Assignment -1

Python Programming

Assignment Date	25 September 2022
Student Name	Daniel
Student Roll Number	910619104013
Maximum Marks	4 Marks

Question-1:

Design the home automation model for opening and closing of doors,temperature checking and automatic switching the lights on.

Solution:

```
#include<Servo.h>
const int pingPin = 6;
int servoPin = 8;

Servo servo1;

void setup() {

  Serial.begin(9600);
  servo1.attach(servoPin);
  pinMode(2,INPUT);
  pinMode(4,OUTPUT);
  pinMode(9,OUTPUT);
  pinMode(10,OUTPUT);
  pinMode(11,OUTPUT);
  pinMode(A1,INPUT);
  digitalWrite(2,LOW);
  digitalWrite(9,HIGH);

}

void loop() {

  long duration, inches, cm;

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

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

  inches =
microsecondsToInches(duration);
  cm =
microsecondsToCentimeters(duration);

  servo1.write(0);

  if(cm < 40)
  {
    servo1.write(90);
    delay(3000);
  }
  else
  {
    servo1.write(0);
  }

  int pir = digitalRead(2);

  if(pir == HIGH)
  {
    digitalWrite(4,HIGH);
    delay(2000);
  }
  else if(pir == LOW)
  {
    digitalWrite(4,LOW);
  }

  float value=analogRead(A0);
  float temperature=value*0.48;

  Serial.println("temperature");
  Serial.println(temperature);

  if(temperature > 20)
  {
    digitalWrite(12,HIGH);
    digitalWrite(13,LOW);
  }
  else
  {
    digitalWrite(12,LOW);
    digitalWrite(13,LOW);
  }
```

```
}

long microsecondsToInches(long
microseconds) {
  return microseconds / 74 / 2;
}

long microsecondsToCentimeters(long
microseconds) {
  return microseconds / 29 / 2;
}
```