Week 8 and 9

Work Objectives of this diary

1.To outline the current progress of my work/research and project status

2.To outline changes that have been made to accommodate covid-19 restrictions

Outcome and Results

The problems I was having in weeks 6 and 7 have been resolved I have gained access to the weather station. The major issue was getting an oauth key from the netatmo server, I have resolved this issue by using code written by github user JuYoungAhn which can be found here. Using this allows me to generate the oauth key so that I can link my code to the netatmo device and download the information, although it is only temporary fix that would not be sufficient for live use as this information should be hidden from the client side, it has allowed me to develop proof of concept and is sufficient for working locally.

Currently for this project I have broken the code up into parts, the server side programming which is quite basic can be found here. Next is the client side JavaScript found here. and finally the actual web pages and style sheets, which I have done little work on as I would prefer to make it use able rather than pretty at this point. Client side files can be found here.

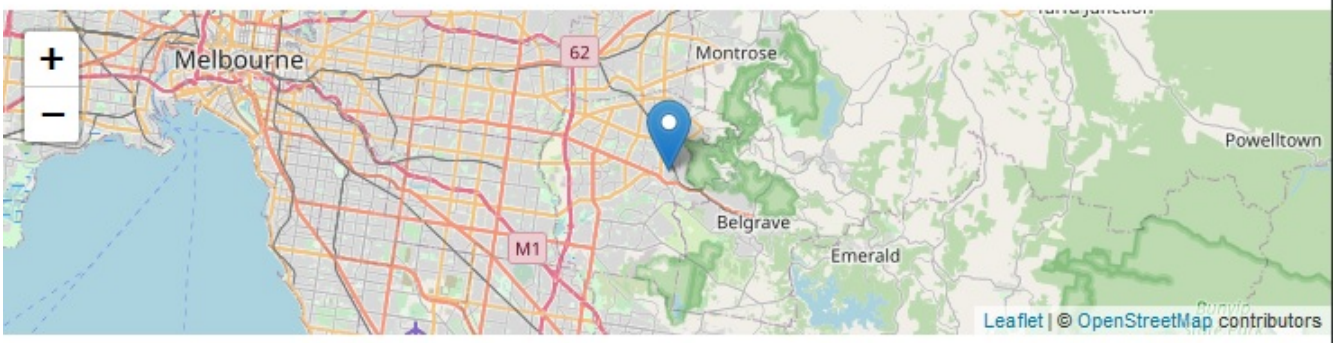
here is a screen shot of the dashboard so far;

Welcome to Grand Challenges

Graphed Data

Current Readings from Netatmo Device: BruceFM

Device Details
Current Device Time: Sun Oct 11 2020 18:21:10 GMT+1100 (Australian Eastern Daylight Time)
Latitude: -37.882
Longitude: 145.291



Current Temperature: 16.1°C
Current CO2: 581 ppm

Discussion and Conclusion

As previously stated the current method that I'm employing to retrieve the data from the netatmo device is using a hard coded oauth key that I have to manually update when it expires, this ultimately will not be secure enough for a real world roll out of the dashboard, as cybersecurity is the most important aspect of internet connected devices.

Currently the dashboard refreshes within the browser windows every 15 minutes, which shows the updates in current temperature and CO2 ppm,the current device time is the time those particular measurements were taken. I have included the latitude and longitude as well as a location marker as while this particular device is stationary, the water meter in development will be quite portable so if it is able to report these details it can be tracked.

Another possibility is connecting to other weather and air quality api's that can provide data from other sources which can be brought together.

I am using open street map for the map tiles.

To date https://www.w3schools.com/ and https://stackoverflow.com have been invaluable in helping me

debug problems in my code.

The list of dependencies for the js libraries I am using can be found here.

Achievements and Problems

Getting the API connected to my dashboard was a good step in making a working dashboard.

The problems I am currently working on at the moment is the design for the live feed graphs, writing them to update with new data points, for full functionality a database would be included so that previously recorded data can be recalled, however this is adding many more hours of work and exceeds the scope of this project.

Reflections

If I had more time to work on this project combining information from multiple API sources could be an interesting activity, taking information not just from the device but also from surrounding weather and air quality data from both government and open source providers could provide interesting feedback to users.

References

Anon 2019, "OpenStreetMap," OpenStreetMap, viewed https://www.openstreetmap.org

Anon 2019, "Stack Overflow - Where Developers Learn, Share, Build Careers," Stack Overflow, viewed https://stackoverflow.com

Anon 2019, "W3Schools Online Web Tutorials," W3schools.com, viewed https://www.w3schools.com/