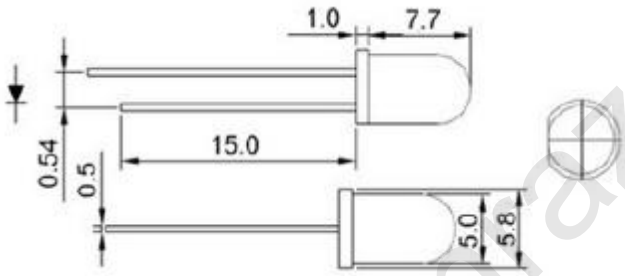
Fading

Overview

This example demonstrates the use of analog output (Pulse Width Modulation (PWM)) to fade an LED. PWM is a technique for getting an analog-like behavior from a digital output by switching it off and on very fast and with different ratio between on and off time.

Specification



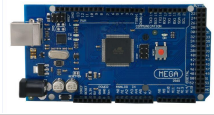
Pin definition

It is the definition of LED pin

Long pin -> + (VCC)

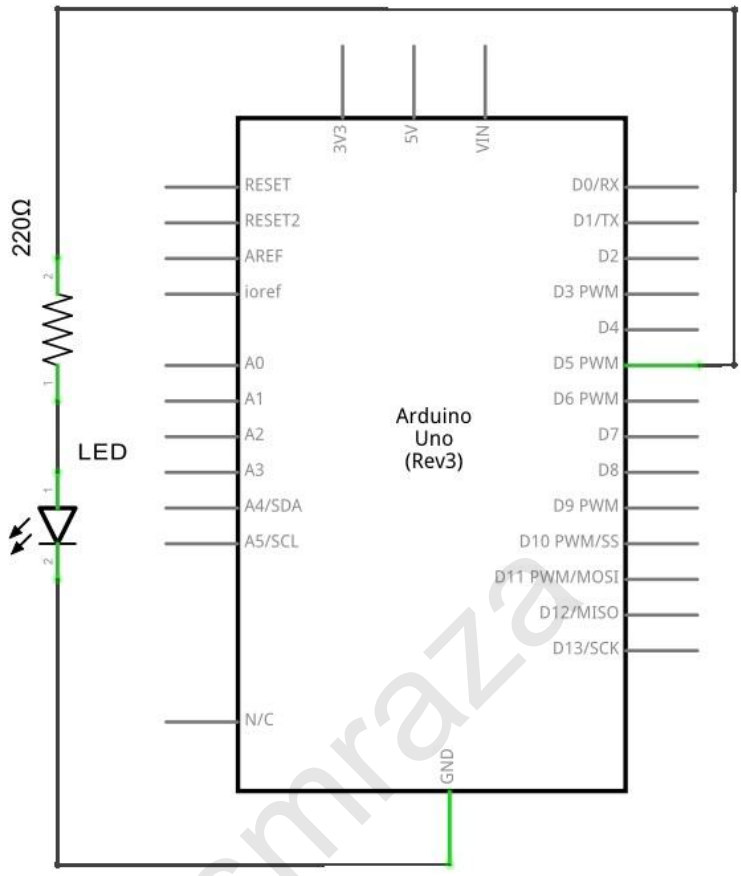
Short pin -> - (GND)

Hardware required

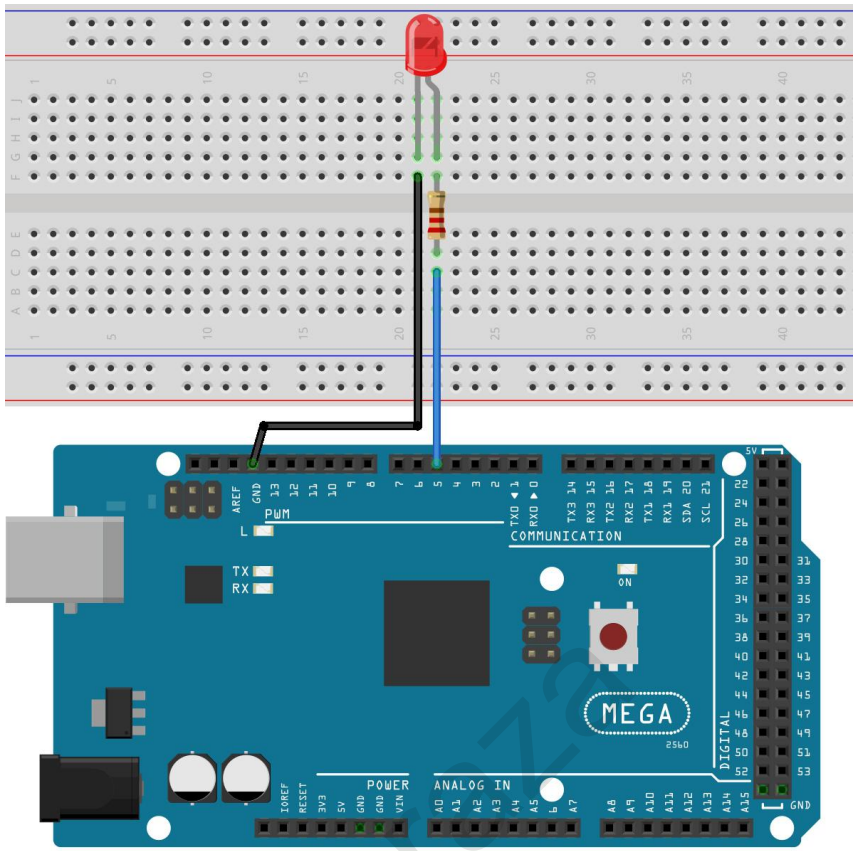
Material diagram	Material name	Number
	220/330Ω resistor	1
	LED	1
	USB Cable	1
	MEGA 2560	1
	Breadboard	1
	Jumper wires	Several

Connection

Schematic



Connection diagram



Note：An LED connected to digital output pin 5 (D5) through a 220 ohm resistor.

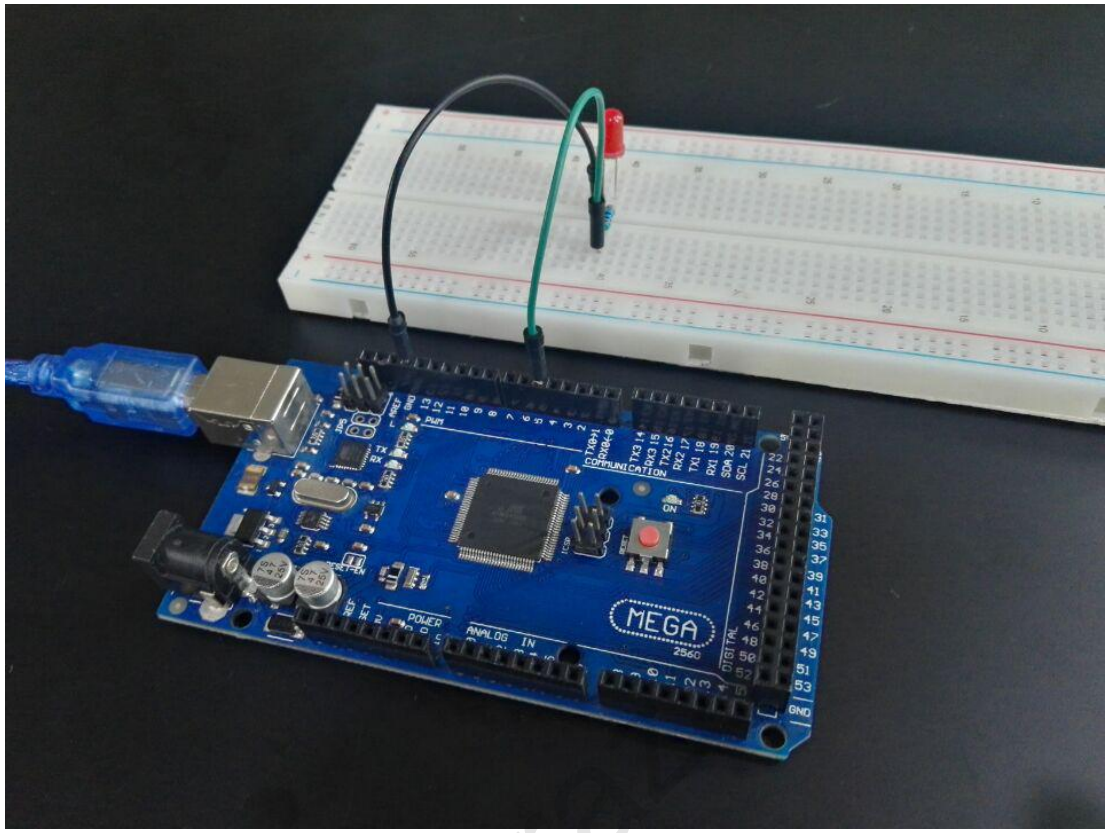
Sample code

Note : sample code under the **Sample code** folder

```
int ledPin = 5;
void setup() {
// nothing happens in setup
}
void loop() {
    // fade in from min to max in increments of 5 points:
    for (int fadeValue = 0 ; fadeValue <= 255; fadeValue += 5) {
        // sets the value (range from 0 to 255):
        analogWrite(ledPin, fadeValue);
        // wait for 30 milliseconds to see the dimming effect
        delay(30);
    }

    // fade out from max to min in increments of 5 points:
    for (int fadeValue = 255 ; fadeValue >= 0; fadeValue -= 5) {
        // sets the value (range from 0 to 255):
        analogWrite(ledPin, fadeValue);
        // wait for 30 milliseconds to see the dimming effect
        delay(30);
    }
}
```

Example picture



Language reference

Tips : click on the following name to jump to the web page.
If you fail to open, use the Adobe reader to open this document.
+= (add assign)
-= (subtract assign)
<= (less than or equal to)
>= (greater than or equal to)

Application effect

You'll see that LED has the effect of breathing light.

****
* About Smraza:
* We are a leading manufacturer of electronic components for Arduino and Raspberry Pi.
* Official website: http://www.smraza.com/
* We have a professional engineering team dedicated to providing tutorials and support to help you get started.
* If you have any technical questions, please feel free to contact our support staff via email at support@smraza.com
* We truly hope you enjoy the product, for more great products please visit our
Amazon US store: http://www.amazon.com/shops/smraza
Amazon CA store: https://www.amazon.ca/shops/AMIHZKLK542FQ
Amazon UK store: http://www.amazon.co.uk/shops/AVEAJYX3AHG8Q
Amazon DE store: http://www.amazon.de/shops/AVEAJYX3AHG8Q
Amazon FR store: http://www.amazon.fr/shops/AVEAJYX3AHG8Q
Amazon IT store: http://www.amazon.it/shops/AVEAJYX3AHG8Q
Amazon ES store: https://www.amazon.es/shops/AVEAJYX3AHG8Q
****