Day 9 exp 2 Simulation

Supriya

Micro-Python code

```
import machine
import utime
import dht

# Initialize DHT22
dht_pin = machine.Pin(5)
dht_sensor = dht.DHT22(dht_pin)

# Initialize PIR Motion Sensor
pir_pin = machine.Pin(22, machine.Pin.IN)

# Initialize Servo Motor
servo_pin = machine.Pin(16)
servo = machine.PWM(servo_pin)
servo.freq(50)

def set_servo_angle(angle):
    # Duty cycle for servo is between 2.5% and 12.5% for 0 to 180 degrees
    duty = angle / 18 + 2.5
    servo.duty_u16(int(duty * 65535 / 100))

def read_dht22():
    dht_sensor.measure()
    temp = dht_sensor.temperature()
    humidity = dht_sensor.humidity()
    return temp, humidity

def main():
    while True:
        if pir_pin.value() == 1:
            print("Motion detected!")
            temp, humidity = read_dht22()
            print(f"Temperature: {temp}C, Humidity: {humidity}%")

            # Move the servo to 90 degrees
```

```
            set_servo_angle(90)
            utime.sleep(1)

            # Return the servo to 0 degrees
            set_servo_angle(0)
            utime.sleep(1)
        else:
            print("No motion")

        utime.sleep(2)

if __name__ == "__main__":
    main()
```