ESP32-C3 Health Monitoring IoT Device

Getting Started

Step 1: Flash the ESP32-C3 Firmware

1. Install the Arduino IDE.
2. Add ESP32 support:
   - Go to File > Preferences in Arduino IDE.
   - Add the URL: https://dl.espressif.com/dl/package_esp32_index.json to the 'Additional Board Manager URLs.'
   - Install the 'esp32' package via the Board Manager.
3. Install the required libraries:
   - WiFi, HTTPClient, MPU9250_asukiaaa
4. Open the esp32code.ino file in Arduino IDE.
5. Update the placeholders in the code with your Wi-Fi credentials and server details.
6. Connect the ESP32-C3 via USB.
7. Upload the firmware to the ESP32.

Step 2: Set Up the Web Server

1. Install Node.js and npm.
2. Navigate to the Server/ folder.
3. Install dependencies:
   npm install
4. Start the server:
   node server.js
5. Open a web browser and visit http://<your_server_ip>:3000/.

Step 6: Installing MQTT Client (Optional)

To use MQTT for message publishing and subscription as part of the project, follow the steps below:

Installing Mosquitto MQTT Client

1. For Linux:
   - sudo apt update
   - sudo apt install mosquitto-clients -y
   - Verify: mosquitto_sub --help
2. For macOS:
   - brew install mosquitto
   - Verify: mosquitto_sub --help
3. For Windows:
   - Download the Mosquitto installer from https://mosquitto.org/download/.

- Run the installer and ensure client tools are installed.
- Verify: mosquitto_sub --help.

Testing the MQTT Client

1. Start a local mosquitto broker (optional): mosquitto
2. Subscribe to a topic: mosquitto_sub -h <broker-ip> -t <topic-name>
3. Publish a test message: mosquitto_pub -h <broker-ip> -t <topic-name> -m 'Hello, MQTT!'