RGB PATTERN

ABSTRACT

In this project RGB Led was controlled using potentiometer. We have used 3 potentiometers in this project to change the color of the LED.

Introduction

RGB LED :

RGB LED means red, blue and green LEDs. RGB LED products combine these three colors to produce over 16 million hues of light. Note that not all colors are possible. Some colors are “outside” the triangle formed by the RGB LEDs. Also, pigment colors such as brown or pink are difficult, or impossible, to achieve.

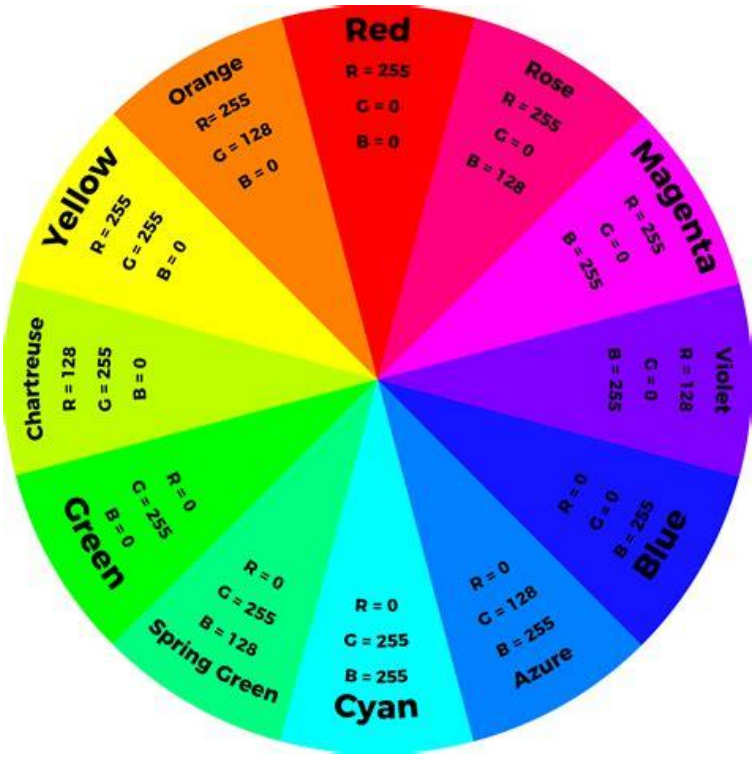
Anode/Cathode RGB LEDs

RGB LED are of two types, common anode, and common cathode. The difference between CC and CA is , With a common anode you can connect the anode to the +5v and each individual LED to a resistor each. Connect that resistor to an output pin. Then a write LOW to that pin will turn the LED on and a HIGH will turn off .This is called **current sinking**

With a common cathode you connect the cathode to ground and connect each LED's anode through a resistor to the output pin. Then a HIGH turns it on. This is called **current sourcing.**

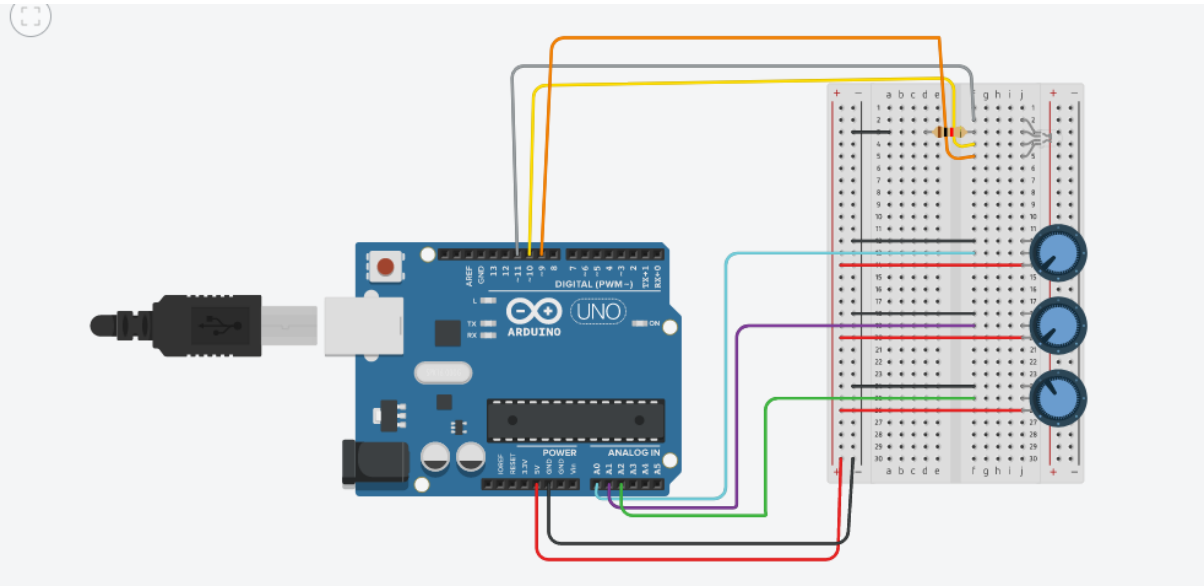
Recalling the mnemonic ACID (Anode Current Into Device), we can infer that a common anode RGB LED has current driving one pin, and that a common cathode RGB LED is grounded on one pin. Either way, this anode or cathode will be the longest of the four pins coming out of the LED. Unfortunately, these guys aren’t always labelled clearly as to what they are. In this example, I have worked out the wiring for a common anode RGB LED; most other guides describe a common cathode wiring.

METHODOLOGY



Colors chart

Circuit



Code:

```
// C++ code
void setup()
{
  pinMode(A0, INPUT);  //red
  pinMode(A1, INPUT);  //blue
  pinMode(A2, INPUT);  //green

  pinMode(11, OUTPUT);  //red
  pinMode(10, OUTPUT);  //blue
  pinMode(9, OUTPUT);   //green

  Serial.begin(9600);
}

void loop()
{
  int r_value=analogRead(A0);
  int b_value=analogRead(A1);
  int g_value=analogRead(A2);

  int m_r_value=map(r_value, 0, 1023, 0, 255);
  int m_b_value=map(b_value, 0, 1023, 0, 255);
  int m_g_value=map(g_value, 0, 1023, 0, 255);

  analogWrite(11, m_r_value);
  analogWrite(10, m_b_value);
  analogWrite(9, m_g_value);
```

```
 Serial.print(m_r_value);
 Serial.print(" ");
 Serial.print(m_b_value);
 Serial.print(" ");
 Serial.print(m_g_value);
 delay(200);

}
```

Conclusion:

By changing the values from the 3 potentiometers the RGB LED changes its colors according to the values from the potentiometers.