Assignment -1

Tinkercad

Assignment date	16.9.2022
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Maximum mark	2 marks

Question-1:

Write the code and make smart home with atleast 2sensors and LED,BUZZER.using tinkercad

Solution:

```
#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);  // Clear the trigger

  digitalWrite(triggerPin, LOW);
```

```
  delayMicroseconds(2);
// Sets the trigger pin to HIGH state for 10 microseconds
  digitalWrite(triggerPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(triggerPin, LOW);
  pinMode(echoPin, INPUT);
  // Reads the echo pin, and returns the sound wave travel time in
microseconds
  return pulseIn(echoPin, HIGH);
}


Servo servo_7;

void setup()
{
  Serial.begin(9600);        //initialize serial communication
  pinMode(A0, INPUT);            //LDR
  pinMode(A1,INPUT);        //gas sensor
  pinMode(13, OUTPUT);          //connected to relay
  servo_7.attach(7, 500, 2500); //servo motor

  pinMode(8,OUTPUT);      //signal to piezo buzzer
  pinMode(9, INPUT);        //signal to PIR
```

```arduino
  pinMode(10, OUTPUT);        //signal to npn as switch

  pinMode(4, OUTPUT);         //Red LED

  pinMode(3, OUTPUT);         //Green LED


}


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); //npn as switch OFF
        digitalWrite(4, HIGH); // Red LED ON,indicating no motion
        digitalWrite(3, LOW); //Green LED OFF, since no Motion
detected
    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
//val = map(val, 300, 750, 0, 100);
  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); // Delay a little bit to improve simulation performance

}
```