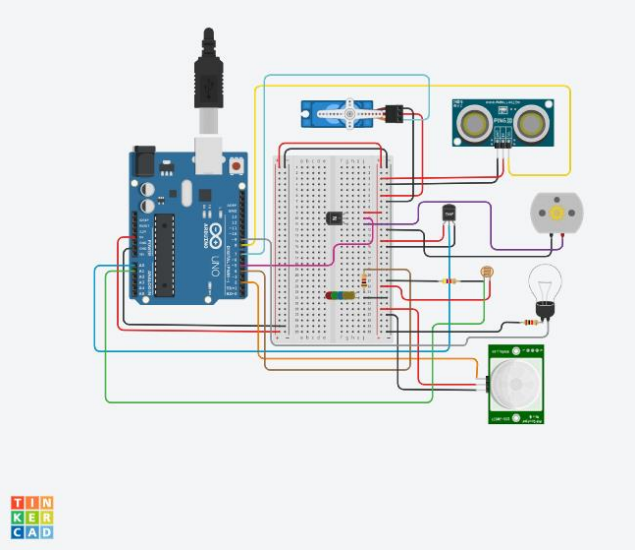
Assignment -1

Home Automation

Assignment Date	15 September 2022
Student Name	B.Raghul
Student Roll Number	510119106009
Maximum Marks	2 Marks

Circuit connections:



Code:

```
#include<Servo.h>

Servo servo1;

int sensorValue = 0;

int servoPin = 7;

int pingPin = 8;

int tmpPin = A0;

int pirPin = 2;

int PIR;

int flag = 0;

long duration, distance, temperature;
```

```
void setup()
{
  servol.attach(servoPin);
  pinMode(pirPin,INPUT);
  pinMode(4, OUTPUT);
  pinMode(3,OUTPUT);
  pinMode(tmpPin,INPUT);
  pinMode(5, OUTPUT);
  digitalWrite(pirPin,LOW);
  digitalWrite(3,HIGH);
  pinMode(A1, INPUT);
  pinMode(9, OUTPUT);
  Serial.begin(9600);
}

void loop()
{

  pinMode(pingPin, OUTPUT);
  digitalWrite(pingPin, LOW);
        delayMicroseconds(2);
  digitalWrite(pingPin, HIGH);
        delayMicroseconds(5);
  digitalWrite(pingPin, LOW);

  pinMode(pingPin, INPUT);
```

```
  duration = pulseIn(pingPin, HIGH);
;

  distance = duration / 27 / 2;         //The distance is in cetimeters

  // Proximity sensor to open door when person is less than 90 cm
  // from the door sensor
  servol.write(0);

  if(distance < 90){
    flag = 1;
          servol.write(90);
    delay(1000);
  }

  else{
    servol.write(0);
  }

  //PIR sensor to sense if someone is in the room
  //The LEDs remain on as long as the person is moving in the room

  PIR = digitalRead(pirPin);

  if(PIR == HIGH && flag == 1)
  {
```

```
  digitalWrite(4,HIGH);
  delay(1000);
}
else if(PIR == LOW)
{
  digitalWrite(4,LOW);
}

//Temperature sensor to sense the temperature
//The fan begins rotating if the temperature is above 20 degree
//Celsius and gradually increases as the temperature reaches
//40 degrees after which the fan reaches max speed

temperature = analogRead(tmpPin);

temperature = map(temperature, 20, 358, -40, 125);
if(flag == 1)
{
        //Serial.println(speed_decider(temperature));
        analogWrite(5, speed_decider(temperature));

}

//The photoresistor is used to measure the amount of sunlight
//After a certain sunlight below a certain amount enters
//The light bulb starts glowing
```

```
  sensorValue = analogRead(A1);
  Serial.println(sensorValue);
  if(sensorValue < 850 && flag == 1){
    digitalWrite(9, HIGH);
  }
  else{
          digitalWrite(9, LOW);
  }
  delay(100);
}

int speed_decider(int temp)
{
  if(temp < 20 )
  {
    return 0;
  }
  else if(temp > 40)
  {
    return 255;
  }
  else
  {
          int z = map(temp, 20, 40, 0, 255);
    Serial.println("Speed : ");
```

```
    Serial.println(z);
    return z;
  }
}
```