

SenseGuardian Equipment List

MODEL	DESCRIPTION	COST
6DF Accelerometer Gyroscope GY-521 MPU-6050	A motion-tracking sensor that measures acceleration (movement) useful for detecting motion, falls, and orientation.	250
ESP32 Dev Board CH340 USB-C	Microcontroller with built-in WiFi and Bluetooth, used as the main processor to collect, process, and transmit sensor data.	675
Female to Female Jumper Wires 40 Pin 30cm	Used for connections.	140
JST XH 2.54 2pin Female Connector 30cm	Connector cable commonly used to safely connect lithium batteries to the ESP32 and charging module.	20
Lithium Ion Battery - 1000mAh 3.7V	A rechargeable power source that supplies energy to the ESP32 and all connected sensors.	510
Male Pin Header 2.54mm Pitch-Red	Standard pin connectors used for soldering modules and wiring connections.	15
MAX30102 Heart Rate and Pulse Oximeter Sensor Module	A bio-sensor that measures heart rate using infrared and red light.	378
Sound Sensor Module for Arduino	A microphone-based module that detects noise levels in the surrounding environment.	73
TP4056 1A Li-ion battery charging Module with Current Protection-type c	A charging circuit for safely recharging the lithium-ion battery via USB-C, with built-in overcharge and discharge protection.	40
U-Blox NEO-6M GPS Module	A GPS receiver module that provides real-time latitude, longitude, and satellite data for location tracking.	440
Total		2541

Schematic Diagram and Equipment Description

CSE - 306

Group - 13

Project - SenseGuardian

A Wearable Stress, Sound, and Safety Monitor for Children with Autism

Members:

Farzana Yasmin Riya - 202314004

Nishat Tasnim Meem - 202314044

Nazia Tasphia Prionti - 202314055

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