A

PROJECT PHASE-I REPORT

ON

"**Protection for Women using IOT smart Device
with location and parameter**"

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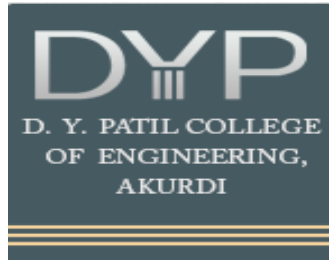
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IN THE PARTIAL FULFILLMENT FOR THE AWARD OF THE DEGREE
**BACHELOR OF ENGINEERING
[B.E INFORMATION TECHNOLOGY]
[SEMESTER I]**
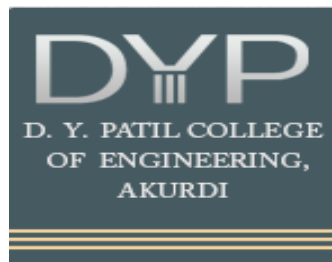
**DEPARTMENT OF INFORMATION TECHNOLOGY
D.Y.PATIL COLLEGE OF ENGINEERING AKURDI, PUNE
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(2021-22)**

D.Y.PATIL COLLEGE OF ENGINEERING AKURDI, PUNE
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CERTIFICATE

This is to certify that

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Have successfully completed the project entitled "Protection for Women using IOT smart device with location and parameter" under my guidance in partial fulfillment of the requirement for the award of the degree in Bachelors of Engineering in INFORMATION TECHNOLOGY of D. Y. PATIL COLLEGE OF ENGINEERING, AKURDI by Savitribai Phule Pune University for the academic year 2021-22.

Date:-

Place:- D. Y. Patil College of Engineering, Akurdi

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ACKNOWLEDGEMENT

With immense pleasure, we present the Project Phase-I report as part of the curriculum of the B.E Information Technology. We wish to thank and express deep sense of gratitude to our guide Mrs. Amita Jajoo for his guidance, inspiration in project work.

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ABSTRACT

Women's security is a critical issue in today's world and it's very much needed for every individual to be acting over such an issue. This document describes a GPS based "Women Security System" that provides the combination of GPS device as well as provide alerts and messages with an emergency button trigger whenever somebody is in trouble, they might not have so much time, all that they have to do is generate a distress emergency signal by shaking up their phone. Our system provides a realizable, cost-effective solution to problem detection. Nowadays due to recently happened cases such as rape by drivers or colleagues, burglary etc., women security, especially women security has become the foremost priority of the world. System uses the Global Positioning System (GPS) technology to find out the location of women. The information of women position provided by the device can be viewed on Google maps using Internet or specialized software. The companies are looking for-ward to the security problem and requires a system that will efficiently evaluate the problem of women security working in night shifts, traveling alone. We focus on the proposed model that can be used to deal with the problem of security issue of women using GPS based tracking system with live location till user don't get help from the helper either parent or police.

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INTRODUCTION

1.1 Overview

Women are adept at mobilizing diverse groups for a common cause. They often work across ethnic, religious, political, and cultural divides to promote peace. We are all aware about importance of safety of women's but we must realize that they should be properly protected. Women are not as physically strong as men; in an emergency situation a helping hand would be a relief for them. The best way to minimize your chances of becoming a victim of violent crime (robbery, sexual assault, rape, domestic violence) is to identify and call on resources to help you out of dangerous situations. Whether you're in immediate trouble or get separated from friends during a night out and don't know how to get home, having these apps on your phone can reduce your risk and bring assistance when you need it. Although several were originally developed for students to reduce the risk of sexual assault on campus, they are suitable for all women in the light of recent outrage in Delhi which shook the nation and woke us to the safety issues for our daughters, people are gearing up in different ways to fight back. A host of new apps have been developed to provide security systems to women on their phones.

Here we introduce an app which ensures the safety of women. This helps to identify and call on resources to help the one out of dangerous situations. These reduce risk and bring assistance when we need it and help us to identify the location of the one in danger. This device is designed to provide security to women main purpose of this device to provide the awareness on the time of critical situation for women. Generally, user can activate this service by adding the emergency contacts using the emergency contacts icon in the device. While in emergency the user would have to shake up his/her device, after that a distress signal (SOS) will automatically got generated from the user end and send SMS to those contacts which has been saved at the time of registration. The SMS contains your message and your exact and live location.

1.2 Brief Description

 We provide this device were women and other user can use this device to contact the parents and friends in the time of need or in case of any emergency. The device provides a friendly interface to use various other emergency tools at the time of emergency. The device can be used both in online and offline mode. Students and other members having friendly free platform device that can easily use the application. The application provides various tools in the form of buttons so as to provide friendly interface to the users. The user just needs to tap on the button to use the tools such as loud alarm button, texting along with sending the user live/exact location and sending the location via the SMS. This help of shock observer the user can make free to run away from the criminal to get time for help.

1.3 Problem Statement

To design a system at any emergency situation, people, get panicked and in that situation, they may not be able to operate their smartphone applications and cannot immediately defend the attacker and protect themselves. The proposed system can be useful for women and children for security purpose. It consists of a wearable safety device having sensors and an emergency button when activated, it sends an alert message with location information to the victim's family and nearby police station.

CHAPTER: - 2

LITERATURE SURVEY

2.1 Proposed System

- The main aim of this system is women safety and security using raspberry pi. For this purpose, python programming is used. The raspberry pi is integrated with a GPS, camera module, gsm module. When a woman is in danger the alert will send automatically, manually to the concerned authorities SMS alert will send to the concerned authorities. Furthermore, utilizing voice information this will help women in danger. and not in that situation to press the button that time she just uses to say help then SMS alert with location and captured image will send to the guardian's/police

- The system architecture comprises a Power supply, ADXL, Raspberry pi module, GPS, Camera, and two buttons which act as an input. System design. shows the architecture diagram of women safety device which contains the raspberry pi is a low-cost single board computer used for connecting raspberry pi camera and a button for sending an SMS alert to police and selected people, here we used two buttons one is for help and another one for that I am safe it depends on the condition of women a pi camera m that click the image of criminal and also using GPS for sending the current location of the women.

- Expect this sometime woman is not able to press the button if above two conditions will not do then we are using a voice data which is the major advantage for women when she in danger when she not able to press button she says just help then the message will send to the concerned authorities this is one of the major advantages of our paper.

2.2 Literature Survey

Sr. No	Title of paper	Year of publication/ Publisher	Methodology	Conclusion
1	Design of a Smart Safety Device for Women using IoT	2019	GSM, GPS, Google Map.	The proposed women safety device aims at proving complete security to women in current scenarios.
2	Automated Criminal identification by face recognition using open computer vision classifiers	2019	Face-detection using Haar classifier	The proposed face recognition system based on Haar cascade will be implemented.
3	A Mobile Based Women Safety Application	2015	GPS android software	To overcome such problem forced by women the safety (women security apps) mobile based application
4	GPS and GSM Based Self Defense System for Women Saftey	2018	PIC16F877A; GPS; GSM; ISD 1820PY	It helps to decrease the crime rate against Women
5	Emergency panic button using microcontroller	2014	Microcontroller, GSM Module with SIM Card	It used by the emergency contact to pin-point the user's location exactly and track the user in the shortest time possible

Table: - 1

CHAPTER: - 3

Concept and specifications

3.1 Introduction

The device described here is a self-defense system specially designed for women in distress to help them to protect themselves. This device can be fitted in a purse, belt or fitted to the girls' sandals and the panic button attached to the belt. The lady in danger can activate the system by pressing emergency button on belt or tilting her sandal. It is a simple and easy to carry device with wide range of features and functionality. The basic approach is to intimate instant location and a distress message to the cops and registered number like parents, friends, media, and women cell etc. so that unfortunate incidents would be averted and to provide real time evidence for swift action against the perpetrators of crime against women.

3.2 System Feature

- Accuracy: Since we will give the priority to the accuracy of the software.

- Failure handling: System components may fail independently of others. Therefore, system components must be built so they can handle failure of other components.

- Openness: The system should be extensible to guarantee that it is useful for a reasonable period of time.

- Usability: The software will be embedded in a website. It should be scable designed to be easily adopted by a system.

- Reliability: The system should have accurate results and fast responses to user's changing habits

3.3 External Interface requirements

There is several hardware which is used in this project.

3.3.1 Raspberry pi 3 b+

Fig: 1

- The Raspberry Pi is a credit card-sized computer. The Raspberry Pi 3 Model B+ is an improved version of the Raspberry Pi 3 Model B. includes a 1.4 GHz quad-core ARMv8 64bit processor and a powerful Video Core IV GPU.

- The Raspberry Pi 3 Model B+ has many performance improvements over the Model B including a faster CPU clock speed (1.4 GHz vs 1.2 GHz), increased Ethernet throughput, and dual-band WIFI.

3.3.2 GSM SIM800L

Fig: 2

SIM800L is a miniature cellular module which allows for GPRS transmission, sending and receiving SMS and making and receiving voice calls. Low cost and small footprint and quad band frequency support make this module perfect solution for any project that require long range connectivity.
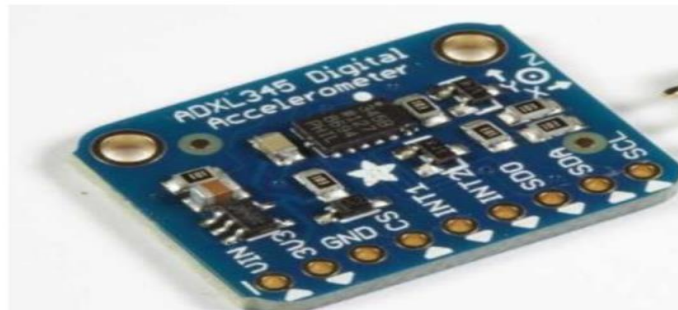
3.3.3 ADXL

Fig: 3

The ADXL345 is a low-power, 3-axis MEMS accelerometer modules with both I2C and SPI interfaces. The Adafruit Breakout boards for these modules feature on-board 3.3v voltage regulation and level shifting which makes them simple to interface with 5v microcontrollers such as the Arduino. The ADXL345 features 4 sensitivity ranges from +/- 2G to +/- 16G. And it supports output data rates ranging from 10Hz to 3200Hz.
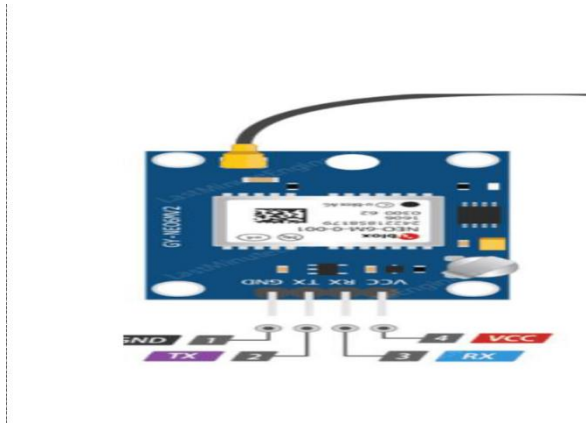
3.3.3 GSP NEO

Fig: 4

- It can track up to 22 satellites on 50 channels and achieves the industry's highest level of sensitivity i.e., -161 dB tracking, while consuming only 45mA supply current. Unlike other GPS modules, it can do up to 5 location updates a second with 2.5m Horizontal position accuracy.

- Receiver Type: 50 channels, GPS L1(1575.42...

- Navigation Sensitivity: -161dBm

- Operating Current: 45mA

- Horizontal Position Accuracy: 2.5m

CHAPTER: - 4

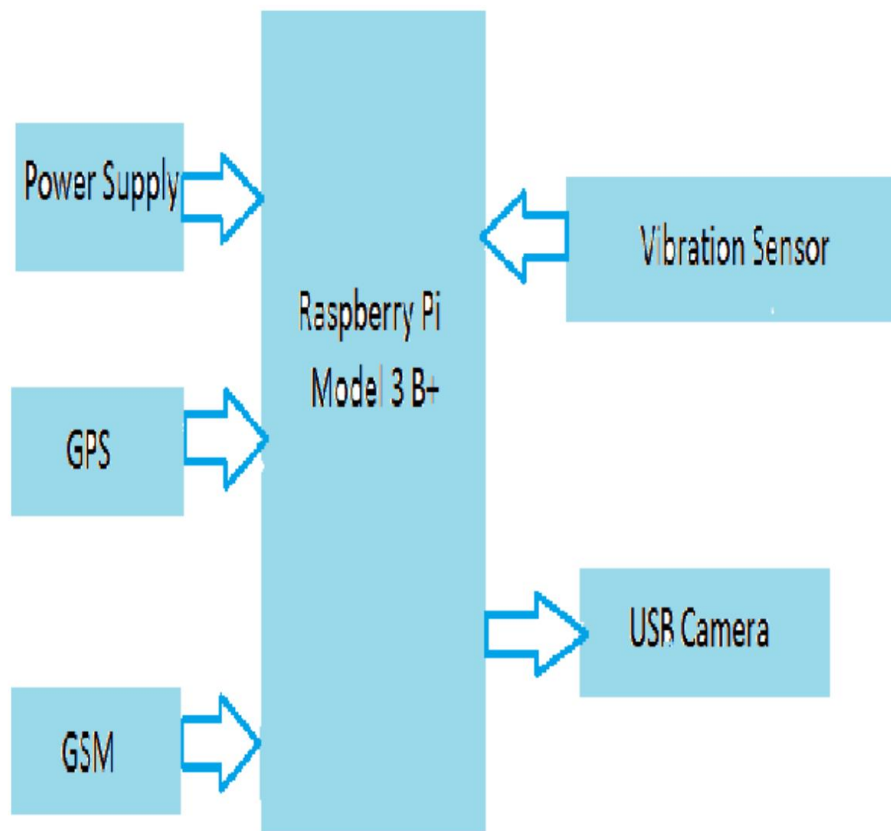## System design and specifications

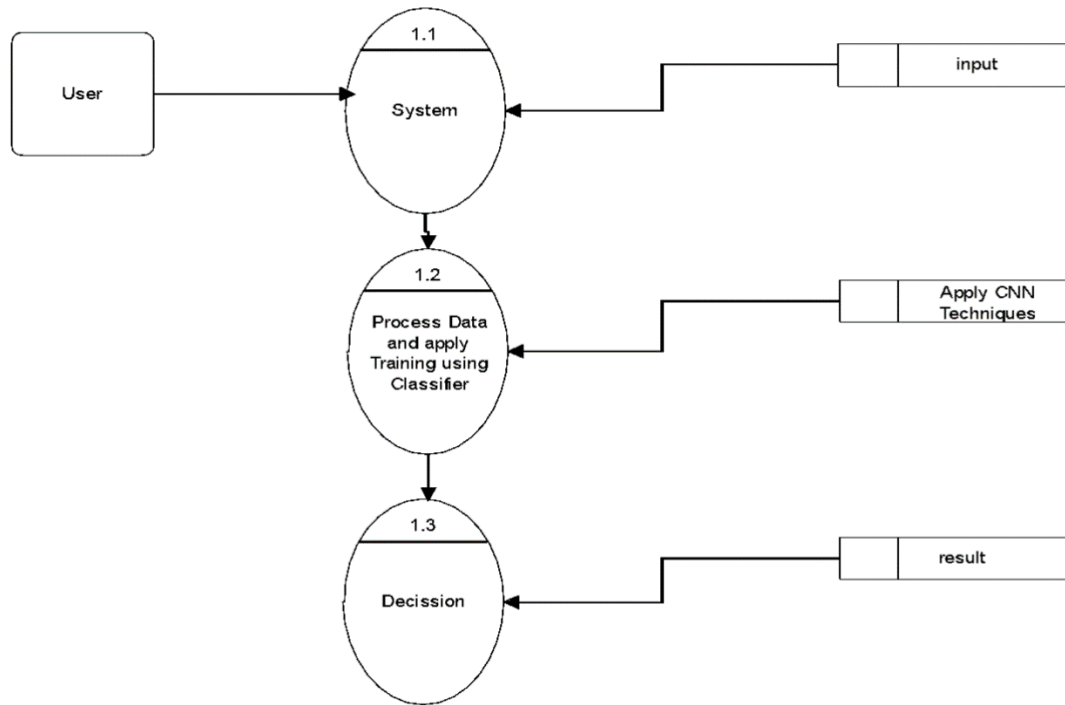### 4.1 System Architecture

Fig: 5

4.2 UML Diagrams

Fig: 6

CHAPTER: -5

Implementation

5.1 Database

Database Requirement

- Appropriate datasets are required at all stages of face recognition research, starting from training phase to evaluating the performance of recognition algorithms. All the images collected for camera.

- network to learn the appropriate features has been increased

Software Requirements (Platform Choice)

- Python.

- Xampp.

5.2 Algorithm

Face image collection and processing:

- Image processing based on convolutional neural networks needs to collect a large number of pictures for the computer to learn. This topic will take a lot of people a lot of images, after collecting a lot of images cropped irrelevant parts of the face. This article uses the face detection and cut saved in the created folder. At this time, the collected images have been trimmed and resized. Then all the images are stitched and stitched in the olivettifaces face dataset, each line represents the category of two people, after all the face images stitching together, and then get the small face database gray degree treatment.

Convolution neural network model construction:

- CNN designed in this paper contains the following layers of structure, which are the input layer, conv, pooling, all connected layer, output layer, convolutional layer and the down sampled layer there will be many. In this paper, the reference to LeNet5 model to achieve this article CNN model set up. The design of the model will be a convolution layer and a down sampled layer merged into a layer, named "LeNetConvPoolLayer", a total of two layers "LeNetConvPoolLayer" in the third layer convolution plus sampling layer connected a full connection Layer, named "Hidden Layer", this fully connected layer is similar to the hidden layer in a multi-layer perceptron. The last layer is the output layer, because it is a multi-faceted face classification, so SoftMax regression model is used, named "Logistic Regression." Figure for the design of convolution neural network structure
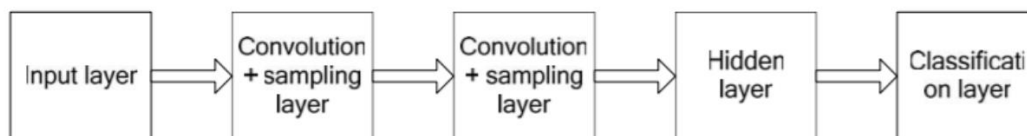

Fig: 7

CHAPTER: - 6
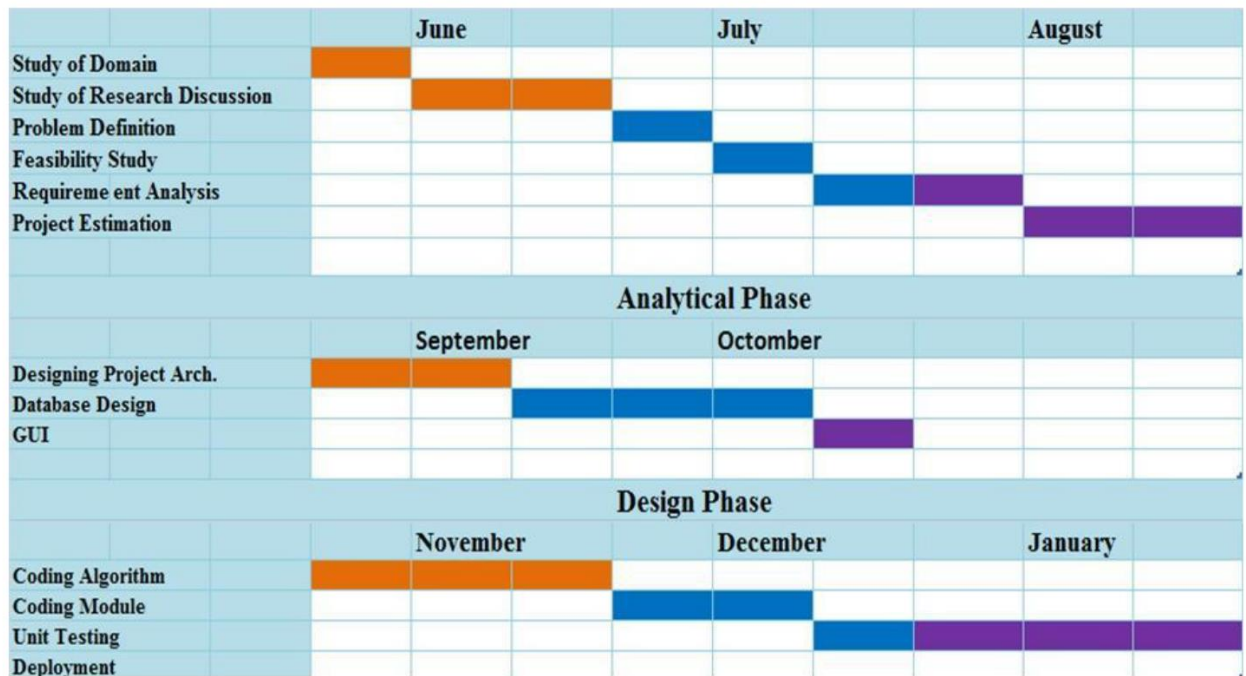
Planning and Scheduling

6.1 Planning and Scheduling

	June	July	August	
Study of Domain				
Study of Research Discussion				
Problem Definition				
Feasibility Study				
Requireme ent Analysis				
Project Estimation				

Analytical Phase

	September	October		
Designing Project Arch.				
Database Design				
GUI				

Design Phase

	November	December	January	
Coding Algorithm				
Coding Module				
Unit Testing				
Deployment				

Fig: 8

CHAPTER: - 7
Result and Analysis

7.1 Future Outcomes

- This type of idea plays an important role towards providing the fastest way of safety for women. The proposed design will deal with critical issues faced by women in the recent past and will help to solve them through using safety devices. This work was focused on developing a smart low-cost device to help women, feel them safer and prevent the occurrence of rape, harassment and other dangerous situations.

- The main purpose of the work is to provide safety and security to the women in dangers situation. The button is pressed by a woman when she feels insecure. Once the button is ON, the microcontroller gets the commands and the GPS will calculate the current latitude and longitude values of the victim. The calculated values are shown in Fig.5.1.GSM module will send SMS which contains latitude and longitude values to the numbers already stored in the microcontroller and nearby police station. GSM will send SMS to the registered mobile numbers for every 1second.The SMS send to the registered mobile numbers are shown in Fig: 9. And display message on the LCD is shown in Fig:10. IoT module will track the current location of the victim and it will update the location on the webpage. The microcontroller will switch ON the buzzer in the device, so that nearby people may come to know that someone is in danger and they will come to rescue. The microcontroller also turns ON the neuro-simulator that apply electric shock to the attacker.

Fig: 9 Display

Fig: 10 SMS

Conclusion

We analyzed that GPS, GSM and sensor can be used to track only users' nearby locations and can only send alert SMS to limited people. In the existing system, there is a buzzer which alerts people when they are in danger, and mobile app ensures the safety of women by using a buzzer system to send alert SMS, the user will share location to their family members and SOS service to send the text message. So, a new system needs to be developed which can send alert messages automatically without human intervention. The accuracy level of detecting violation of women can be improved by sensing more physical human body parameters.

Being safe and secure is the demand of the day. Our effort behind this project is to design and fabricate a device which itself provide advantage of personal security system. This design will deal with most of the critical issues faced by women and will help them to be secure.

The proposed mechanism provides viewing the location of the victim in terms of latitude and longitude which can further be tracked using Google maps. This system helps to decrease the crime rate against women.

Future scope

9.1 Advantage

- Portable Can be easily carried any where

- Comfortable and Easy to use

- Reduce Cost

- WIFI-Enabled

9.2 Limitation

- System can fail when battery get discharged.

- System can be fail when network get fail to connect.

REFERENCE

- Women Safety Device Designed Using IoT and Machine Learning
  https://ieeexplore.ieee.org/document/8560188

- AUTOMATED CRIMINAL IDENTIFICATION BY FACE RECOGNITION
  USING OPEN COMPUTER VISION CLASSIFIERS Apoorva.P1
  ,Impana.H.C1 ,Siri.S.L1 , Varshitha.M.R1 Ramesh.B2 1 Computer Science and
  engineering department, MCE, Hassan 2 Professor, Computer Science and
  engineering department, MCE, Hassan

- A mobile application for Women's Safety
  https://ieeexplore.ieee.org/document/7373171

- IoT based Safety System for Women
  https://ieeexplore.ieee.org/document/9489080

- A Holistic Framework for Crime Prevention, Response, and Analysis With
  Emphasis on Women Safety Using Technology and Societal Participation
  MEETHA V. SHENOY 1 , (Member, IEEE), SMRITI SRIDHAR1 , GIRISH
  SALAKA 1 , ANU GUPTA 1 , AND RAJIV GUPTA2 , (Member,
  IEEE