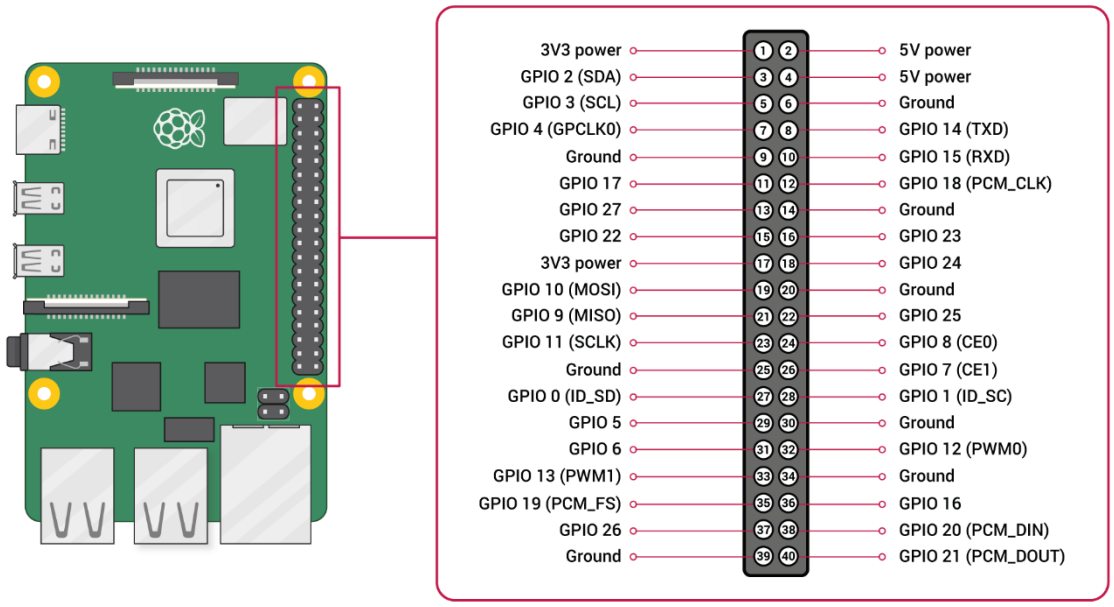
Dirty Per Air

The sensor used: grove pm 2.5 laser dust sensor HM3301

Device used with sensor: raspberry Pi 3b+

Devices are connected via the i2c interface on the Raspberry Pi:

- Specifically, the SDA and SCL pins.
- Also connected to 5v power pin and ground pin



The Sensor came with a connector what wouldn't connect to the pi so I cut off one end of the connector and soldered some wires together that would enable me to easily plug them into the required GPIO pins above.

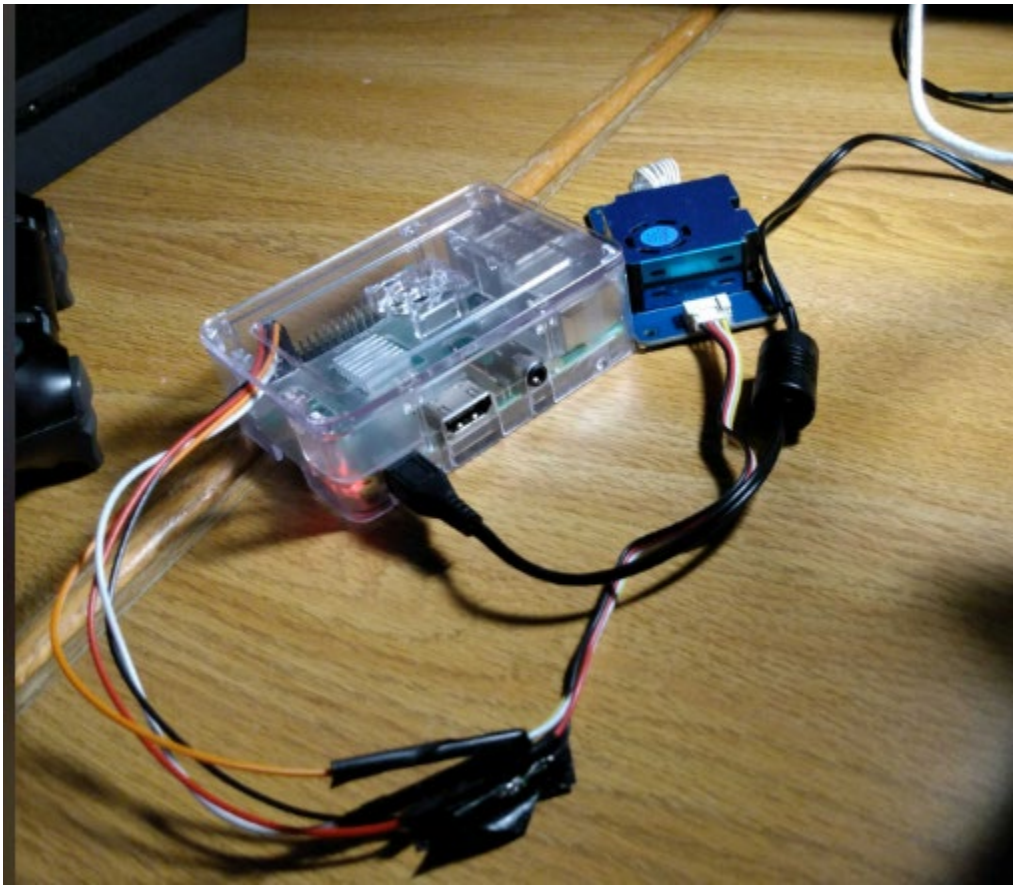
Once that was done wrote some code in python to get data from the sensor into a variable and then send that data stored in the variable to Datadog. This required me learning the rest API for Datadog. Once I figured out how to use the API for

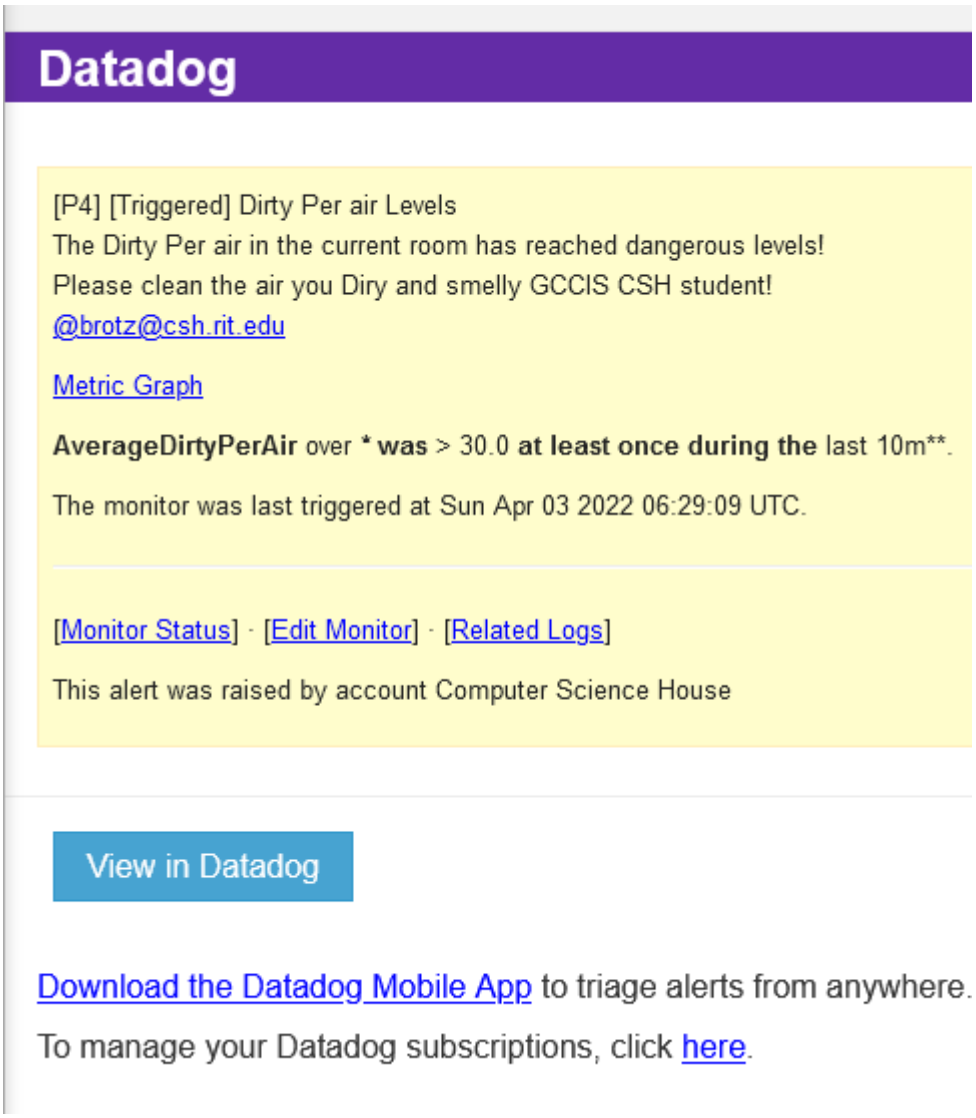
what I wanted, I added it to the existing code file and ran the program on the pi and it the metrics were being submitted to Datadog.

To keep the sensor constantly submitting data a cron job on the pi was added to run every minute to capture and submit the data.

The next step was to create the dashboard and a monitor on the Datadog website to both view the data and get an alert when the average of all the data at a set time reaches what I consider dangerous levels. The alert will send an email to my CSH email if the dirty per air get too high.

There are 3 metrics the sensor collects PM 2.5, PM 10 and 1PM. The PM stands for particulate matter or particle size. The number is used to indicate the sizes of particles in the air in terms of micrometers. These numbers are averaged together to get average dirty per air in the room. The actual scientific measurement is micrometers per cubic meter. In the case of the PM 2.5 part of the sensor it is particles with the diameter of 2.5 micrometers per cubic meter.





This is example of the email sent from datadog.