

ASSIGNMENT-1

SMARTHOME USING TINKERCAD

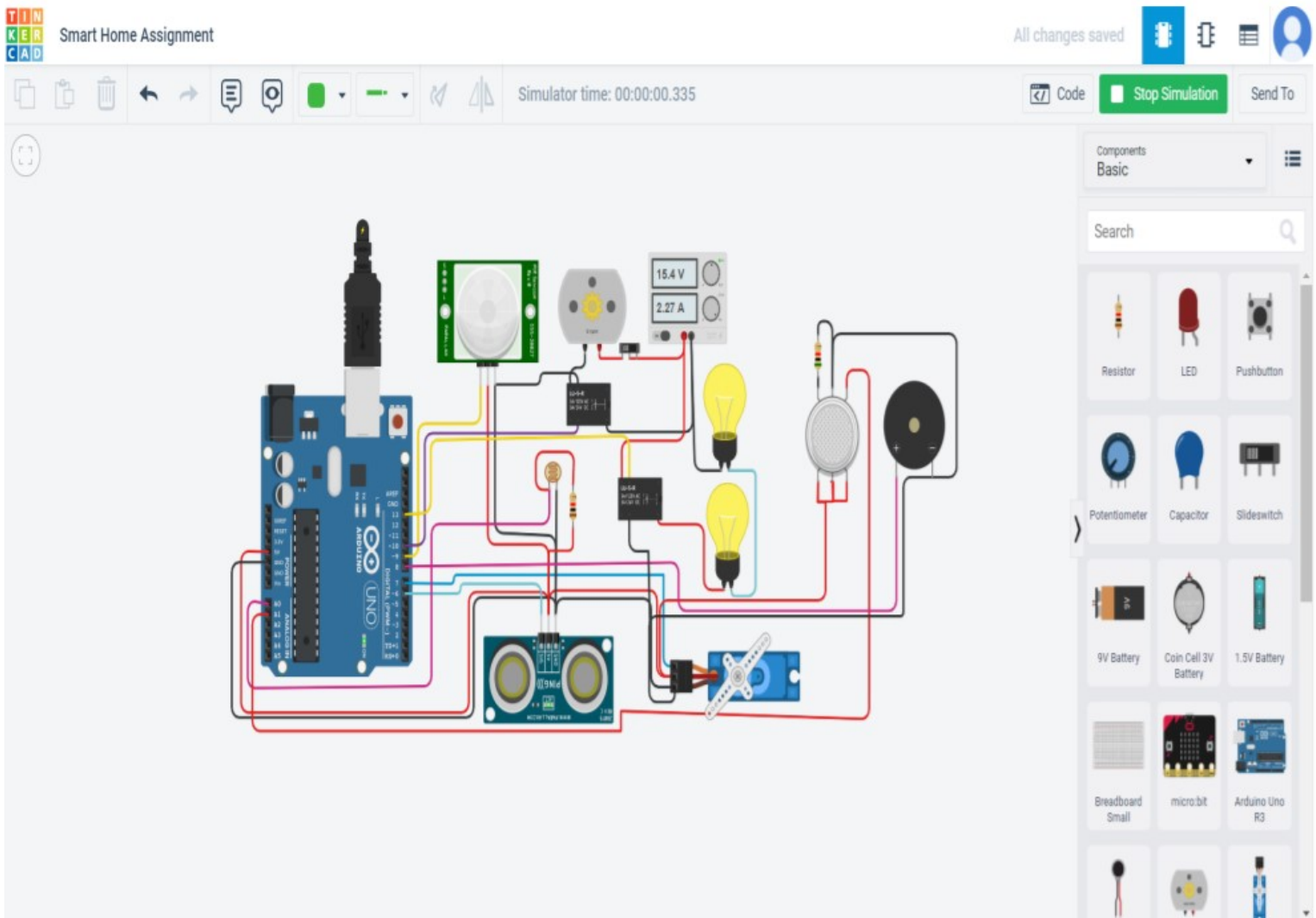
Assignment Date	15 September 2022
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Student Roll Number	201914
Maximum Marks	2 Marks

QUESTION:

Make a smart home using Tinkercad using 2+ sensors, LED and buzzer in a single code and circuit.

SOLUTION:

Circuit:



Code:

```
#include <Servo.h>

int output1Value = 0; int
sen1Value = 0; int
sen2Value = 0; int const
gas_sensor = A1; int
const LDR = A0;
int limit = 400;

long readUltrasonicDistance(int triggerPin, int echoPin)
{
    pinMode(triggerPin, OUTPUT);
    digitalWrite(triggerPin, LOW);
    delayMicroseconds(2);

    digitalWrite(triggerPin, HIGH);
    delayMicroseconds(10);
    digitalWrite(triggerPin, LOW);
    pinMode(echoPin, INPUT);

    return pulseIn(echoPin, HIGH);
}

Servo servo_7;

void setup()
{
```

```

Serial.begin(9600);
pinMode(A0, INPUT);
pinMode(A1, INPUT);
pinMode(13, OUTPUT);
servo_7.attach(7, 500, 2500);

pinMode(8, OUTPUT);
pinMode(9, INPUT);
pinMode(10, OUTPUT);
pinMode(4, OUTPUT);
pinMode(3, OUTPUT);

}

void loop()
{

    //-----light intensity control-----//

    int val1 = analogRead(LDR);
    if (val1 > 500)
    {
        digitalWrite(13, LOW);
        Serial.print("Bulb ON = ");
        Serial.print(val1);
    }
    else
    {

```

```
digitalWrite(13, HIGH);  
Serial.print("Bulb OFF = ");  
Serial.print(val1);  
}
```

```
//----- light & fan control -----//
```

```
sen2Value = digitalRead(9);  
if (sen2Value == 0)  
{  
    digitalWrite(10, LOW);  
    digitalWrite(4, HIGH);  
    digitalWrite(3, LOW);  
    Serial.print("    || NO Motion Detected    ");  
}
```

```
if (sen2Value == 1)  
{  
    digitalWrite(10, HIGH);    //npn as switch ON delay(5000);  
    digitalWrite(4, LOW); // RED LED OFF digitalWrite(3, HIGH);  
    //GREEN LED ON , indicating motion detected  
    Serial.print("    || Motion Detected!    ");  
}
```

```
// ----- Gas Sensor -----//
```

```
int val = analogRead(gas_sensor);    //read sensor value  
Serial.print("|| Gas Sensor Value = ");
```

```
Serial.print(val);
```

```
//Printing in serial monitor
```

```
if (val > limit)
```

```
{
```

```
    tone(8, 650);
```

```
}
```

```
delay(300);
```

```
noTone(8);
```

```
//----- servo motor -----//
```

```
sen1Value = 0.01723 * readUltrasonicDistance(6, 6);
```

```
if (sen1Value < 100)
```

```
{
```

```
    servo_7.write(90);
```

```
    Serial.print("    || Door Open! ; Distance = ");
```

```
    Serial.print(sen1Value);
```

```
    Serial.print("\n");
```

```
}
```

```
else
```

```
{
```

```
    servo_7.write(0);
```

```
    Serial.print("    || Door Closed! ; Distance = ");
```

```
    Serial.print(sen1Value);
```

```
    Serial.print("\n");
```

```
}
```

```
    delay(10);  
}
```