

SMD RGB LED Module



1. Introduction

RGB LED module consists of a full-color LED made by R, G, B three pin PWM voltage input can be adjusted. Primary colors (red / blue / green) strength in order to achieve full color mixing effect. Control of the module with the Arduino can be achieved Cool lighting effects.

Specification

- Red Vf: 1.8 to 2.1V
- Green Vf: 3.0 to 3.2V
- Blue Vf: 3.0 to 3.2V
- Red color: 620-625 nm
- Green color: 520-525 nm
- Blue color: 465-470 nm
- Red brightness @ ~20mA: 600-800 mcd
- Blue brightness @ ~20mA: 800-1000 mcd
- Green brightness @ ~20mA: 1500-2000mcd

2. Pinout

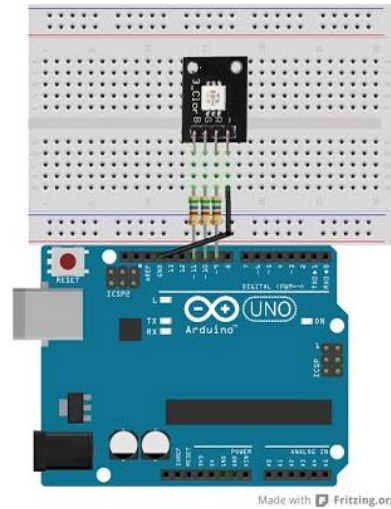
Pin Name	Description
"R"	Red light
"G"	Green light
"B"	Blue light
"_"	Ground

3. Example

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In this example, we blink an LED and using an RGB LED we can generate any color we want.

Here is the physical connection:



Code:

```
*****Code begin*****
int ledDigitalOne[] = {10, 11, 9}; //the three digital pins of the digital
LED
                                     //10 = redPin, 11 = greenPin, 9 =
bluePin

const boolean ON = HIGH;           //Define on as LOW (this is because we use
a common
                                     //Anode RGB LED (common pin is connected to
+5 volts)
const boolean OFF = LOW;           //Define off as HIGH

//Predefined Colors
const boolean RED[] = {ON, OFF, OFF};
const boolean GREEN[] = {OFF, ON, OFF};
const boolean BLUE[] = {OFF, OFF, ON};
const boolean YELLOW[] = {ON, ON, OFF};
const boolean CYAN[] = {OFF, ON, ON};
const boolean MAGENTA[] = {ON, OFF, ON};
const boolean WHITE[] = {ON, ON, ON};
const boolean BLACK[] = {OFF, OFF, OFF};

//An Array that stores the predefined colors (allows us to later randomly
display a color)
const boolean* COLORS[] = {RED, GREEN, BLUE, YELLOW, CYAN, MAGENTA, WHITE,
```

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```
BLACK};

void setup(){
  for(int i = 0; i < 3; i++){
    pinMode(ledDigitalOne[i], OUTPUT);    //Set the three LED pins as
    outputs
  }
}

void loop(){

  /* Example - 1 Set a color
   Set the three LEDs to any predefined color
  */
  setColor(ledDigitalOne, YELLOW);    //Set the color of LED one

  /* Example - 2 Go through Random Colors
   Set the LEDs to a random color
  */
  //randomColor();

}

void randomColor(){
  int rand = random(0, sizeof(COLORS) / 2); //get a random number within
the range of colors
  setColor(ledDigitalOne, COLORS[rand]); //Set the color of led one to
a random color
  delay(1000);
}

/* Sets an led to any color
   led - a three element array defining the three color pins (led[0] =
redPin, led[1] = greenPin, led[2] = bluePin)
   color - a three element boolean array (color[0] = red value (LOW = on,
HIGH = off), color[1] = green value, color[2] =blue value)
  */
void setColor(int* led, boolean* color){
  for(int i = 0; i < 3; i++){
    digitalWrite(led[i], color[i]);
  }
}

/* A version of setColor that allows for using const boolean colors
```

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```
*/  
void setColor(int* led, const boolean* color){  
    boolean tempColor[] = {color[0], color[1], color[2]};  
    setColor(led, tempColor);  
}  
*****Code End*****
```