LAMPIRAN

Listing Program Arduino

```
#include <Servo.h>
#define S0 4
#define S1 5
#define S2 6
#define S3 7
#define sensorOut 8
#define S4 22
#define S5 23
#define S6 24
#define S7 25
#define sensorOut1 26
#define trigPin 13
#define echoPin 12
#define led 11
#define led2 10

Servo Servo1;
int frequency = 0;
int frequencya = 0;
int frequencyb = 0;
int frequency1 = 0;
int frequency2 = 0;
int frequency3 = 0;
int servoPin = 3;

void setup() {
  Serial.begin(9600);
  pinMode(trigPin,OUTPUT);
  pinMode(echoPin,INPUT);
  pinMode(led,OUTPUT);
  pinMode(led2,OUTPUT);

  pinMode(S0,OUTPUT);
  pinMode(S1,OUTPUT);
```

```
  pinMode(S2,OUTPUT);
  pinMode(S3,OUTPUT);
  pinMode(sensorOut,INPUT);

  pinMode(S4,OUTPUT);
  pinMode(S5,OUTPUT);
  pinMode(S6,OUTPUT);
  pinMode(S7,OUTPUT);
  pinMode(sensorOut1,INPUT);

  digitalWrite(S0,HIGH);
  digitalWrite(S1,LOW);
  digitalWrite(S4,HIGH);
  digitalWrite(S5,LOW);
  Servo1.attach(servoPin);
  Serial.begin(9600);}

void loop() {
  long duration, distance;
  digitalWrite(trigPin,LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin,HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin,LOW);
  duration = pulseIn(echoPin,HIGH);
  distance = (duration/2)/29.1;

  if(distance < 14) {
    digitalWrite(led,HIGH);
    digitalWrite(led2,LOW); }

  else {
    digitalWrite(led,LOW);
    digitalWrite(led2,HIGH); }

  if(distance >=200 || distance <=0) {
    Serial.println("Out of range"); }
```

```
else {
  Serial.print(distance);
  Serial.println("cm"); }

delay(500);

//TCS-1
//setting red filtered photodiodes to be read
digitalWrite(S2,LOW);
digitalWrite(S3,LOW);
//reading the output frequency
frequency = pulseIn(sensorOut,LOW);
//remaping the value of the frequency to the RGB model of 0 to 255
frequency = map(frequency,25,72,255,0);
//printing the value on the serial monitor
Serial.print("R1= ");
//printing name
Serial.print(frequency);
//printing red color frequency
Serial.print(" ");
delay(100);

//setting green filtered photodiodes to be read
digitalWrite(S2,HIGH);
digitalWrite(S3,HIGH);
//reading the output frequency
frequencya = pulseIn(sensorOut,LOW);
//remaping the value of the frequency to the RGB model of 0 to 255
frequencya = map(frequencya,30,90,255,0);
//printing the value on the serial monitor
Serial.print("G1= ");
//printing name
Serial.print(frequencya);
//printing red color frequency
Serial.print(" ");
delay(100);

//setting blue filtered photodiodes to be read
```

```
digitalWrite(S2,LOW);
digitalWrite(S3,HIGH);
//reading the output frequency
frequencyb = pulseIn(sensorOut,LOW);
//remaping the value of the frequency to the RGB model of 0 to 255
frequencyb = map(frequencyb,25,70,255,0);
//printing the value on the serial monitor
Serial.print("B1= ");
//printing name
Serial.print(frequencyb);
//printing red color frequency
Serial.println(" ");
delay(2000);

//TCS-2
//setting red filtered photodiodes to be read
digitalWrite(S6,LOW);
digitalWrite(S7,LOW);
//reading the output frequency
frequency1 = pulseIn(sensorOut1,LOW);
//remaping the value of the frequency to the RGB model of 0 to 255
frequency1 = map(frequency1,25,72,255,0);
//printing the value on the serial monitor
Serial.print("R2= ");
//printing name
Serial.print(frequency1);
//printing red color frequency
Serial.print(" ");
delay(100);

//setting green filtered photodiodes to be read
digitalWrite(S6,HIGH);
digitalWrite(S7,HIGH);
//reading the output frequency
frequency2 = pulseIn(sensorOut1,LOW);
//remaping the value of the frequency to the RGB model of 0 to 255
frequency2 = map(frequency2,30,90,255,0);
//printing the value on the serial monitor
```

```
  Serial.print("G2= ");
  //printing name
  Serial.print(frequency2);
  //printing red color frequency
  Serial.print(" ");
  delay(100);

  //setting blue filtered photodiodes to be read
  digitalWrite(S6,LOW);
  digitalWrite(S7,HIGH);
  //reading the output frequency
  frequency3 = pulseIn(sensorOut1,LOW);
  //remaping the value of the frequency to the RGB model of 0 to 255
  frequency3 = map(frequency3,25,70,255,0);
  //printing the value on the serial monitor
  Serial.print("B2= ");
  //printing name
  Serial.print(frequency3);
  //printing red color frequency
  Serial.println(" ");
  delay(2000);

  if(frequency >-900 || frequency <-2200 && frequencya >-300 || frequencya <-2200
&& frequencyb >-800 || frequencyb <-2200) {
    Servo1.write(0);
    delay(200);
  }

  else {
    Servo1.write(90);
    delay(200);
    Servo1.write(90);
    delay(200);
  }

  if(frequency1 >-900 || frequency1 <-2200 && frequency2 >-300 || frequency2 <-
2200 && frequency3 >-800 || frequency3 <-2200) {
    Servo1.write(0);
```

```
    delay(200);
  }

  else {
    Servo1.write(90);
    delay(200);
    Servo1.write(90);
    delay(200);
  }
}
```