#include <Servo.h>

Servo myservo1; // initialize servo motors

Servo myservo2;

Servo myservo3;

int LDRr = A0; //ADC inputs

int LDRg = A1;

int LDRb = A2;

int red;

int green;

int blue;

int r = 10;

int g = 9;

int b = 8;

int pos1 = 2;

int pos2 = 3;

int pos3 = 4;

void setup() {

  pinMode(r, OUTPUT);
  pinMode(g, OUTPUT);
  pinMode(b, OUTPUT);
}
pinMode(b, OUTPUT);

pinMode(0, OUTPUT);
pinMode(1, OUTPUT);
pinMode(2, OUTPUT);
pinMode(3, OUTPUT);
pinMode(4, OUTPUT);
pinMode(5, OUTPUT);

myservo1.attach(2);
myservo2.attach(3);
myservo3.attach(4);

void loop() {

    red = analogRead(LDRr);
    green = analogRead(LDRg);
    blue = analogRead(LDRb);

    if ((red > green) and (red > blue)) {
        digitalWrite(r, HIGH); //LED Red indicator
    }
}
//Arm picking process
//Arm lying down
//Motor 1
for (pos1 = 0; pos1 <= 180; pos1 += 1) {
// goes from 0 degrees to 180 degrees
// in steps of 1 degree
  myservo1.write(pos1); // tell servo to go to position in variable 'pos1'
}

//Motor 2
for (pos2 = 0; pos2 <= 180; pos2 += 1) {
// goes from 0 degrees to 180 degrees
// in steps of 1 degree
  myservo2.write(pos2); // tell servo to go to position in variable 'pos2'
}

//Motor 3
for (pos3 = 0; pos3 <= 180; pos3 += 1) {
// goes from 0 degrees to 180 degrees
// in steps of 1 degree
  myservo3.write(pos3); // tell servo to go to position in variable 'pos3'
}
delay(3000); //Wait 3 seconds after picking process

//Arm lifting up process

//Motor 1
for (pos1 = 180; pos1 >= 0; pos1 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree
    myservo1.write(pos1); // tell servo to go to position in variable 'pos1'
}

//Motor 2
for (pos2 = 180; pos2 >= 0; pos2 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree
    myservo2.write(pos2); // tell servo to go to position in variable 'pos2'
}

//Motor 3
for (pos3 = 180; pos3 >= 0; pos3 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree
    myservo3.write(pos3); // tell servo to go to position in variable 'pos3'
}
delay(2000); // Wait 2 seconds for lifiting up process

digitalWrite(5, HIGH); // Enable L293D driver

digitalWrite(0, HIGH); // Enable car motor to go forward

digitalWrite(1, LOW);

delay (4000); // Wait until the car reaches the specified container

digitalWrite(0, LOW); // Stop the car

digitalWrite(1, LOW);

delay(2000); // Wait 2 seconds for the car to stop

// Object releasing
// Arm lying down
// Motor 1

for (pos1 = 0; pos1 <= 180; pos1 += 1)
{
    // goes from 0 degrees to 180 degrees
    // in steps of 1 degree
    myservo1.write(pos1); // tell servo to go to position in variable 'pos1'
}

// Motor 2

for (pos2 = 0; pos2 <= 180; pos2 += 1)
{
    // goes from 0 degrees to 180 degrees
// in steps of 1 degree
myservo2.write(pos2);      // tell servo to go to position in variable 'pos2'

}

//Motor 3
for (pos3 = 0; pos3 <= 180; pos3 += 1) {
    // goes from 0 degrees to 180 degrees
    // in steps of 1 degree
    myservo3.write(pos3);      // tell servo to go to position in variable 'pos3'
}
delay(3000);  //Wait 3 seconds after picking process

//Arm lifting up process
//Motor 1
for (pos1 = 180; pos1 >= 0; pos1 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree
    myservo1.write(pos1);      // tell servo to go to position in variable 'pos1'
}

//Motor 2
for (pos2 = 180; pos2 >= 0; pos2 -= 1) {
    // goes from 180 degrees to 0 degrees
// in steps of 1 degree

    myservo2.write(pos2);  // tell servo to go to position in variable 'pos2'

    }

//Motor 3
for (pos3= 180; pos3 >= 0; pos3 -= 1) {

// goes from 180 degrees to 0 degrees
// in steps of 1 degree

    myservo3.write(pos3);  // tell servo to go to position in variable 'pos3'

    }

delay(2000);  //wait 2 seconds to end the releasing process

//Car return to initial position

digitalWrite(0,LOW);

digitalWrite(1,HIGH);

delay (4000);  // Wait until reaching the start point

digitalWrite(5,LOW);  // disable the L293D driver

delay(5000);  // wait until new object arrive

}

else if ((green > red) and (green > blue))


```c
{  
digitalWrite(g, HIGH); //LED Green indicator

  //Arm picking process
  //Arm lying down
  //Motor 1
  for (pos1 = 0; pos1 <= 180; pos1 += 1)  
  { // goes from 0 degrees to 180 degrees
    // in steps of 1 degree
    myservo1.write(pos1);  // tell servo to go to position in variable ‘pos1’
  }

  //Motor 2
  for (pos2 = 0; pos2 <= 180; pos2 += 1)  
  { // goes from 0 degrees to 180 degrees
    // in steps of 1 degree
    myservo2.write(pos2);  // tell servo to go to position in variable ‘pos2’
  }

  //Motor 3
  for (pos3 = 0; pos3 <= 180; pos3 += 1)  
  { // goes from 0 degrees to 180 degrees
    // in steps of 1 degree
    myservo3.write(pos3);  // tell servo to go to position in variable ‘pos3’
  }
```

delay(3000); //Wait 3 seconds after picking process

//Arm lifting up process

//Motor 1
for (pos1 = 180; pos1 >= 0; pos1 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree
    myservo1.write(pos1); // tell servo to go to position in variable 'pos1'
}

//Motor 2
for (pos2 = 180; pos2 >= 0; pos2 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree
    myservo2.write(pos2); // tell servo to go to position in variable 'pos2'
}

//Motor 3
for (pos3 = 180; pos3 >= 0; pos3 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree
    myservo3.write(pos3); // tell servo to go to position in variable 'pos3'
delay(2000); // Wait 2 seconds for lifting up process

digitalWrite(5, HIGH); // Enable L293D driver

digitalWrite(0, HIGH); // Enable car motor to go forward

digitalWrite(1, LOW);

delay (5000); // Wait until the car reaches the specified container

digitalWrite(0, LOW); // Stop the car

digitalWrite(1, LOW);

delay(2000); // Wait 2 seconds for the car to stop

// Object releasing
// Arm lying down
// Motor 1
for (pos1 = 0; pos1 <= 180; pos1 += 1)
{
  // goes from 0 degrees to 180 degrees
  // in steps of 1 degree
  myservo1.write(pos1);  // tell servo to go to position in variable 'pos1'
}

// Motor 2
for (pos2 = 0; pos2 <= 180; pos2 += 1) {
    // goes from 0 degrees to 180 degrees
    // in steps of 1 degree
    myservo2.write(pos2); // tell servo to go to position in variable 'pos2'
}

//Motor 3
for (pos3 = 0; pos3 <= 180; pos3 += 1) {
    // goes from 0 degrees to 180 degrees
    // in steps of 1 degree
    myservo3.write(pos3); // tell servo to go to position in variable 'pos3'
}

delay(3000); //Wait 3 seconds after picking process

//Arm lifting up process

//Motor 1
for (pos1 = 180; pos1 >= 0; pos1 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree
    myservo1.write(pos1); // tell servo to go to position in variable 'pos1'
}

//Motor 2
for (pos2 = 180; pos2 >= 0; pos2 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree
    myservo2.write(pos2); // tell servo to go to position in variable 'pos2'
}

//Motor 3
for (pos3 = 180; pos3 >= 0; pos3 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree
    myservo3.write(pos3); // tell servo to go to position in variable 'pos3'
}

delay(2000); //wait 2 seconds to end the relaesing process

//Car return to initial position
digitalWrite(0,LOW);
digitalWrite(1,HIGH);
delay (5000); // Wait until reaching the start point
digitalWrite(5,LOW); // disable the L293D driver
delay(5000); // wait until new object arrive
else if ((blue > red) and (blue > green))
{
  digitalWrite(b, HIGH);//LED Blue indicator
}

//Arm picking process
//Arm lying down
//Motor 1
for (pos1 = 0; pos1 <= 180; pos1 += 1)
{
  // goes from 0 degrees to 180 degrees
  // in steps of 1 degree
  myservo1.write(pos1);  // tell servo to go to position in variable 'pos1'
}

//Motor 2
for (pos2 = 0; pos2 <= 180; pos2 += 1)
{
  // goes from 0 degrees to 180 degrees
  // in steps of 1 degree
  myservo2.write(pos2);  // tell servo to go to position in variable 'pos2'
}

//Motor 3
for (pos3 = 0; pos3 <= 180; pos3 += 1)
{
  // goes from 0 degrees to 180 degrees
  // in steps of 1 degree
myServo3.write(pos3); // tell servo to go to position in variable 'pos3'

} //Arm lifting up process
//Motor 1
for (pos1 = 180; pos1 >= 0; pos1 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree
    myServo1.write(pos1); // tell servo to go to position in variable 'pos1'

} //Motor 2
for (pos2 = 180; pos2 >= 0; pos2 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree
    myServo2.write(pos2); // tell servo to go to position in variable 'pos2'

} //Motor 3
for (pos3 = 180; pos3 >= 0; pos3 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree

myservo3.write(pos3);        // tell servo to go to position in variable 'pos3'

} 

delay(2000); // Wait 2 seconds for lifting up process

digitalWrite(5,HIGH);     //Enable L293D driver

digitalWrite(0,HIGH); //Enable car motor to go forward

digitalWrite(1,LOW);

delay (6000); // Wait until the car reaches the specified container

digitalWrite(0,LOW); //Stop the car

digitalWrite(1,LOW);

delay(2000); //Wait 2 seconds for the car to stop

//Object releasing

//Arm lying down

//Motor 1

for (pos1 = 0; pos1 <= 180; pos1 += 1)
{
    // goes from 0 degrees to 180 degrees

    // in steps of 1 degree

    myservo1.write(pos1);        // tell servo to go to position in variable 'pos1'

}
//Motor 2
for (pos2 = 0; pos2 <= 180; pos2 += 1)
{
    // goes from 0 degrees to 180 degrees
    // in steps of 1 degree
    myservo2.write(pos2); // tell servo to go to position in variable 'pos2'
}

//Motor 3
for (pos3 = 0; pos3 <= 180; pos3 += 1) {
    // goes from 0 degrees to 180 degrees
    // in steps of 1 degree
    myservo3.write(pos3); // tell servo to go to position in variable 'pos3'
}
delay(3000); //Wait 3 seconds after picking process

//Arm lifting up process

//Motor 1
for (pos1 = 180; pos1 >= 0; pos1 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree
    myservo1.write(pos1); // tell servo to go to position in variable 'pos1'
}
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for (pos2 = 180; pos2 >= 0; pos2 -= 1) {
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    // in steps of 1 degree
    myservo2.write(pos2); // tell servo to go to position in variable 'pos2'
}

//Motor 3
for (pos3 = 180; pos3 >= 0; pos3 -= 1) {
    // goes from 180 degrees to 0 degrees
    // in steps of 1 degree
    myservo3.write(pos3); // tell servo to go to position in variable 'pos3'
}
delay(2000); //wait 2 seconds to end the relaesing process

//Car return to initial position
digitalWrite(0,LOW);
digitalWrite(1,HIGH);
delay (6000); // Wait until reaching the start point
digitalWrite(5,LOW); // disable the L293D driver
delay(5000); // wait until new object arrive
else
{
digitalWrite(r, LOW);
digitalWrite(g, LOW);
digitalWrite(b, LOW);
digitalWrite(5, LOW); // Disable L293D driver
}
}