

Assignment -1
Python Programming

Assignment Date	9 NOVEMBER 2022
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Maximum Marks	2 Marks

QUESTION:

Make a home automation with tinker cad, add 2-3 sensors. led. buzzers and make a common code and circuit. multiple detections and alarms should be given

CODE:

```
#include<Servo.h>
const int pingPin = 7;

int servoPin = 8;

int const gassensor=A1;

int thresh=600;

int const LDR=A2;

Servo servo1;

void setup() {
  Serial.begin(9600);
  servo1.attach(servoPin);
  pinMode(2,INPUT);
  pinMode(4,OUTPUT);
  pinMode(11,OUTPUT);
  pinMode(12,OUTPUT);
  pinMode(13,OUTPUT);
```

```
pinMode(A0,INPUT);  
pinMode(A1,INPUT);  
pinMode(A2,INPUT);  
pinMode(8,OUTPUT);  
pinMode(5,OUTPUT);  
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);
```

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

```
    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);  
}  
  
//Gas sensor  
int val=analogRead(gassensor);  
Serial.print("Gas sensor value");  
Serial.print(val);  
if(val>thresh)  
tone(9,800);  
delay(300);  
noTone(9);  
  
//LIGHT  
int val1=analogRead(LDR);  
if(val1>500)  
{  
    digitalWrite(5,LOW);  
    Serial.print("BULB ON");
```

```
    Serial.print(val1);  
}  
else  
{  
    digitalWrite(5,HIGH);  
    Serial.print("BULB OFF");  
}  
  
// 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;  
}
```

HOME AUTOMATION

DIAGRAM OUTPUT:

