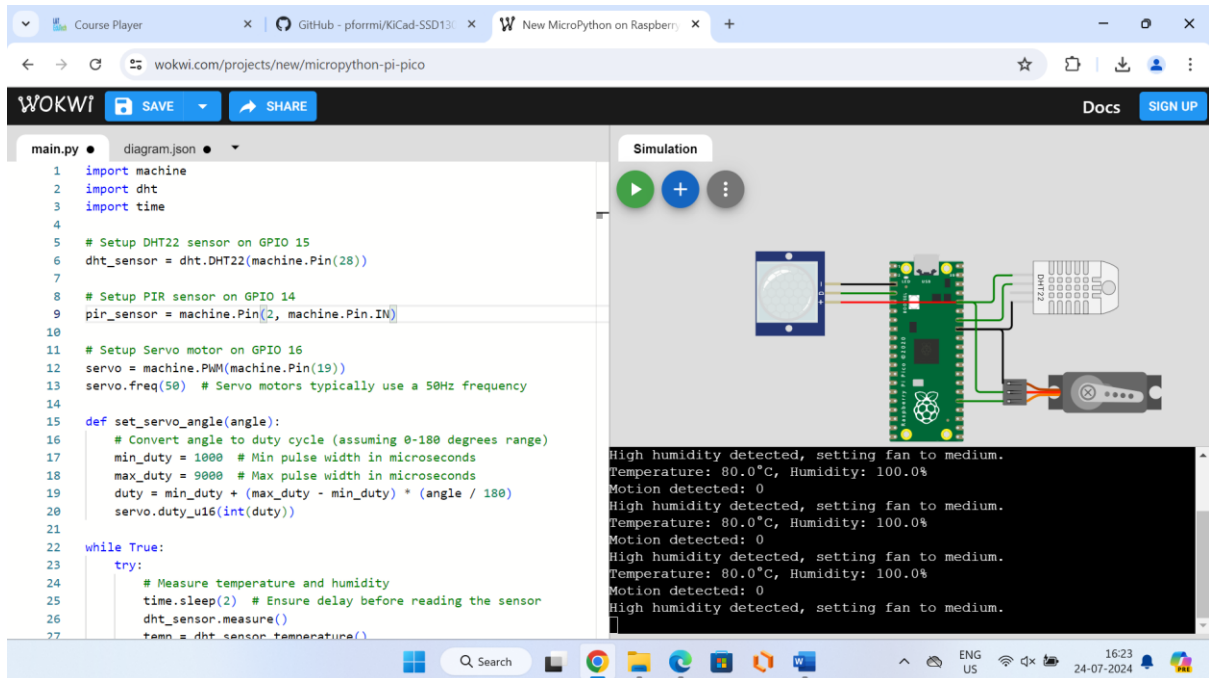


KUSH THAKUR

Bathroom ventilation system – Designed in wokwi



Code:

```
import machine
import dht
import time

# Setup DHT22 sensor on GPIO 15
dht_sensor = dht.DHT22(machine.Pin(28))

# Setup PIR sensor on GPIO 14
pir_sensor = machine.Pin(2, machine.Pin.IN)

# Setup Servo motor on GPIO 16
servo = machine.PWM(machine.Pin(19))
servo.freq(50) # Servo motors typically use a 50Hz frequency

def set_servo_angle(angle):
    # Convert angle to duty cycle (assuming 0-180 degrees range)
    min_duty = 1000 # Min pulse width in microseconds
    max_duty = 9000 # Max pulse width in microseconds
    duty = min_duty + (max_duty - min_duty) * (angle / 180)
    servo.duty_u16(int(duty))

while True:
    try:
        # Measure temperature and humidity
        time.sleep(2) # Ensure delay before reading the sensor
        dht_sensor.measure()
        temp, hum = dht_sensor.temperature(), dht_sensor.humidity()

        if hum > 80:
            print("High humidity detected, setting fan to medium.")
            print(f"Temperature: {temp}°C, Humidity: {hum}%")
            print("Motion detected: 0")
            # Here you would call set_servo_angle to move the fan
    except KeyboardInterrupt:
        break
```

```

while True:
    try:
        # Measure temperature and humidity
        time.sleep(2) # Ensure delay before reading the sensor
        dht_sensor.measure()
        temp = dht_sensor.temperature()
        hum = dht_sensor.humidity()
        print(f'Temperature: {temp}°C, Humidity: {hum}%')

        # Check motion detection
        motion_detected = pir_sensor.value()
        print(f'Motion detected: {motion_detected}')

        # Control logic for the fan based on sensor data
        if motion_detected:
            print("Motion detected, setting fan to high.")
            set_servo_angle(180) # Set fan to high position
        elif hum > 60:
            print("High humidity detected, setting fan to medium.")
            set_servo_angle(90) # Set fan to medium position
        else:
            print("No motion or high humidity, setting fan to low.")
            set_servo_angle(0) # Set fan to low or off position

    except OSError as e:
        print('Sensor error:', e)
        # Retry reading the sensor after a short delay
        time.sleep(2)

```

