MQTT Assignments-IOT4/IOT26+

Create a set of IOT assignments for use in Somsen 301 lab.

PgP 12/12/2023- grew out of work with Zhezhu Wen for RFID/Barcode project.

RPis have GrovePi boards and sensors-and we have Python programs that read sensors, write to text files, shell, maria db, Adafruit cloud.

This will add MQTT to the mix-setup RPi (one or all?)

**Note-RPi3B+ in Somsen 301 on DexPiRed4A are running Mosquitto/Buster/1.5.7 on port 1883**

Ref: <https://manpages.debian.org/buster/mosquitto/mosquitto.8.en.html>

A screenshot of a computer

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To subscribe and find out more about MQTT install, use terminal commands like: mosquitto\_sub -t '$SYS/broker/version'

Which returns: ‘mosquitto version 1.5.7’

Assignments –

1. set up RPi as an MQTT broker, publish it’s sensor readings, have other RPis, laptops, even phones subscribe to the feed
2. Use Node-RED and create flow that captures MQTT from one of the Pis using
3. Create Node-RED flow using stack hero node to send data to a RPi/Maria db  
   ref: <https://www.stackhero.io/en/services/Node-RED/documentations/Getting-started/Connect-to-a-MySQL-or-MariaDB-database>
4. Have students use cell phones,download app to subscribe to MQTT feeds from RPis.

Assignment 1-setup MQTT

Note- mosquitto buster 1.5.7 should be running on all Raspberry Pis with DexPiRed4A

To verify mosquitto is running, in terminal type: mosquitto\_sub -t '$SYS/broker/version'

Should see: 

Also see: <https://mqtt.org/>

Mosquitto Publish commands: <https://manpages.debian.org/buster/mosquitto-clients/mosquitto_pub.1.en.html>

Mosquitto Subscribe commands: <https://manpages.debian.org/buster/mosquitto-clients/mosquitto_sub.1.en.html>

Working on rpi at home, 192.168.1.78

Create python program to publish sensor readings to mqtt-

Modify insertSensorReading.py; which currently reads sensors, writes to mariadb

Install Python libraries: paho-mqtt , research paho-mqtt-client for later

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Also: <https://pypi.org/project/paho-mqtt-client/>

Note-to get paho to install correctly I had to use command ‘sudo pip3 install paho-mqtt’

Then it worked both to publish and subscribe:

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Persistent storage: probably good to turn on:

Some bash information: run following in bash to subscribe to broker, ip address, topic, at q0s 1:

mosquitto\_sub -t 'sensor/temperature' -v -d -q 1

mosquitto\_sub -h 192.168.1.78 -t 'sensor/temperature' -v -d -q 1

mosquitto\_sub -h 192.168.1.78 -t 'sensor/timestamp' -v -d -q 1

output then looks like:  
A screen shot of a computer

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