import RPi.GPIO as GPIO

import serial

import time

# GPIO setup

GPIO.setmode(GPIO.BCM)

RELAY\_1 = 17 # GPIO17

RELAY\_2 = 18 # GPIO18

GPIO.setup(RELAY\_1, GPIO.OUT)

GPIO.setup(RELAY\_2, GPIO.OUT)

GPIO.output(RELAY\_1, GPIO.HIGH) # Active LOW

GPIO.output(RELAY\_2, GPIO.HIGH)

# Serial setup

ser = serial.Serial('/dev/serial0', 57600, timeout=1)

try:

while True:

if ser.in\_waiting > 0:

command = ser.readline().decode('utf-8').strip()

print(f"Received: {command}")

if command == "light1\_on":

GPIO.output(RELAY\_1, GPIO.LOW)

elif command == "light1\_off":

GPIO.output(RELAY\_1, GPIO.HIGH)

elif command == "light2\_on":

GPIO.output(RELAY\_2, GPIO.LOW)

elif command == "light2\_off":

GPIO.output(RELAY\_2, GPIO.HIGH)

time.sleep(0.1)

except KeyboardInterrupt:

print("Exiting...")

finally:

GPIO.cleanup()

ser.close()

import network

import time

from umqtt.simple import MQTTClient

import machine

import sys

# WiFi and MQTT configuration

SSID = "Teddi's Galaxy S10 5G"

PASSWORD = "gzkf5424"

MQTT\_SERVER = "192.168.227.66"

MQTT\_TOPIC = b"home/lights"

# UART setup

uart = machine.UART(0, baudrate=57600)

# Connect to WiFi

wlan = network.WLAN(network.STA\_IF)

wlan.active(True)

print("Scanning for networks...")

networks = wlan.scan()

for net in networks:

print("Found SSID:", net[0].decode())

try:

print(f"Connecting to {SSID}...")

wlan.connect(SSID, PASSWORD)

timeout = 10

start = time.time()

while not wlan.isconnected() and (time.time() - start) < timeout:

time.sleep(1)

if wlan.isconnected():

print("WiFi connected:", wlan.ifconfig())

else:

print("WiFi failed:", wlan.status())

except OSError as e:

print("WiFi error:", e)

# MQTT callback

def on\_message(topic, msg):

message = msg.decode('utf-8')

print(f"Received: {message}")

uart.write(message + '\n') # Send to Pi

# Set up MQTT

if wlan.isconnected():

try:

client = MQTTClient("ESP8266Client", MQTT\_SERVER)

client.set\_callback(on\_message)

client.connect()

client.subscribe(MQTT\_TOPIC)

print("MQTT connected")

while True:

client.check\_msg()

time.sleep(0.1)

except OSError as e:

print("MQTT error:", e)

else:

print("No WiFi, cannot connect to MQTT")

<!DOCTYPE html>

<html>

<head><title>Light Control</title></head>

<body>

<h1>Light Control</h1>

<form method="post">

<h2>Light 1</h2>

<input type="submit" name="light1\_on" value="Turn ON">

<input type="submit" name="light1\_off" value="Turn OFF">

<h2>Light 2</h2>

<input type="submit" name="light2\_on" value="Turn ON">

<input type="submit" name="light2\_off" value="Turn OFF">

</form>

<?php

if ($\_SERVER["REQUEST\_METHOD"] == "POST") {

if (isset($\_POST["light1\_on"])) {

shell\_exec("mosquitto\_pub -h localhost -t home/lights -m light1\_on");

} elseif (isset($\_POST["light1\_off"])) {

shell\_exec("mosquitto\_pub -h localhost -t home/lights -m light1\_off");

} elseif (isset($\_POST["light2\_on"])) {

shell\_exec("mosquitto\_pub -h localhost -t home/lights -m light2\_on");

} elseif (isset($\_POST["light2\_off"])) {

shell\_exec("mosquitto\_pub -h localhost -t home/lights -m light2\_off");

}

}

?>

</body>

</html>