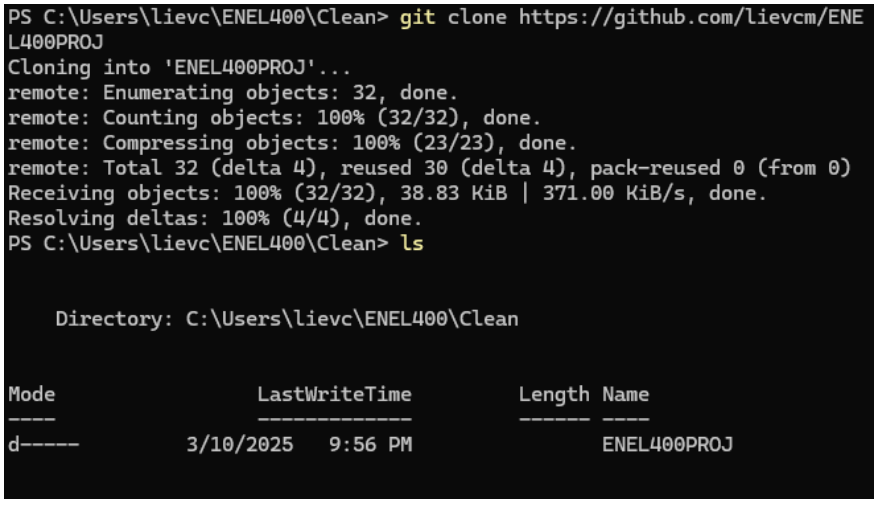
This is all windows only

Prerequisites

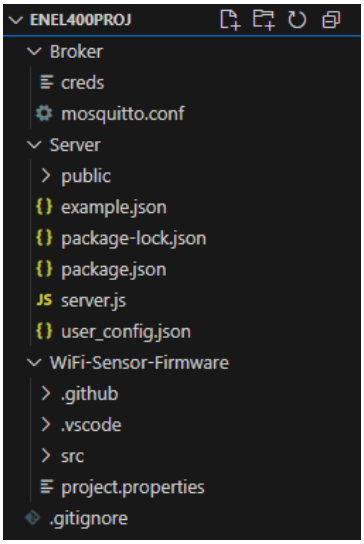
Scoop - package manager for windows, makes installing other dependencies trivial. Install by running the script found here
Git - version control, please make all commits to a branch that **isn't main** and we can merge after review/test. Install from the website or by running "scoop install git" in powershell. Make sure you know how to use this one, watch a youtube tutorial or something.
Node/NPM - runtime environment for the server, install using "scoop install nodejs"
Particle Workbench - vscode based IDE for particle boards, install using the guide here. I'd recommend setting up and building a practice project before setting up the actual one.
Mosquitto - broker for MQTT protocol, install using "scoop install mosquitto"
TimescaleDB - the database is a total pain in the fucking ass, if you need to install it I can help you but a guide is here. I'll also upload the SQL file for creating and setting up the database to the git at some point.

Setting Up the Repository

1. First clone into the repository (assuming you have access)
    a. From the directory you'd like to setup the workspace in, open powershell
    b. Execute "git clone https://github.com/lievcm/ENEL400PROJ"
    c. If you haven't set up git & github with vscode you will have to login/setup username and email
2. You should now see a directory called "ENEL400PROJ" located in the directory you are currently in

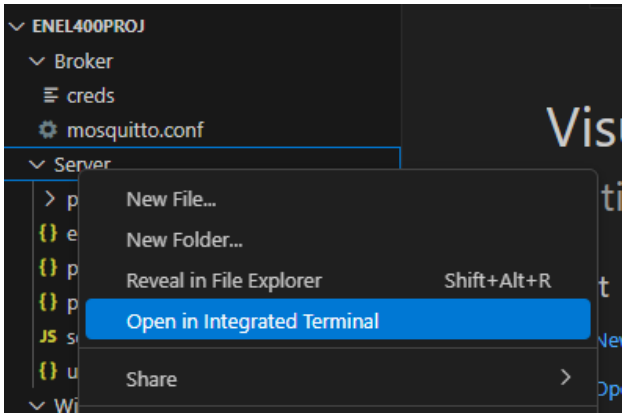


3. Open this file in vscode and you should see the workspace, the gitignore means that none of the libraries or packages were installed with the git repo so you must set those up manually in the next several steps

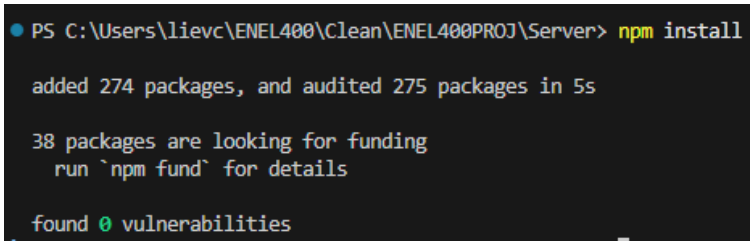


Setting Up the Server Workspace

1. In vscode, open a terminal in the server directory



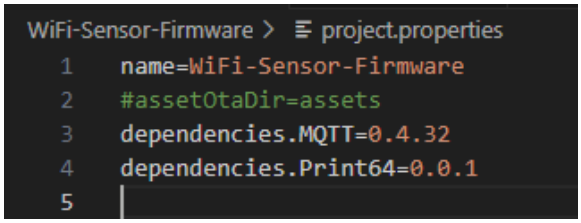
2. Run “npm install”, this will install all the packages in package.json, you must do this any time a new packages is added to the project, you will see any changes to package.json in the git history



Setting Up the Particle Workspace

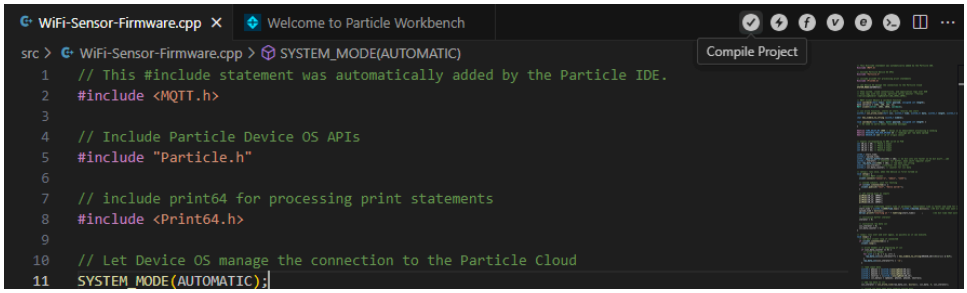
1. Open the Wifi-Sensor-Folder in a separate vscode window, the Particle Workbench should immediately recognize the project
2. Execute the command (by hitting ctrl+shift+p) “Particle: configure project for device”

   a. You will need to enter the device type and id (which you can find by looking on the web dashboard for particle or by running “particle list” in the terminal
   b. You will need to specify the target OS version (5.9.0 for Photon 2, 6.2.1 for Boron) see here
3. Manually install the libraries
   a. The list of required libraries is located in the “project.properties” file



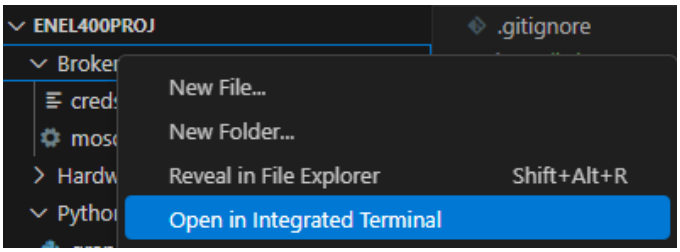
   b. Execute the command “Particle: Install libraries” and type the library name to download

   c. Any time a new library is added to the project, you MUST download it manually by running the command above, it will NOT be fetched from the github
   d. If you are using Cloud Compile or Cloud Flash, you do not need to install libraries, the ones located it “project.properties” will be used automatically
4. Build the program to ensure the project was set up properly

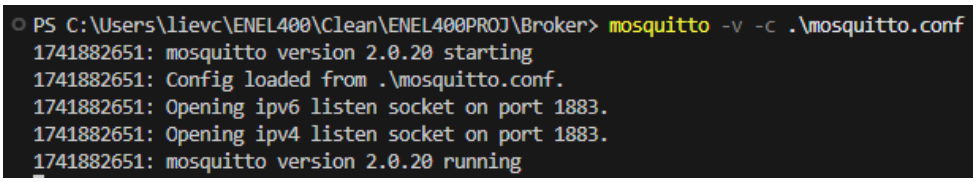


Running the Project

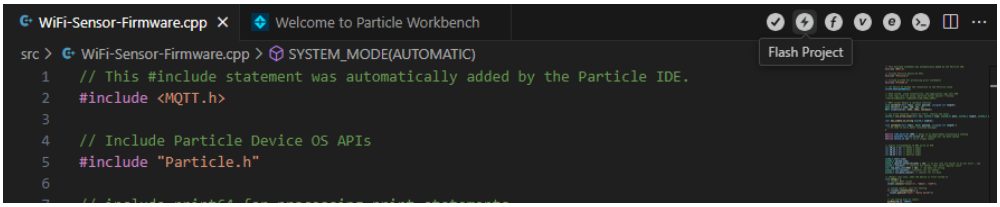
1. If you do not have the database set up on your computer you will need to comment out all relevant lines in the server.js file, otherwise the output will fill with errors about not being able to connect to the database
2. First, start up the MQTT broker
    a. Open a terminal window in the “Broker” directory



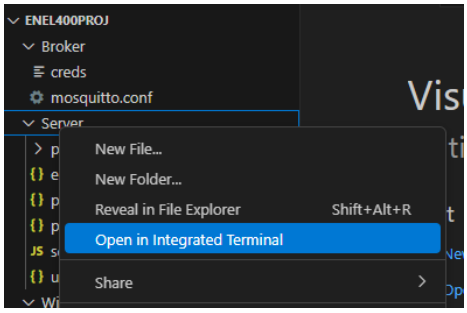
    b. Execute the command “mosquitto -v -c .\mosquitto.conf”



        i. The “-v” flag enables verbose logging (more info printed to console)
        ii. The “-c” flag specifies the config file (mosquitto.conf)
        iii. Additional options can be found on the manpage or by running “mosquitto –help”
    c. The broker should now be running
3. Next, set up the particle device
    a. If the code was already flashed you can simply power on the device
    b. Otherwise you can flash the device by clicking the flash button on the top right of the editor window



    c. Once the device is connected, you should see messages being sent in the mosquitto terminal window and the led on the particle device should no longer be blinking
4. Next, run the server
    a. Open a terminal window in the “Server” directory



b. Execute “node server.js” to start the server (might take a while the first time)

```
PS C:\Users\lievc\ENEL400\Clean\ENEL400PROJ\Server> node server.js
Web server running on port 3000
Connected to MQTT Broker, client id: webserver_1
Database connected
```

c. You will see confirmation in the console when each connection is established (broker, web server, websocket, database). And the console will quickly fill with error messages if a connection fails.
d. If there are errors stop the server by hitting ctrl+s and review them in the console output
e. The website will be available at “localhost:3000” (type this in your web browser)

5. Finally, run the graphing python script
   a. Open the script in the editor
   b. Click the run button