International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 08 Issue: 04 | Apr 2021 www.irjet.net p-ISSN: 2395-0072

Portable Security System for Women

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Abstract - *Women's safety has become the primary concern all over the world. According to the official records, the number of assaults are rising considerably. On top of that the victims are threatened that if they try to tell anyone about it they might kill them, due to this the victims don't dare to lodge a police station. The main purpose of building this security system to save the victim before any mishap takes place and to provide a highly reliable security system. In this project, a device consists of an SOS button, Flashing lights and speaker . On pressing the SOS button, an alert is sent to the app where location is detected using GPS module and this location is sent via SMS to the registered number. A shock generator is added to the device for further security. This combination of a device and application will help avoid any mishap to take place and women can protect themselves before any additional help reaches the location.*

Key Words: **GPS, GSM, Shock generator, LED, Buzzer, SOS.**

1. INTRODUCTION

With passing time, people are getting more educated and literate yet even in today's world women's security has still been a major concern. In Spite of so many laws being revised and changed, we still cannot see strict actions taken against such offenders. Everyday a new matter comes on the internet or on the newspaper. Some may involve the death of the victim, some may be badly beaten. In order to gain justice the victim's family has to undergo a long process and yet many times it so happens that justice is not given and all that happens is shaming of the family. So in order to avoid any such circumstances a lot of restrictions are put on a girl or a woman. They are forced not to take up any job that works till sun sets, women are asked to return home before 7pm. Many orthodox and many scared parents don't let their girl child study. They have been kept home doing household work. Due to such scenarios women don't get enough opportunities for proving their talents and capability. So this device can help women to pursue her dreams for which no matter how late she gets home because this device will help her escape any mishap before taking place. This device is a smart portable device mainly built for the safety of women traveling and working late, so that they can travel freely without worrying about their safety.

1.1 Problem Statement

To build a complete portable safety device with a mobile application which can be used by women to take care of themselves at the time of any mishap till secondary help arrives.

1.2 Project Objective

The main objective of building this security system is to save the victim before any mishap takes place and to provide a highly reliable security system. In this project, a security device is build along with a mobile application. This device consists of an SOS device, Flashing lights, speaker and shock generator.
On pressing the SOS button, shock generator, alarm and buzzer activates which would her the victim to escape the place of mishap and then send the exact location to number of registered numbers through one click via mobile application.
This combination of a device and application will help avoid any mishap to take place and women can protect themselves before any additional help reaches the location.

2. Literature Survey

1. Wireless IoT based Solution for Women Safety in Rural Areas-This paper mainly focuses on the lack of safety measures for women in the rural areas where there is erratic electric supply and poor cellular network connectivity. Idea of the project-Major aim is to make a portable device by using IoT technology for alerting the concerned authorities to prevent any mishap. Women will be provided with a beacon device which in case of any emergency can be activated and this information will reach the central stations and one can find out the location of the victim based on her proximity to the nearest access point.
Features

1.Independent of Electricity
2.Independent of real-time GPS
3.Tracking victim using preset GPS coordinates of APs
4.Independent of Smartphones and GSM system
5.Multiple central stations

Scope

It can be easily installed in most vulnerable and unsafe regions of the village. Security can be increased by making the local network coverage more stringent. The proposed system can be extended to various emergency situations like fire breakdown, human accident, child abuse, robbery and senior citizen harassment.[1]

2. ABHAYA-An android app for women safety

Here, we introduce an android app that ensures the safety of women. It reduces the risk and helps us in need by identifying the location of a person who is in danger. The current system is developed on the basis of android platform. Android utilizes a custom virtual machine that was designed to optimize memory and hardware in a smartphone. Android does not differentiate between the phone's core applications and third-party applications. Any application that is built will definitely have equal access to a phone's capabilities providing users with a broad spectrum of applications and services.

Key Features

1.Initially, we have to enter the four contact numbers of police, family members and friends into the application say and click on the "save" button.
2.While travelling, run the application and whenever a need arises, click the "start" button.
3.As soon as "start" button pressed, it firsts make a call to the first saved registered contact number and also sends the message containing location URL of the victim to all the contact numbers.

Requirements

1. GPS enabled smartphone.
2. Operating System: Android

As a future scope this application can be integrated with the law enforcement database, which includes all the phone numbers of regional cops.[2]

3. Safety Assistant And Harassment Prevention For Women

In this paper, they have introduced a device which is able to inform the current location of the person for tracking immediately. This device is named as 'Safety assistant and harassment prevention device . It can also aware the people around the victim. A design where the shock is generated through a shock generator to give instant shock to the guilt. Safety assistant and harassment prevention device works in following steps:
1) Generate alarm
2) Send an emergency message with location.
3) Generate shock

Hardware
1.Arduino UNO R3
2.LCD
3.GSM Module
4.GPS
5.Shock generator
6.Push button switch
7.Transformer with a relay
8.Buzzer

Software
1.Arduino IDE

Results and analysis

When the receiver gets an SOS message, the exact location can be searched by tracking the latitude and longitude using a navigation map from any smartphones that is GPS enabled. The accuracy is very much more as compared to the other system.[3]

4. Smart shoe for women's safety

This paper introduces the users to a smart shoe that women can use to alert their family members and even harm the attacker. This paper suggests a new technology to protect women. It focuses on their security so that they never feel helpless. The basic idea of the project is alarming the emergency contacts on pressing the emergency switch located on the side of the shoe. Inside the shoe, there are GPS and GSM modules that combinedly send the location to the emergency contact. The shock circuit will generate a shock that is sufficient to buy the victim enough time to escape. Meanwhile pressing the switch message will be sent asking for help containing a link to trace live location. The 5 V battery used in the shock circuit is powered by piezoelectric sensors connected in series at the sole of the shoe.[4]

Hardware

1.GPS Module
2. GSM Module
3. Raspberry Pi.
4. Arduino Uno.
5. Camera Module

Result and Analysis

It is a well-known fact that women outside their homes are rarely safe as one or more disasters are waiting upon them but with this smart shoe that immediately sends live location streaming to your contacts, the cases would be soon diminished to zero.

3. SCOPE

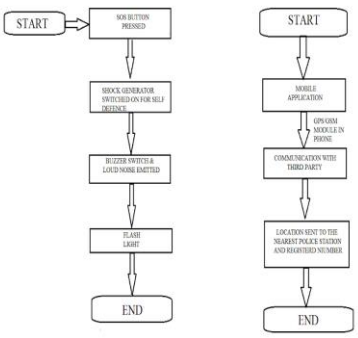
To make this device in terms of technical advances we can implement and build a camera or a video recorder on the device. This can help us in identifying the face of attackers and make our jobs easier. In the future we can also work and develop further on the voice recognition part because it will be a great parameter through which we can have evidence against the attacker. Currently we are working and interfacing the device with an android app. But in the near future we can also interface it to an IOS system and this will lead to a great advantage. Considering the existing systems and the improved and implemented projects discussed in the paper, there are a few more features that can be proposed and implemented in our project: Flashing lights , alarming sounds and a mode of spraying harmful materials can be added to the safety device for immediate help till the informed authorities reach the sight. The device can be interfaced with the mobile application so that on clicking the button on the safety device the message for help will be sent to the authorised destination without manually accessing through the application. This feature would help if at all the attacker makes sure she is unable to use the mobile or tries to break it, etc. Additional features like contact information about hospitals and police station can be added to the application just in case of any physical mishap. Voice recognition can also be added.

4. FEATURES

The features of the Project are :-

1.GPS Location of the victim sent to the emergency contact saved on the app.
2.Alert Siren by just pressing the Panic button on the device.
3.Shock Generator which will help to protect the user.
4.Flashlight to gather attention of people in the surrounding.

5. METHODOLOGY



5.1 Circuit Diagram

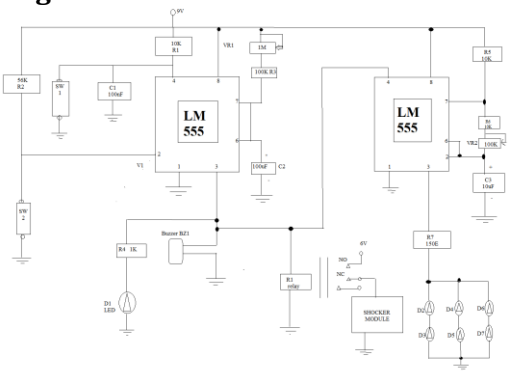


Fig -1: Portable System

5.2 Software Requirements

MIT App Developer

Computer and operating system
1.Macintosh (with Intel processor): Mac OS X 10.5, 10.6+
2.Windows: Windows XP, Windows Vista, Windows 7+
3.GNU/Linux: Ubuntu 8+, Debian 5+

Browser

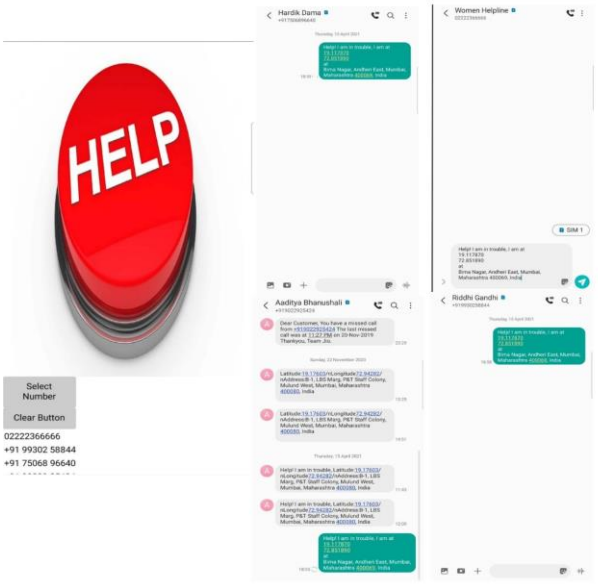
1.Mozilla Firefox 3.6 or higher
2.Apple Safari 5.0 or higher
3.Google Chrome 4.0 or higher
4.App Inventor does not support Microsoft Internet Explorer. Windows users should use Chrome or Firefox

5.3 Hardware Requirements

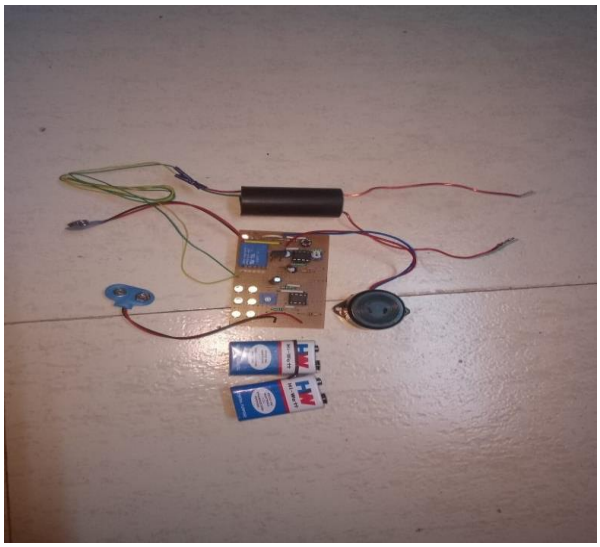
1. Push button switch
2. Buzzer
3. Battery
4. IC 555 Timer
5. Crocodile wires
6. PCB
7. LED
8. Resistors
9. Capacitors
10.High voltage generator

6. RESULTS

6.1 Software



6.2 Hardware



7. CONCLUSIONS

Hence, we conclude that this app is of great use to women who are in trouble and need emergency help. They can save themselves by just clicking a button on the app and the current location with longitude and latitude is directly sent to the emergency contact saved on the app. A device made for helping a woman to take care of herself at any point is successfully built. Implemented various parameters such as SMS sending, Location Detection, Shock generator and Panic button through App.

ACKNOWLEDGEMENT

Presentation, inspiration and motivation have always played a key role in the success of any venture.

We are thankful to all our teachers and our college for providing us with all sorts of information and ideas in preparing this report. Without their valuable guidance and kind supervision this report could not have happened.

A special thanks to all team members without their efforts this report would not have been possible to complete.

A special thanks to all the organizations that help fight and curb discrimination around the world thereby providing equality among all.

A special thanks to our parents for their elevating inspiration and encouraging guidance. Last, but not least, a special thanks to various online platforms for providing us information and ideas regarding our topic.

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