Smart Security Device for Women

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ABSTRACT

Nowadays, safety of women's and children's are the prime issue in our society. The fact that women in India have made a considerable progress in almost seven decades of Independence, but they still have to struggle against many social evils in the male-dominated society. Any evil and masculine forces still prevail in the modern Indian society that resists the forward march of women's. Most of the crimes happen because of the lack of information. Even if we have a security system, it is providing same lack at that time. Here, comes the need for a device which automatically senses and rescues the victim from the danger, which is the venture of the idea of our project. This work was focused on developing a smart low-cost device to help women, feel them safer and prevent the occurrence of harassment and other dangerous situations. On providing a Smart device based on raspberry pi that not only helps to woman escape the critical situations but also ensures to provide justice to the women by capturing the image of the culprits. This device is extremely portable and can be activated by the victim on being assaulted just by clicking a button that will fetch her current location and also capture the image of the attacker via Raspberry Pi camera. The location and the image captured will sent to predefined emergency contact numbers or police via smart phone thus preventing the use of additional hardware devices /modules and making the device compact. This concept was devised in every wake of serious crimes against women in India and to help prevent those crimes.

Keywords- Security Device, Raspberry Pi, GPS and GSM

I. INTRODUCTION

In recent years, women continue to face various threats and are often victims of abuse and brutal problems. Women are primarily shaping future of the country and also participating in the process of economic development on an equal footing with men. The Government of India, meeting a longstanding demand for gender parity in the workforce, has approved an amendment in The Factories Act 1948 to allow women employees to work in nightshifts. The amendment suggests that nightshift for women shall be allowed only if the employer ensures safety, adequate safeguards in the factory as regards occupational safety and health, equal opportunity for women workers, adequate protection of their dignity, honour and transportation from the Working

places premises to the nearest point of their residence are met.

In IT&BT industry, women work in night shifts. It is the responsibility of the firm to provide office transportation to such employees. Even though the companies provide the facilities for transportation, but the security of the women is not fully ensured. Women's security is a major issue of concern in today's world. Women are subjected to various immoral activities. Women safety methods such as various mobile apps have been tried and implemented, but the need for the time is that they need in the device form. It should ensure the safety of women.

This project focuses on a security system that is designed to provide a better security measures for women. The objective of this work is to create a smart safety device for women's safety. we are mainly designing a prototype model for the smart device that can be easy to access.

II. SMART SECURITY DEVICE FOR WOMEN

The developed smart security device for provide the following facilities

- Alerts family and friends by sending emergency message
- Captures the images/video of the attacker to maintain proof for legal actions.

The device consists of Raspberry Pi, Camera, GPS and GSM module. It also has Pushbutton. In the emergency case, when a women/children pressed the device, it will get activated automatically within a fraction of seconds. The figure 1 shows the smart security device.
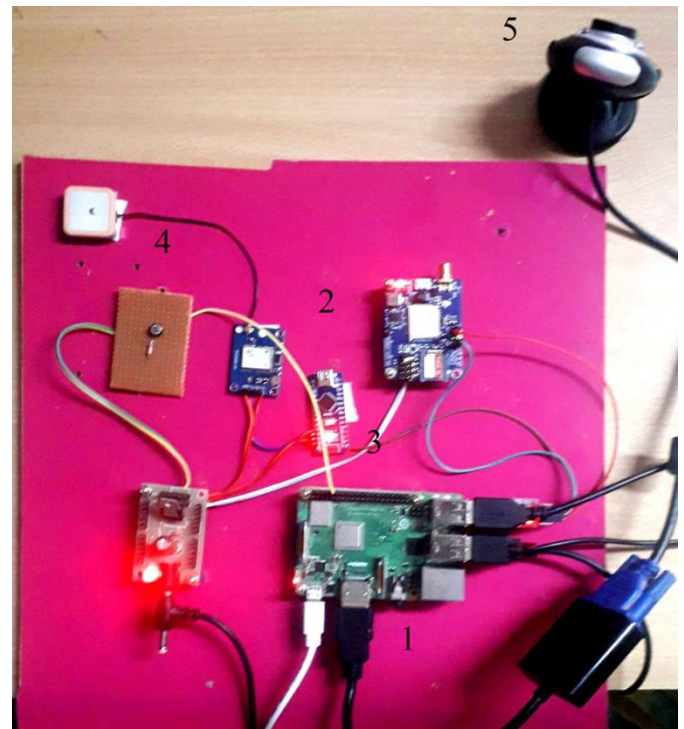

Figure 1 Smart Security Device for Women 1. Raspberry Pi, 2. GPS and GSM Module, 3. Transistor Transistor Logic, 4.Push button, 5.Camera

Immediately the location of the victim will be tracked and messages will be sent to an emergency contact which is stored in the GSM module. The block diagram of the device is shown in figure 2.
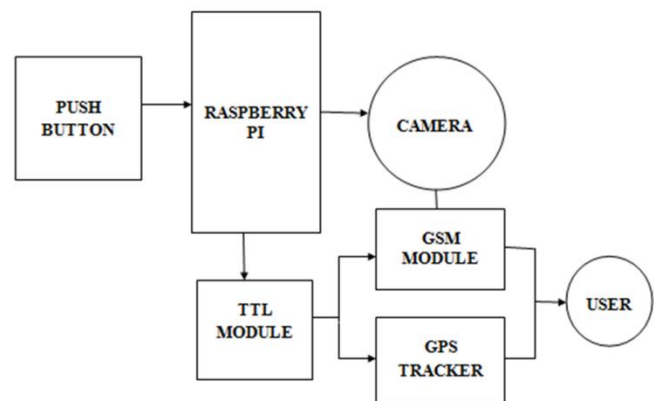

Figure 2 Block diagram of Smart Security Device

A. Raspberry Pi module

The Raspberry pi is a Linux based microcomputer based on ARM architecture. It was built mainly to aid in developing open source game. This part describes the models of Raspberry Pi available. This will not attempt to provide full specifications but an overview in order to help in making a decision as to which

device it is required to accomplish the objectives in question. Currently, five raspberry pi models do exist. All these models use the same SoC (System On Chip – combined CPU&GPU). They are differing in hardware features.

B. GPS and GSM module

GPS signals are already very weak after they reach the Earth's surface. By the time the GPS signals reach the receiver they are typically as weak as –130dBm (–160dBW). This is often well below the thermal amplitude. Standard GPS receivers integrate the received GPS signals for up to 20ms.This leads to the flexibility track signals right down to about –150dBm (–180dBW). High Sensitivity GPS receivers are ready to integrate the incoming signals for much longer than this and might, therefore run down to levels approaching -160dBm.

GSM could be a mobile communication modem; it stands for a worldwide system for mobile communication (GSM). A GSM digitizes and reduces the information, then sends it down through a channel with two completely different streams of client information, every in its own specific interval. The GSM performances for voice, SMS, Data, and Fax in an exceedingly small form factor and with low power consumption. A GSM modem requires a SIM card to be operated and operates over a network range subscribed by the network operator. It will be connected to a computer through serial, USB or Bluetooth connection.

C. Web Camera

Resolution: Many webcams have 720p and 1080p high-definition capabilities.

Lens: A high-end webcam has a glass lens while a moderately priced model has a plastic lens. As with microphones, whether this difference matters or not depends on the type of recording. Most plastic lenses are adequate for Skype and other video chat software. For professional video production, invest in a glass lens.

D. TTL Module

The TTL UART Converter module can be used with Laptop's which don't have standard serial port. This module creates a virtual COM port using USB on computer which can support various standard Baud Rates for serial communication. Finally a new COM port is made available to the PC. The feature which makes it more convenient is the TTL level data I/O. The Rx and Tx pin can be connected directly to the MCUs pins.

E. Push button

A push-button or simply button is a simple switch mechanism to control some aspect of a machine or a process. Buttons are typically made out of hard material, usually plastic or metal. The surface is usually flat or shaped to accommodate the human finger or hand to be easily depressed or pushed. Buttons are most often biased switches, although many un-biased buttons (due to their physical nature) still require a spring to return to their un-pushed state.

III. RESULT AND DISCUSSION

The system is turned ON when switch is pressed in instances of attack, manually by the woman. The Raspberry pi will get activated when it receives signal from pushbutton. The figure 3 shows the Raspberry Pi program in monitor.
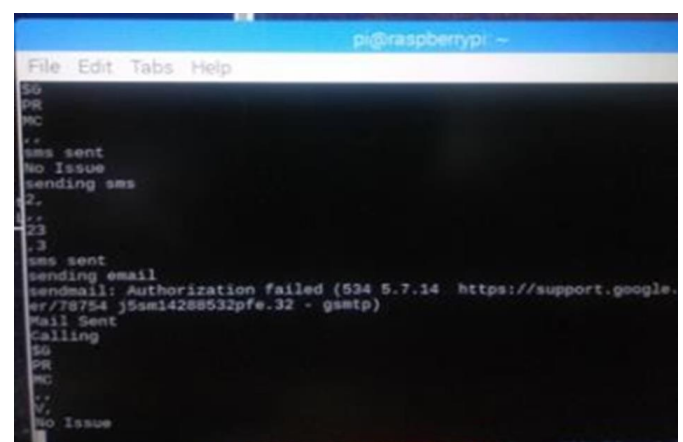

Figure 3. Raspberry Pi program

The Raspberry Pi triggers the camera to capture the image and send it to the concern mail id. The figure 4 shows the captured image received in mail.
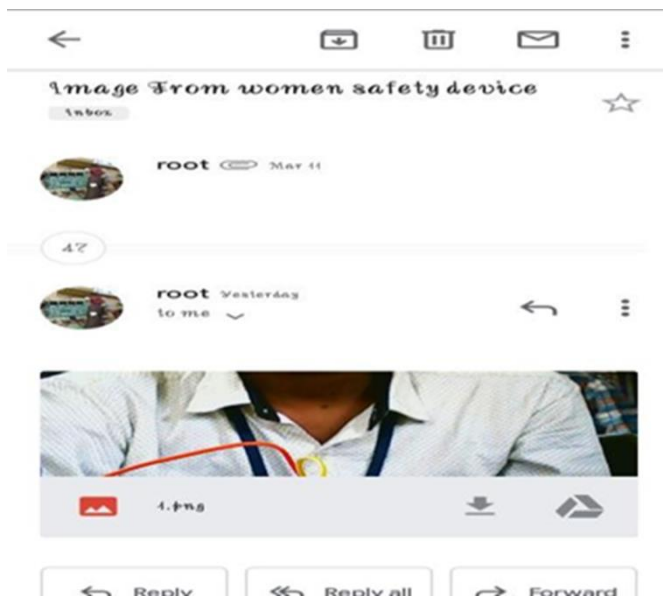

Figure 4. The captured image received to the concern mail id

The GPS track the location and GSM module will sent the image and locations are send as message to the registered mobile number. The figure 5 shows the received message where it shows the location of the women/children.
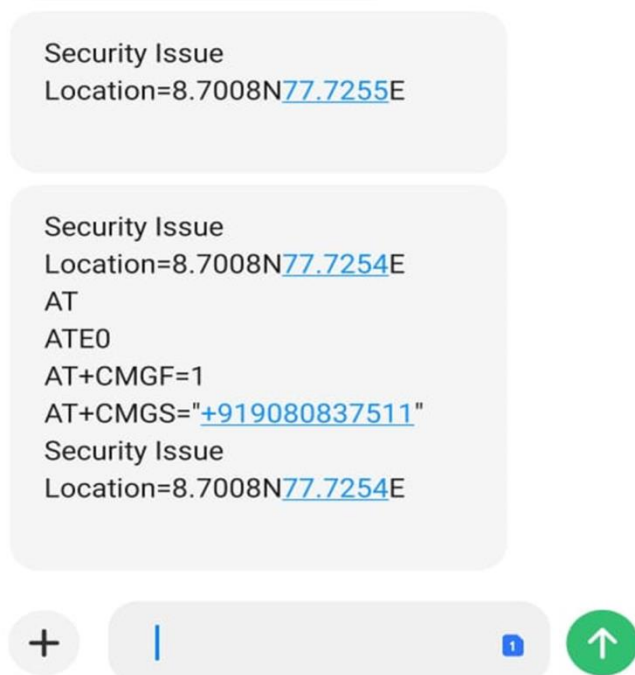

Figure 5 The location received through the SMS

Here, TTL module which act as bridge for GSM module and GPS. It also shares the data between the GSM and GPS. The captured images and location will send to emergency contact in phone and police via smart phone.

IV. CONCLUSION

Our effort behind this project is to design a compact device provide the advantage of security purpose for the emergency situation which is helpful for women in a critical time. It is economic benefit able and it can send the data of the person in the particular locality and provide an instant alert in case of crime against women. This smart security device provides women security. Being safe and secure is the demand of the day.

V. REFERENCES

[1]. Ms. Shubhangi. P.Mankar, Ms.MonaliPawar, and Ms.Manisha Shinde, Child Tracking System based on GPS System, a paper in International Journal on Recent and Innovation Trends in Computing and Communication.

[2]. Akash Moodbidri and Hamid Shahnasser, Child Safety Wearable Device, IEEE paper, 2017.

[3]. Mr. K. Karthik MCA., PG Scholar, Assistant Professor "Women Safety Application Using Android Mobile" IEEE paper, 2014

[4]. K.Seelam, K.Prasanti, A Novel Approach to Provide Protection for Women by using Smart Security Device Institute of Electrical and Electronics Engineers, volume 18,page351-357,2018.

[5]. K.Priyanka, S.Purushothaman , A.Vaniprabha, protection for women using iot smart device with location and parameters" IEEE paper, 2017.

[6]. R.Meghana , K.G. Rashmi, H. Keerthana, S. Saranya, L.Niranjan "Women Safety Measurement Tracking System Using Raspberry Pi" EEE paper, 2017.