

Women's Safety System Using IOT

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ABSTRACT

In today's time women's safety considered as a major problem in both Urban and rural areas. It is very difficult to change the way of thinking of the society as a whole. However, it can provide multiple safety devices that protect harassments, acids attacks, etc. Various marts and applications are used to secure the cottage also has many smart devices and applications, but it is not an effective solution., In this proposed system it detects and sender alerts with location for the selected contacts in female's contact list and coordinates without the need for their interaction at critical times. Automatically sends emergency message to contacts and gets updated to the application.

Keywords: *GPS, Internet of Things (IoT), Smart Device, Women Safety.*

INTRODUCTION

Women's safety is one of the important issues in today's world The world is becoming too dangerous for women. In today's world, most women leave the house to go to work. Although many technologies have been applied to women, kidnapping, teasing and sexual harassment still take place in our country. In recent years, crimes against women have increased by to a greater extent. Women are harassed not only at evenings or at night, but also during the day at home, at work, in shops, and so on. Many women are afraid of strangers for their safety. About 80% of the women in our country fear for their safety. In the current state of affairs, women are keeping up with males in many aspects of life, but at the cost of being subjected to abuse, harassment, and violence in public and even in their own homes. They are unable to leave their homes at any time of day, cannot dress as they like, and will not even choose pace There's a certain amount of restraint that girls are subjected to that not only takes away their sense of independence, but also makes them feel However, it shatters their self-assurance and dreams. It's quite convenient due to the above-mentioned factor clear that there's a need for women's security in the country. However, pricing is a factor to some must identify that technological growth has created the way for women to be at the safer side The idea is to use the most recent technological development, the Internet of Things (IoT), to eliminate women's fear-filled lifestyles. Objects that can be viewed on the internet. This refers to the ever-expanding network of physical items with an IP address for internet access, as well as the interaction between these objects and other internet-enabled equipment and systems. IoT is typically thought to provide enhanced computer, network, and service connection that goes beyond machine-to-machine (M2 M) communications and covers a variety of protocols, domains, and applications. The integration of these embedded devices (including smart items) is predicted to automate practically every aspect of life, while also allowing for advanced technologies like a smart grid and extending to areas like smart cities.

Related Works

There are few related works available related to women's safety

A woman safety gadget that acts as a rescuer and protects women from injury in the event of a hazard. A smart device for women's safety is built using the suggested approach, which automates the emergency alarm system. This device identifies and sends alerts to loved ones with the women's position coordinates without requiring her input in emergency situations.[1]

In order to promote the concept of smart cities, IOT in women's safety with alert has been expected in this study. Arduino UNO, GSM, GPS, and numerous sensors are all part of the proposed system. When a crucial emergency arises, GSM and GPS assist in sending the victim's message and location to an authorised network. As a result, finding the suitable spot is simple. However, one of the system's significant drawbacks is that it may fail in a closed or dumped region.[8]

The goal of the Women Safety Management project is to design and build a device that is so small that it can serve as a personal security system and an emergency response system for women who are victims of crime. It is a low-cost system that can save the data of members in a certain and issue an immediate alarm in the event of a crime against women. This gives women peace of mind. The demand of the day is to be protected and secure. [5]

“The major goal of creating a woman safety device is to function as a rescue and prevent any harm to women in the event of a hazard. A smart device for women's safety is built using the suggested approach, which automates the emergency alarm system. This device recognizes and sends alerts to loved ones with the women's position coordinates without requiring her input in emergency situations. It automatically sends an emergency message to relatives and the nearest police station.[11]

“The system's primary goal is to provide a quick technique, a low cost of development, and accurate trailing. This proposal proposed a way in which a girl who is in danger will immediately inform the authorities concerned. The proposed method makes use of the smart phone's GPS tracking to force the device to coordinate. The image and alert message are also used by this method to notify the family and police authorities.[6]

“The suggested system uses the Internet of Things to safeguard the safety of women in society by automatically identifying dangers and sending HELP&POSITION to family and the police station.[7]

“This study demonstrates the many aspects that have been used in the development of applications and smart gadgets for women's safety. The numerous strategies employed so far for the sake of women's safety against fraudulent people are discussed in this study. There is also a brief explanation of the equipment and components utilized in these procedures.

[12]

“The proposed design will address major difficulties encountered by women and will provide technologically sound equipment and ideas to address them. The value of this work is that it not only gives safety but also security through the use of a self-defense mechanism. With the help of a real-world application of the proposed concept, crime against women can now be eradicated.[2]

PROBLEM FORMULATION

Based on the study conducted on Women’s safety system using iot A small device with a buzzer and microcontroller is designed, and it can be placed on band or watch. When any insecure situation, the woman can make use of this device to send alert SMS by pressing this buzzer to predefined numbers (5 members). But this scheme cannot generate automatic alert SMS. Instead, it requires the human interaction during a panic situation.

PROPOSED DESIGN FOR WOMEN’S SAFETY

The proposed system the push button will get activated when it receives signal from pushbutton. It triggers the camera to capture the image and GPS tracks the location and GSM module will sent the image and location will be sent as message to the respective person. Here, TTL module will be operated as a bridge for GSM module and GPS. It also shares the data between the GSM and GPS. The captured image and location will be sent to emergency contact and emergency mail in your phone and police, via the smart phone also any one can view our location logging in to the web application just by giving email id and password.

GPS

The Global Positioning System isa location tracker. It , tracks the current location in the form of longitude and latitude. The GPS Coder Module will use this information to search an exact address of that location as the street name, nearby junction etc. which is directly connected to USART of the microcontroller provides reliable positioning, navigation, and timing services to worldwide users on a continuous basis in all weather, day and night, anywhere on or near the Earth. . In case if GPS is disabled then the system will only send the longitude and latitude through SMS. So, Internet is mandatory.

Node MCU: ESP8266EX

Offers a complete and self-contained Wi-Fi networking solution; it can be used to host the application or to offload Wi-Fi networking functions from another application processor. When ESP8266EX hosts the application, it boots up directly from an external flash. In has integrated cache to improve the performance of the system in such applications

Push Button

Push Button and LED Push buttons or switches connect two points in a circuit when you press them. It turns on one led when the button pressed once, and off when pressed twice. And send an alert message with location for the contacts

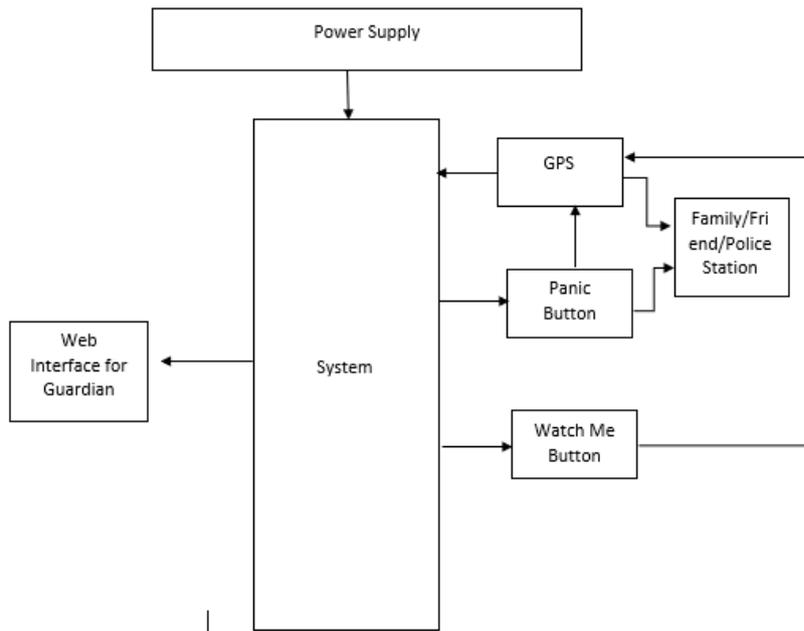


Fig: Proposed Block Diagram

Fig 1: women safety block diagram

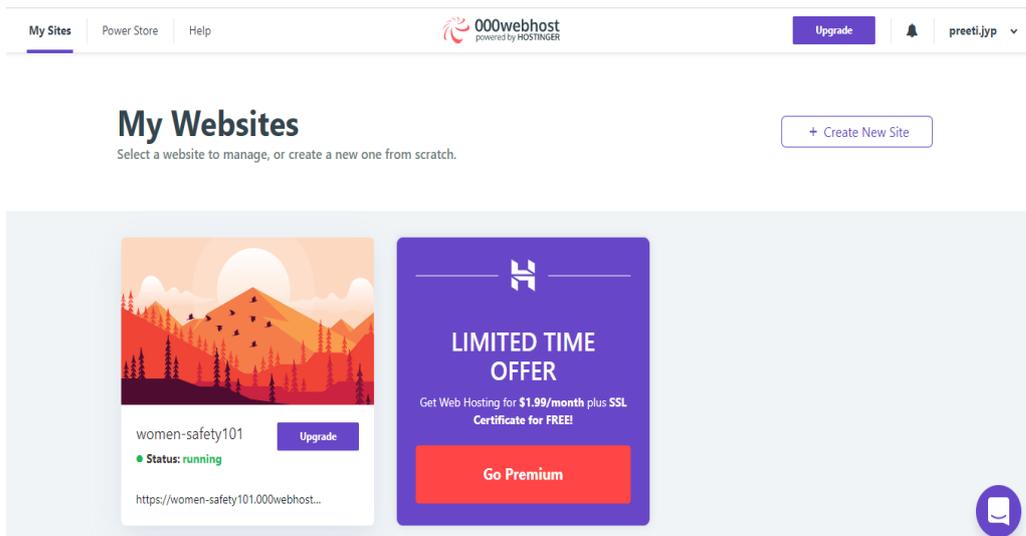
Fig 1 A Smart Web and IoT based device that aims to help women in distress. It is integrated with a GPS Sensor that uses GPS tracking to find the victim's location, and Messaging notification services to aid in alerting the emergency contacts with the incident, thereby, proving to be a boon to women. The system consists of a NODE MCU with built in WIFI modal, GPS Module, 2 Buttons, 1 – for to update location, and 1 for SOS or emergency alert. When a woman is in danger, she presses the button that triggers the NODE MCU that enables the GPS module to fetch the Pin point location of victim The fetched location is saved in cloud .The guardian can login to web App, specially designed for the women safety, which allows them to see whenever she is pressing watch me button or SOS button. Whenever watch me button is pressed, it will only save the location in DB and parents can view via web app and alert type will be in green color with watch me sign, and whenever SOS is pressed it will trigger an SMS alert to parents along with that, GPS data will be saved into DB which Is accessible through dashboard where alert type will be marked as HELP ME in red color. In woman safety application GPS used is very powerful, which is used to find out location of the user and send pinpoint location to emergency contact numbers respectively. This device is better than the existing systems and can be really helpful to individuals in danger situation

Result

The proposed design will deal with critical issues faced by women and will help to solve them with technologically sound equipment and ideas. The merit of this work is it not only provides safety and it also provides security by means of self-defense mechanism. The crime against the women can be now brought to an end with the help of real system implementation of the proposed model. The proposed women safety device aims at proving complete security to women in current scenarios. The pressing button is used as unique identifier for the user so that no one can generate a false alarm and also to ensure that alert is raised only in stress situations. To provide comprehensive security, buzzer is included in the design, so that any nearby person gets alerted about the mis-happening. Sending text messages ensure that close relatives and gets alerted with the current location of victim. In case women feels need of self-defense she can make use of shockwave generator to temporarily incapacitate the perpetrator. Besides, the hardware based design, and web application is developed to provided additional safety features like identifying nearby safe location in map. The paper presents the prototype of a smart device for women safety, performance metrics have to be considered for further analysis to prove its efficiency.

Screenshots:

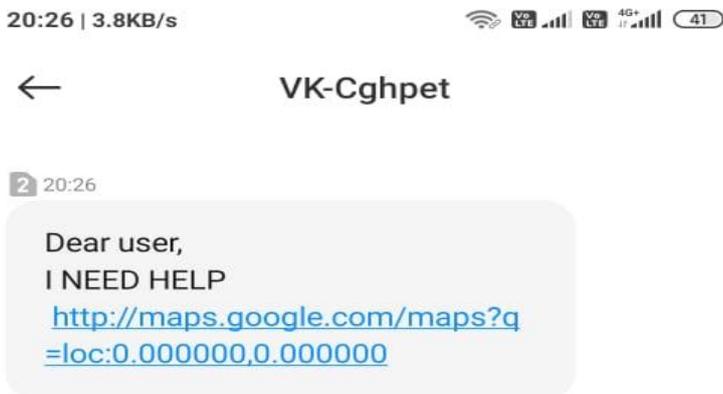
1.Fig 1 Login page



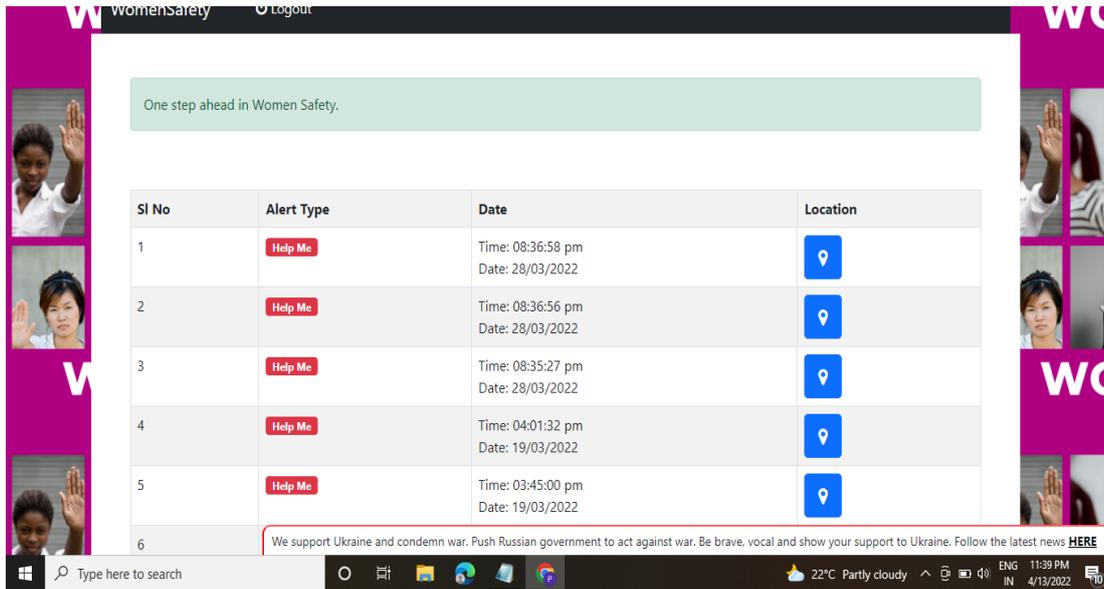
2.Fig 2 Sign page



3.Fig 3 Alert message



4.Fig 4 Result



SI No	Alert Type	Date	Location
1	Help Me	Time: 08:36:58 pm Date: 28/03/2022	
2	Help Me	Time: 08:36:56 pm Date: 28/03/2022	
3	Help Me	Time: 08:35:27 pm Date: 28/03/2022	
4	Help Me	Time: 04:01:32 pm Date: 19/03/2022	
5	Help Me	Time: 03:45:00 pm Date: 19/03/2022	
6	We support Ukraine and condemn war. Push Russian government to act against war. Be brave, vocal and show your support to Ukraine. Follow the latest news HERE		

CONCLUSION

The proposed design will deal with critical issues faced by women and will help to solve them with technologically sound equipment and ideas. The merit of this work is it not only provides safety and it also provides security by means of self-defense mechanism. The crime against the women can be now brought to an end with the help of real system implementation of the proposed model.

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