International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 09 Issue: 09 | Sept - 2025 SJIF Rating: 8.586 ISSN: 2582-3930

Review on Smart Protective System for Women Safety

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Abstract - In the present world, women are the primary caretakers of everyone but the major problem that runs in every woman's mind is about her safety & free from harassments and what every girl need is a proper freedom to go wherever she wants even in odd hours without worrying about her safety. Now-a-days women are being molested, harassed and even kidnapped in public places and public transport as well. So, the main aim of this project is to provide safety to every woman by using latest technology. This project mainly focuses on security of women so that they will never feel helpless in any situation. Women are the primary caregivers for everyone in every home, country, and planet, including children and the elderly. According to international reports, when our world's economy and politics change, women will play a major role and take the lead in assisting the family and overcoming new challenges. The primary goal of this paper is to provide safety to all women by using cutting-edge technology**.**

Women are unable to protect and operate smart phones in an emergency. Also, she cannot activate the alert function when they are in a dangerous situation and cannot immediately pass and send their location to the police and family members.

Key Words: Safety, Location, Alert, Technology, GSM, GPS.

1. INTRODUCTION

We are probably living in the worst time our modern society has ever seen in terms of women security. We aim to make women feel as strong as ever and strong enough to fight the parasites of our society, strong enough to fight the odds, strong enough to protect themselves against any sexual assaults. We aim at giving power to those without whom we cease to exist. Our idea is to design a system which shall make every place and every hour safer for women again. A system which shall re- establish how very gregarious mankind is. This system shall geo tag and send SMS and Call to the nearest police station, close contacts. The idea is to make up for the time it takes police to arrive at the location. Location of the women is send to the nearest police station and relatives and also the location of the women is send.

India is a country of peace-loving and law-abiding citizens. It is a safe destination for domestic and international tourists. However, like any other civil society, there are aberrations, and a few persons break the law now and then. In recent past, a few isolated incidents have been reported in India in which women travelers were sexually assaulted. There have been many cases where cab drivers, taxi drivers or auto rickshaw drivers have harassed, molested or tried to kidnap the women passengers. Many women are afraid to be alone in public places due to fear of being harmed. This fear has been caused by repeated cases of violence towards women.

Women's empowerment in the country can be brought once their safety and security is ensure, either it may be at home, publics places or during travelling. Many attempts are made to make women journey safer. This paper presents design and implementation of women safety system which will ensure women safety during travelling in public transport vehicles such as cabs, taxi, and bus and auto rickshaw passengers.

Many women are afraid to be alone in public places due to fear of being harmed. Even in this modern era women are feeling insecure to step out of their house because of increasing crimes in our country like harassment, abuse, violence etc., The corporate and IT sector are currently in boom. Many women are working in corporate even in night shifts. There is a feeling of insecurity among the working women.

Fig. 1.1 Overview of the System

The proposed device is more like a safety system in case of emergency. This device can be fitted in a bag. It is an easy to carry device with more features and functions. The main purpose of this device is to intimate the parents and police about the current location of the women. A GPS system is used to trace the current position of the victim and a GSM modem is used to send the message to the pre-defined numbers. This model is also useful for small children's, elderly aged people also.

2. LITERATURE SURVEY

This paper proposes a security system designed to enhance women's safety and provide essential security measures. The system incorporates various colorful modules such as GPS guard (SIM900A), Atmega328 board, Arduino Board, GPS module (GYGPS6MV2), Screaming alarm (ADR 9600), Pressure detector, and power force unit [1].

In this paper [2], an attempt is made to design a device named "Suraksha" to immediately alert the cops near the location from where the device is activated. This indeed provides worthy evidence against the crime.

In this paper, the authors have made advancement in the present existing device which could send an emergency message to the contacts feed by the user. When the attacker or the culprit touches the watch a shock is induced which tends the attacker to let go of the victim [3].

This paper presents wearable detector bumps that incorporate solar energy harvesting. It provides information on various detectors utilized for monitoring the health data of individuals. Additionally, the authors have developed an online platform to manage the collected data from the detectors [4].

In this paper, the authors uniquely try to develop a wearable smart band with an additional secret webcam to record important information and it is connected to Bluetooth [5].

Along with that the device also tracks the health of the person wearing it and monitors it using the device that's been connected. when the SOS button is pressed continuously having less or no delay, a message goes to the authorized person stating the person is in danger In this paper, the author describes their endeavor to create an Android application that triggers a vibrate detector upon launching the app. Additionally, whenever the user interacts with the phone's screen, the GPS and GPS module become active and capture the latitude and longitude coordinates, which are then transmitted to the application. The application forwards these values to the registered contacts specified by the user, ensuring the safety of women [6].

The proposed work focuses on designing and developing an electronic device that can automatically record instances of chain snatching, a criminal offense. However, it should be noted that this system has a limitation as it is only effective within a specific range [7].

Ensuring the safety of women has become an increasingly crucial issue in today's world. With the rise in night shifts for women in the IT industry, there is a pressing need for security solutions. This research paper presents a model that addresses the security concerns faced by women working during nighttime by incorporating features such as location tracking, self-defense mechanisms, and instant alerts. Additionally, the proposed system includes a health monitoring component to keep track of vital signs like heart rate and body temperature [8].

Every single day, women of all ages and backgrounds face the daunting challenge of ensuring their own safety and shielding themselves from the unwelcome attention of insensitive individuals who engage in acts of molestation, assault, and the violation of their dignity. Unfortunately, public spaces, including streets and transportation systems, have become hunting grounds for these predators. Given the prevailing circumstances of these distressing offenses against women, a proposal is put forth for a smart wearable device based on the Internet of Things (IoT) that aims to enhance women's security. This device takes the form of a compact and portable smart ring, referred to as SMARISA, and consists of components such as Raspberry Pi Zero, a Raspberry Pi camera, a buzzer, and an activation button. In the event of an assault, the victim can simply press the button on the ring, immediately capturing the assailant's image using the Raspberry Pi camera and retrieving the victim's current location. The captured image and location data are then transmitted to predetermined emergency contact numbers or the police via the victim's Smartphone. This innovative approach eliminates the need for additional hardware devices or modules, ensuring a compact and efficient security solution. [9].

In this paper “An Energy Harvesting Modeling and Profiling Platform for Body Sensor Networks” to monitor, record, analyze the person psychology, the behavior characteristics of a person and environment change in indoor and outdoor actions are analyze by wireless sensor device [10].

A social-government organization, a distressing 35% of women worldwide endure various forms of physical harassment in public spaces such as train stations, bus stops, sidewalks, and schools. Our collective aspiration is for a future where every woman can freely navigate the world without any fear. With this goal in mind, our focus shifts to personal security. This research paper primarily delves into the design and implementation of a prototype electronic device that holds the potential to serve as a safety wearable in the coming years. The device incorporates a pulse sensor to monitor abnormal health conditions and utilizes GPS technology to periodically send the user's location to emergency services, such as an ambulance, via SMS every 15 seconds. The GPS receiver retrieves location data, including latitude and longitude, from satellite signals. [11].

Proposed paper “An Energy Harvesting Modeling and Profiling Platform for Body Sensor Networks” says about a jacket which has an electronic system built in it, using Raspberry Pi 3, GPS and Buzzer [12].

In this paper [13], authors have worked on a device that supports micro USB charging. To complement the smart band, a dedicated Android application will be developed, connecting to the device via Bluetooth interface and displaying the collected data from the user to the designated ICE contacts. As long as the device remains active, it will continue to send location updates at five-minute intervals and emit continuous beeping sounds.

The combination of Internet of Things (IoT) and cloud computing presents a viable solution to tackle the pressing issue faced by women in our country. Our proposed system leverages IoT technology to create a women's safety system specifically designed to address various untoward emergencies that women may encounter. This device incorporates features that enable immediate alerts in situations where a woman is harassed or feels threatened. By ensuring real-time messaging and live tracking of her location, swift action can be taken to prevent crimes against women [14].

This paper, they've created a device containing three drive buttons are used to define the different feathers of accident victims. A PIC16F887A microcontroller is used to control the entire system. Because it's a 40- leg IC, the device increases in size, making it delicate for women and children to carry all of the time [15].

This research paper presents a touch-triggered system aimed at enhancing women's security using GSM technology. It serves the purpose of identifying threats and providing immediate access to resources for assistance in dangerous situations. When a person detects danger, they simply need to press the button on the device. The system consists of an ATmega328 microcontroller, GSM module, and GPS module. Upon activation, the system tracks the location of the woman using GPS (Global Positioning System) and sends emergency messages and calls to both relatives and the police control room using GSM (Global System for Mobile communication). One significant advantage of this system is that it does not require a wireless network, unlike many previous applications. The utilization of these components ensures accuracy and reliability. The system encompasses all the necessary features to aid the victim in various emergency scenarios. Additionally, the inclusion of a safety device that alerts the victim's family members can contribute to a stronger sense of security, confidence, and reduce the chances of harassment. This project offers a solution to protect women by incorporating a wireless key GSM module with a controller. When a woman feels uneasy, she can press the button to activate the GSM module. The GSM module will then send an SMS containing the latitude and longitude coordinates to the designated number. [16].

In this paper [17] a proposed device is designed “A safety system for women using android application” which activates the vibrate sensor when open this application.

The main working of this device Pro-Tech-Implementation is based on the fast booming technology called IOT for women safety to provide self-defense device, this device produces a shock to the attacker [18].

The project is titled "Android App for Women Security System." It utilizes Java SE 7 Software Development Kit as the front end and SQLite as the back end. With the widespread usage of smart phones in today's world, they can be effectively utilized for personal security and protection purposes. Given the significant concern surrounding women's security, this Android application aims to mitigate potential threats they may face. By activating the app with a single click, the associated individuals can be alerted. The app uses GPS to identify the user's location, and a message containing the location URL is sent to the registered contacts, providing assistance in dangerous situations. Continuous location tracking information sent via SMS enables quick location retrieval, ensuring the victim's safe rescue. [19].

3. Proposed system

With all the technology available in the recent times, it is not difficult to build a safety device for women, which will generate an emergency message to our friends or family. The SMS will provide the current location and by using this information the victim can be saved. The GSM modem is used to send the location and GPS is used to send the message. The LCD display indicates a message to the person. The data will be continuously transmitted to the GSM modem connected to the microcontroller. It sends the location of the victim to the concern person through a SMS. An LCD display is connected to the microcontroller which will display the tracking information.

When a woman is in danger she can press the switch which is with her. By pressing switch the entire system will be activated. Then immediately a SMS will be sent to the person with location using GSM and GPS, which can be traced from the Google maps. The safety device also includes a electric shock inverter circuit which is used to hurt the attacking person due to which there is chance from these to escape. GPS receiver gets location information from satellites in the form latitude and longitude. Fig 3.1 describes as main block diagram.

The proposed system is especially for the “Women’s Safety” and overcomes the disadvantages of existing system. In this module we used fingerprint scanner for unique identification and it is special feature of this module. We placed this system in a smart bag. Smart bag is an application design that can be useful for almost everyone in the society and especially for women’s safety.

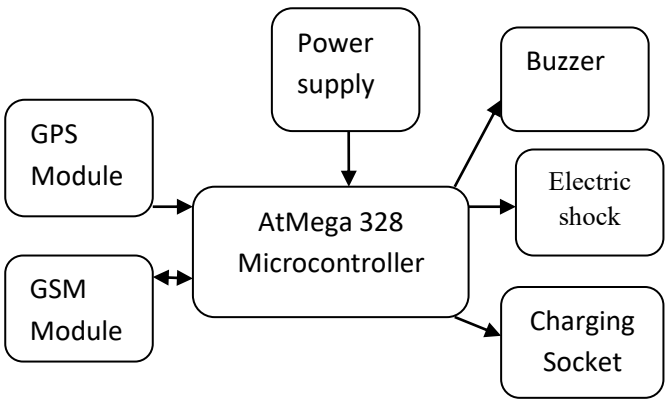

Fig 3.1 Block Diagram of Proposed System

When women is in trouble or in danger situation and she feels unsafe then she firstly pressed fingerprint scanner and if pressed finger is match to the store fingerprint then this system will be activated.

Firstly GPS module is activated and exact location of the women will be tracked and GSM module also activated and location of women sends on store phone numbers in the form of sms. In this Calling system is also available.

This procedure done by system within 1 second.

3.1 Applications of system

1. It will be used for safety of women's.
2. It will be used for child tracking during school time.
3. It will be used in vehicle tracking & safety system.
4. It will be used for safety of elderly aged people.
5. Used as a legal evidence of crime with exact location information for prosecution.

3.2 Advantages

1. Sophisticated security.
2. Alert message to mobile phone for remote information.

4. CONCLUSIONS

The women's safety device is the most economical solution for the problems faced by women in India. It provides the trusted contacts with real time location which in turn is a distress message that makes it possible to prevent major casualties. Replacing the used Arduino Uno with an Arduino Lily pad that can be sewn onto fabrics can help downsize the device. Since it uses low power, rechargeable batteries can be used to make the device more portable.

The proposed design will deal with critical issues faced by women in the near past and will help to solve them with technically sound equipment's and ideas. This system can overcome the fear that scares every woman in the country about her safety and security.

ACKNOWLEDGEMENT

I would like to express my deep gratitude to Dr. Bhoopesh N. Chaudhary for their patient guidance, enthusiastic encouragement and useful critiques of this research work. I would also like to thank him, for his/her advice and assistance in keeping my progress on schedule. My grateful thanks him for his help in doing the data analysis and their support in the site measurement.

I would also like to extend my thanks to the technicians of the laboratory of the Electrical department for their help in offering me the resources in running the program.

Finally, I wish to thank my parents for their support and encouragement throughout my study.

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