

```

/*
This uses a 10k resistor in series with ICC photoresistor (about 2-16kohm) 10k is grounded and
photoresistor is on +5v.
you can tie the LED pins of two sensors together and measure two sensors with a total of 3 digital pins
and 2 analog pins.
Current pin setup:

analog pin: A0
red: 11
green: 13
blue: 12

*/

void setup() {

  pinMode(11, OUTPUT);
  pinMode(12, OUTPUT);
  pinMode(13, OUTPUT);

  Serial.begin(115200);

}

void loop() {

  colordetect(0); //run color detect on the selected analog pin.

  delay(200); //if you remove this, then also remove the serial outputs or you'll be spammed

}

void colordetect(int AnalogPin){

  //delayTime*4 is about the total time this function takes. (will be greatly shorter when Serial commands
  removed).
  int delayTime = 6; //at 2ms, it only works about an inch away. 5ms was somewhere between 1-3 inches.
  int ambient, red, blue, green;
  double ambi entr, redr, bluer, greenr;

  //if none of the ratios are past this, it will say it's looking at nothing.
  double toleranceRBG = 1.08; //1.05; //(lower will need less LED light, but less reliable)

  //ambient - turn off LEDs
  //Serial.print("ambient ");
  digitalWrite(11, HIGH);
  digitalWrite(12, HIGH);
  digitalWrite(13, HIGH);
  delay(delayTime);
  ambient = analogRead(AnalogPin);

  //red
  //Serial.print("red ");
  digitalWrite(11, LOW);
  digitalWrite(12, HIGH);
  digitalWrite(13, HIGH);
  delay(delayTime);
  red = analogRead(AnalogPin);

  //green
  //Serial.print("green ");
  digitalWrite(11, HIGH);
  digitalWrite(12, HIGH);
  digitalWrite(13, LOW);
  delay(delayTime);
  green = analogRead(AnalogPin);

  //blue
  //Serial.print("blue ");
  digitalWrite(11, HIGH);
  digitalWrite(12, LOW);
}

```

```
di gi tal Wri te(13, HI GH);
del ay(del ayTi me);
bl ue = anal ogRead(Anal ogPi n);
```

```
//turn off LEDs
di gi tal Wri te(11, HI GH);
di gi tal Wri te(12, HI GH);
di gi tal Wri te(13, HI GH);
```

```
ambi entr = (doubl e)ambi ent/(ambi ent);
greenr = (doubl e)green/(ambi ent);
bl uer = (doubl e)bl ue/(ambi ent);
redr = (doubl e)red/(ambi ent);
```

```
Seri al .pri nt("ambi ent: ");
Seri al .pri nt(ambi entr, 3);
```

```
Seri al .pri nt(" red: ");
Seri al .pri nt(redr, 3);
```

```
Seri al .pri nt(" bl ue: ");
Seri al .pri nt(bl uer, 3);
```

```
Seri al .pri nt(" green: ");
Seri al .pri ntl n(greenr, 3);
```

```
if(redr < tol eranceRBG && greenr < tol eranceRBG && bl uer < tol eranceRBG){
    Seri al .pri nt("\nnothing in front of sensor\n");
    ret urn;
}
```

```
if(redr > bl uer && redr > greenr){
    Seri al .pri nt("\nred!\n");
    ret urn;
}
```

```
if(bl uer > redr && bl uer > greenr){
    Seri al .pri nt("\nbl ue!\n");
    ret urn;
}
if(greenr > redr && greenr > bl uer){
    Seri al .pri nt("\ngreen!\n");
    ret urn;
}
```

```
Seri al .pri nt("\ndo nothi ng\n");
ret urn;
```

```
}//end color detection
```