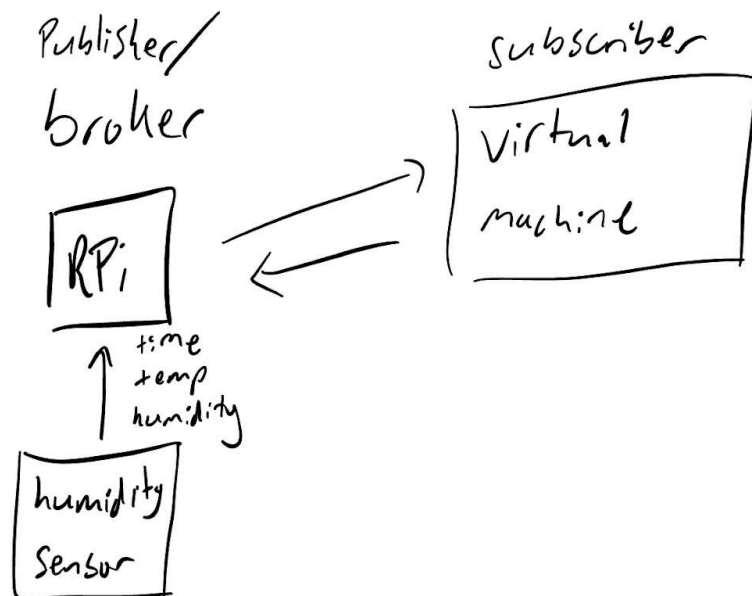


Member: Asiel Garcia

Description:

My code is a publisher and subscriber using MQTT that uses the raspberry pi as a broker. The raspberry pi also has a humidity sensor attached to it that will be reading in the relative humidity of the environment as a percentage. The python file `rpicode.py` is run using `python3` on the raspberry pi. Once it begins, `main_sub.py` is run on the vm terminal also using `python3` when the user is ready to turn on the water and shower. The start time of the shower will be once the humidity increases by 15% relative humidity which is very quick and the time from getting in and reaching that threshold is negligible. Next the data is taken while the user is in the shower and once they are done and out the plot will be shown after the humidity decreases by 10% from the max. The humidity should hover around max while the user is actively showering. The thing that my system is achieving is a fun graph to show humidity levels in % throughout the duration of a shower and how steamy the bathroom gets. The code is optimized for a small bathroom that does not use a fan to keep moisture out.



Components used:

VM running ubuntu

RPi with grovepi shield and humidity/temperature sensor

MQTT protocol

Key processing techniques: send the information from the broker as json to the subscriber who then loads the data and checks the values to determine when to finish taking data and display

the graph (near the end of the shower). As well as determining the total time spent in the shower (in seconds)

The limitations observed were having to run the file once ready to shower instead of just being able to have a keystroke detection as well as having a keystroke detection to end the shower time while continuously reading in data and being able to print a graph of just the data between the two keystrokes.