

Wearable Safety Device for Protecting Women from Harassment in a Public Place

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Abstract

Women's safety is currently an important issue in India. The crime rate against women in this country is only increasing rapidly. Women have to think twice before leaving the house, especially at night. Nowadays, in the current context of globalization, women face many challenges along with safety issues. There are many apps and devices available to ensure women's safety through smartphones. Although smartphones have developed rapidly, it is not always possible to have a phone in hand to make calls or press buttons, so here we have introduced a new technique through hidden wearable device. This device will be hidden and not visible, so when any women is at risk of sexual assault or is vulnerable, she can directly press the help me or emergency button.

Keywords: Women, protection, safety, device, smart device

INTRODUCTION

The safety of women in India today is a subject of widespread debate everywhere. This has now become a big problem. Crime rate is increasing. However, this fear cannot keep them away from all forms of social activities. A woman frequently feels embarrassed when subjected to this form of harassment in public. It is considered a matter of shame for a woman to be the target of this type of behaviour in the modern world, when talk of women's empowerment frequently makes headlines. That's where technology comes into play, contributing to the creation of a setting that offers women an inner sense of security in addition to mental fulfilment. There are many Android applications for smartphones, but for those who are not aware of devices or apps, this system is for them. For this Emergency Communications System (ECS) (usually computerized) is organized with the primary purpose of supporting one-way and two-way communication of emergency information between all victims/individuals and a group of members. Unlike emergency notification systems, which typically provide emergency information in a single direction, emergency communication systems are typically capable of initiating and receiving information between multiple parties [1]. These systems are usually made up of sensors, microcontrollers, IoT devices (WIFI Shield), GSM. Therefore, the origin of the

information can come from many different sources and locations, from which the system will disseminate this information to one or more target audiences. The physical devices where all the electronic devices connect to the Internet are called the Internet of Things. IoT is an outstanding example of introducing technology into the real world. With IoT, advancements in society can actually happen, not solely for society but also for women. As a consequence of this, she truly feels confident and unafraid of abuse like this in public. Privacy is high in the Internet of Things. The sensors are developed in such a way that there is an automatic response without any trigger button [2-4].

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PROBLEM STATEMENT / OBJECTIVES

The main goal of this project is to create a wearable safety IOT solution that can communicate with smartphones directly and will help women to feel strong and secure. When a woman is in danger or an emergency situation arises involving her, she often panics. In such circumstances, it is obviously difficult for anyone to use their smartphone applications, and they are undoubtedly unable to defend themselves and stop the assailant right away. Because in most cases, the mobile is the first thing that is steal from ladies if she is confronting such a risky situation. This system's recommendations may be advantageous to women. It consists of a wearable safety gadget with sensors and an emergency button in addition to that. When pressed, the button immediately alerts the woman's family as well as every neighbouring police station with the exact location information. The primary objective of this system is to protect women from any sort of abuse and harassment in public spaces. They will feel secure and at ease according to this approach, and it will also give them a boost of self-assurance [5].

LITERATURE REVIEW

The system can send the current location to family members, friends, and the police at the click of a button. If necessary, we may additionally arrange for notifications to be sent to other non-governmental organizations that fall within the GPS-captured area of the woman's address. When a criminal attacks a victim, the camera module will record the victim's image and trigger an alarm to attract public attention [6]. The wearable smart device captures an image of the criminal, attaching it to the appropriate email address with information about the victim's location. When logging in onto the mobile application, the user will specify the email address to which the taken images will be sent. Initially, the application would request two or three more email addresses connected to the women's friends or relatives. In contrast, internet-free self - defence relies on electric shock gloves, which deliver electric shocks that distract the attacker's mind. With taking notes, the unusual senses, heart rate sensor, tilt sensor, and vibration sensor connected to the Arduino [7]. In addition to sending alerts to nearby police stations, the scanned phone number will also be sent to the police. They are used to rape and girls are teased by perverts, but they also help them if they are having medical problems, such as fainting. The woman must first register her fingerprint to activate the device. In case the scanner cannot detect fingerprints, a sound signal will sound to warn people. In an emergency, the device will scan fingerprints and send text messages to notify family members and police of the victim's location. Women can use a shock wave generator. Temporarily disables the attacker if he feels the need to defend himself. The woman must activate the trigger when there is danger. As soon as the device is activated, it will track the location using GPS and send emergency messages to the registered mobile number and the nearby police station. The location is continuously monitored by the IoT module and updated on the website [8].

EXISTING SYSTEM

In the current system there is no system to monitor women, which can cause many problems for them, and there are no safety mechanisms to protect them from inappropriate activities. Devices available in the market today relate to women's necklace and bracelet designs, including their features and uses. Furthermore, the current system does not have a safety warning mechanism for women and must only be done manually [9]. The manual process is a much preferable alternative because the automatic system frequently sends incorrect or erroneous alarms just because the woman's vital signs were elevated. Because of this, there may not be a manual system in spot at the moment that is used only in emergency or dangerous situations.

Disadvantages of Existing Systems

1. All existing systems need to be connected to the GPRS service to function properly and therefore cannot be used in an emergency without an internet connection.
2. Poor arrival frequency.
3. No siren ringing for the malicious activities.

4. The disadvantage of the current system is that when an emergency occurs, users cannot activate the warning function.
5. You cannot send messages if you do not have a balance on your mobile phone.
6. It does not send voice recordings or take video photos in a panic state.

PROPOSED SYSTEM

Grounded on the problem statement, this design has enough features to enable women to reach their destination safely, identify safe and unsafe areas, and raise mindfulness about the growing dependence on security operation. The success of this design provides significant backing to those most likely to find themselves in dangerous situations that could beget them to come victims of sexual importunity or sexual abuse. Regarding the result, an IOT device will be developed using GSM, GPS, Bluetooth. It'll be a small device with a warn button that women can carry anywhere and whenever women find themselves in a delicate situation, on pressing it, cautions and announcements will be transferred [10]. To all the near government authorities and also welfare people. With this, an Android app will also be created to find locate the person in need, with that the location will be sent to specific people who'll follow them. The operation will be different features which will help the women in different situations. Since "SAFE" will majorly be a Bluetooth device, it'll be most cost friendly. Easy to use and understand. GPS shadowing point tracks the stoner lively when you're the move after driving the exigency button. Android application plays an important role in the usage of this device. Because first women have to log into the app and do all the steps exclusively through which women enter all the necessary information including name, email address etc. To connect to the security device, Bluetooth must be turned on at all times when in a public place. By connecting to Bluetooth, all alarms are processed through data retrieval. Even the family members will receive an SMS when the notifications are sent and through the application link they can also see the real time location of the women and track them everywhere and it is sent only to officials and family members which is mentioned by the user along with the information to be sent. When the battery is low, it'll automatically shoot pre-saved connections of that exact position. It'll have an alarm function so that person can call for help every time the women is in danger.

RESULT FEATURES

- Since "SAFE" will majorly be a Bluetooth device, it'll be most cost friendly.
- Easy to use and understand.
- GPS shadowing point tracks the women lively when they will move after pressing the exigency button.
- It records audio, which can be used for farther examinations.
- When the battery is running low, it automatically sends the position of the pre-stored connections.
- It'll have a point of siren ring so that people could come in for help whenever they hear it going on and help the women in distress.
- It has also in- built caller case for the women in need.
- The system will be hidden so the exertion of the women through the GPS could be located and exertion would be done consequently.
- There will be fake audio system also so that all the women can take help from it if ever in need.
- Communication System for the easier communication with the loved ones is available as well.

CONCLUSION

Unfortunately, women's safety is being questioned and safety is not being taken care of. Many headlines continue to appear against women showing the growing trend of such sexual assault rape cases still happening in today's generation. About 80% of women lose confidence and are afraid of achieving freedom. So, we are trying to make small efforts for women to ensure the safety and respect of women so that they have the same rights to adulthood as men. Here, it's not only about women's rights; it's also about their sense of safety and security anytime they're in public. Every woman will feel secure and satisfied with herself thanks to this safety gadget. The women's safety gadget will be

connected to an Android app, each with unique features and advantages. This mobile application is very useful for everyone. This application will assist users by sending emergency warnings to citizens as well as police chiefs so that detection can be easier through GPS. As previously said, GPS has become an integral component of our daily routines. The current address will be retrieved through GPS and sent to any contactor loved ones depending on the user. Here users can take precautions when or before encountering real danger. The aim is to ensure the safety of every woman when travelling alone as someone will update their location and can help the women in need.

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