Group 3

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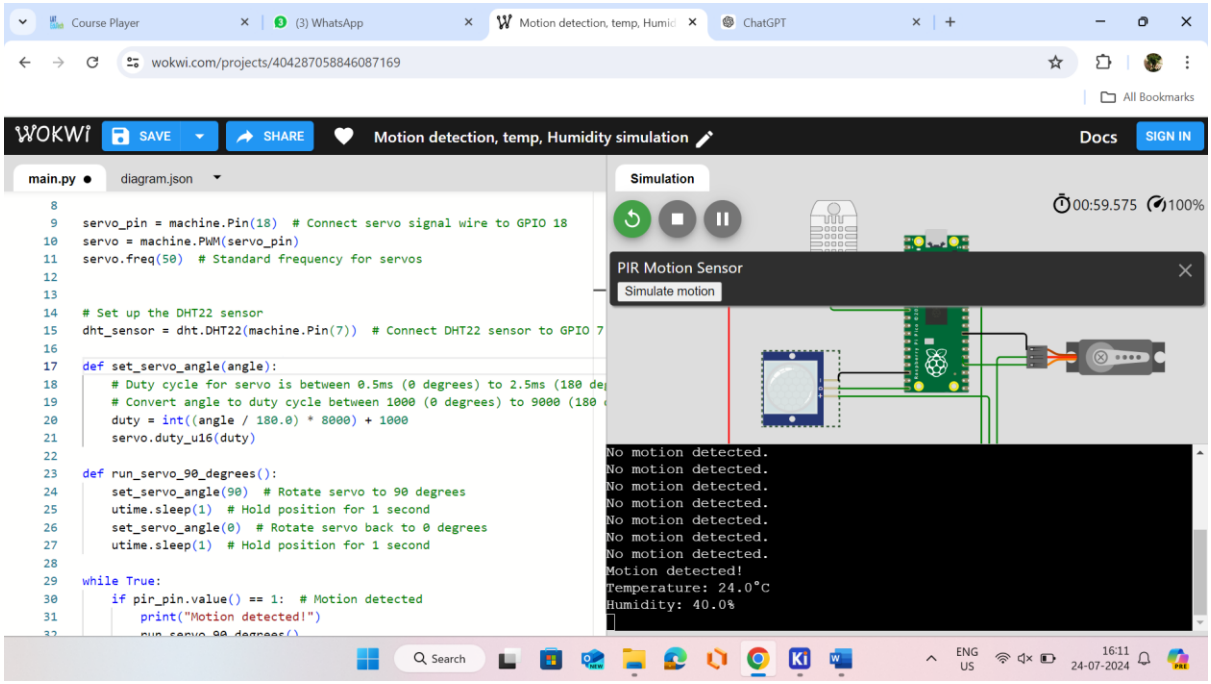
Title: Simulation of motor with pir sensor and DHT22

Code:

```
import machine
import utime
import dht

# Set up the PIR motion sensor
pir_pin = machine.Pin(15, machine.Pin.IN)  # Connect PIR sensor to GPIO 15


servo_pin = machine.Pin(18)  # Connect servo signal wire to GPIO 18
servo = machine.PWM(servo_pin)
servo.freq(50)  # Standard frequency for servos


# Set up the DHT22 sensor
dht_sensor = dht.DHT22(machine.Pin(7))  # Connect DHT22 sensor to GPIO 7

def set_servo_angle(angle):
    # Duty cycle for servo is between 0.5ms (0 degrees) to 2.5ms (180 degrees)
    # Convert angle to duty cycle between 1000 (0 degrees) to 9000 (180 degrees)
    duty = int((angle / 180.0) * 8000) + 1000
    servo.duty_u16(duty)

def run_servo_90_degrees():
    set_servo_angle(90)  # Rotate servo to 90 degrees
    utime.sleep(1)  # Hold position for 1 second
    set_servo_angle(0)  # Rotate servo back to 0 degrees
    utime.sleep(1)  # Hold position for 1 second

while True:
    if pir_pin.value() == 1:  # Motion detected
        print("Motion detected!")
        run_servo_90_degrees()

        # Read temperature and humidity from DHT22 sensor
        dht_sensor.measure()
        temperature = dht_sensor.temperature()
        humidity = dht_sensor.humidity()

        print("Temperature: {}°C".format(temperature))
        print("Humidity: {}%".format(humidity))

        # Wait for a while before checking again to avoid rapid triggers
        utime.sleep(10)
    else:
        print("No motion detected.")

    utime.sleep(3)  # Check for motion every 3seconds
```

Simulation:


Course Player
(3) WhatsApp
Motion detection, temp, Humid
ChatGPT
wokwi.com/projects/404287058846087169
All Bookmarks
WOKWI
SAVE
SHARE
Motion detection, temp, Humidity simulation
Docs
SIGN IN
main.py
diagram.json
servo_pin = machine.Pin(18) # Connect servo signal wire to GPIO 18
servo = machine.PWM(servo_pin)
servo.freq(50) # Standard frequency for servos
# Set up the DHT22 sensor
dht_sensor = dht.DHT22(machine.Pin(7)) # Connect DHT22 sensor to GPIO 7
def set_servo_angle(angle):
# Duty cycle for servo is between 0.5ms (0 degrees) to 2.5ms (180 de
# Convert angle to duty cycle between 1000 (0 degrees) to 9000 (180
duty = int((angle / 180.0) * 8000) + 1000
servo.duty_u16(duty)
def run_servo_90_degrees():
set_servo_angle(90) # Rotate servo to 90 degrees
utime.sleep(1) # Hold position for 1 second
set_servo_angle(0) # Rotate servo back to 0 degrees
utime.sleep(1) # Hold position for 1 second
while True:
if pir_pin.value() == 1: # Motion detected
print("Motion detected!")
Simulation
00:59.575
100%
PIR Motion Sensor
Simulate motion
No motion detected.
No motion detected.
No motion detected.
No motion detected.
No motion detected.
No motion detected.
No motion detected.
Motion detected!
Temperature: 24.0°C
Humidity: 40.0%
Search
ENG
US
16:11
24-07-2024