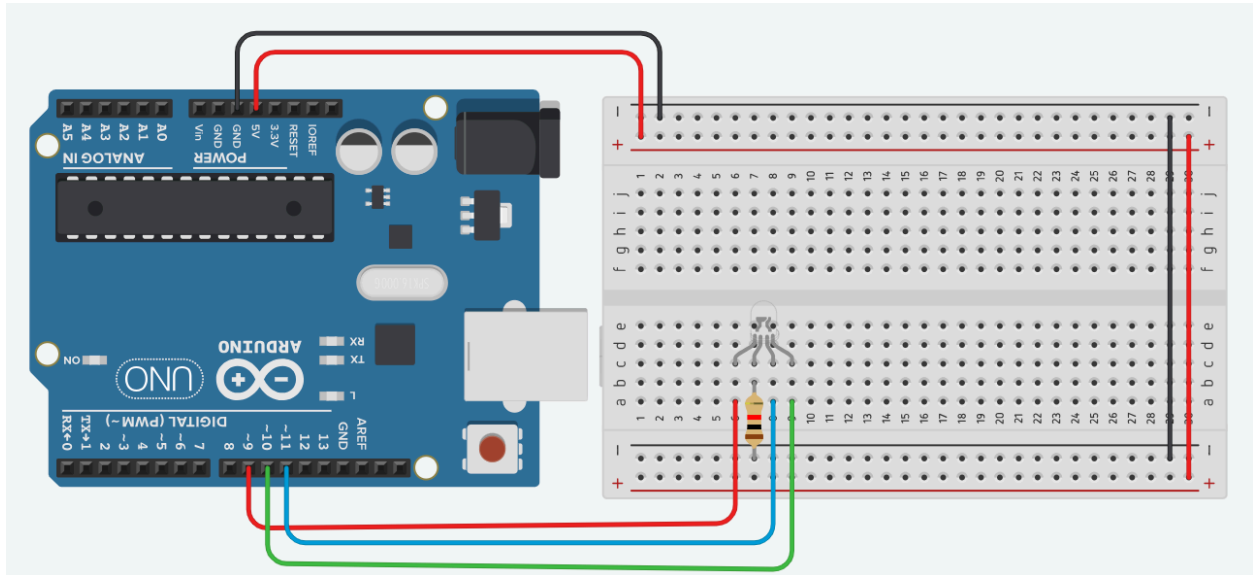# COMP 1045 Lab 6

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Circuit: Create the circuit below with the RGB led.

 Level 1: Build the circuit and run the source code.

```
/*
Title:Experiment #006 – RGB Fade
Description: This program will fade the Red, Green, Blue(RGB) LED
Instructions: The
RGB LED is connected to a Pulse Width Modulation(PWM) pin.
You can use analogWrite to control brightness.
*/
int RGBRedPin = 9;  //The red RGB LED is connected pin 9 of the
Arduino.
int RGBGreenPin = 10; //The green RGB LED is connected pin 10 of the
Arduino. int RGBBluePin = 11; //The blue RGB LED is connected pin 11
of the Arduino.
int RGBBluePin= 11;
int fadeDelay = 5;  //This is the number of milliseconds that it will
take between steps
```

```cpp
void setup() { //The Setup function runs once.
pinMode(RGBRedPin, OUTPUT); //Setup red RGB LED pin as an output pin.
pinMode(RGBGreenPin, OUTPUT); //Setup green RGB LED pin as an output
pin. pinMode(RGBBluePin, OUTPUT); //Setup blue RGB LED pin as an
output pin.
}

void loop() { //The loop function runs forever.

for (int x = 0; x <= 255; x++) { //Fade in red.
analogWrite(RGBRedPin, x); delay(fadeDelay);
}

for (int x = 255; x >= 0; x--) { //Fade out red.
analogWrite(RGBRedPin, x); delay(fadeDelay);
}

for (int x = 0; x <= 255; x++) { //Fade in green.
analogWrite(RGBGreenPin, x); delay(fadeDelay);


}

for (int x = 255; x >= 0; x--) { //Fade out green.
analogWrite(RGBGreenPin, x); delay(fadeDelay);
}

for (int x = 0; x <= 255; x++) { //Fade in blue.
analogWrite(RGBBluePin, x); delay(fadeDelay);
}

for (int x = 255; x >= 0; x--) { //Fade out blue.
analogWrite(RGBBluePin, x); delay(fadeDelay);
}

for (int x = 0; x <= 255; x++) { //Fade in red and blue.
analogWrite(RGBRedPin, x); analogWrite(RGBBluePin, x);
```

```cpp
delay(fadeDelay);
}

for (int x = 255; x >= 0; x--) { //Fade out red and blue.
analogWrite(RGBRedPin, x); analogWrite(RGBBluePin, x);
delay(fadeDelay);
}

for (int x = 0; x <= 255; x++) { //Fade in red and green.
analogWrite(RGBRedPin, x); analogWrite(RGBGreenPin, x);
delay(fadeDelay);
}

for (int x = 255; x >= 0; x--) { //Fade out red and green.
analogWrite(RGBRedPin, x); analogWrite(RGBGreenPin, x);
delay(fadeDelay);
}

for (int x = 0; x <= 255; x++) { //Fade in green and blue.
analogWrite(RGBGreenPin, x);

analogWrite(RGBBluePin, x); delay(fadeDelay);
}

for (int x = 255; x >= 0; x--) { //Fade out green and blue.
analogWrite(RGBGreenPin, x); analogWrite(RGBBluePin, x);
delay(fadeDelay);
}

for (int x = 0; x <= 255; x++) { //Fade in red, green and blue.
analogWrite(RGBRedPin, x);
analogWrite(RGBGreenPin, x); analogWrite(RGBBluePin, x);
delay(fadeDelay);
}

for (int x = 255; x >= 0; x--) { //Fade out red, green and blue.
analogWrite(RGBRedPin, x);
```
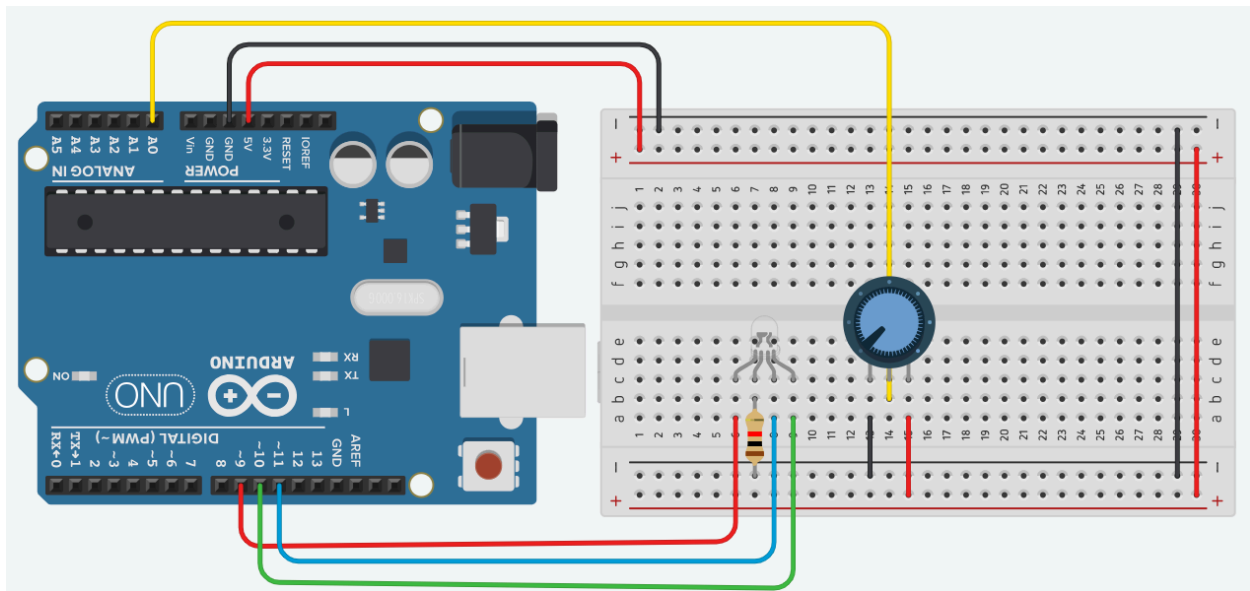
```
analogWrite(RGBGreenPin, x); analogWrite(RGBBluePin, x);
delay(fadeDelay);
}
}
```

Level 2: Map the brightness of the green channel of the RGB led to the rotation sensor A0. As you rotate clockwise the light will get brighter.


```
int RGBRedPin = 9;   //The red RGB LED is connected pin 9 of the
Arduino.
int RGBGreenPin = 10; //The green RGB LED is connected pin 10 of the
Arduino. int RGBBluePin = 11; //The blue RGB LED is connected pin 11
of the Arduino.
int RGBBluePin= 11;


int rotator = A0;


int fadeDelay = 5;   //This is the number of milliseconds that it will
take between steps


int data=0;


void setup() { //The Setup function runs once.
  pinMode(RGBRedPin, OUTPUT); //Setup red RGB LED pin as an output
pin. pinMode(RGBGreenPin, OUTPUT); //Setup green RGB LED pin as an
```

```
output pin. pinMode(RGBBluePin, OUTPUT); //Setup blue RGB LED pin as
an output pin.
  pinMode(rotator, INPUT);
  Serial.begin(9600);
}

void loop() {
  int potentiometerValue = analogRead(rotator);
  int brightness = potentiometerValue / 4;
  analogWrite(RGBGreenPin, brightness);

  data = analogRead(rotator);
  Serial.print("Rotation value =");
  Serial.println(data);
  delay(1000);
}
```

Program 2-Write a program that allows the user to ring buzzer using the button.(add two buttons and two buzzers)(Use the example from Lab 7)
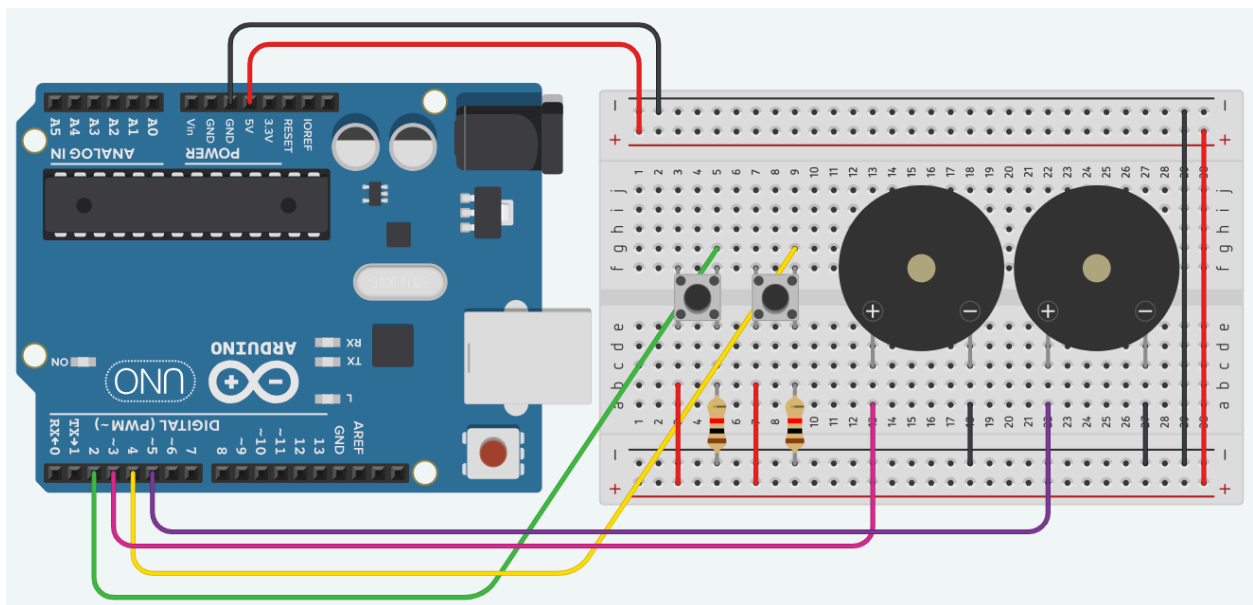

```
const int pinBuz1 = 3;
const int pinSwi1 = 2;

const int pinBuz2 = 5;
const int pinSwi2 = 4;
```

```
void setup() {
  pinMode(pinBuz1, OUTPUT);
  pinMode(pinSwi1, INPUT);
  pinMode(pinBuz2, OUTPUT);
  pinMode(pinSwi2, INPUT);
  }

void loop () {
  int botton1;
  int botton2;
  botton1 = digitalRead(pinSwi1);
  Serial.println(botton1);

  botton2 = digitalRead(pinSwi2);
  Serial.println(botton2);

  if (botton1 == 1){
    digitalWrite(pinBuz1,1);
    }
  else if (botton2 = 1){
    digitalWrite(pinBuz2, 1);
  }
    else
    {
      digitalWrite(pinBuz1,0);
      digitalWrite(pinBuz2,0);
      }
      delay(10);
      }
```