



SMART SAFETY DEVICE FOR WOMEN USING IoT

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Abstract: The cases of missing children and women are a major concern nowadays. This project tells us about the android application which has features of tracking the children and women. The exact location of the victim can be tracked by GPS service. GPS will be used for network services and it also provides internet. The project is aimed to prevent kidnaps of children and women trafficking and it monitors the mentally handicapped people. It is a real time implementation.

The system is intended for both parents and kids. The system consists of a GPS node microcontroller, and an alert button is also included in the system. Both the parent and child modules will be linked to the web server. Thus the web server will act as a middleware between two modules. Parents should contain an Android smartphone and the child should have the tracking system. Node microcontroller will be used for interaction between the tracking device and web server. The child or woman can be monitored by the parents from any location. With the use of an Android phone and GPS tracking device we can find the exact location of the child or woman. The Android phone will be with parents, which include the application and tracking device will be kept firmly in the child's backpack. An alert button will be installed on the tracking device. Whenever the alert button is pressed it will send an alert to the parent indicating that the child or woman is in danger.

I. INTRODUCTION

According to a poll conducted in India, child kidnapping and woman trafficking has surged by 84% in the last three years. Tracking and monitoring of the missing child or woman is very difficult. In this project, we're attempting to create a system that uses GPS, and ESP32 microcontroller to track the child, woman or disabled people. GPS is a service which offers astonishing performance to get the device's particular location within seconds and sends its location to the user over a 20 to 30 sec time interval depending on the device's accuracy. Hence, GPS can be utilized to trace a missing child or women's whereabouts.

Women and children today deal with a variety of problems, including sexual attacks. Such brutality will undoubtedly have a significant impact on the victims' life. Also it has an impact on their well-being and emotional stability. As a result of seeing these acts of violence against women, we are inspired to take action to protect women and children. In order to secure the security and safety of women and children, we have therefore intended to suggest a gadget in this project. To send notifications and the current location of women to different mobile numbers in their contact list, a microcontroller, and GPS module are utilized. Also this project will serve as a safety measure that will briefly stun the opposition. We will be able to save a lot of women and children from society's vile elements with the aid of our effort.

Women's safety in India has grown to be a serious concern. According to the National Crime Records Bureau, in 2016 the sexual harassment is increased by 82% compared with the previous years. Across all cases, 95% of rapists were not strangers but family, friends and neighbours the wake of recent rape and murder of young women, much of the public speak about it has been confined to outrage, punishment and tougher laws. Each and every day women and children are being abused or molested around the world. It is necessary to safeguard women from those predators. She must defend herself because the law alone won't always keep her safe. For that a self defence device is needed. The number of incidents of child rape in India.

With the help of ESP32 microcontroller, we can establish a connection between devices present in the child's module and web server. ESP32 microcontroller will gather the information from the GPS kit and transmit it to the web server. The web server will then send the data to the Android application at the parents end; hence, that parent gets to know the current location of their child. In this project GPS will be used which sends an alert to the Android device stating the current location of the child. This system depends on the GPS functionality therefore its working, completely depends upon the cellular network. If the cellular network is unreliable or unavailable, it won't function completely.

II. LITERATURE REVIEW OF EXISTING SYSTEM

Shaista Khanam, Trupti Shah proposed algorithm for women safety using fingerprint module. This paper gives a detailed approach towards women safety. Here fingerprint is required for activation of device, electric shock producing circuit, GSM and GPS module for alerting and location tracking. At the time of emergency, it is hard to place the finger in the fingerprint module and recognition is not possible, if there is any undesired stuff (wet or dust) in the finger. To avoid this problem the fingerprint module will not be used in the proposed system.

Naeemul Islam, Md. Anisuzzaman, Sikder Sunbeam Islam, Mohammed Rabiul Hossain, Abuja far Mohammad Obaidullah developed a device for safety and protection of women. Here three push buttons are implemented to define the types of accident victim is facing. To control a whole system a PIC16F887A microcontroller is used. Since it is a 40 pin IC, it increases the size of the device, which will make it difficult for women/children to carry all the time.

Sharifa Rania Mahmud, Jannatul Maowa, Ferry Wahyu Wibowo proposed an algorithm for women empowerment. This paper discusses about violence against women and also different health issues of women. It is an application-based system. During the event of molestation using the application present in the victim's smartphone will automatically send out an emergency call to the assigned contacts. This can do only when GPS is enabled in the smartphone and if not the time delay taken to turn on the GPS is noted to be the downside of the project.

III. EXISTING SYSTEM

1. Safety Device for Women: This includes pepper spray, knife etc. whenever a woman feels that she is in danger, she can use it in order to protect herself from the attacking person. In this technique the drawback is, there is no exact probability that definitely she would have a chance to make use of the above mentioned tools at that particular moment while someone is trying to attack.
2. Smart Safety Device For Women Using IoT: In this technique, when a woman senses that she is in danger then she has to press the emergency button of the device. Once the system is activated it tracks the current location using GPS and sends an alert message using GSM to the registered mobile or the guardian. In the technique the drawback is we couldn't find the exact location of the device when it is in motion. (eg: - SOS emergency alert)

IV. PROPOSED SYSTEM

The system is intended for both parents and kids. The system consists of a GPS node microcontroller, and an alert button is also included in the system. Both the parent and child modules will be linked to the web server. Thus the web server will act as a middleware between two modules. Parents should contain an Android smartphone and the child should have the tracking system. Node microcontroller will be used for interaction between the tracking device and web server. The child or woman can be monitored by the parents from any location. With the use of an Android phone and GPS tracking device we can find the exact location of the child or woman. The Android phone will be with parents, which include the application and tracking device will be kept firmly in the child's backpack. An alert button will be installed on the tracking device. Whenever the alert button is pressed it will send an alert to the parent indicating that the child or woman is in danger.

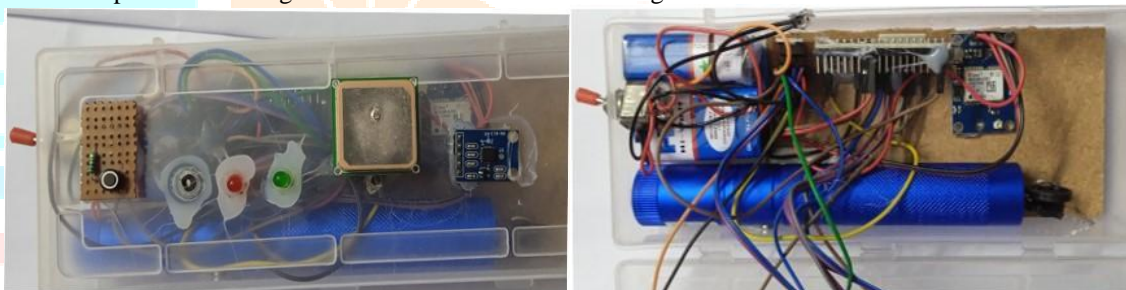


Fig: Smart Safety Device for Women using IoT

V. Arduino IDE and Blynk Application for Smart Safety Device for Women using IoT

i. Arduino IDE:

Arduino may be a package likewise as hardware platform that helps in creating electronic outcomes and it is an open-source platform and encompasses a sort of controllers and microprocessors. There are numerous kinds of Arduino boards used for numerous functions.

The Arduino may be a single card that consists of various interfaces or components. The board consists of the set of digital and analog clips that are wont to connect numerous devices and parts that we wish to use for the functioning of the electronic devices Most of the Arduino consists of fourteen digital I/O pins.

The analog pins in Arduino are largely helpful for fine-grained management. The pins within the Arduino board are organized in an exceedingly specific pattern. The opposite devices on the Arduino board are USB port, tiny parts (voltage regulator or oscillator), microcontroller, power instrumentation, etc.

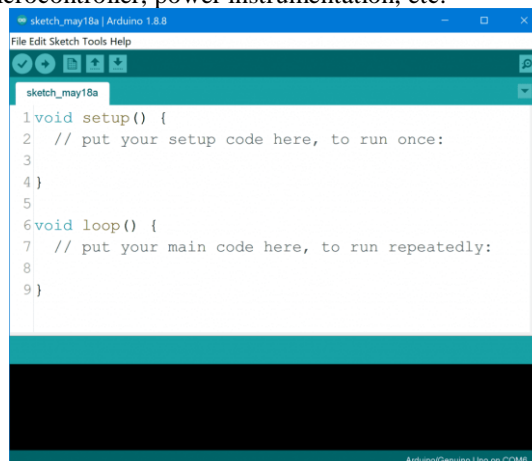


Fig: Arduino IDE

ii. BLYNK Application:

Blynk was designed for the Internet of Things. It can control hardware remotely, it can show sensor data, and it can store data, visualize it and do many other cool things. There are three crucial components in the platform: Blynk App - permits to you produce superb interfaces for your comes Victimization numerous widgets we offer. Blynk Server - answerable for all the communications between the Good phone and hardware. You'll be able to use our Blynk Cloud or work on your non-public Blynk server regionally. Its ASCII text file might simply handle thousands of devices and may even be launched on a Raspberry Pi. Blynk Libraries - for all the favoured hardware platforms – change Communication with the server and method all the incoming and out returning Commands.

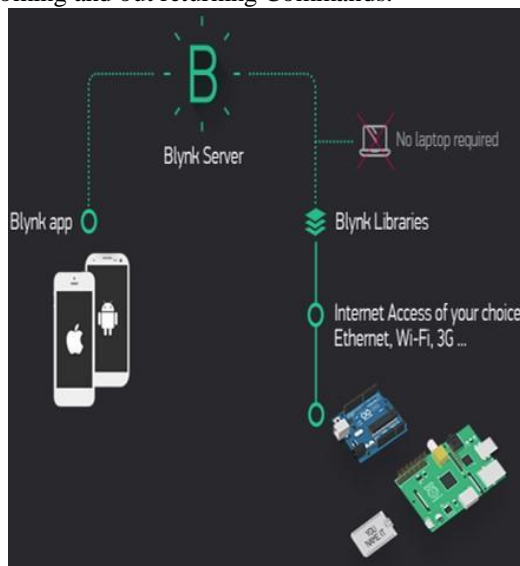
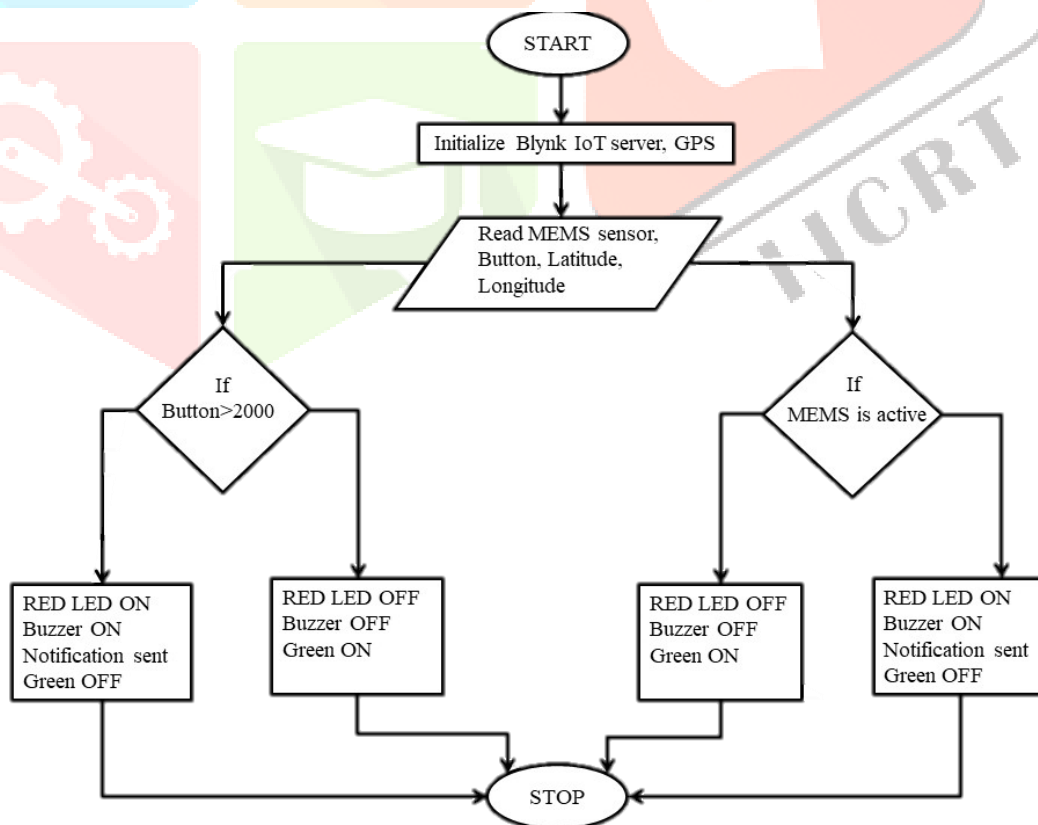


Fig: Blynk

Now imagine each time you press a Button within the Blynk app, the message travels to the Blynk Cloud, wherever it as if by magic finds its thanks to your hardware. It works identical within the wrong way and everything happens during a Blynk of an eye fixed.

vi. Flow chart



vii. Output and Result

This section presents the results of the experiment conducted with the proposed hardware design and Android application.

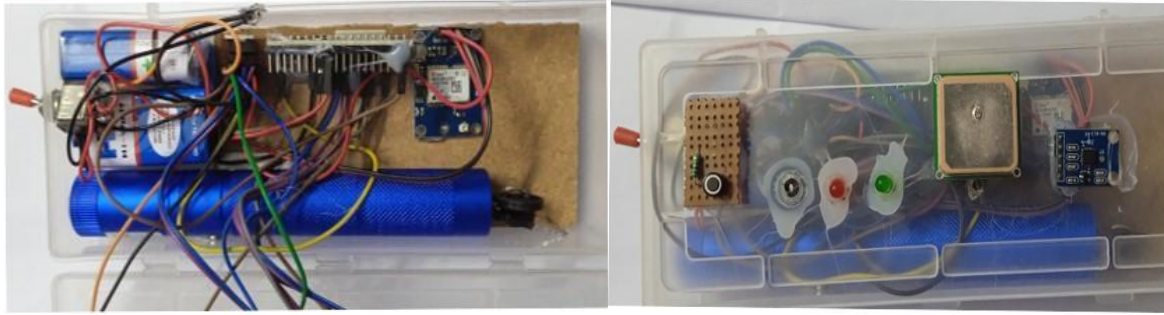


Fig: Smart Safety Device for Women Using IoT

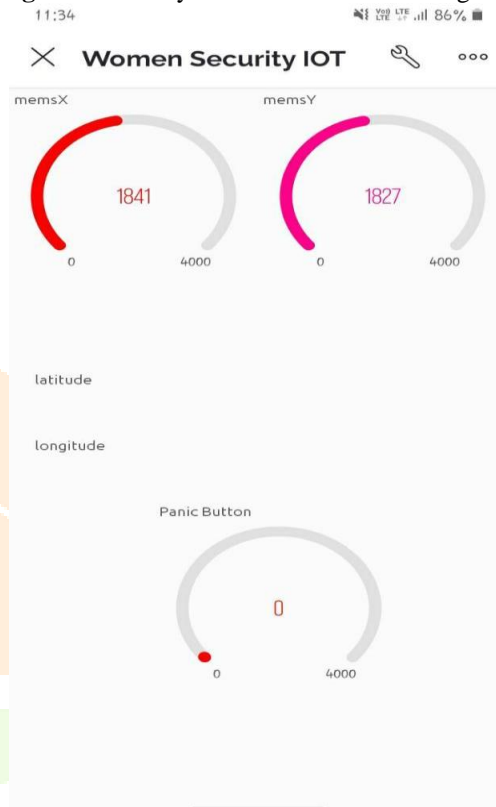


Fig: Output of the Blynk APP

viii. Conclusion

In this project we've got engineered a Smart Safety Device for Women Using IoT which may act as a safety measure for women and even for the children too. Using a smart GPS-Based automatic tracking and alert system can be effective in the field of protecting women, children and disabled people. This system helps us by increasing the chances of tracking the victim. It provides a precise location in far-off place.