

Assignment -1

Assignment Date	19 September 22
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Maximum Marks	2 Marks

Question-1:

Home Automation Using Tinkercad.

Solution:

```
#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;  
}
```



