**Microcontroller**

**( Arduino nano 33BLE sense)**

Heart rate sensor

(MAX30102)

Measure absorption BPM value

LCD display

**Heart Rate Monitoring =** use heart rate sensor (MAX30102) for accurate heart rate monitoring.

Of pulsing blood

Low battery level

**Real-time Battery Tracking**=continuously monitor the wearable device's battery level and alert users of critically low battery levels.

DC voltage booster

Lipo Battery(120 mah)

Calculated distance

**Distance Tracking =** Utilize the onboard accelerometer and gyroscope to track movement and calculate distances covered during activities.

**TP4056 Li-Ion Battery Charger Module**

Edge impulse

Platform

Send sensor data

**Exercise Counting and Calorie burn estimation =**estimating calorie based on activity levels and heart rate variability, accurately detect and count various exercises and movements.

Measure 3 channel Acceleration values

deploy ML model

User mobile phone

LSM9DS1 (accelerometer and gyroscope)

Send data via Bluetooth

**Fall Detection and Emergency Response=**Utilize accelerometer and gyroscope sensors to monitor user movements and detect falls.

Measure orientation and angular velocity

Firebase database