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**Title**

**Setting Up MQTT Broker on Raspberry Pi and Reading DHT11 Sensor Data and MQ9 Sensor**

**Program:**

import time

import Adafruit\_DHT

import RPi.GPIO as GPIO

import paho.mqtt.client as mqtt

# --- Configuration ---

MQTT\_BROKER = "localhost" # Replace with your broker IP

MQTT\_PORT = 1883

MQTT\_TOPIC = "sensor/data"

DHT\_SENSOR = Adafruit\_DHT.DHT11

DHT\_PIN = 4 # GPIO4 for DHT11

MQ9\_PIN = 17 # GPIO17 for MQ9 Digital Output

# --- GPIO Setup ---

GPIO.setmode(GPIO.BCM)

GPIO.setup(MQ9\_PIN, GPIO.IN)

# --- MQTT Setup ---

client = mqtt.Client("RPi\_SensorPublisher")

def connect\_mqtt():

try:

client.connect(MQTT\_BROKER, MQTT\_PORT, 60)

print("Connected to MQTT Broker!")

except Exception as e:

print(f"Connection Failed: {e}")

exit(1)

connect\_mqtt()

# --- Main Loop ---

try:

while True:

humidity, temperature = Adafruit\_DHT.read(DHT\_SENSOR, DHT\_PIN)

mq9\_status = GPIO.input(MQ9\_PIN)

if humidity is not None and temperature is not None:

sensor\_data = {

"temperature": temperature,

"humidity": humidity,

"gas\_detected": "Yes" if mq9\_status == 0 else "No"

}

msg = f"{sensor\_data}"

print("Publishing:", msg)

client.publish(MQTT\_TOPIC, msg)

else:

print("Sensor failure. Check wiring.")

time.sleep(5)

except KeyboardInterrupt:

print("Exiting...")

GPIO.cleanup()