

Smart Wearable System for Women Security using Internet of Things (IoT)

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ABSTRACT

Women safety is a big issue in even today's modern world driven by advanced technologies. This function demonstrates an efficient women safety identification system using a GPS modem. The proposed women protection device aims to provide complete protection to women in the present scenarios. This device provides a safe and peaceful environment for women with handbag security and android application. This work aims to integrate the Internet of things (IoT) based women's safety device with the device's hardware linked in the handbag, Android application and Bluetooth connectivity in smartphone. After pressing the device key the Android Application identifies the location of the victim's place via GPS and sends a message containing this location URL to the registered contact and also call on the first registered contact to help them in a dangerous situation and also send the alert message to the registered mobile number. Location tracking information through SMS helps find out the victim's current location quickly and can be saved securely.

Keywords: Android Application, Arduino UNO, Bluetooth Module.

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INTRODUCTION

The abused against women is increasing rapidly. Social challenges facing women in modern India are often victims of abuse, violent crimes, and harassment. In a well-equipped India, women's safety has always been an important issue with modern advanced technology. There has been a lot of increase in the use of smart phones worldwide. There are several mobile applications and smart devices developed by the government and people to help female in a situation of danger. Even though they developed various devices and applications, the rate of sexual offenses has not decreased. Women safety devices or applications should be combined with many features used in today's life and real emergency cases.

Here, we introduce an Handbag safety device an android application that ensures women's safety. It reduces the risk and helps us in need by identifying a person's location in danger. This mobile application sends alert message to the registered mobile number.

Android is the most used mobile OS which is motorized by Linux kernel. It developed by Google and later the OHA i.e. Open Handset Alliance. Java language is mainly used for writing code even though it can be used through others. The present system is developed based on android platform. Android uses a custom virtual machine designed to optimize a smart phone's memory and hardware resources.

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LITERATURE SURVEY

A compact device with a weight change. If an attacker ambushed the women/child or recognizes any weakness as a result of the more dangerous situation, he would then be able to press the device. This weight and a regular SMS are immediately identified by the sensor. The casual area will be sent to the telephone numbers of the folks/watchman set in devices when he receives it. Then there's a call to the police station.^[4]

Abhaya is an android application designed for women safety Figure 1 and 2. This application helps track the victim's location via GPS, receiving calls from rooted devices with registered contacts.^[5]

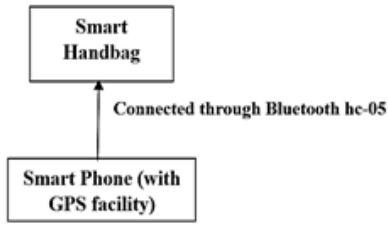


Figure 1: Main block diagram.



Figure 6: Android Application.

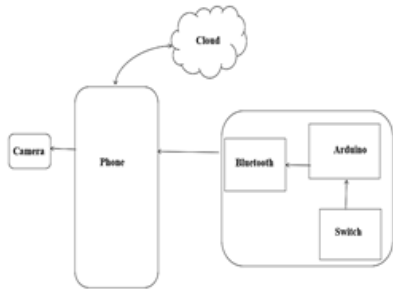


Figure 2: Block diagram for women safety.

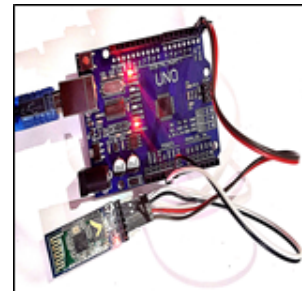


Figure 7: Hardware implementation of device.

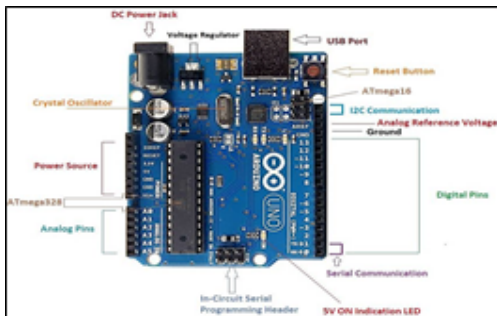


Figure 3: Arduino UNO.

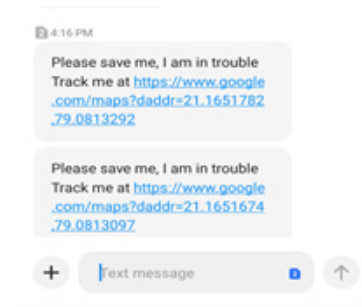


Figure 8: Demonstrates how to deliver a text message to a specific contact.

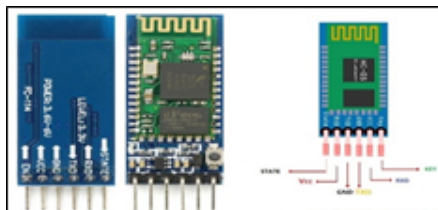


Fig 4: Bluetooth hc-05.



Figure 5: Switch.

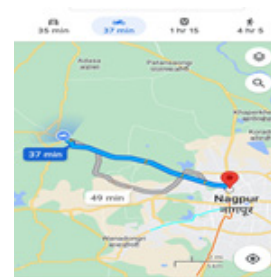


Figure 9: Location of the victim.

An Life CRAFT application for women safety. This app can be activated by voice command or SOS key, the location of victim with alert message sent to the user registered number in every five minutes until the system is turned off and also tracking the victim location showing victim safe zone.^[6]

In a safety system, when power supply is on, the sensors will be sensed the information like heart beat rate, temperature, flexibility, gesture and sound from the victim. These values are checked to the threshold values predefined in the microcontroller. The values do not exceed the threshold value, then the output status will show as normal. If the value has to be more than one then the situation will be unusual.





Figure 10: Capture image.

Then the buzzer will make sound and the process will be shown in the LCD display.^[7]

The handbag safety device for women and also designed an android application for safety. By pressing the controller button, the device alerts the first holder, relatives registered in the database and police when a woman is in danger. And this device protects valuable things from being stolen by thieves from separate alarming system in buses or crowded places and also use heartbeat sensor setup for monitor heart rate, a fingerprint scanner for efficient device access and more and also the mobile android application works to convey the location of the victim to the women.^[8]

Motivation

The challenging situation faced by women nowadays gave them the motivation to help with a security device to do the work they liked to do. The application helps women overcome their fears, move around freely, and fulfill their work.

Proposed System

The main reason of this paper is to use Arduino UNO to improve the women's safety and security. Java programming is used for this purpose. By pressing the key of devices the one of the end of the Bluetooth module receives the data and this data send it to Arduino through the Bluetooth module of the TX pin (RX pin of Arduino). This handbag device is connected to the mobile application through Bluetooth. The android app sends the alert message and the victim's location to the registered mobile number. Also call on the registered contact to help the women in dangerous situation. And by using camera capture picture was sent to the community.

Arduino

Arduino UNO is an open-source electronics Forum. This is microcontroller board based on the ATmega328p. Arduino having 14 digital input and output pins. In Arduino 6 pins can be used as PWM output, 6 pin can be analog input, a USB connection, Arduino has 16Mhz quartz crystal, ICSP header and a reset button and power jack. It includes everything needed to support the microcontroller; To get started simply connect the Arduino to a computer with cable or also can apply supplied with Ac to DC Adapter or Battery Figure 3.

Bluetooth Module hc-05

Bluetooth module hc-05 is used in many applications like game controllers, wireless mouse, wireless keyboard, wireless headset and many more consumer applications. It

ranges up to <100, depending on transmitter and receiver, atmosphere, geographic and urban condition. It uses serial communication to communicate with devices Figure 4. It communicates with microcontroller using serial port (USART).

It has 6 pins:

- Key/EN
- VCC
- GND
- TXD
- RXD
- State

Switch

A push button or simply a button is simple button to control some aspect of a machine or process Figure 5. A push-button is a simple button. Typically, buttons are made of hard material, often plastic or metal fig shows the button image.

RESULT

The components are used to designed the device are Arduino UNO Bluetooth module hc-05. When the victim is in danger and presses the button, an alert message is sent to the registered mobile number. And also call on the registered mobile number and GPS is used to track the location and send the messages with location of the victim send to the pre-registered phone numbers of the relatives of the victim Figure 6 and 7.

Figure 8 to 10 show SMS alert, current location, and the captured image will send to the concerned authorities.

Figure 9 despite the victim's current location. And share this location to the registered mobile number.

Figure 10 displays the victim's picture taken with the camera and sent to the community.

CONCLUSION

The objective of formulating women's safety and security system is proposed and designed in this paper. The proposed design for IOT based smart wearable device for women safety is making safe environment for women in the society and allows them to go anywhere fear free. This women's safety device aims to prove complete protection to women in the present scenario.

Our future scope include a heartbeat sensor for monitoring the heartbeat of women. The various added functionalities, like voice detection, shock generator, scream alarm, recording video.

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