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Research Paper on Women Safety System

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Abstract: ***In latest years, Violence and physical assault Against Women have increased in recent years. The number of women working in industries and other commercial market sectors is increasing. It's getting more and more necessary for women to travel at an odd hours and lonely locations as a part of their work. There are other strategies besides defense that may be sufficient to stop this growing abuse. It is necessary to come up with a security strategy that gives women a means of safety. Therefore, a more straightforward safety solution that can be engaged with just a button push and that can immediately notify the victim's close relatives is required.***

Keywords: Mobile Women Protection System(M-WPS), Raspberry Pi, safety system, Alert System.

I. INTRODUCTION

Over the past few centuries, there have been many remarkable changes in the status of women in India. Women in today's India still experience social issues, difficulties and are frequently the targets of abuse and violent assaults.India is the worst country in the G20 for women, ranking as the "fourth most dangerous country" in the world for women, according to a global poll by Thomson Reuters.There is a growing need in India and other countries for women's protection. The main problem with the police's handling of these instances is that they are hampered in their ability to react promptly to distress calls. These limitations include the victim's inability to reliably and covertly contact the police due to their ignorance of the crime's location or its occurrence.The main goal of this mission is to create a security framework that will effectively protect women and ensure their well-being so they never feel helpless in the face of social challenges. The primary inspiration behind this initiative was the Delhi "Nirbhaya" case, which sparked outrage across the country. It was past time for us ladies to make a shift. We are planning to design an IoT-based ladies safety gadget in this way to help with the removal of these limits. The Raspberry pi acts as the controller for the integrated Internet of Things platform, which also includes a camera for streaming videos, a microphone for audio recording, GPS to locate the woman, and a GSM for message and call transmission. The device's panic button is discretely and readily triggered by the user. Once the panic button is touched, a message with the user's location will be sent to the emergency contacts they have pre-selected. Additionally, the microphone and camera begin to capture audio and broadcast video, respectively.

II. LITERATURE SURVEY

1) *Priyanka Das, Priya Patil, Monika Monu, Archana Naik, and Prof. Basavaraj Chougula, "SMART GIRLS SECURITY SYSTEM," (IJAIEM) 2014:*

This essay offers an alternative viewpoint on using technology to safeguard women. When the device is turned on, it looks like a regular belt and uses GPS (Global Positioning System) to follow the victim's whereabouts. It also uses GSM (Global System for Mobile Communication) to transmit emergency signals to three emergency contacts and the police control room. 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.

2) *KTV Reddy, Madhura Mahajan, and Manita Rajput "Building and Establishing a Safety System for Women," Department of Electronics and Telecommunication, Fr. C. Rodrigues Institute of Technology, Vashi, Navi Mumbai, India.*

The focus of this literature is on developing a safety system that offers a solution that guarantees the victim's defense and the establishment of a smooth path for commencing any necessary legal proceedings. Our aim is to develop a wearable that can function as a partial security solution and alleviate anxiety in women and their families. The purpose of this literary work is to develop a portable safety gadget that serves as a safety system for women by performing the following functions: Notifies the victim's family and the police, providing the location coordinates of the assault. Also uses a small shock as a defense mechanism.

3) *"A method for the personal safety in real-scenario," 2016 International Conference on Computation System and Information Technology for Sustainable Solutions, Jijiesh J. J., Suraj S, D. R. Bolla, Sridhar N K, and Dinesh Prasanna A.*

This literature mainly focuses on the advancement of the technology and its use for personal safety. Women, children, and old people who constantly feel like they need assistance getting around had more mishaps. Thanks to technological advancements, people can now contact with their families and the police by using a small, portable device that they can utilize in any situation. With the use of GPS and GSM, the victim may be located and emergency messages can be sent to the designated places using a portable device that can be activated according on the user's needs. In order to neutralize the attacker, the device has an alert system, a help call button, and an electric shock feature.

4) *"Women Employee Security System using GPS And GSM Based Vehicle Tracking," published in the international journal for research on emerging science and technology, volume 2, number 1, January 2015, by Poonam Bhilare, Akshay Mohite, Dhanashri Kamble, Swapnil Makode, and Rasika Kahane*

The GPS and GSM-based car monitoring and female employee security system described in this paper uses a combination of a GPS device and specific software to track the location of the vehicle and send warnings and messages with an emergency button trigger. Google maps can be used to view the position information of the vehicle that the device provides. The IT industry is aware of the security issue and needs a system that can effectively assess the issue of female employees working night shifts. The suggested methodology that can be used to address the issue of female employees' security concerns through GPS and GSM-based vehicle tracking is the main topic of this paper.

5) *"Panchi: A women's security app," A. L. Mishra, H. Srivastava, and H. V., 2023 International Conference on Networking and Communications (ICNWC), Chennai, India, 2023.*

The goal of this project is to create a web application that will address the difficulties Indian women encounter when reporting problems. The program seeks to remove the time-consuming procedure and societal constraints that prevent women from recording and communicating their issues. A complaint module for instant emergency reporting is part of the suggested solution, which enables authorities to quickly send help. The main problem discussed is how difficult it is for women to file complaints because of the lengthy procedure and social stigma. With the web tool, women can register grievances without fear of social criticism because it expedites access to authorities, eliminates delays, and ensures end-to-end privacy.

III. METHODS AND MATERIALS

The individual may have to go alone across a considerable distance at an unusual hour, possibly even using public transport, and they may be in danger. During that period, a personal safety application may not only would it be prudent to have simple access, but it may also instill in you the necessary confidence. There may be instances where ladies have accidents late at night and no one is around to assist or tend to them. The individual won't be able to identify the circumstances that he or she faces in such circumstances. Additionally, they are ignorant of the specifics of first aid and the location of the incident.

We are unaware of the methods for leaving unwanted meetings since we do not know how to make fictitious calls. There are no smartphone apps for people's safety; instead, in an emergency, individuals must call friends or family to explain their situation and the issue, and most of the time, we are unaware of first aid protocols.

Below is a discussion of a few shortcomings in the current-system:

- The individual who is in danger is unable to articulate and demonstrate their circumstances and position.
- The individual lacks knowledge about first aid details.
- By pressing a single button, users of the suggested system can broadcast their position and notify a limited group of contacts that they are in danger. You won't ever go alone when you use this app for personal safety!!. You may find yourself in a situation where you have to go a large distance by yourself at an odd hour, possibly even on public transportation, and you could be in danger. Having easy access to a personal safety app during such times could be sensible, and it could also provide you much-needed confidence.

The name and phone number of the person who should be called in an emergency are needed for the personal safety application. Multiple users can be added to the emergency contacts list. In the event of an emergency, alerts or SMS will be sent to these individuals. It only needs the user to press the designated SOS button to begin sending out messages as quickly as the device is able to. When the SOS button is pressed, a message similar to "I am in an emergency" will be sent to the contacts listed in the emergency file.

This message will be followed by another one that contains the precise GPS location of the phone. Additionally, the user can make audio or video calls. Additionally, this app offers the first aid procedures that need to be followed in emergency scenarios.

Features:-

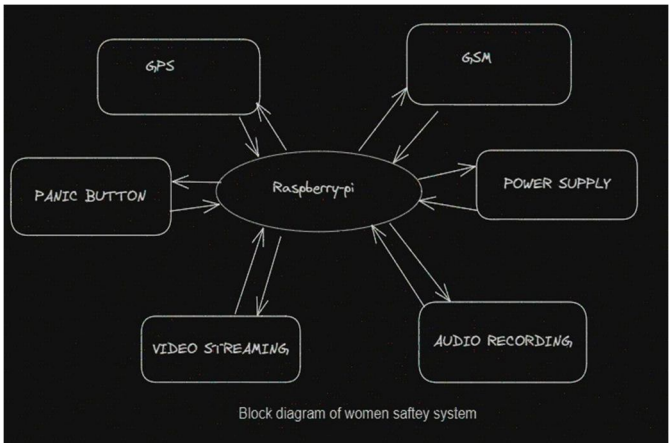
- Show your whereabouts and risk status to loved ones? At the moment you can disconnect the emergency, declare an emergency whenever you perceive a hazard.
- Offers the essential first-aid actions that must be performed in certain risky circumstances.
- Share with your loved ones how you plan to get there.
- Establishes emergency contacts who will be notified by default of all activities you take within the programme.
- A list of the specific contacts for local law enforcement, firefighters, hospitals, and other organisations is also included.

IV. EXPERIMENTAL SETUP

An Android smartphone with wifi capability and an Intel(R) Core(TM) i3 M380@2.53GHz CPU with 4GB RAM and an 80 GB hard drive were used for the trials. The following software requirements were met in the creation of the I safety (woman security application) mobile app: The front end is an Android application, the web end is a Servlet Java development kit 1.6.0 or higher application, and the Android IDE is Eclipse. My Eclipse IDE for Android SDK 20.0.1, Java Web Applications, and Connective WiFi router software.

V. PROPOSED WORK

The internet of things (IoT) will be used to build and execute a smart system for women's safety. The gadget is intended to operate as follows, as seen in figure 1 below. In the event that a lady is attacked by an enemy, she must physically hit the panic button. The controller will be triggered by this switch. The woman who is being assaulted will provide the GPS with her area coordinates, which it will then use a GSM module to communicate to pre-selected mobile phone numbers—typically those of her family and friends. Additionally, it will record the attacker's picture, video, and voice and send it via an RF module to another area where it may be seen.



Block diagram of women saftey system

Below is a brief explanation of the modules and parts that will be used in the Raspberry Pi system: The Raspberry Pi is a controller board with an on-board 802.11n Wi-Fi network, Bluetooth, USB boot capabilities, and a 1.2 GHz, 64-bit, quad-core processor based on the Broadcom BCM2837 chip.

GSM & GPS: A 3.8v to 4.2v SIM 800L GSM module is selected. The GPS module that transmits the coordinates via GSM.

Camera: Using the CSI connector on the Raspberry Pi, the Raspberry Pi Camera Board is connected directly. The 5MP resolution image it can transmit is incredibly clear. With a weight of little over 3g, the board is ideal for mobile devices and other uses where weight and size are crucial.

Audio Device: A USB microphone is connected to a Raspberry Pi.

Panic Button: An electronic switch known as a "panic button" is intended to activate the system and begin alerting someone in case of emergency.

VI. ADVANTAGE OF PROPOSED SYSTEM

1) The system is integrated into one. Thus, there's no need to bring along several gadgets.
2) After pressing the emergency button, the GPS tracking feature keeps track of the user while they are moving.
3) It captures audio, which can be utilised for additional research.
4) It automatically transmits the location of the pre-stored contacts when the battery is low.
5) Its ability to identify hidden cameras, which protects our privacy, is its second unique function.
6) This gadget functions even without an internet connection.

VII. RESULT AND DISCUSSION

Simply touching the programme on the smartphone screen will bring up the alternatives, and selecting any one of them will cause the relevant action to happen. The various settings in the apps are shown in Fig. 1. Selecting the "Add guardians" option on the main screen causes the screen to navigate to another screen with two alternatives. "Add from contacts" and "Add new contacts". When the "Add from contacts" option is chosen, information is retrieved from phone contacts and then saved once more in a JSON database. The chosen cellphone numbers are shown after choosing the guardians from the phone contacts, and the JBOS stores the contact information. All that's utilised in Android-based smartphones is memory. Selecting the "Add new contacts" option opens a second popup window with text fields for the contact's name and phone number, which is also maintained in a JSON database. All it takes to send a call is to touch the SOS option on the main screen. From there, the application retrieves contacts stored in the JSON database, executes the action, and simultaneously sends the location URL of the user who used the application in danger. The place where the individual is in danger can be found by just clicking the location URL that was obtained from the message, and a blue area will appear on the Google Map.

VIII. CONCLUSIONS

The fastest route to safety for women is made possible in large part by this research. The suggested design aims to address the hazardous problems that women have encountered recently and provide solutions by utilizing safety devices. The goal of this effort is to create a low-cost, smart device that will help women feel safer and stop rape, harassment, and other harmful circumstances from happening. All hopeless and harassed women and children will benefit from increased safety and security as a result of the project.

By giving women in the community a safe space to work and allowing them to stay up late, the system contributes to the preservation of gender equality. The crime rate against women is decreased because anyone who would commit a crime against women would be warned before doing so.

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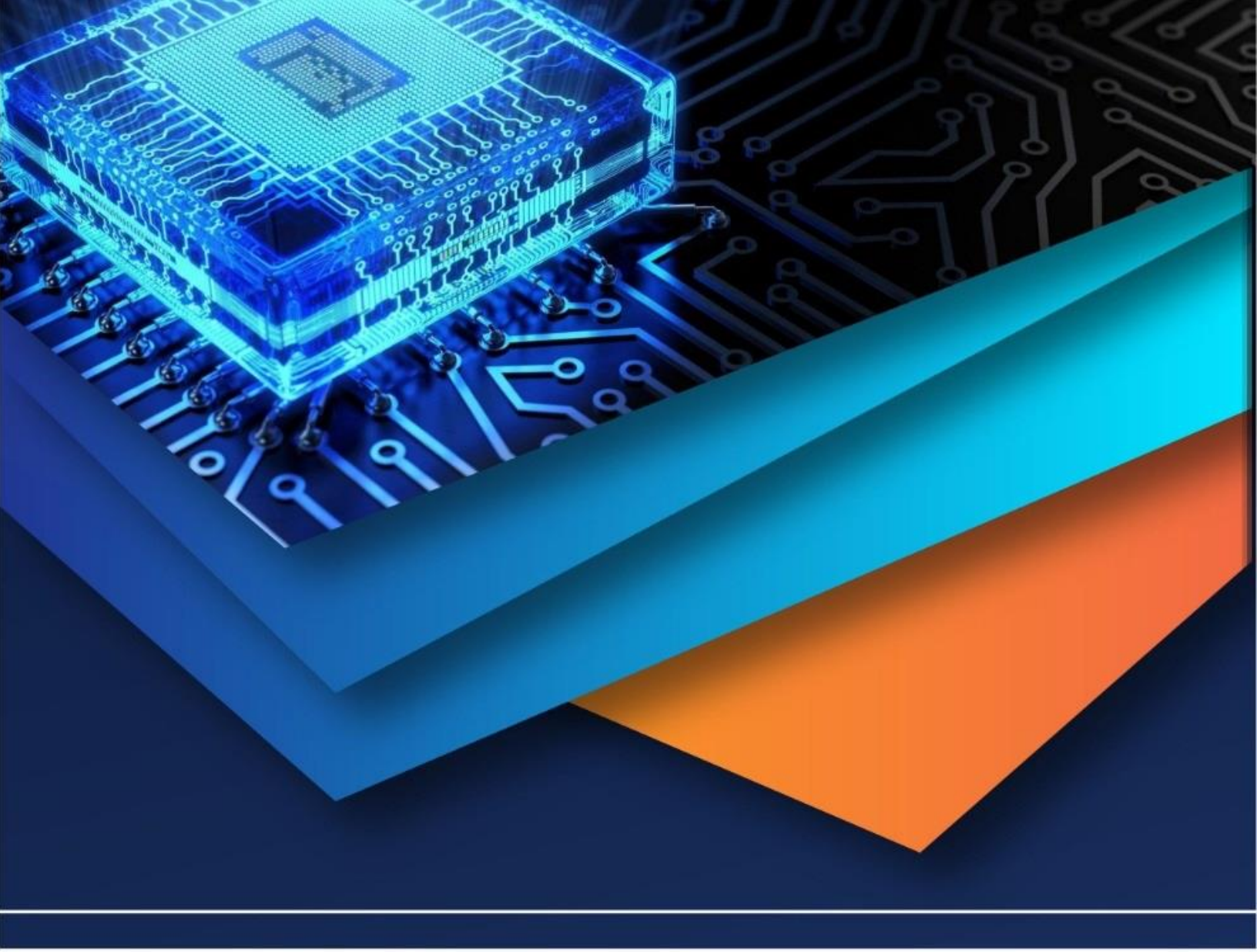

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