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Women Safety Device Using IOT (WSD)

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ABSTRACT: Women face a lot of challenges everyday and harassment is one major among them, there is a need to construct a system to ensure women's safety. There are many existing devices and apps that ensure women's safety but it is still not enough, we need a device which can be carried everywhere and no one other than desired can operate it. Also, automatic detection of these kind of situations is very much necessary, this is done with the help of sensors. In this paper we surveyed the existing system that ensure women safety by tracking live location, sending alert messages and have come up with the solutions for the demerits of the existing system. We have added an activation switch, pi camera and accelerometer to advance the device. Also, we have enabled live location tracking.

KEYWORDS: Women safety, Activation Switch, Raspberry pi, GPS, Pi camera, Buzzer, Alert tone, Accelerometer.

I. INTRODUCTION

In India women face a challenges and there an increase in crime rate against women, it seems the safety and security of women are at stake. As we can literally observe that crimes against women occur frequently in India. There has been a decline in crime rate against women from ancient to medieval period which is continued in such an advanced era.

Each day many women are assaulted, molested, and harassed. The streets, public transport, public spaces, in particular, have become the territory of the hunters. There are certain frequent crimes against women like rape, dowry deaths, sexual harassment at home or workplace, kidnapping and abduction, cruelty by husband, relatives, assault on a woman, child and sex, trafficking, attack, child marriages and many more.

Existing devices for women safety require women intervention to activate them such as pressing the button or shake the device etc. after sensing the danger. However, for some reason if a woman could not press panic button when she is danger, then the purpose of the safety device is not solved. There is immense need for device for ensuring women safety.

Related Work: [1]*Arduino Based Security System for Women by Abhijeet Mane, ManojGharge, Omkar Pol, Karan Grover, Prof. VijayaChavan.* It is a basic system sends SMS to 5 numbers when triggered. [2] ***Women Safety Band by using IOT with Arduino Mega Micro-controller** by Mrs. SaranyaR.* This device is portable and can be used for medical purpose also. [3] **GSM Based Women's Safety Device** by Shirly Edward A, Vijayakumari S G, Bhuvaneshwari MS. It is avery basic ddevice which may not be used in present advanced era. [4] *Advanced Women security app: We'RSafeby TanusriDey, UpamaBhattacharjee, SanjanaMukharjee, Tripati Paul, RachitaGhoshhajra.* It is just an app and searches for nearby hospitals and police stations.

II. PROPOSED SOLUTION

The proposed system also consists of all the basic modules that are necessary for a safety device such as GPS module, raspberry pi as controller, LCD display, Power supply, Panic switch and a Buzzer. For assuring that only genuine user can operate and there is no misinterpretation of the device, we have anactivation switch which initiates the entire system from location tracking process to start sending alert messages. If in case the victim could not initiate, in such situation accelerometer comes into picture which recognizes the position of victimif angle value matches with programming conditions then it automatically initiates the process of tracking location. There are some situations where victim could not be reached for help and some unusual things happen in such cases we have implemented a camera which captures images of the scene and sends via email to registered Email-ids which can be used as an evidence against criminal and helping victim get her justice.

III. METHODOLOGY

In this system women first initiates the system using an activation switch without which noting starts. Also victim must keep the 'IOT Responder' app in recent on her phone. Once this is active system checks for panic button press and value of accelerometer, if suppose the conditions are true system jumps for location tracking else it re checks. Once the location is tracked system sends alert SMS with location to registered numbers with the help of fast2SMS platform. It is a platform to send bulk messages. The receiver will get an alert tone on his phone so that they can respond soon. After seeing the SMS receiver can track the live location of victim using the android app live 'Location Tracking'.'IOT Responder' app will track and shows the live location of victim to receiver's phone. In the meantime buzzer alarm is ON to seek for quick help from neighbours. Later pi camera will capture 3 images in intervals and sends it to registered mail ID. For working of this system network and internet is a must. Below we have the flow chart of the system. Capturing image will act as an evidence further if complaint is filed by the victim.
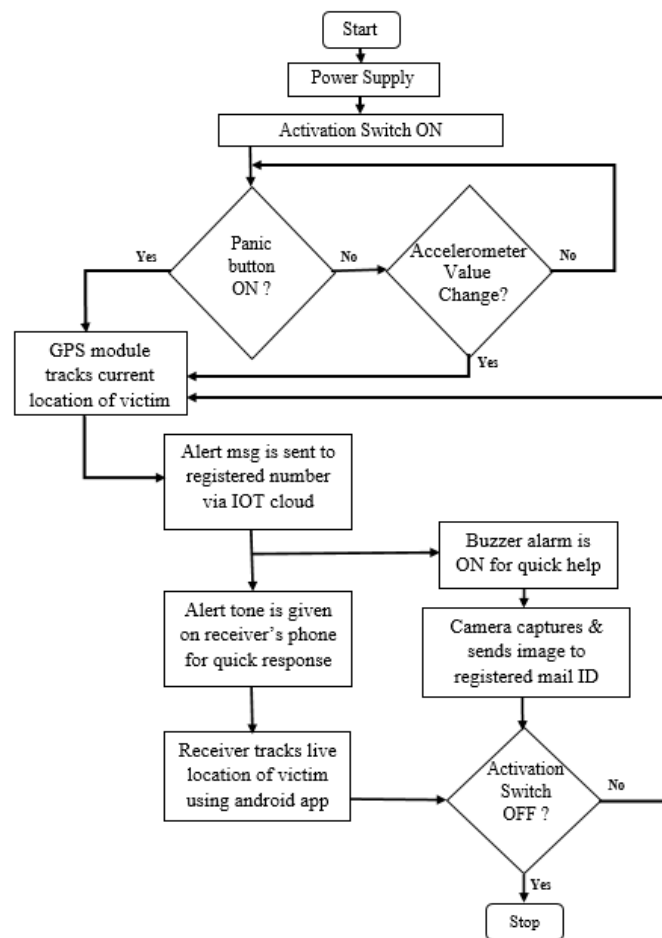

Fig 1 – Working flow of System

IV. ANDROID APPLICATIONS

IOT RESPONDER:
It is an android application designed to track and send victim's live location by sending loc command. App will wait for the notification once it receives command it will track live location and send SMS to registered number with 'Location Tracking' app and wait for the command again.
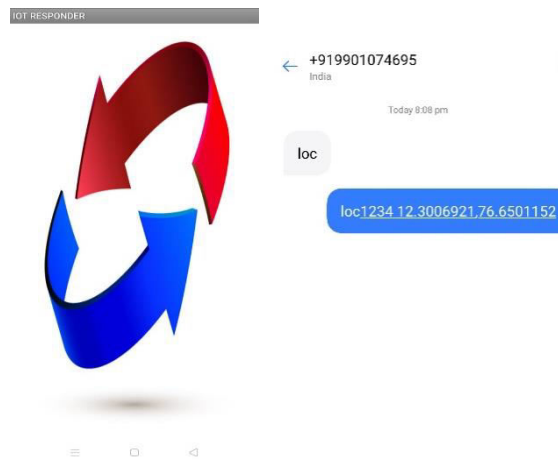
Fig 2 – Snapshots of IOT Responder app

LOCATION TRACKING:

It is an android application design to track live location from receiver's phone. When victim's phone number is entered it sends a loc command to victim's phone in reply 'IOT Responder' in victim's phone will send the live location of victim. Receiving this SMS will automatically open up google maps showing victim's live location.
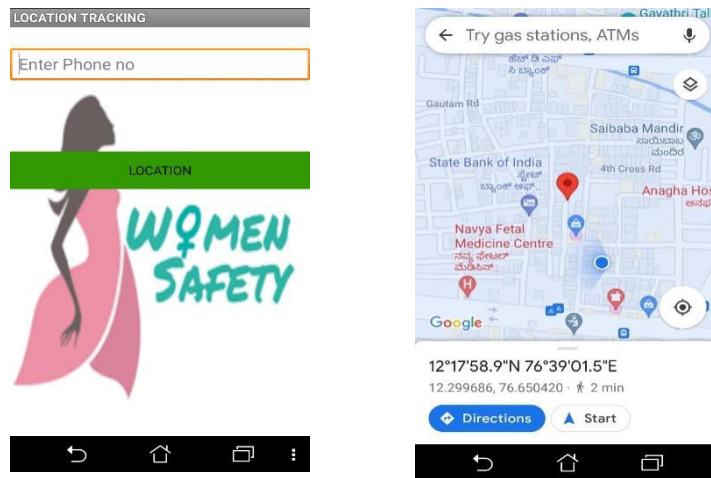

Fig 3 – Snapshots of Location Tracking app

V. FUTURE ENHANCEMENT

As the main goal in this project is to ensure women's safety we have achieved our goal but there are many add-ons that can be done to improve the device. So that women can benefited at a low price and leave their houses without any worries. This system can be more advanced by adding calling feature also the location can also be send to the nearest police station. Adding a heartbeat sensor can advance the system. And a microphone can be added in order to record audio at the incident. Also, along with images a video of the incident can be made.

VI. CONCLUSION

After referring and implementing this device it is clear that women travelling alone outside can be saved if they use our device. Tracking live location helps to find victim as soon as possible. Also, we have implemented a camera to capture images at three intervals which can be used as evidence later. We have tried our best in order to advance this device but still there are some shortcoming and add on to be considered.

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