IBM ASSIGNMENT -1

Internet of Things (IoT)

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Smart Home Automation System Using IoT

Code:

```
#include<Servo.h>
#include<LiquidCrystal.h>
LiquidCrystal lcd(A1,10,9,6,5,3);
float value;
int tmp = A0;
const int pingPin = 7;
int servoPin = 8;

Servo servo1;
void setup()
{
  Serial.begin(9600);
  servo1.attach(servoPin);
  lcd.begin(16, 2);
  pinMode(2,INPUT);
  pinMode(4,OUTPUT);
  pinMode(11,OUTPUT);

  pinMode(12,OUTPUT);
  pinMode(13,OUTPUT);
  pinMode(A0,INPUT);
  digitalWrite(2,LOW);
```

```
  digitalWrite(11,HIGH);
  digitalWrite(3,OUTPUT);
  digitalWrite(7,OUTPUT);
  digitalWrite(11,OUTPUT);
  digitalWrite(13,OUTPUT);
}

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);
```

```
  lcd.setCursor(0,1);
  lcd.print("Door:OPEN");
 }
 else
 {
  servo1.write(0);
  lcd.setCursor(0,1);
  lcd.print("Door:CLOSED");

 }
 int pir = digitalRead(2);
 if(pir == HIGH)
 {
  digitalWrite(4,HIGH);
  lcd.setCursor(10,0);
  lcd.print("LED:ON");
 }
 else if(pir == LOW)
   lcd.setCursor(12,0);
  lcd.print("OFF");
 {
  digitalWrite(4,LOW);
 }

value = analogRead(tmp)*0.004882814;
 value = (value - 0.5) * 100.0;
 lcd.setCursor(0,0);
 lcd.print("Tmp:");
 lcd.print(value);
 delay(1000);
```

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


  if(value > 20)
  {
    digitalWrite(12,HIGH);
    digitalWrite(13,LOW);
  }
  else
  {
    digitalWrite(12,LOW);
    digitalWrite(13,LOW);
  }
  lcd.clear();
}
long microsecondsToInches(long microseconds) {
 return microseconds / 74 / 2;
}
long microsecondsToCentimeters(long microseconds) {
  return microseconds / 29 / 2;
}
```