

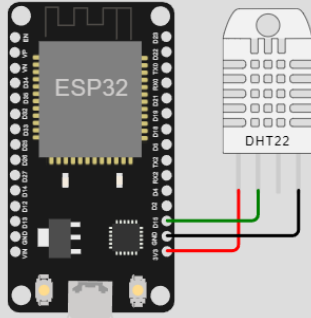
ASSIGNMENT 02

main.py • diagram.json Library Manager ▾

```
1 import network
2 import time
3 from machine import Pin
4 import dht
5 import ujson
6 from umqtt.simple import MQTTClient
7
8 # MQTT Server Parameters
9 MQTT_CLIENT_ID = "micropython-weather-demo"
10 MQTT_BROKER = "broker.mqttdashboard.com"
11 MQTT_USER = ""
12 MQTT_PASSWORD = ""
13 MQTT_TOPIC = "wokwi-weather"
14
15 sensor = dht.DHT22(Pin(15))
16
17 print("Connecting to WiFi", end="")
18 sta_if = network.WLAN(network.STA_IF)
19 sta_if.active(True)
20 sta_if.connect('wokwi-GUEST', '')
21 while not sta_if.isconnected():
22     print(".", end="")
23     time.sleep(0.1)
24 print(" Connected!")
25
26 print("Connecting to MQTT server... ", end="")
27 client = MQTTClient(MQTT_CLIENT_ID, MQTT_BROKER, user=MQTT_USER, password=MQTT_PASSWORD)
28 client.connect()
29
```

Simulation

▶ + ⋮



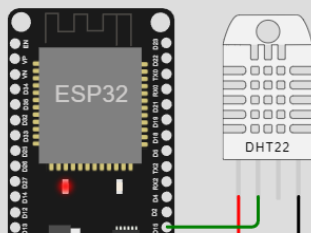
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```

Simulation

↺ ◻ ⏸

00:09.176 93%



```
Connecting to WiFi..... Connected!
Connecting to MQTT server... Connected!
Measuring weather conditions... Updated!
Reporting to MQTT topic wokwi-weather: {"humidity": 40.0, "temp": 24.0}
Measuring weather conditions... No change
Measuring weather conditions... No change
```

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sensor = dht.DHT22(Pin(15))
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print("Connecting to WiFi", end="")
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sta_if.active(True)
sta_if.connect('Wokwi-GUEST', '')
while not sta_if.isconnected():
    print(".", end="")
    time.sleep(0.1)
print(" Connected!")

print("Connecting to MQTT server... ", end="")
client = MQTTClient(MQTT_CLIENT_ID, MQTT_BROKER, user=MQTT_USER, password=MQTT_PASSWORD)
client.connect()

print("Connected!")

prev_weather = ""
while True:
    print("Measuring weather conditions... ", end="")
    sensor.measure()
    message = ujson.dumps({
        "temp": sensor.temperature(),
        "humidity": sensor.humidity(),
    })
    if message != prev_weather:
        print("Updated!")
        print("Reporting to MQTT topic {}: {}".format(MQTT_TOPIC, message))
        client.publish(MQTT_TOPIC, message)
        prev_weather = message
    else:
        print("No change")
    time.sleep(1)

```

The screenshot displays a MicroPython IDE interface. On the left, the code editor shows a script for an ESP32 microcontroller. The script imports necessary modules, configures WiFi, and sets up an MQTT client to publish sensor data to a topic named 'wokwi-weather'. The right side of the IDE features a simulation window. At the top of the simulation, there are controls for running, pausing, and a timer showing 00:39.433 with 92% battery. Below this, a 'DHT22' sensor is shown with its current readings: Temperature at 54.2°C and Humidity at 47.0%. The bottom of the simulation window contains a console log showing the program's output, including the MQTT publish messages and the 'Measuring weather conditions...' status updates.

```

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```

Simulation

00:39.433 92%

Editing DHT22

Temperature: 54.2°C

Humidity: 47.0%

Measuring weather conditions... No change

Measuring weather conditions... No change

Measuring weather conditions... Updated!

Reporting to MQTT topic wokwi-weather: {"humidity": 57.0, "temp": 21.2}

Measuring weather conditions... Updated!

Reporting to MQTT topic wokwi-weather: {"humidity": 57.0, "temp": 54.2}

Measuring weather conditions... Updated!

Reporting to MQTT topic wokwi-weather: {"humidity": 64.0, "temp": 54.2}

Measuring weather conditions... Updated!

Reporting to MQTT topic wokwi-weather: {"humidity": 47.0, "temp": 54.2}

Measuring weather conditions... No change