

Women safety Gadget with Emergency Email Alerts through IoT

https://www.youtube.com/watch?v=gylaX9K2_7g

Women's safety is a major concern in today's society, and rapid response during emergency situations is crucial. This project presents an IoT Based Smart Security Gadget for Women's Safety that continuously monitors the user's physical condition and surrounding movements using multiple sensors. The system is developed using an ESP32 microcontroller, which acts as the central processing and communication unit. The device is powered by a Li-ion battery, making it compact and portable.

The gadget integrates a heartbeat sensor, temperature sensor, pressure sensor, vibration sensor, and MEMS sensor to detect abnormal physiological changes, sudden movements, or force applied to the device. A GPS receiver is used to obtain the real-time location of the user during an emergency. When any unusual condition is detected, the ESP32 processes the sensor data and automatically sends an email alert containing the user's location and emergency information to predefined contacts via the internet.

The proposed system provides a reliable, low-cost, and efficient solution for women's safety by combining IoT technology, sensor integration, and wireless communication. This smart gadget ensures timely alerts and location tracking, thereby enabling quick assistance during critical situations.

The main objectives of the project are:

- **Li-ion Battery Power Supply**

provides stable power to the ESP32 microcontroller and all connected sensors, ensuring portability and continuous operation.

- **Heartbeat Sensor**

Monitors the heart rate of the user and helps detect stress or panic conditions during emergencies.

- **Temperature Sensor**

Measures body temperature to identify abnormal changes that may indicate health issues or distress.

- **Pressure Sensor**

Detects force or pressure applied to the device, which may occur during physical assault.

- **Vibration Sensor**

Senses sudden vibrations or impacts, indicating unusual movement or struggle.

- **MEMS Sensor**

Detects motion, orientation, and sudden falls using acceleration and tilt measurements.

- **GPS Receiver**

Collects real-time latitude and longitude information to track the user's exact location.

- **ESP32 Microcontroller**

Acts as the central control unit. It processes sensor data, detects emergency conditions, and handles internet connectivity.

- **Email Alert System**

Sends instant email notifications with location details to registered contacts or authorities when an emergency is detected.

The main building blocks of the project are:

1. Battery Power Supply
2. Esp32 Microcontroller
3. Temperature Sensor
4. MEMS sensor.
5. Vibration sensor.
6. Pressure sensor
7. Heart Beat Sensor
8. GPS Receiver

Software's used:

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

Block diagram:



IOT Based Smart Security Gadget for Women's Safety

