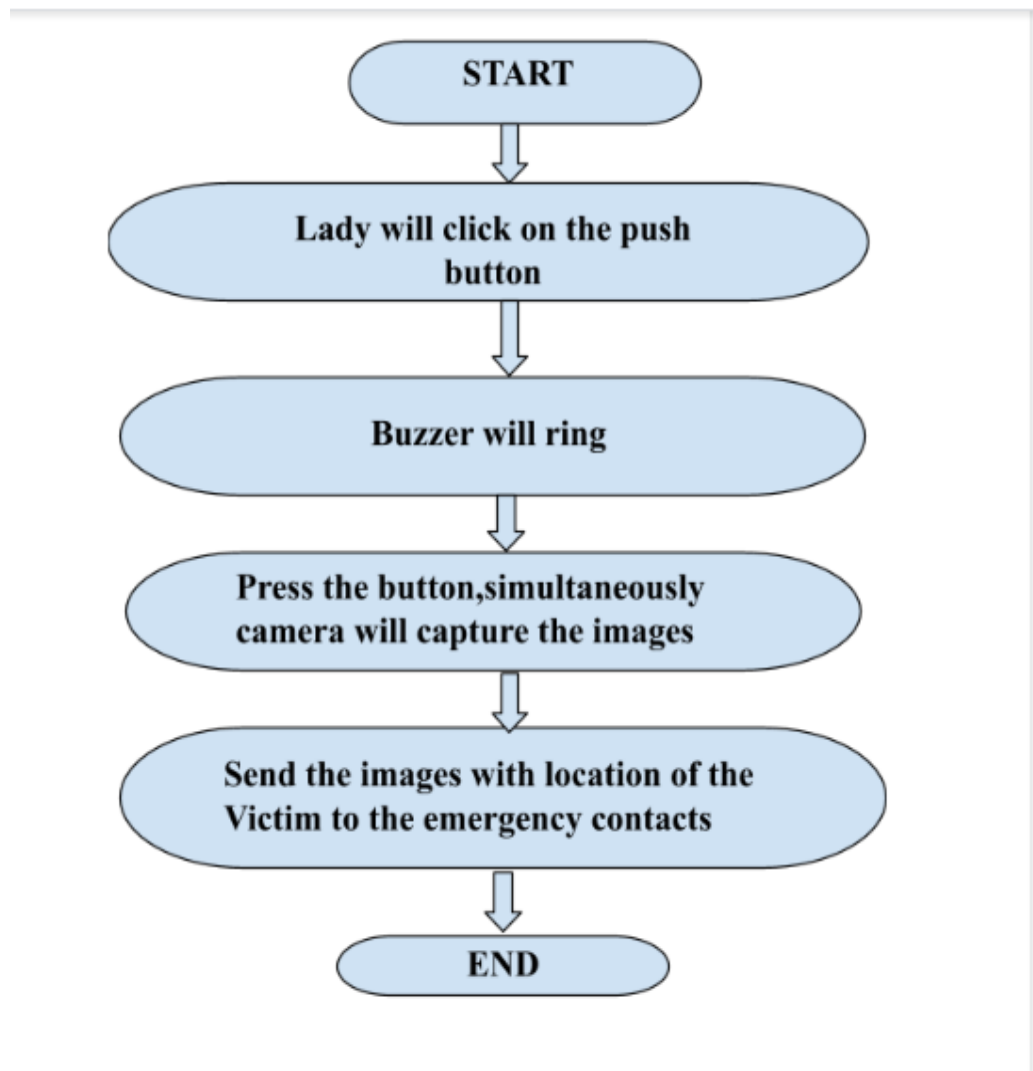


Fig1: Block diagram of Project

If any women is in danger or is unsafe then she has to press that push button. By pressing it, the message will be sent to the emergency contact asking for help or a safety alert. Then, simultaneously image will be captured of the victim and will be saved on this raspberry pi operating system (OS). Then this image will be sent and uploaded to the firebase account. Then, this previously-stored image on the OS will be automatically removed as more images stored can increase the storage. Hence, at the last, the location of the victim will be sent.

1. Flowchart



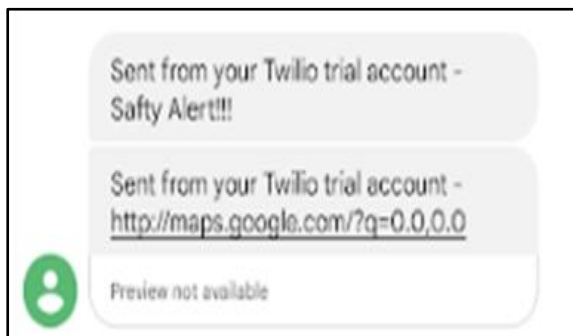
2. Algorithm

1. Victim will click on the push button
2. Help message will be sent to the emergency contacts.
3. The image will be captured, and initially sent to the OS of the raspberry pi.
4. The image will be sent and stored at the storage of firebase.
5. Then the image which was originally stored on the OS of raspberry pi will be removed.
6. Then the location of the victim will be sent to the emergency contact.

Results



In the above image the hardware of the project is shown. It consists of ' raspberry pi zero w', raspberry pi camera, global positioning system(GPS). The transmitter of the GPS is connected to the receiver of the raspberry pi. The raspberry pi camera is connected through the cable of raspberry pi



In the above figure, the output is displayed. Whenever, the lady will click on the push button, the message will be sent to the emergency contacts. Here, the screenshot of message is shown saying safety alert.



After sending the message safety alert, the raspberry pi camera will capture the image and will be stored permanently on the storage, as shown in above fig.

```

1 from twilio.rest import Client
2 import RPi.GPIO as GPIO
3 GPIO.setwarnings(False)
4 GPIO.setmode(GPIO.BCM)
5 GPIO.setup(25, GPIO.IN, pull_up_down=GPIO.PUD_UP)
6 from datetime import datetime
7 from picamera import PiCamera
8 from time import sleep
9 import os
10 import serial
11 import pynmea2
12 import string
13 import pyrebase
14 account_sid = "AC06ccf8207dce4812d6e777143fa83c57"
15 auth_token = "86a709bddca56f1473f32f51ab1b58f2"
16 port = "/dev/serial0"
17 ser = serial.Serial(port, baudrate = 9600, timeout = 0.5)
18 client = Client(account_sid, auth_token)

```

```

Python 3.7.3 (/usr/bin/python3)
>>> %Run WomenSaftyJacket.py
pushed
msg sent
2205262216:05:44.jpg saved
Image sent
File Removed
msg sent

```

The above figure shown, is the screenshot of the raspberry pi operating system (OS) screen, when the code is compiled the output messages will be shown.

Conclusion

Our prime objective is to provide safety with security for women all around the globe, whether she is working in the office, or while traveling in day time or in the night time, or whether she is at home. This project is based on IOT using raspberry pi zero w (wireless), which is known for its portability consisting of brilliant features like inbuilt Wi-Fi, Bluetooth.

The proposed system is user friendly. In the future, one may use the advanced version of raspberry pi and may add some extra features to the work so that it can be used for advanced applications. Also, it can be changed to a different area and can be used for kids, elderly people

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