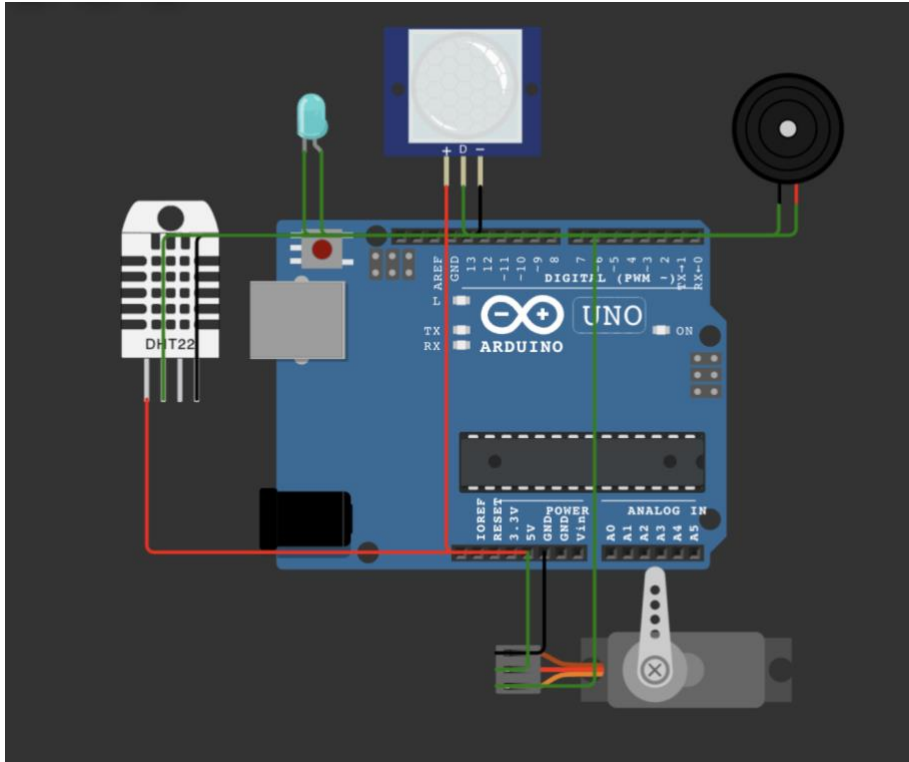


ASSIGNMENT 3

Schematic:



CODE:

```
#include <Servo.h>
#include <Adafruit_Sensor.h>
#include <DHT.h>

#define DHTPIN 2      // Digital pin connected to the DHT sensor
#define DHTTYPE DHT11 // DHT 11

#define LEDPIN 4      // Digital pin connected to the LED
#define BUZZERPIN 5   // Digital pin connected to the Buzzer
#define SERVOPIN 6    // Digital pin connected to the Servo motor

int pirpin = 3;      // Digital pin connected to the PIR sensor
int pirstate = LOW;  // we start, assuming no motion detected
int val = 0;         // variable for reading the pin status

DHT dht(DHTPIN, DHTTYPE); // Create a DHT object
```

```

Servo servo;           // Create a Servo object

int doorClosedAngle = 0;    // Angle for closed door position
int doorOpenAngle = 90;     // Angle for open door position

void setup() {
  Serial.begin(9600);
  dht.begin();
  pinMode(LEDPIN, OUTPUT);
  pinMode(BUZZERPIN, OUTPUT);
  pinMode(pirpin, INPUT);  // declare sensor as input
  servo.attach(SERVOPIN);
  servo.write(doorClosedAngle);
}

void loop() {
  // Read the temperature and humidity values from the DHT sensor
  val = digitalRead(pirpin); // read input value
  float temperature = dht.readTemperature();
  float humidity = dht.readHumidity();

  Serial.print("Temperature: ");
  Serial.print(temperature);
  Serial.print(" *C\t Humidity: ");
  Serial.print(humidity);
  Serial.println(" %");

  // Check if there is motion detected by the PIR sensor
  if (val) {
    Serial.println("Motion detected!");
    digitalWrite(LEDPIN, HIGH); // Turn on the LED
    pirstate = HIGH;
    tone(BUZZERPIN, 500, 1000); // Play a 1-second tone on the buzzer
    servo.write(doorOpenAngle); // Unlock the door
    delay(5000);                // Wait for 5 seconds
    servo.write(doorClosedAngle); // Lock the door
  } else {
    Serial.println("No motion detected.");
    pirstate = LOW;
    digitalWrite(LEDPIN, LOW); // Turn off the LED
    noTone(BUZZERPIN);         // Turn off the buzzer
  }
}

```

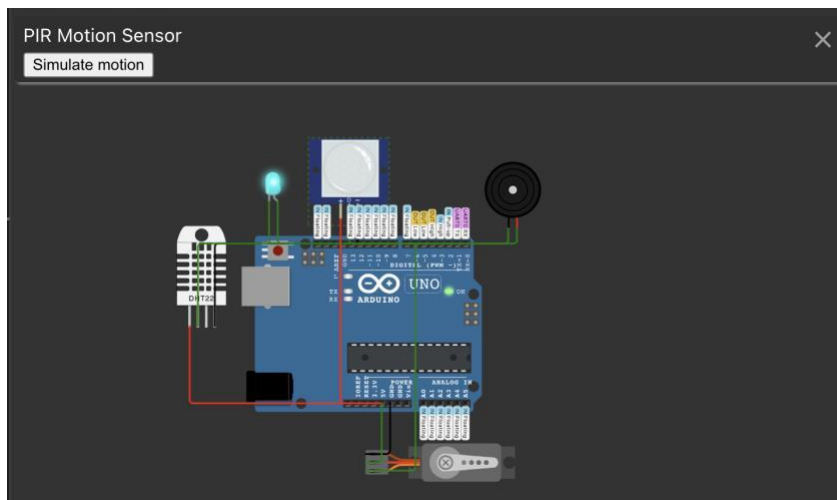
```

}

delay(1000);           // Wait for 1 second before taking the next measurement
}

```

RESULTS:



No motion detected.

Temperature: -1.00 *C Humidity: 15.40 %

No motion detected.

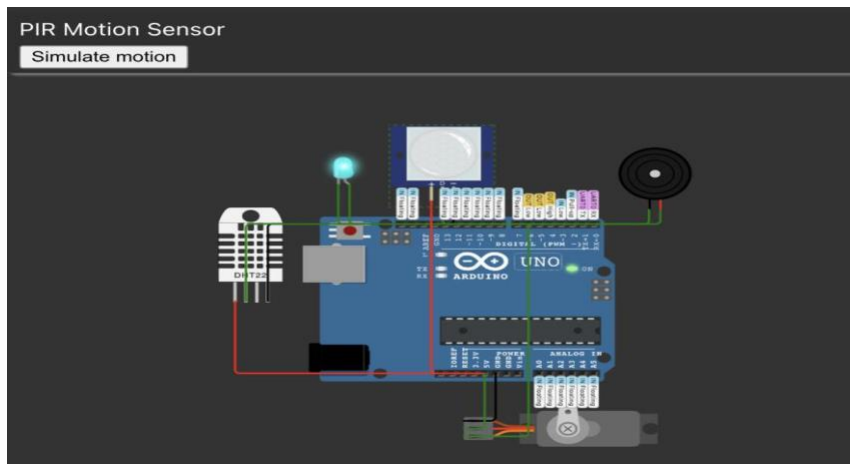
Temperature: -1.00 *C Humidity: 15.40 %

Motion detected!

Temperature: -1.00 *C Humidity: 15.40 %

No motion detected.

MOTION DETECTED SO SERVO MOTOR OPENS THE DOOR FOR FIVE SECONDS



SERVO MOTOR CLOSES THE DOOR AFTER FIVE SECONDS.