

Women Safety System with Heart Beat and SPO2 Monitoring

https://www.youtube.com/watch?v=2B_QO3kUf64

The Women Safety Device Using GSM and GPS is a smart emergency alert system designed to provide immediate assistance to women during unsafe or emergency situations. The system is built around an Arduino UNO microcontroller, which continuously monitors a panic switch and the user's health parameters such as heart rate and SpO₂ using the MAX30102 sensor. When the panic button is pressed or abnormal health conditions are detected, the Arduino instantly activates a buzzer to attract nearby attention and retrieves the user's real-time location through the GPS module.

The location coordinates are then transmitted via the GSM module as an SMS alert to pre-stored emergency contacts, enabling family members, friends, or authorities to quickly locate and assist the user. An LCD display provides real-time system status, sensor readings, and emergency notifications. The device operates on a regulated adapter power supply, ensuring reliable performance.

This system is cost-effective, portable, and easy to use, making it suitable for women, elderly individuals, students, and differently abled people. By integrating real-time location tracking, health monitoring, and instant communication, the proposed device enhances personal safety and enables rapid emergency response, thereby contributing to improved security and confidence for users in public and isolated environments.

The main objectives of the project are:

1. To develop a compact and low-cost women safety device using the Arduino UNO.
2. To provide an instant emergency alert by pressing a panic switch.
3. To monitor the user's heart rate and SpO₂ using the MAX30102 sensor.

4. To detect abnormal health conditions and automatically trigger an emergency alert.
5. To obtain the user's real-time location using the GPS module.
6. To send an SMS containing the live location to pre-stored emergency contacts through the GSM module.
7. To activate a buzzer for immediate local attention during emergencies.
8. To display health parameters and system status on an LCD screen.
9. To improve the personal safety and security of women through real-time monitoring and communication.
10. To provide a reliable, portable, and easy-to-use emergency assistance system.

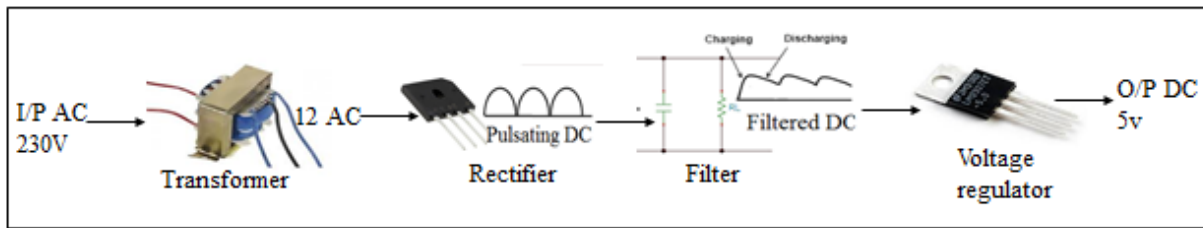
The main building blocks of the project are:

- Adapter power supply.
- Arduino UNO.
- Panic switch.
- GPS.
- GSM.
- Buzzer.
- LCD display.
- MAX30102 sensor.

Software's used:

1. Arduino IDE for compiling and dumping code into Microcontroller
2. Express SCH for Circuit design.

Regulated Power Supply:



Block diagram:

