

ASSIGNMENT -1

Problem Statement: SMART HOME AUTOMATION USING IOT

Topic: Circuit design Home automation system in TinkerCad

PROGRAM

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

```
const int pingPin = 7;
```

```
int servoPin = 8;
```

```
Servo servo1;
```

```
void setup() {
```

```
    // initialize serial communication:
```

```
    Serial.begin(9600);
```

```
    servo1.attach(servoPin);
```

```
    pinMode(2,INPUT);
```

```
    pinMode(4,OUTPUT);
```

```
    pinMode(11,OUTPUT);
```

```
    pinMode(12,OUTPUT);
```

```
    pinMode(13,OUTPUT);
```

```
    pinMode(A0,INPUT);
```

```
    digitalWrite(2,LOW);
```

```
    digitalWrite(11,HIGH);
```

```
}
```

```
void loop() {
```

```
    long duration, inches, cm;
```

```
pinMode(pingPin, OUTPUT);
```

```
digitalWrite(pingPin, LOW);
```

```
delayMicroseconds(2);
```

```
digitalWrite(pingPin, HIGH);
```

```
delayMicroseconds(5);
```

```
digitalWrite(pingPin, LOW);
```

```
// The same pin is used to read the signal from the PING))) a HIGH pulse
```

```
// whose duration is the time (in microseconds) from the sending of the ping
```

```
// to the reception of its echo off of an object.
```

```
pinMode(pingPin, INPUT);
```

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

```
// convert the time into a distance
```

```
inches = microsecondsToInches(duration);
```

```
cm = microsecondsToCentimeters(duration);
```

```
//Serial.print(inches);
```

```
//Serial.print("in, ");
```

```
//Serial.print(cm);
```

```
//Serial.print("cm");
```

```
//Serial.println();
```

```
//delay(100);
```

```
servo1.write(0);
```

```
if(cm < 40)
```

```
{
```

```
servo1.write(90);
```

```
delay(2000);
```

```
}  
  
else  
  
{  
    servo1.write(0);  
}  
  
  
// PIR with LED starts  
int pir = digitalRead(2);  
  
if(pir == HIGH)  
{  
    digitalWrite(4,HIGH);  
    delay(1000);  
}  
else if(pir == LOW)  
{  
    digitalWrite(4,LOW);  
}  
  
  
//temp with fan  
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;
}

```

