

# Smart Ring for Women Safety

Dr.Shubhangi D.C<sup>1</sup>, Shivalingamma<sup>2</sup>

Department of Studies in Computer Science and Engineering, Visvesvaraya Technological University Centre for PG Studies, Kalaburagi, Karnataka, India<sup>1</sup>

Department of Studies in Computer Science and Engineering, Visvesvaraya Technological University Centre for PG Studies, Kalaburagi, Karnataka, India<sup>2</sup>

**Abstract:** Individual wellbeing is a standout amongst the most essential worries for ladies, as wrongdoing against ladies has not diminished. These days, different gadgets are accessible in business sectors which claim to ensure ladies from numerous points of view. Still there emerges the need of a defensive gadget which goes about as a watchman at time of an assault.. A smart security wearable device for women based on Internet of Things is proposed. It is implemented in the form of a smart ring and comprises of Raspberry Pi, Raspberry Pi camera, buzzer and buttons to activate the services. This device is extremely portable and can be activated by the victim on being assaulted just by the click of a button that will fetch her current location and also capture the image of the attacker via Raspberry Pi camera. The location and the link of the image captured will be sent to predefined emergency contact numbers or police via smart phone of the victim thus preventing the use additional hardware devices/modules and making the device compact.

**Keywords :** Raspberry pi zero, GPS, Smart ring, raspberry pi camera, android application.

## I. INTRODUCTION

The status of ladies in India has been liable to numerous extraordinary changes in the course of the last couple of centuries. In current India, Women are dealt with on parallel grounds with men. They have turned out to be Independent and are keeping pace with the evolving patterns. Be that as it may, in a few sections ladies still keep on facing separation and other social difficulties and are regularly casualties of mishandle and vicious violations. Because of these reasons it has turned out to be vital for females to remain alarm and handle every single such circumstance proficiently when they are distant from everyone else. Ample opportunity has already past that we furnish ourselves to manage such overwhelming circumstances. Neither ladies nor their families need to stress over the time or places when they go out. All they require is a gadget that can be conveyed effortlessly and worn at whatever point the lady feels risky. Here we present a wearable ring which ordinarily fills in as a common watch. It additionally fuses a IOT unit that will help the casualty to speak with their family or police at the main indication of inconvenience. It additionally actuates an alert from the telephone which is associated by means of IOT. This empowers to pick up consideration of others to the situation. This requests the need of extra equipment which brings about expanded size and weight. Every one of these imperfections can be amended by utilizing the IOT innovation so the capacities like following, informing and ready caution can be performed with the assistance of an advanced cell on accepting the charge. The caution will get enacted and ready message with area will be sent to a predefined number.

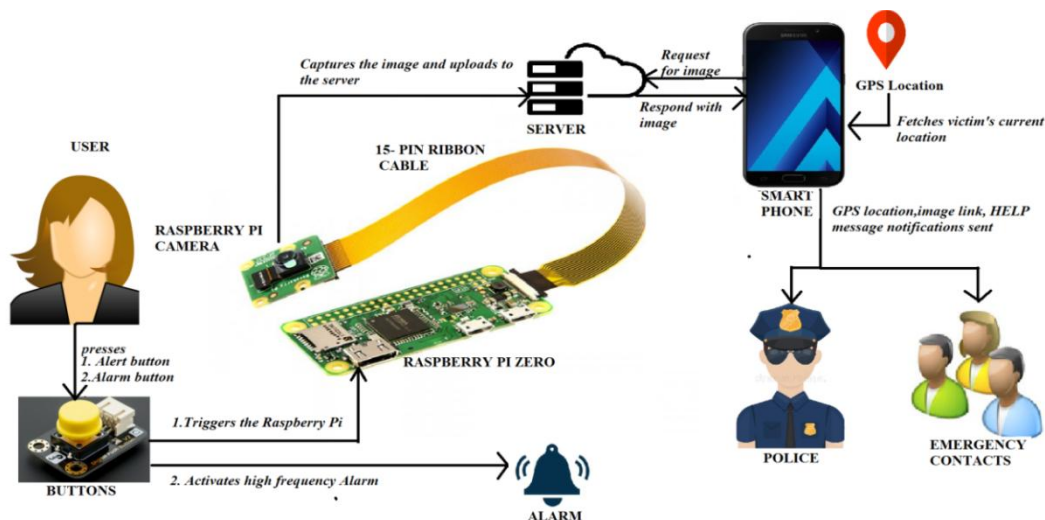


Figure1: Architectural Design

## II. RELATED WORK

*Nishant Bhardwaj and Nitish Aggarwal* "Suraksha"-[3]. The basic purpose of the system is to intimidate instant location and a distress message is sent to the cops or to registered numbers, so that unfortunate incidents would be averted and will also provide real time evidence for swift action against the perpetrators of crime against woman. It is capable of location tracking and screams an alarm when blood pressure of wearer exceeds a limit. The device is bulky and the system needs a receiver transmitter system with wireless module and GSM module for communication..*Xianhua Shu et al.* [1].The component of area construct benefit is underscored with respect to Android stage. One can coordinate a completely zoom and drag empowered guide by including only couple of lines in the java code and XML code of the Android-Default-Application. The accessibility and execution of the stage is confirmed and the plan result additionally demonstrates the effectiveness to actualize self-area, to draw the driving follow, to perform questions and to adaptably control the ongoing guide on Android. "smart girls security system" *Prof. Basavaraj Chougula et al*[4]. This papers suggest the idea that the system form of a normal belt worn by women gets activated, tracks the location of the victim using GPS and sends emergency messages using GSM to three emergency contacts and the police. The system also incorporates a screaming alarm that uses real-time clock, to call out for help and also generates an electric shock to injure the attacker for self defense. *Caroline O. N. Moser*[9] The incorporated structure created in this article perceives the perplexing, endemic nature of urban savagery underscored in a significant part of the scholastic brutality writing, and in addition in late experimental confirmation from the Colombian and Guatemalan PUAs. Neither one of the sources is thorough or extensive. The PUA gives new bits of knowledge into savagery. It perceives the office and character of social performing artists encountering this every day; focuses on the significance of less noticeable structures, for example, intra-family social viciousness; and stresses the interrelationship between various sorts of brutality which make it important to address the wonder as a cross-area concern. "Women, Human Security, and Peace-building: A Feminist Analysis" *Susan McKay*[10] In perceiving the current mobilized atmosphere encompassing national and human security, Rosalind Petchesky addressed whether women's activist human security talk "is a sufficient response to the militarization of individuals' brains that is quickly getting to be 'ordinary' thought.". *SocietyHarnessingEquipment(SHE)* by *ManishaMohan, et al*[8]. This paper proposes system *Society Harnessing Equipment(SHE)* form of a garment has an electric circuit that can generate 3800kV of current which can help the victim to escape from dangerous situation. In case of multiple attacks it can send up to 82 electric shocks. Since the fabric is bi-layered, the user is not affected. . It can also send emergency messages using GPS and GSM modules. The main disadvantage of paper is the device needs to be more compact and is uncomfortable to wear.

## III. METHODOLOGY

Numerous gadgets are presently accessible in the market which are implied for the wellbeing of ladies and some of which are still in the advancement arrange. Gatekeeper Angel is another gadget which can be worn as either a pendant or an armband, and works through Bluetooth with an application on your advanced mobile phone. At the point when stuck in a perilous circumstance, you push a little catch and your wireless will ring quickly, making a diversion. On the off chance that pushed for longer than three seconds, the gadget will go above and beyond and send a crisis alarm, alongside your area, to a contact you've prearranged. Be that as it may, these are once in a while accessible in the Indian market and are expensive. Every one of these gadgets abandon some extension for development either in the event of cost or size.

The new model is produced with the expectation that it would be equipped for giving preferred wellbeing to ladies over numerous gadgets that are accessible these days. The proposed system demonstrates how IOT can effectively help overcome these challenges. The proposed system incorporates Raspberry-Pi, Raspberry-Pi camera, a buzzer and inbuilt GPS tracking system and GSM modules embedded within smart phones and is easily concealed in a ring which is much more handier and accessible than cell phones. The implementation of the system is divided into two parts: First, based on an Electronic kit that uses Raspberry-Pi module consisting of Raspberry Pi for interfacing, Raspberry Pi camera, GSM module (which is pre-installed in the smart phones) for sending HELP message, current location (obtained via GPS location tracking) and captured image via Raspberry Pi camera to predefined contact numbers . This device is extremely portable and can be used by any individual. Second, an android application is developed so that the user can login , select the emergency contacts from the phonebook and eventually send the alert message for help via SMS.

**User:** The client is the individual in peril/casualty who can initiate the administrations of the Smart Ring just by the snap of the catches.

**Buttons:** First catch triggers the Raspberry Pi to take activities and the second initiates the caution. The buzzer activates the high frequency alarm using buzzer.on() method.

**Raspberry Pi:** It is a little measured PC utilized for interfacing the Raspberry pi Camera through a 15-stick CSI.

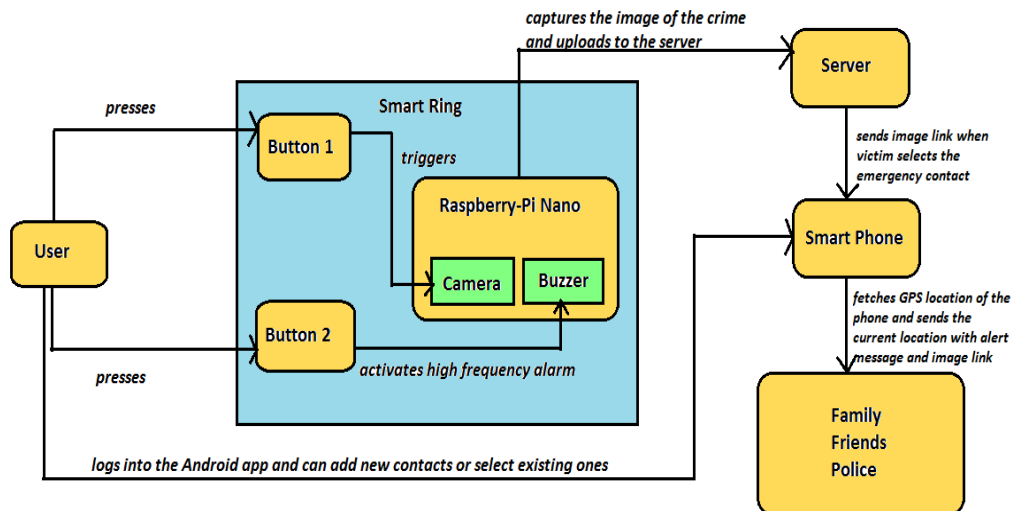


Figure2: Block diagram of smart ring

**Raspberry Pi camera:** Captures the picture and transfers to the server. At the point when the lady is in risk, she can press the main catch and the camera is activated and catches the photograph. Once the photograph is caught, it sends the picture to the server. What's more, ping the client portable application. Portable application gets, the GPS area and send the SMS with the GPS area to the spared contacts. To send the SMS we have utilized SMS Manager in the android application. The SMS contains the GPS area and additionally the picture URL. The hardware module capture image from raspberry pi camera using picamera. with import picamera package we get a camera object to control the camera module. To generate a camera snapshot using capture() method. It will capture an image from camera and before capturing image request camera will show a preview .If there start it should have stop going along using camera.stop\_preview().If preview is too short and want to increase the preview duration,which can be done via time.sleep().

```
import picamera
camera=picamera.picamera()
camera.start_preview()
sleep(5) #hang for preview for seconds
camera.capture('snapshot.jpg')
camera.stop_preview()
```

**Smart phone:** Plays an essential part as on squeezing the primary catch, its GPS area administrations are initiated and the present area of the casualty is followed. At that point this area, the connection of the picture caught alongside help message is sent by means of SMS to crisis contact numbers.

**Android Application:** Provides UI for putting away the client and crisis contact points of interest.

**Add Contact:** Client can join to utilize the application. While enlistment, client needs to include her name, portable number, email and secret key. Every one of these subtle elements are sent to the server utilizing HTTP convention and spared in the MySQL database. After that client needs to login into the application, and server checks the login qualifications. After login, client can chooses the contacts, and points of interest are spared in the database and additionally in the portable.

**Alert System:** Ready message is sent to the close-by police headquarters and the photograph caught. In the event that the client presses the second catch it triggers the signal and one alarm tone is played.

## IV. RESULT & DISCUSSION



Figure3:Hardware module

The above figure is hardware module contains raspberry pi camera, button and buzzer. Once the button pressed buzzer activates and camera capture image of crime and upload to the server. Then server send image link to the smart phone when victim select the emergency contact.

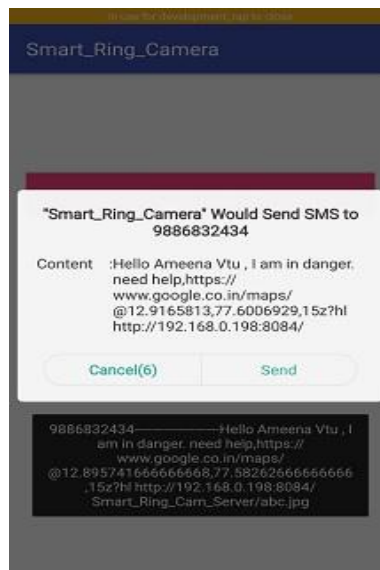


Figure4: send message

The hardware module send image to the server and ping to the portable application ,it gets the GPS area and send SMS to the predefined contact number. The SMS contains the GPS area and URL of the picture.

## V. CONCLUSION

Women security is a basic social issue in this day and age. Through this paper we expect to advance an effective and convenient security gadget for ladies. The proposed configuration can deal with some basic issues looked by ladies and will illuminate them with mechanically stable and straightforward hardware. It can be reasoned that this framework enhances the sexual orientation balance by giving safe condition to ladies in the general public, and enables them to work till late evenings. The ring gets fundamental help in any pain and encourage a methods for self-protection. This work is of direct cost, exceptionally compelling, and profitable. Be that as it may, there is dependably opportunity to get better. A few changes can be made so it hopes to upgrade the execution without modifying the current plan. So by making it perfect with any OS can enhance the framework. It can be changed as an area and cautioning help for kids, maturity people and so forth. A little camera can be inserted on the framework which would record the wrongdoing and fill in as distinguishing proof of the aggressor. The framework can be additionally created by adding couple of sensors to detect the dread and nervousness and consequently programmed reaction can be acquired. Expansion of a voice acknowledgment framework for the entrance will enhance the execution.

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