ASSIGNMENT-1
SMART HOME USING TINKERCAD

Assignment Date	15 September 2022
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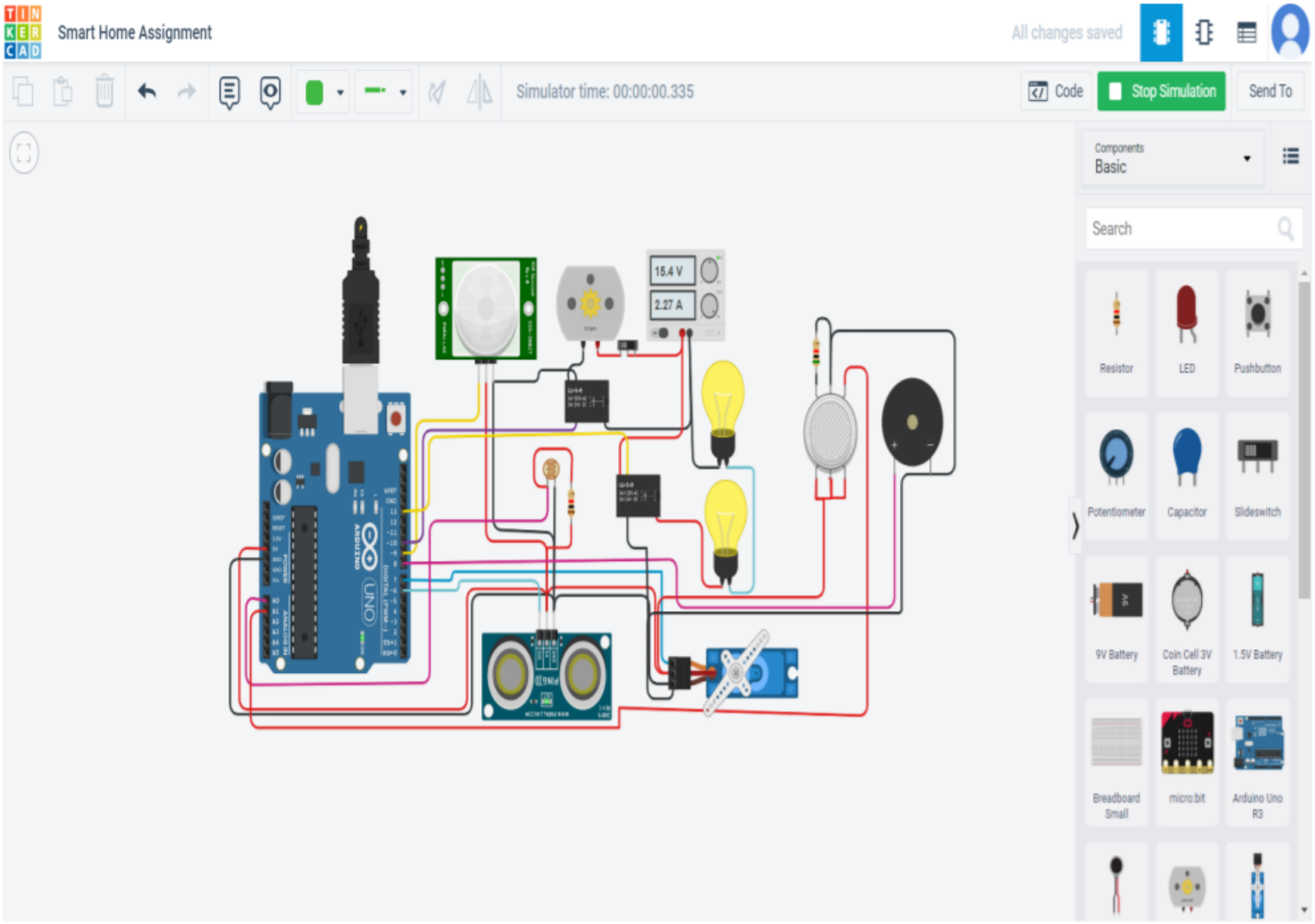
Maximum Marks	2 Marks

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);
}
```