

ELECTRONIC JACKET FOR WOMEN SAFETY

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Abstract - In today's global context, one of the primary concerns for women is their safety and the issue of harassment. Women often wish they could freely navigate the world without constantly worrying about their protection, even during unconventional hours. The aim of this paper is to address these concerns by providing a system that offers women a sense of security and empowerment. The system incorporates various components, such as GSM, GPS, shock circuit, buzzer, camera, and a Raspberry Pi module. The world has witnessed numerous instances of violence and harassment against women, which has prompted the need for enhanced safety measures. This paper introduces an innovative electronic jacket specifically designed for women's safety. It is a response to the unfortunate reality that women frequently experience misbehavior, abduction, and harassment at the hands of men. Women have made significant contributions in various fields, including sports, dance, education, business, and politics, but their safety remains a pressing concern. Despite their accomplishments, women still face risks and vulnerabilities. To address these challenges, we have developed an electronic system integrated into a jacket. This system utilizes cutting-edge technologies such as GPS, GSM, a camera, shock circuit, and a buzzer, all controlled by a Raspberry Pi board. By implementing this system, we aim to provide women with a tangible solution that enhances their personal safety and empowers them to navigate the world without feeling helpless. The electronic jacket acts as a protective shield, allowing women to assert their presence in society with greater confidence and peace of mind.

Key Words: Raspberry pi, GSM, GPS, Shock circuit, Camera.

1. INTRODUCTION

Throughout history, making sure the protection of girls has remained a paramount problem inside our society. As generation keeps to advance, new and progressive answers have emerged to address this ongoing issue. Among those tremendous improvements is the digital jacket for ladies' protection—a superb improvement that needs attention. The cause of this text is to offer a complete creation to this contemporary wearable, delving into its features, functionality, and the capability it holds for boosting girl's protection. In the prevailing scenario everywhere in the world, girls are dealing with a whole lot of challenges. We can pay attention the information of girl's harassment extra than their achievements. On the opposite if humans across the sufferer are informed, the possibilities of the sufferer

being rescued and helped is significantly improved. Incidents of rape, robbery and harassment in big crowded towns had been at the upward push over the last decade, maximum of those assaults appear on sufferers who get singled out within the crowd. The gift alert mechanism utilized in telecellsmartphone packages does now no longer don't forget the reaction to movement time gap.

The sufferer's own circle of relatives is probably in some other stop of town, whilst the nearest patrol automobile can be twenty to thirty mins away, below such circumstances, informing own circle of relatives and the regulation enforcement might not show to be of a lot assistance. There are many present programs and gadgets for girls' protection through smartphones. Though telecellsmartphone era has extended rapidly, it isn't always viable to have the telecellsmartphone all of the time in our palms to make a name or click on it. Even if a sufferer calls her dad and mom or family for rescue, the attacker or the wrongdoer becomes alert or even he can transfer off the cell or smartwatch or some other gadgets. Hence to confront a majority of these drawbacks, a stable digital jacket concerning a couple of protection measures thereby growing girls' self-protection has been designed.

The digital jacket for girl's protection, combines style and generation to create a flexible and discrete defensive garment. It is designed to be lightweight, comfortable, and stylish, making sure that girls sense assured and stable at the same time as sporting it.

This goals at giving safety to ladies with none indication to the offender due to the fact these days sporting a jacket is turning into a trend, so the perpetrator will now no longer get doubt at the sufferer.

1.1 PROBLEM STATEMENT

In times of emergency, women face challenges in protecting themselves and using their mobile devices effectively. They may encounter difficulties in activating the alert feature and sharing their location with the police and their family members.

2. LITERATURE SURVEY

N Saranya et al [1], proposed "Women safety application using Android mobile". This is a mobile based women safety design. Nowadays, every smartphone is equipped with GPS, which aids us to find the location of a person. Whenever

women go out, all her location information can be tracked with the help of GPS installed in the smart phone. GPS calculates the latitude and longitudinal co-ordinates of a location and it will direct that data to the receiver, who can find the location. GPS works with the help of satellite system. This satellite system helps to identify the location.

Shweta Kumari et al. [2], proposed on "Technological Advances in Personal Safety Devices for Women: A Systematic Literature Review". This paper presents a systematic literature review on personal safety devices for women. It examines various types of devices, their features, effectiveness, and limitations, providing insights into the current state of technology in this field.

Deepak Kumar et al[3], designed a system that helps to identify the women injustice cases across social media. This system mainly focuses on social media applications like twitter. In Twitter the hashtags which are against the women and which disturbs the harmony of the society will be found and the guilty will be punished. Women's will also a get a stage like twitter where they can express the injustice caused to them.

Sridhar Mandapati et al[4], has developed an application which is connected to the safety of the women. This mobile based application can identify the location of the women when she clicks the button in the application. Also, it can make phone calls. This kind of systems can be very useful to the when they go out alone, or when they are working at night.

Deepak Sharina et al. [5] present an analytical review discussing the crucial necessity of an intelligence security system, along with the technological requirements and challenges involved in its development. The objective of such a system is to minimize the possibility of physical violence, such as robbery or sexual assault, by equipping individuals with readily available tools to safely escape from dangerous situations. This proactive approach helps reduce risk and provides assistance when needed. In today's society, social networking has become an integral part of our lives, but unfortunately, it has also become a source of harassment for women, often involving the uploading of offensive photographs taken by hidden cameras. It is important to note that although such incidents can also happen to innocent males, some individuals in such cases may resort to ending their lives through suicide.

Nishant Bhardwaj et al. [6] designed an instrument called "Suraksha" which can be carried and kept anywhere, this is used to send the location to the pre-registered mobile numbers and to send the dangerous message to the same numbers, the message is also pre-registered like "my life is in danger". So that, it helps to catch the culprit lively.

T. Sowmya et al. [7], proposed a "Women's Safety System using IOT. The project consist of a model this will live

positions endlessly additionally sends a message with location to a predefined range. IoT (internet of things) may be a comparatively new and fast developing thought. By victimization IoT-based technology guardians, relatives and police will monitor and track totally different sensors prices and position of a tool. The system is simple for coming up with and moveable

3. BLOCK DIAGRAM

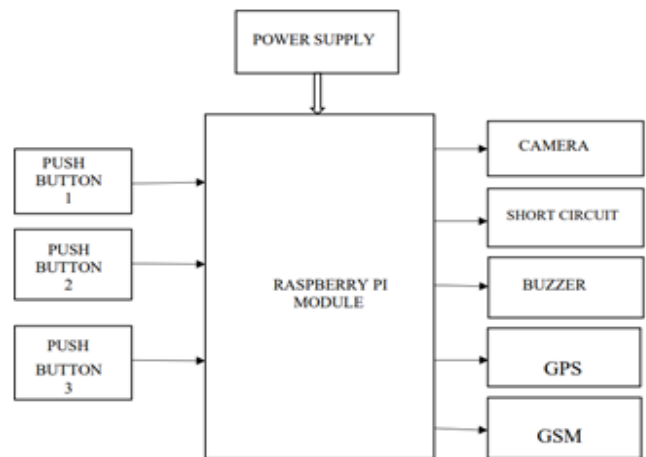


Fig.1:- Block diagram

3.1 HARDWARE SPECIFICATIONS

- Raspberry pi
- GSM Module
- GPS Module
- Camera
- Power supply
- Buzzer
- LED Switch
- Push Buttons
- Capacitors
- Resistors

Table-1: Comparison between Raspberry pi module and intel Galileo board.

	Raspberry model	Intel Galileo
Flash	Micro SD socket	SDIO interface;4GB Onboard flash
Processor	700MHZ ARM1176JZF-S	500MHZ Dual-core Atom processor
RAM	512MHz	1GB
Ethernet	10/100 onboard	None
USB	4 ports	1 USB-OTG
Power Consumption	5V*600mA(~3W)	3.3V-4.5V@<1W

3.2 METHODOLOGY

In this work, we have used Raspberry pi module which is the central part and has a total of 40 pins. In this paper, we have used three buttons, out of which first button is for GPS and GSM. Second button is for camera and buzzer.

Third button is for shock circuit. Once first button is pressed, GPS and GSM will turn on and it will send location to predefined numbers by calculating latitude and longitude coordinates along with GSM danger message "MY LIFE IS IN DANGER SITUATION". When second button is pressed, camera turns on and captures the culprit's image and sends it to the predefined telegram account and simultaneously buzzer will turn on. When third button is pressed, shock circuit will turn on. When attacker tries to attack women, shock circuit will injure the attacker, this helps the women to defend herself. In today's scenario, this method is most useful.

The Architectural model of our proposed model is shown in Fig 2. In which Raspberry Pi, GPS, GSM modules are used.

GSM: A GSM modem is a wi-fi modem that operates with a GSM wireless network. It operates at either 900mhz or 1800mhz frequency band. It supports voice calls and data transfer speeds.

GPS: Useable in solder-free breadboard projects. It is readily used with both 3.3 V And 5 V microcontrollers.

CAMERA: In this design, we are placing a camera on jacket which will capture the image of attacker, so that it will be easy for cops to search the him.

BUZZER: The alarm is used to assist the user by alerting people during emergency situations. All this description can be seen in the flow of operation.

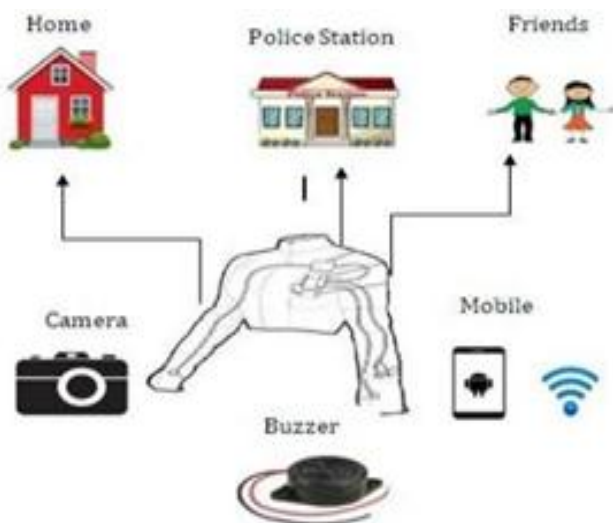


Fig.2:- Architectural Model

4. FLOW CHART

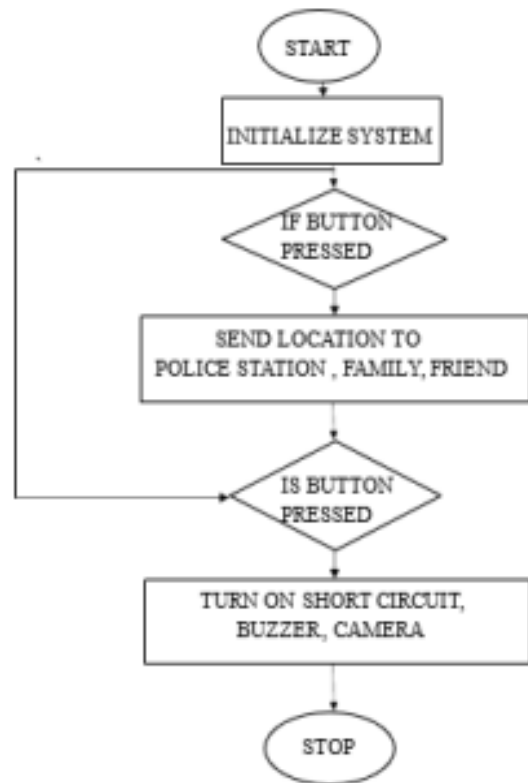


Fig.3:- Flow diagram

After initializing the system, if the primary button is pressed GSM and GPS receives on, the pre-registered message and the vicinity hyperlink could be shared to the pre-registered numbers and the decision may be given as a reminder. If the second one button is pressed the digital digicam receives on and the captured photograph is dispatched to the pre-registered via telegram. If the third button is pressed the surprise circuit receives on and the shocks can be generated while the offender touches the jacket.

5. RESULTS AND DISCUSSIONS

The proposed model of woman safety as shown in the Figure 5.1 will send the location, alert message and image to pre-registered mobile number using GPS, GSM and Telegram The current location of the victim will be sent to pre-registered mobile number using the GPS and GSM and the image is sent to registered telegram account using WIFI. The below Figures 5.2 and 5.3 show the SMS sent to pre-registered number and the image sent to telegram.

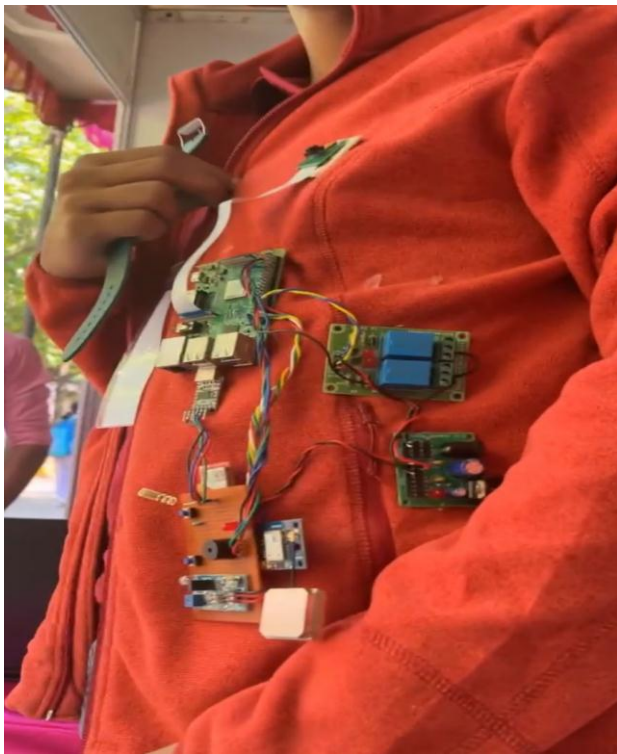


Fig.5.1: Proposed Model

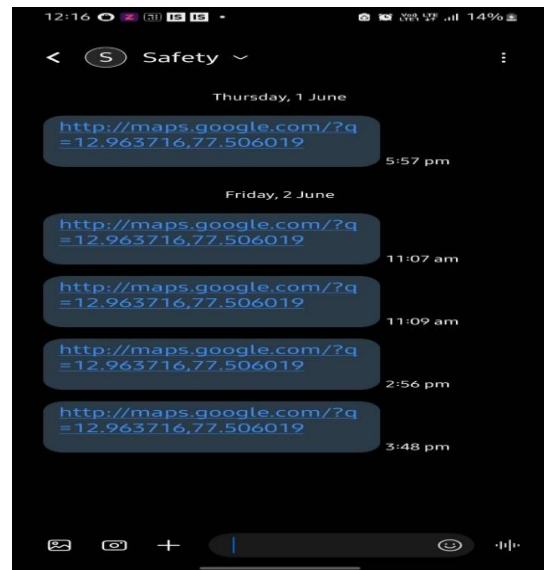


Fig. 5.3: Location via SMS

System is light weight and gives accurate and quick results. Women can go anywhere with more security. Culprits can be easily found and hence punished. Consumes less power. The limitation of the model is, batteries are prone to damage and may not work in long run. If network fails, and then it is not possible to intimate the pre-defined numbers. However, it finds applications in the areas where Women who work during late hours, providing them with an added layer of safety and security. College and school girls can utilize the app to enhance their personal safety This serves as a vital tool for safeguarding women in critical situations, offering quick access to emergency services and notifying trusted contacts. With its location tracking feature, the application enables users to share their real-time location with designated individuals, ensuring that their whereabouts are known. This app includes self-defence resources and techniques, empowering women to protect themselves and respond effectively in potentially threatening situations.

7. CONCLUSIONS

This proposed design will help females when they are in dangerous situation and she can rescue herself in such situations. This helps the girl to walk alone at night, which will increase her self- confidence, that she can protect herself. Police can easily catch the culprit as his face is captured by camera.

8. FUTURE SCOPE

In future one can append more features like adding one more button so that the pepper spray is sprayed on the culprit. And it can be made to send a photo without internet.



Fig. 5.2: Image via Telegram

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