



Department of Electronics and Communication Engineering

App Development Projects

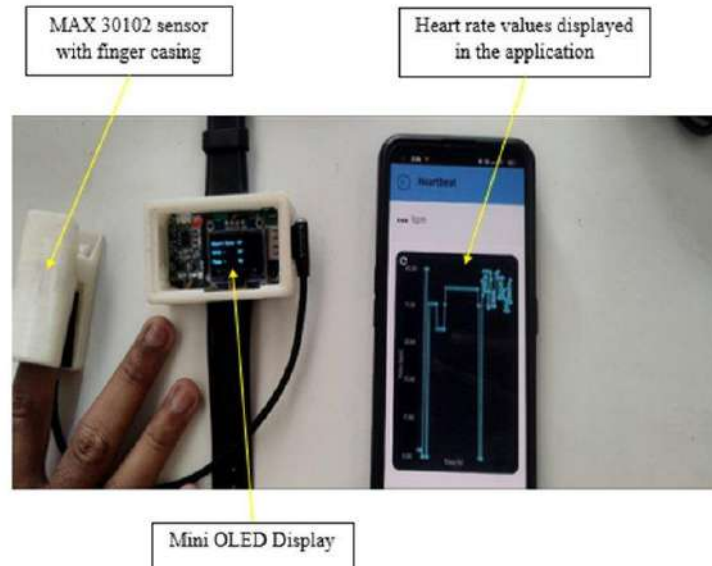
ECE Students – MVIT | Academic Years 2022–2023 & 2023–2024

PROJECT 2022–2023

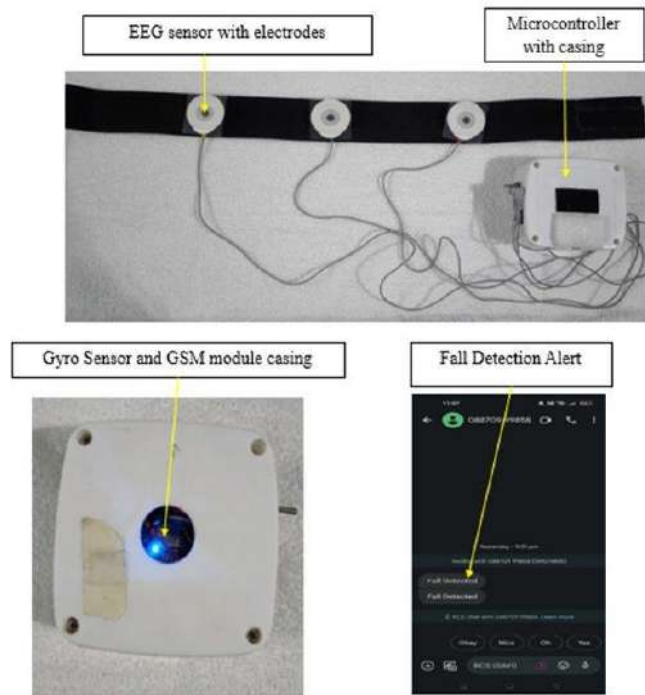
1. PERSONALIZED HEALTHCARE ASSISTANCE AND MONITORING SYSTEM

This project presents a wearable healthcare monitoring system that integrates a MAX30102 pulse oximetry sensor for real-time heart rate and SpO₂ measurement, an EEG headband with electrodes for brainwave monitoring, and a gyroscope-based fall detection module. Sensor data is displayed on a Mini OLED screen and transmitted to a dedicated mobile application via Bluetooth/Wi-Fi, enabling continuous personal health tracking and emergency fall alerts.

Hardware Section



Hardware prototype showing the MAX30102 heart rate sensor with finger casing, Mini OLED display unit, and the mobile app screen displaying real-time heartbeat waveform data.

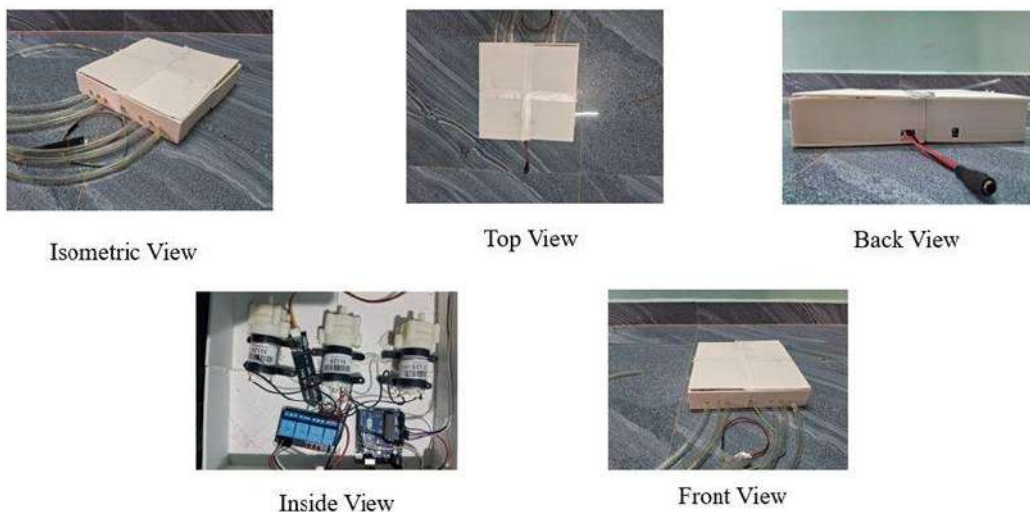


EEG sensor band with electrodes and microcontroller casing (top), gyroscope & GSM module enclosure (bottom-left), and mobile app screenshot showing fall detection SMS alert sent to the caregiver (bottom-right).

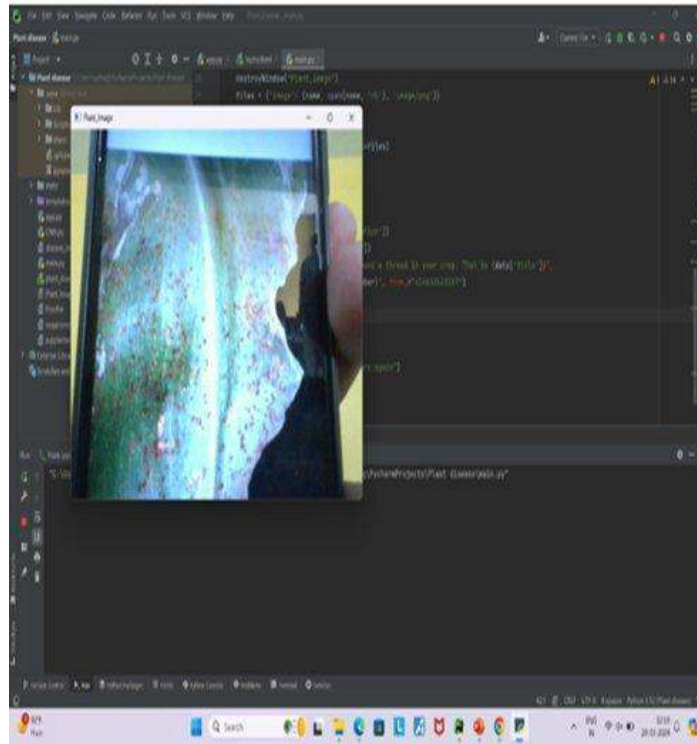
PROJECT 2023–2024

1. SENSOR-BASED AGRICULTURE WITH MACHINE LEARNING FOR PLANT DISEASE DETECTION

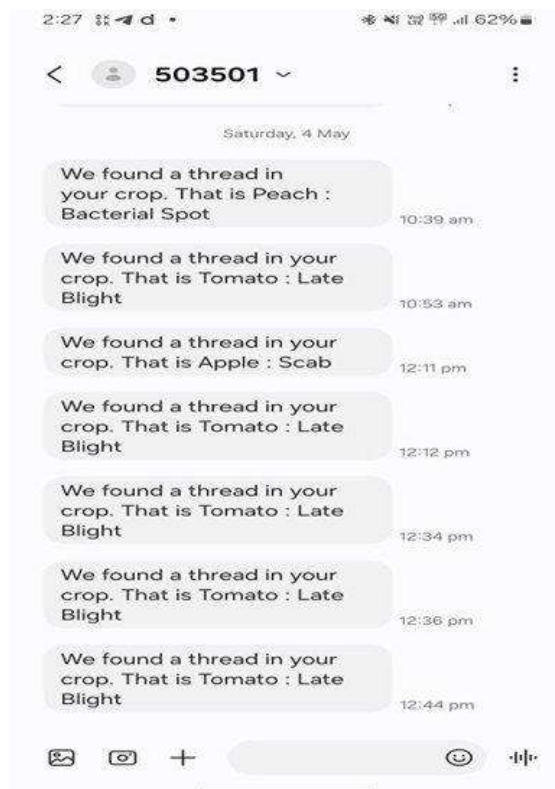
This project implements an IoT-enabled smart agriculture system that uses image sensors and a machine learning model to automatically detect plant diseases from crop images. The hardware unit houses an Arduino microcontroller with relay modules, pumps, and wiring encased in a compact box. When a disease is detected, the system identifies the crop and disease type and sends real-time SMS alerts to the farmer via a GSM module, enabling timely intervention.



Hardware enclosure of the plant disease detection system shown from five angles: isometric, top, back, inside (Arduino + relay modules + pumps), and front views.



Python IDE screenshot showing the machine learning model running plant disease detection on a live crop image captured via the mobile camera interface.



Mobile phone SMS log displaying automated plant disease detection alerts – identifying diseases such as Peach Bacterial Spot, Tomato Late Blight, and Apple Scab sent to the farmer in real time.