International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 11 | November - 2023 SJIF Rating: 8.176 ISSN: 2582-3930

WOMEN SAFETY SYSTEM USING RASPBERRY PI

Aishwarya Bagal[1], Sachin Dhokale[2], Prajakta Dandawade[3], Shravani Padole[4]

[1-4] *Students,Electronics and Tele-communications Engineering, Trinity Academy of Engineering, Pune, India*

ABSTRACT

For women, kids, and even seniors, security has grown to be a fundamental issue in every aspect of their lives. Women are being attacked and molested, kids are being kidnapped, and elderly people are also dealing with many issues like robberies. This study uses the Raspberry Pi 3 to develop a smart wearable device system for improving the safety and security of women and children. Both a security system and an alert mechanism are employed. People who are close to the user receive a buzzer alert from it (wearing the smart device). This research suggests an SVM-based model that is useful for surveillance in order to use the best approach possible to address various societal problems. The technology uses the Global Positioning System (GPS) to find the user and uses the Global System for Mobile (GSM) to relay the user's location through SMS to the emergency contact and police. Technology for general radio packet service (GSM) and (GPRS). As soon as the user presses the panic button on the smart wearable device system, the gadget also uses a USB web camera that is interfaced to it to take pictures of the assault and the surroundings of the user or victim and sends them as an email alert to the emergency contact.

Keywords—Raspberry Pi3, IoT, GPS, GSM, E-mail alert, SVM

1. INTRODUCTION

The current generation is working toward a society where everyone has equal rights, including men, women, and children, and where duties and workloads are distributed equitably. This has led to changes in the working schedule for women, who are now assigned to various shifts during the day or even at night. Therefore, it is crucial to increase women's and children's security, especially at night. To get to their workplaces or homes during late hours, women may need to use any of the available modes of transportation. The panic button in the smart wearable device system that is described here is a push button switch. The individual wearing the device presses the button each time they are in difficulty. After pushing the button, When the panic button is pressed, the system's GPS module locates the user and uses the GSM module to relay the user's location to the emergency contact and police. The USB camera takes a picture of the user's surroundings, and the Pi then emails the emergency contact the picture along with an alarm message. SVM technique for determining the safest path for women is included in this.

Women's standing in India has evolved tremendously throughout millennia. In modern India, women face societal issues and are frequently victims of abuse and violent crimes. As per a Thomson Reuters poll, India is the "4th most hazardous country" for women in the world, and the worst among G20 countries [1]. In India and other countries, women's safety is becoming increasingly important. The police's main problem in dealing with these incidents is that

they are limited in their ability to respond swiftly to distress calls. These limits include not knowing where the crime is taking place or even that it is taking place at all: reaching the police in a secure and discrete manner is difficult at the victim's request. This project mostly focuses on a security system that is entirely meant to keep women safe and secure, so they never feel helpless. While confronted with such social issues The most powerful incentive for this initiative was the Delhi "Nirbhaya" case, which sparked outrage across the country. It was past time for us, the women, to make a change. In this method, we will design an IoTbased women's safety gadget to clear away these limits. The Raspberry Pi serves as the platforms controller, while GSM is used to send and receive messages, and GPS is used to find the women.

2. DESIGN METHODOLOGY

2.1 Proposed Design and methodology

The suggested smart floor cleaner's block diagram is displayed in the above figure. The current legal framework is not robust enough to prevent crimes against women. The main objectives of the system are accurate tracking, timely processes, reasonable development costs, and acceptable quality. This study offered a way for a woman to alert the appropriate authorities right away if she feels threatened. The recommended approach measures a woman's pulse rate with a device. If it is high, our gadget and smartphone notify the closest police station and family member of the woman's location. and take a picture of the victim, sending copies to each of However, the victim and the contact person must both own

2.3 Block Diagram of Proposed System:

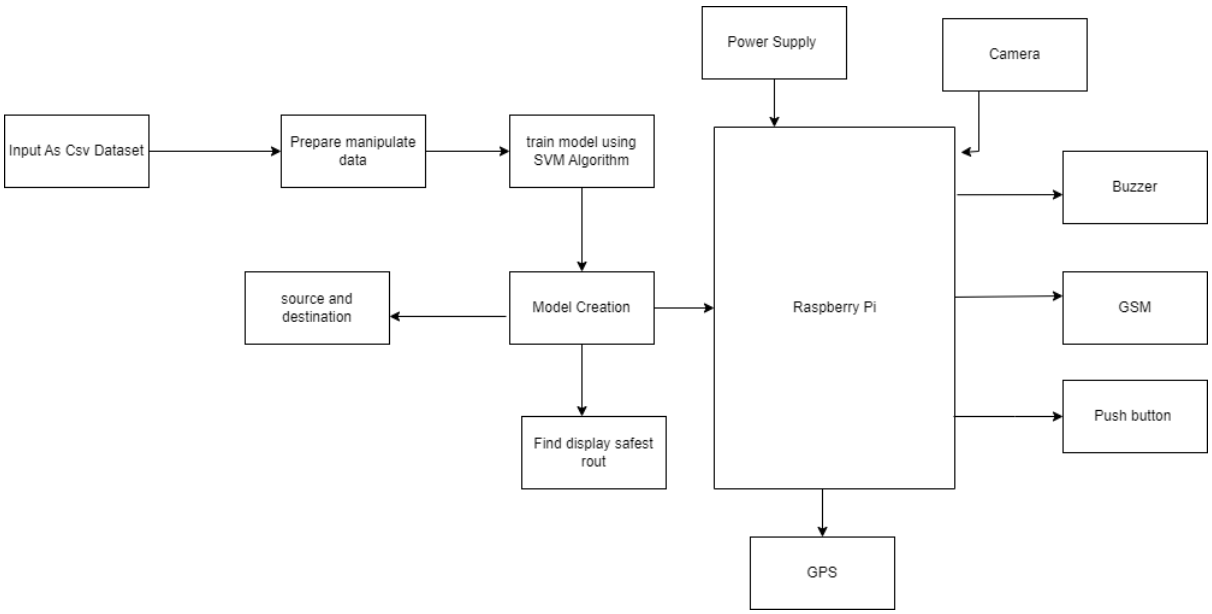

Fig1-Proposed System

3. Experimentation work

Giving the machine the dataset is the initial step. CSV is the format used for the dataset. We provide the machine with the safest route dataset in this CSV format.

Preprocessing is the following stage. Remove all mistakes and noise from the dataset during the preprocessing stage. SVM technique was employed when classifying data. Using the SVM technique, train the model. Then create the categorization model, and last test the results. Whether the path is the safest.

3.1 Required Hardware Components:

1) Raspberry Pi:-
2) GPS Module:
3) GSM module:-
4) Power supply
5) Buzzer
6) Push button
7) Camera

3.2 Required Software Components:

Operating system : Windows 10.
Coding Language : python
IDE : Anaconda navigator
Database : DB SQLite

3.3 Implementation

The suggested smart floor cleaner's block diagram is displayed in the above figure. The current legal framework is not robust enough to prevent crimes against women. The main objectives of the system are accurate tracking, timely processes, reasonable development costs, and acceptable quality. This study offered a way for a woman to alert the appropriate authorities right away if she feels threatened. The recommended approach measures a woman's pulse rate with a device. If it is high, our gadget and smartphone notify the closest police station and family member of the woman's location. and take a picture of the victim, sending copies to each of However, the victim and the contact person must both own

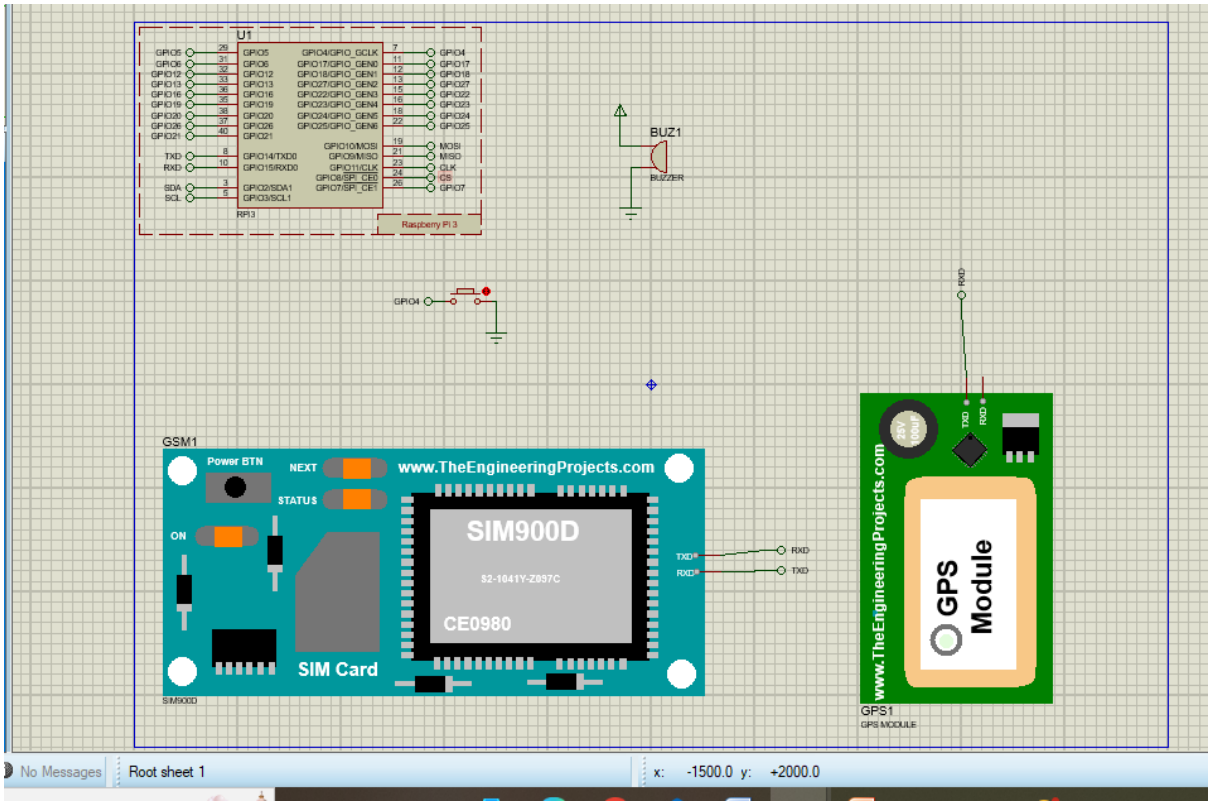

Fig3-Circuit Diagram

4. Results and Discussions

When the woman presses the Panic button by hand, the system is activated. This switch, when pressed once, sends a signal to the Raspberry Pi, activating the microphone and video camera, as well as sending SMS messages to the pre-determined phone numbers with the location

5. Conclusions

According to the study, because ultrasonic sensors have an echo and a trigger pin, they are more useful for detecting objects. Signals are sent by the trigger pin and received by the echo pin. If an object is found, the signals will be able to show it, and a formula in the code will allow one to estimate the object's distance. As a result, using ultrasonic sensors rather than infrared sensors will yield better results.

It will be simpler and more efficient if voice recognition mode is introduced to take user instructions and carry out that specific task.

REFERENCES

1. Vamil B. Sangoi, "Smart Security Solutions," International Journal Of Current Engineering And Technology, Vol.4, No.5, Oct-2014.
2. Simon L. Cotton And William G. Scanlon, "Millimeter - Wave Soldier –Tosoldier Communications For Covert Battlefield Operation," IEEE Communication Magazine, October 2009.
3. Alexandrous Plantelopoulous And Nikolaos.G.Bourbakis, "A Survey On Wearable Sensor Based System For Health Monitoring And Prognosis," IEEE Transaction On System, Man And Cybernetics, Vol.40, No.1, January 2010.
4. B.Chougula, "Smart Girls Security System," International Journal Of Application Or Innovation In Engineering Management, Volume 3, Issue 4, April 2014.
5. Hock Beng Lim, "A Soldier Health Monitoring System For Military Applications," International Conference On Body Sensor Networks.
6. Palve Pramod, "GPS Based Advanced Soldier Tracking With Emergency Messages Communication System," International Journal Of Advance Research In Computer Science And Management Studies Research Article, Volume 2, Issue 6, June 2014.
7. Remya George, Anjaly Cherian.V, Annet Antony, Harsha Sebestian, Mishal Antony And Rosemary Babu.T, —An Intelligent Security System For Violence Against Women In Public Places||, ISSN: 2249 – 8958 International Journal Of Engineering And Advanced Technology (IJEAT), Volume-3, Issue-4, April 2014.
8. Thooyavan V, Advanced Security System For Women, Department Of ECE Vidyaa Vikas College Of Engineering And Technology Vasai Thane India, Final Year Project, Serial Number HEM 128 IEEE 2014 Project List Under Real Time Target Surveillance System, Slides Share On Www.Slideshare.Net, Jun 24, 2014
9. Bhaskar Kamal Baishya, —Mobile Phone Embedded With Medical And Security Applications||, Department Of Computer Science North Eastern Regional Institute Of Science And Technology Nirjuli Arunachal Pradesh India, E-ISSN: 2278-0661 P- ISSN:2278-8727 IOSR Journal Of Computer Engg(IOSR- JCE) Www.Iosrjournals.Org, Volume 16, Issue 3 (Version IX), PP 30-3, May-Jun. 2014.
10. Prof. Basavaraj Chougula, Archana Naik, Monika Monu, Priya Patil And Priyanka Das —SMART GIRLS SECURITY SYSTEM||, Department Of Electronics And Telecommunication KLE's College Of Engineering And Technology Belgaum India, ISSN 2319 – 4847 International Journal Of Application Or Innovation In Engineering Management (IJAIEM) Web Site: Www.Ijaiem.Org, Volume 3, Issue 4, April 2014.