



Health-Tracking Smartwatch

Internet of Things 2nd Year Project



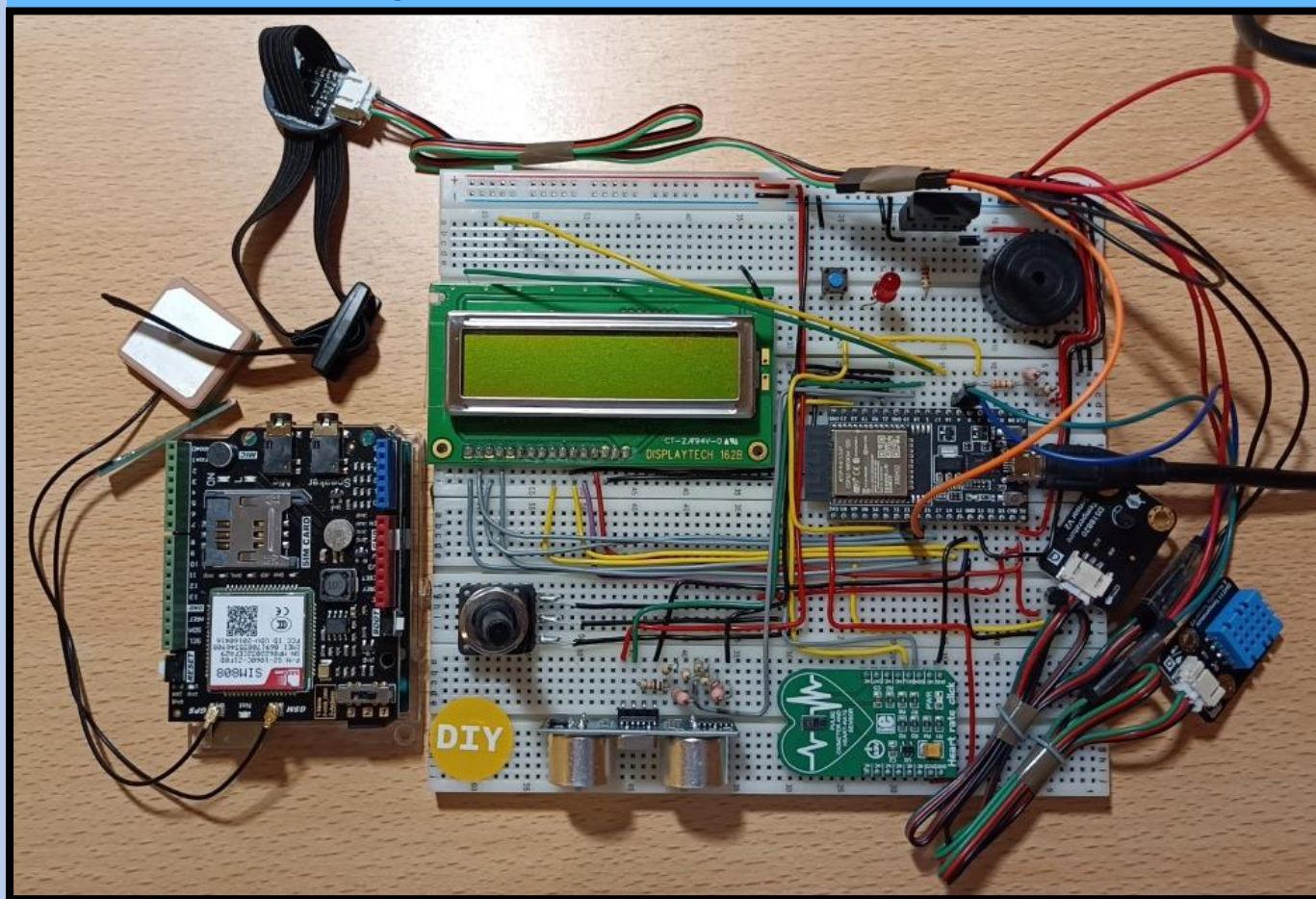
Mikaela Diaz
BEng(Hons) Software and Electronic
Engineering

Project Summary

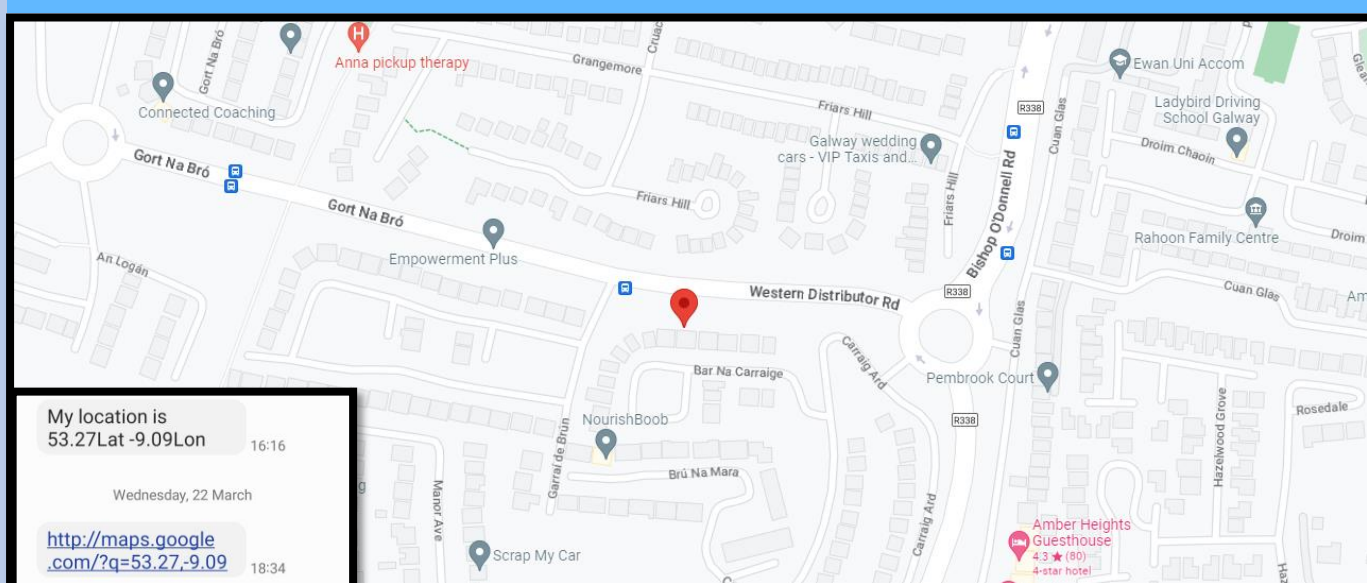
Health is an important aspect of daily life. We can often overlook our health state or be too busy to go to the doctor. With an interest in the medical health sector, programming and web design, I have developed a health tracking smartwatch.

This smartwatch helps users track their health state by keeping a record of the heart rate and blood oxygen levels, body temperature, and their environment (humidity and temperature). They can view this information in an accessible webpage. The watch also has an emergency system in case the user is feeling unwell, they can press a button on the health tracking webpage and send their location in an SMS text to the chosen recipient.

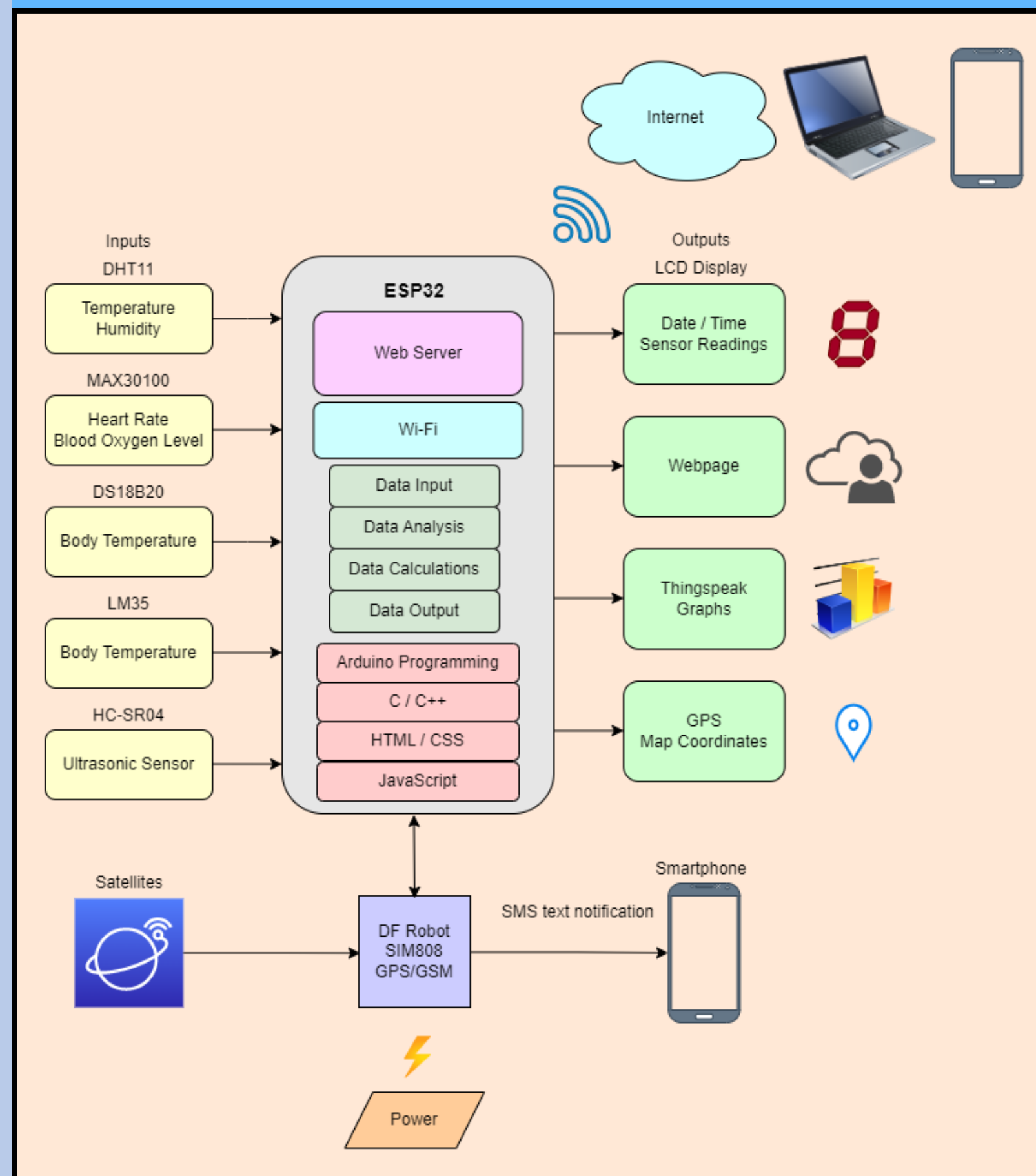
Project Hardware Result



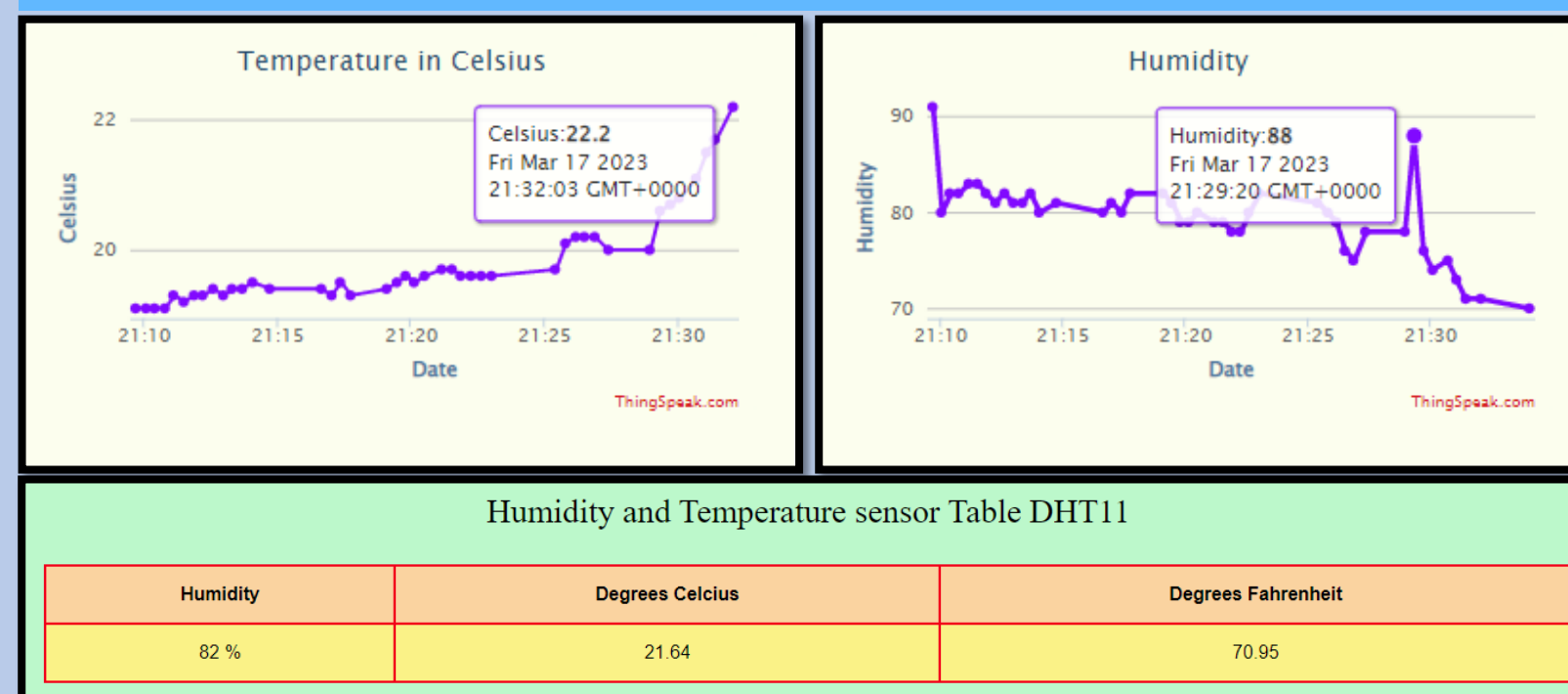
SMS texts and Map location



Architecture Diagram



Webpage Graphs and Tables Result



Colourblind Webpage Software Result



Skills and Technologies

- C / C++ Programming
- C Multi-File Programming
- Custom-Made Libraries
- HTML / CSS Website Design
- Webpage Layout / Responsive Design with Flexbox
- Webpage Accessibility Design
- Visual Studio Code
- Notepad++
- JavaScript Fetch API
- Wi-Fi Networking
- IoT Analytics using ThingSpeak
- Analog circuit design
- Sensor data analysis, i.e. Ultrasonic sensor
- Hardware Prototyping
- Interfacing to Peripherals I2C (with LCD, MAX30100)
- GPS Location Tracking
- GSM Communications (Modem)
- Problem Solving Skills

Sustainable Development Goals

Goal 3: Good health and wellbeing
The health tracking smartwatch would help users and patients keep a better record of their health condition.

Goal 11: Sustainable cities and communities
Healthy people create more sustainable cities and communities. The smartwatch would help achieve these goals.

Goal 10: Reduced inequalities
A health tracking smartwatch would make health more easily available, also among disadvantaged people.