Women Safety System Using Iot

[1] Harshitha J, [2] Pallavi N, [3] Sneha N

Pradheepa J

Faculty ISE Department, Sri Krishna Institute of Technology, B'lore -560090, India

Abstract:

The purpose of the device is used to help women in any mishap. The device contains wireless sensor network to communicate and to send message to them. The GPS and GSM are used to share the user location directly to the relevant authorities and telegram. Once the button is pressed the touch sensor gets activated it detects heartbeat and sends message to telegram or saved contacts, which acts as Self-defense.

I. Introduction

In current world the safety of women is in danger. The rate of crimes happening against women is increasing day by day especially harassment, teasing, rape, kidnapping and violence. Many measures have been taken by the government to stop these activities but still it is not affected the increase of these crimes. The problem of sexual harassment in work place is increasingly day-by-day. Sexual harassment at a workplace is wrong behavior of a person that causes discomfort, or distress to the other. Majority of such cases are happened to woman by men in working place at high position in an organization.

The fear of harassment against women is the condition not only happening outside but it may also happen at homes. Women need a helping hand in that situation which may become hard to defend. Students also face trouble like child trafficking and kidnapping, when they are going or coming from school. There are many security apps for women, present in smart phone can help sending emergency alerts to certain people and also let people know about location if anything goes wrong.

As the quantity of wrongdoings are expanding each day, there must be something that will protect us. In this manner the plan has given an answer by developing a value proficient electronic framework has the capacity of detecting the movement of the gatecrashers and setting off the caution.

The essential thought is undertaking all is by triggering a basic switch on account of crisis.

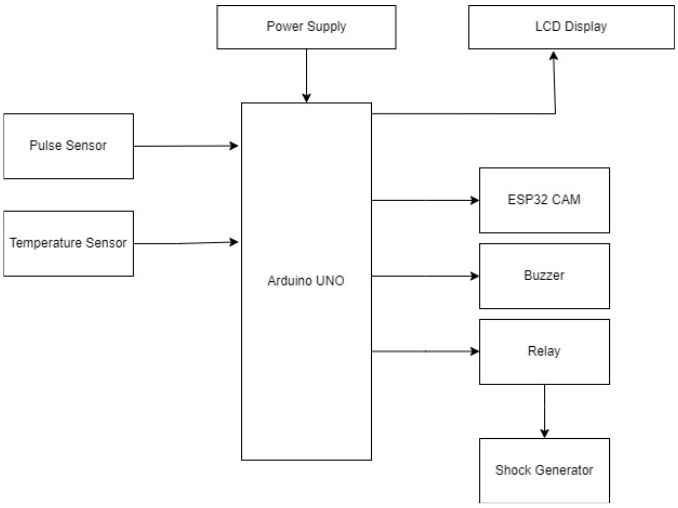
II. Background Study (Literature)

[1] Women's safety systems aim to prevent, respond to, and mitigate violence and harassment against women. These systems may include a range of measures, such as public education campaigns, awareness-raising initiatives, legal reforms, and support services for victims.

[2] Research has shown that women face a high risk of violence and harassment in many contexts, including in their homes, in public spaces, in workplaces, and online. These experiences can have significant physical, emotional, and psychological impacts on women's health and well-being. [3] In recent years, there has been increased attention to the need for women's safety systems, and many countries and organizations have developed policies and programs to address the issue. However, there is still a significant gap between the need for and availability of effective safety systems for women. [4] To improve women's safety, it is crucial to address the root causes of violence and harassment, such as gender inequality and harmful cultural attitudes. It is also essential to provide women with access to support services, including counseling, legal aid, and medical care, and to hold perpetrators accountable for their actions. [5] Ongoing research and evaluation of women's safety systems are essential to identify effective strategies and to ensure that resources are being used efficiently and effectively. Collaboration between policymakers, practitioners, and researchers is critical to developing and implementing evidence-based interventions that can effectively prevent and respond to violence and harassment against women.

III. Methodology

a) Architecture of the System



System architecture contains GPS module, Arduino Uno, Battery, Emergency switches, Wi-Fi router and pulse rate sensor. Battery is utilized for power supply as it gives 5V supply. Emergency switch or the panic switches are the key parameters of this system. The GPS module is the transceiver device and is capable to receive information from GPS satellite, and then it calculates geographical position and passes the data through Arduino. Arduino stores the data as it receives the input and also the signal from the panic switch. The Arduino stores the information from different parameter which should be observed. The Wi-Fi router / Hotspot are utilized for the internet purpose.

It stores the information on cloud and the cloud sends the data to the app. One more motive of the system is this system consist of pulse rate sensor in our system. The sensor gathered the pulse rate, if the pulse rate is larger than the mark so the chances of heart attack is increases. If the rate is so high at that time it sends location to telegram and the saved contacts.

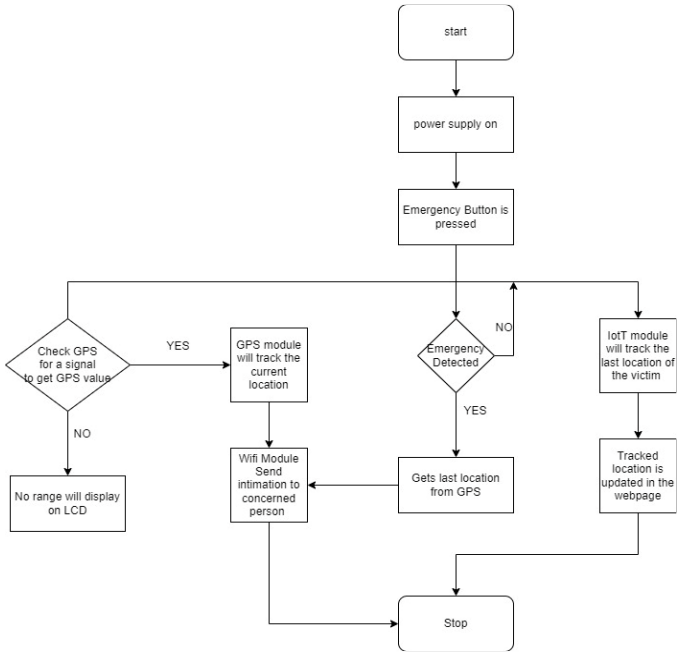
b) Data Flow of the System

It shows the processing steps involved in the system. This includes the participants of the workflow of the women safety system is explained below.

Step 1: Start.

Step 2: Switch ON the power supply.

Step 3: Emergency sensor button is pressed.



Step 4: When GPS receives signal, it will start calculating the latitude and longitude of the location and send the location to telegram or saved mobile number .

Step 5: If any changes found by heartbeat sensor, last location from GPS is sent using GSM module.

Step 6: It tracks the last location of the person and that location is updated and sent to telegram.

Step 7: Camera is turned ON and live photo or video is sent to telegram.

Step 8: Buzzer is turned ON to alert the people in the surrounding.

Step 9: Stop.

Results & Discussion

Women's safety systems is increased awareness and knowledge about violence and harassment against women. Public education campaigns and awareness-raising initiatives have been shown to be effective in promoting knowledge about women's rights, the impacts of violence and harassment, and available support services. This increased awareness can lead to greater reporting of incidents of violence and harassment and improved access to support services. Legal reforms, counseling services, and medical care can help to mitigate the physical, emotional, and psychological impacts of violence and harassment and provide a path to recovery.

Legal reforms, law enforcement training, and community-based interventions can help to ensure that perpetrators are held accountable for their actions and that justice is served. However, challenges remain in ensuring that justice is accessible and effective for all women, particularly in contexts where impunity for perpetrators is widespread.

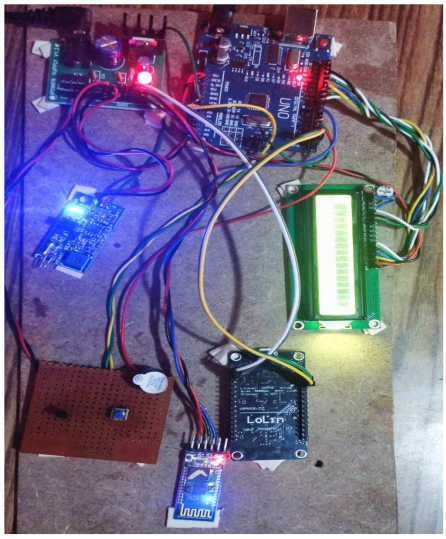


Fig 1: Connection of Hardware components

Figure 2 : Voicebot Mobile Application

A voice bot mobile application in a women safety system using IoT can work in the following way:

- The Voice bot mobile application can be installed on the user's smartphone, which will be connected to an IoT device.
- The IoT device will collect data from various sensors and send it to the mobile application via a wireless connection.
- The mobile application will use natural language processing (NLP) algorithms to understand the user's voice commands or speech.
- If the user feels unsafe or is in a dangerous situation, they can trigger the voice bot by saying a specific command (e.g., "help me," "emergency,").
- The voice bot will then respond with a pre-programmed message to telegram.
- In addition, this application can also send the user's location and other relevant information to telegram.

Telegram can be used as a communication platform in a women safety system using IoT to send alerts and notifications to users and emergency responders. Here's how it can work:

- IoT device equipped with sensors, such as GPS and motion sensors, can detect if the user is in a dangerous situation.
- Once the IoT device detects danger, it can send an alert to the user's Telegram account, notifying them of the danger.
- In case of an emergency, the chatbot can also be programmed to contact emergency responders or contacts with the user's location and other information.
- Users can also use Telegram to contact emergency responders by sending live location of the person in danger.

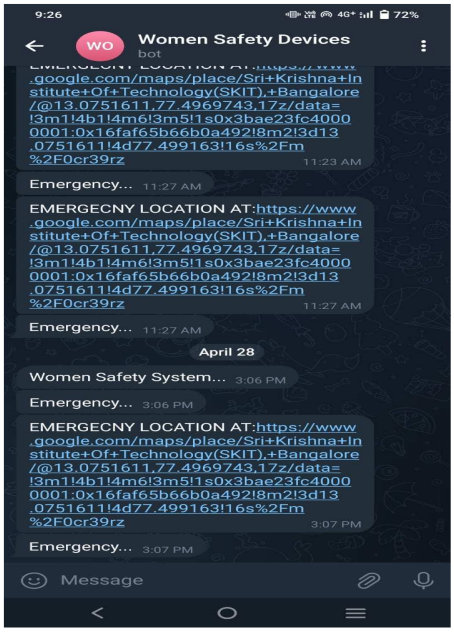


Figure 3: Telegram Mobile Application

Conclusion

Women's safety systems are essential for promoting the safety and well-being of women in different situations. Research and evaluations of women's safety systems have shown that these systems can lead to increased awareness and knowledge about violence and harassment, improved access to support services, and increased accountability for person of violence and harassment. However, challenges remain to ensure that these systems are accessible, effective, and responsive to the needs of all women, particularly those who are not much into society.

IoT devices used to collect data from various sensors, such as GPS, heartbeat and temperature sensors, to detect and monitor dangers and emergency situations. A cloud infrastructure is used to store the data collected from the IoT devices. The cloud provides secure environment for storing and processing data from the IoT devices. Data analytics techniques are used to analyze the data collected from the IoT devices to identify safety risks and emergency situations. Alerts and notifications are sent to the users and emergency responders via various communication channels such as Telegram.

References

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