

## **Project Title: SheShield — Women Safety Device**

### **Hardware Components:**

- Li-ion 3.7V Battery ×2
- 2-cell Battery Holder
- Push Button (Emergency Trigger)
- LM2596 Buck Converter (Voltage Regulation)
- NodeMCU ESP8266 (Wi-Fi Module)
- General Purpose PCB (4×4 inch)
- DF Mini MP3 Module
- Speaker
- 4GB Memory Card (for storing siren sounds)
- 2S Battery Management System (BMS)

### **Explanation:**

1. Li-ion 3.7V Cell (2 qty)– Rechargeable batteries to power the whole circuit.
2. 2-Cell Holder– Holds and connects both batteries securely.
3. Push Button– Used to trigger or control the system (e.g., play sound).
4. LM2596 Buck Converter– Steps down battery voltage to required levels (e.g., 5V or 3.3V).
5. NodeMCU ESP8266– Microcontroller with Wi-Fi to control the audio playback and handle input.
6. General Purpose PCB (4x4)– Baseboard to solder and connect all components.
7. DFPlayer Mini (DF Mini MP3 Module)– Plays audio files from memory card to speaker.
8. Speaker– Outputs the sound/audio played by the DFPlayer Mini.
9. 4GB Memory Card– Stores MP3 audio files to be played.
10. 2S Cell BMS (Battery Management System)– Protects and manages the 2-cell battery pack from overcharge/discharge.

### **Software Components:**

Android Studio (for custom mobile app development)

Arduino IDE (for programming NodeMCU ESP8266)

Web Scraping (integrated with YouTube for self-defense videos)

### **Working Flow:**

Emergency Trigger:

- User presses the push button on the device.
- Immediately:

Loud alarm siren is played through the speaker.

Location and Help message are sent via NodeMCU to all saved emergency contacts.

### **Mobile Application Features:**

Save Multiple Contacts: Add any number of trusted people.

Live Location Tracking: See real-time location inside the app.

Fake Siren Control:

- ManualPlay,Pause,Stop siren via app.

Self-defense Videos:

- Throughweb scraping, YouTube videos related toself-defense techniques are displayed directly.

### **Technologies Used:**

IoT (Internet of Things): Wi-Fi based communication through NodeMCU.

Android App Development: Native mobile app created using Java/XML in Android Studio.

Web Scraping: Fetching real-time videos from YouTube.

Embedded System Design: Assembling and integrating electronic components on PCB.

### **Highlights:**

- User-friendly and affordable women safety device.
- Quick emergency response with siren + location sharing.
- Extra protection with fake siren option and defense tutorials.