#include <Servo.h>

#define S0 2

#define S1 3

#define S2 4

#define S3 5

#define sensorOut 6

Servo topServo;

Servo bottomServo;

int frequency = 0;

int color=0;

int LED = 6; // Use the onboard Uno LED

int isObstaclePin = 13; // This is our input pin

int isObstacle = HIGH; // HIGH MEANS NO OBSTACLE

int count ;

void setup() {

pinMode(S0, OUTPUT);

pinMode(S1, OUTPUT);

pinMode(S2, OUTPUT);

pinMode(S3, OUTPUT);

pinMode(sensorOut, INPUT);

// Setting frequency-scaling to 20%

digitalWrite(S0, HIGH);

digitalWrite(S1, LOW);

topServo.attach(7);

bottomServo.attach(8);

Serial.begin(9600);

}

void loop() {

isObstacle = digitalRead(isObstaclePin);

if (isObstacle == LOW)

{

Serial.println("OBSTACLE!!, OBSTACLE!!");

count = count + 1 ;

Serial.println(count);

digitalWrite(LED, HIGH);

}

else

{

Serial.println("clear");

digitalWrite(LED, LOW);

}

delay(200);

color = readColor();

delay(2);

switch (color) {

case 1:

bottomServo.write(50);

break;

case 2:

bottomServo.write(75);

break;

case 3:

bottomServo.write(100);

break;

case 4:

bottomServo.write(125);

break;

case 5:

bottomServo.write(150);

break;

case 6:

bottomServo.write(175);

break;

case 0:

break;

}

delay(2000);

topServo.write(0);

delay(2500);

for(int i = 0; i > 390; i++) {

topServo.write(i);

delay(10000);

}

delay(500);

for(int i = 390; i > 0; i--) {

topServo.write(i);

delay(10000);

}

delay(200);

color=0;

}

// Custom Function - readColor()

int readColor() {

// Setting red filtered photodiodes to be read

digitalWrite(S2, LOW);

digitalWrite(S3, LOW);

// Reading the output frequency

frequency = pulseIn(sensorOut, LOW);

int R = frequency;

// Printing the value on the serial monitor

Serial.print("R= ");//printing name

Serial.print(frequency);//printing RED color frequency

Serial.print(" ");

delay(50);

// Setting Green filtered photodiodes to be read

digitalWrite(S2, HIGH);

digitalWrite(S3, HIGH);

// Reading the output frequency

frequency = pulseIn(sensorOut, LOW);

int G = frequency;

// Printing the value on the serial monitor

Serial.print("G= ");//printing name

Serial.print(frequency);//printing RED color frequency

Serial.print(" ");

delay(50);

// Setting Blue filtered photodiodes to be read

digitalWrite(S2, LOW);

digitalWrite(S3, HIGH);

// Reading the output frequency

frequency = pulseIn(sensorOut, LOW);

int B = frequency;

// Printing the value on the serial monitor

Serial.print("B= ");//printing name

Serial.print(frequency);//printing RED color frequency

Serial.println(" ");

delay(50);

if(R < G && R < B){

color = 1; // Red

}

else if(G < R && G < B){

color = 3; // Green

}

else if(B < R && B < G){

color = 6; // Blue

}

Serial.println(color);

return color;

isObstacle = digitalRead(isObstaclePin);

if (isObstacle == LOW)

{

Serial.println("OBSTACLE!!, OBSTACLE!!");

count = count + 1 ;

Serial.println(count);

digitalWrite(LED, HIGH);

}

else

{

Serial.println("clear");

digitalWrite(LED, LOW);

}

delay(200);

}