# Experiment 007 RGB Fade

#WeAreAllMakers

## OVERVIEW

In this experiment you will control how the brightness and intensity of each of the color channels on the RGB LED on the 321Maker Shield. The blending of colors allows you to display any color that you wish.

## OUTCOMES

By the end of this experiment you will be able to:

- Apply the AnalogWrite command to a control an RGB LED
- Modify the color of a RGB LED by mixing color channels.


## REQUIREMENTS

- Arduino-Compatible board
- 321Maker Things Shield
- USB Cable
- Arduino Software

## PREREQUISITES

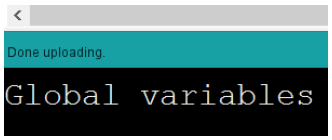
- Getting Started Tutorial: http://321maker.com/start
- Source Code: https://git.io/vPZtv

## VIDEO TUTORIAL

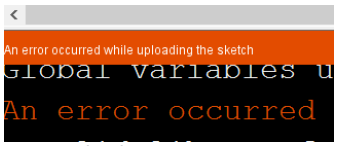
http://youtube.com/indevelopment

## LEVEL 1 PROCEDURE -

- [ ] Connect your Arduino to your computer using the USB port. Open the Arduino software.
- [ ] Download the **RGB Fade** program code from here: https://git.io/vPZtv
- [ ] Copy and paste the program code into the Arduino software editor.
- [ ] Make sure you have the correct Arduino Board and Communications port setup.
- [ ] Click the upload button in the upper left corner to compile and upload the code to the Arduino device. If you see an Orange error in the bottom of your screen, then something went wrong.



Upload successful



Upload Error

- [ ] Congratulations, your RGB LED should be fading between red, green and blue.

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## LEVEL 2 PROGRAM MODIFICATION

- [ ] Fade the red channel of the RGB LED in and out when the user pushes SW1 (D2)
- [ ] Fade the blue channel of the RGB LED in and out when the user pushes SW2(D3).

## LEVEL 3 ADVANCED APPLICATION

- [ ] Map the brightness of the green channel of the RGB led to the rotation sensor A0.

## LEVEL 4 PROJECT CHALLENEGE

- [ ] Write a program that allows the user to set the brightness of each of the RGB channels by using the rotation dial to control brightness and a push button to select the channel. For example, the operation of this program could be as follows.

  *User turns the dial to set the brightness of the red LED.*
  *The User pushes the "mode" button SW1 (D2)*
  *User turns the dial to set the brightness of the green LED.*
  *The User pushes the "mode" button SW1 (D2)*
  *User turns the dial to set the brightness of the blue LED.*
  *If the user pushed the "mode" button again, then the it will loop back to the red channel again.*