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Just 4 Simple Steps

Build your own IoT device using

Raspberry Pi and MQTT

- Melvin Francis

IoT Device - Publisher

HIVEMQ

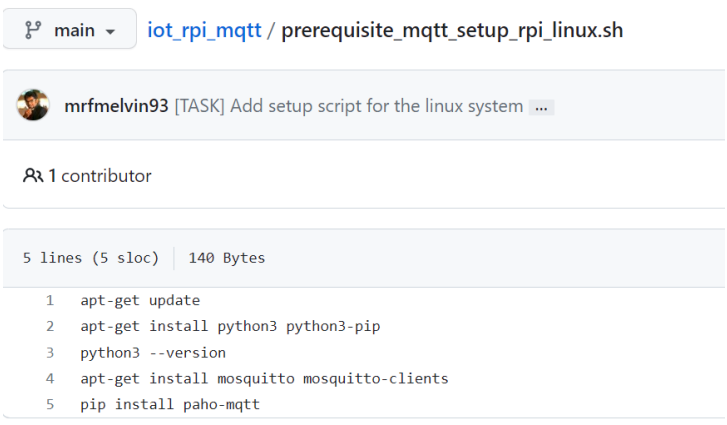
MQTT Broker

IoT Dashboard - Subscriber

Step - 1

Install the following dependencies:

```
> sudo apt update

> sudo apt install python3 python3-pip

> python3 --version

> sudo apt-get install mosquitto mosquitto-clients

> pip install paho-mqtt
```

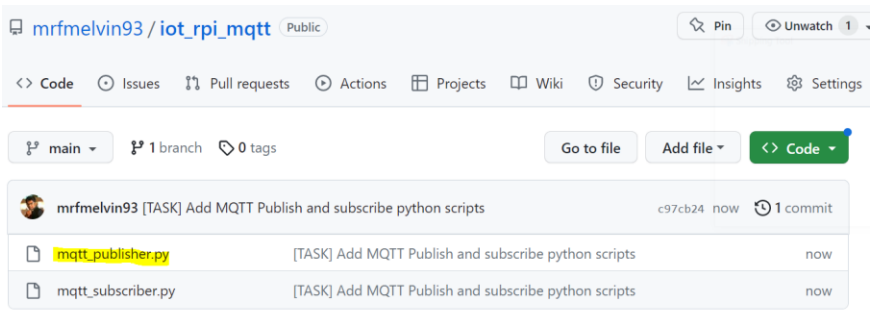


https://github.com/mrfmelvin93/iot_rpi_mqtt/blob/main/prerequisite_mqtt_setup_rpi_linux.sh

Step - 2

Write the MQTT publisher python script for RPi

```
import paho.mqtt.client as mqtt
import time
import random

# create a client instance
client = mqtt.Client()

# connect to the broker
client.connect("broker.hivemq.com", 1883, 60)

# loop forever and publish sensor data
while True:
    temperature = random.randint(0, 100) # TODO: Replace it with your Sensor value
    humidity = random.randint(0, 100)    # TODO: Replace it with your Sensor value
    client.publish("melvin/mqttExample/temperature", temperature)
    client.publish("melvin/mqttExample/humidity", humidity)
    print("Publishing-->melvin/mqttExample/temperature: ", temperature)
    print("Publishing-->melvin/mqttExamplehumidity: ", humidity)
    time.sleep(1)
```

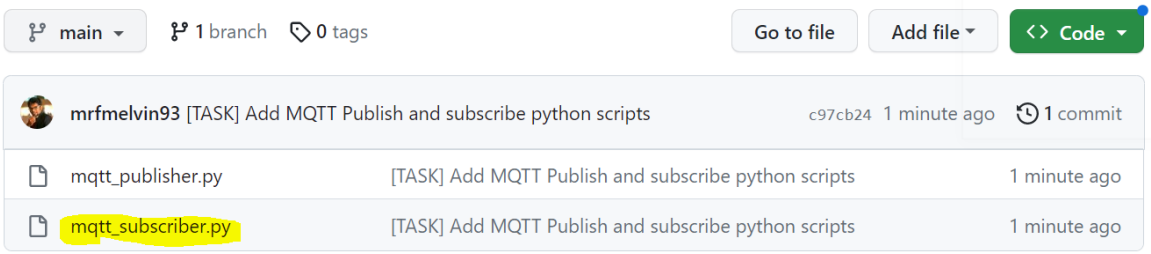


https://github.com/mrfmelvin93/iot_rpi_mqtt/blob/main/mqtt_publisher.py

Step - 3

Write the MQTT subscriber python script to view the data

```
import paho.mqtt.client as mqtt

# create a client instance
client = mqtt.Client()

# define a callback for the message received event
def on_message(client, userdata, message):
    print("Subscribing-->"+ message.topic, message.payload)

# connect to the broker
client.connect("broker.hivemq.com", 1883, 60)

# subscribe to the sensor data topics
client.subscribe("melvin/mqttExample/temperature")
client.subscribe("melvin/mqttExample/humidity")

# set the callback for the message received event
client.on_message = on_message

# loop forever and wait for messages
client.loop_forever()
```



https://github.com/mrfmelvin93/iot_rpi_mqtt/blob/main/mqtt_subscriber.py

Step - 4

Run the Publisher on Rpi and the Subscriber py scripts

```
python3 mqtt_publisher.py
```

```
Publishing-->melvin/mqttExample/temperature:  26
Publishing-->melvin/mqttExamplehumidity:  30
Publishing-->melvin/mqttExample/temperature:  4
Publishing-->melvin/mqttExamplehumidity:  82
Publishing-->melvin/mqttExample/temperature:  13
Publishing-->melvin/mqttExamplehumidity:  37
Publishing-->melvin/mqttExample/temperature:  93
Publishing-->melvin/mqttExamplehumidity:  41
Publishing-->melvin/mqttExample/temperature:  38
Publishing-->melvin/mqttExamplehumidity:  25
Publishing-->melvin/mqttExample/temperature:  62
Publishing-->melvin/mqttExamplehumidity:  23
Publishing-->melvin/mqttExample/temperature:  73
Publishing-->melvin/mqttExamplehumidity:  52
Publishing-->melvin/mqttExample/temperature:  27
Publishing-->melvin/mqttExamplehumidity:  49
Publishing-->melvin/mqttExample/temperature:  86
Publishing-->melvin/mqttExamplehumidity:  45
Publishing-->melvin/mqttExample/temperature:  66
Publishing-->melvin/mqttExamplehumidity:  86
Publishing-->melvin/mqttExample/temperature:  7
```

```
python3 mqtt_subscriber.py
```

```
Subscribing-->melvin/mqttExample/humidity b'30'
Subscribing-->melvin/mqttExample/temperature b'26'
Subscribing-->melvin/mqttExample/temperature b'4'
Subscribing-->melvin/mqttExample/humidity b'82'
Subscribing-->melvin/mqttExample/temperature b'13'
Subscribing-->melvin/mqttExample/humidity b'37'
Subscribing-->melvin/mqttExample/temperature b'93'
Subscribing-->melvin/mqttExample/humidity b'41'
Subscribing-->melvin/mqttExample/temperature b'38'
Subscribing-->melvin/mqttExample/humidity b'25'
Subscribing-->melvin/mqttExample/temperature b'62'
Subscribing-->melvin/mqttExample/humidity b'23'
Subscribing-->melvin/mqttExample/temperature b'73'
Subscribing-->melvin/mqttExample/humidity b'52'
Subscribing-->melvin/mqttExample/temperature b'27'
Subscribing-->melvin/mqttExample/humidity b'49'
Subscribing-->melvin/mqttExample/temperature b'86'
Subscribing-->melvin/mqttExample/humidity b'45'
Subscribing-->melvin/mqttExample/temperature b'66'
Subscribing-->melvin/mqttExample/humidity b'86'
```

More tutorials on custom dashboard creation in my upcoming posts

Don’t forget to follow me on

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