Introduction to Arduino

Matthew Willy

RSI

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Introduction

Topics for today

- Blinking the built in LED (Hello World of Arduino)

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- Blinking the built in LED (Hello World of Arduino)
- Blinking an LED from the breadboard

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- Blinking the built in LED (Hello World of Arduino)
- Blinking an LED from the breadboard
- A simple stoplight demo

Blinking Light Demo

The Hello World of Arduino

Two Important Functions

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- *loop()*
- The main function of your program. An infinite loop that will do all the work.

Breadboard

Blinking Light 2.0
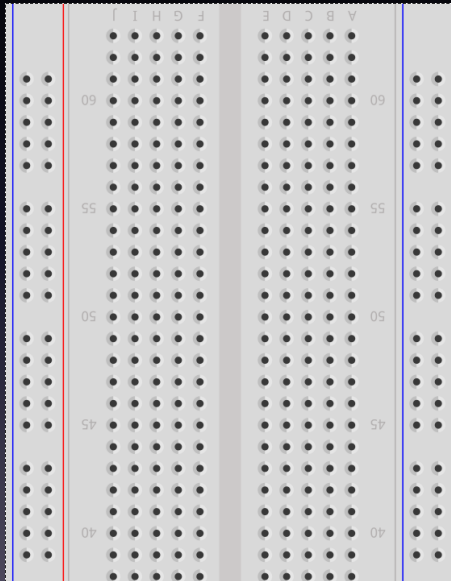
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Resistors to the Rescue!

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- I - Current
- R - Resistance

Calculate Minimum Required Resistance

$$R = (V_\mathbf{s} - V_\mathbf{f})/I_\mathbf{f}$$

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- R = $150\,\Omega$

Only One more Equation, I Promise!

$$P = V * I$$

$$P = I^2 * R$$

-

$$P = 0.02^2 A * 150\,\Omega$$

Only One more Equation, I Promise!

$$P = V * I$$
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$$P = 0.02^2 A * 150\,\Omega$$

- P = 60mW

Resistor Color Code

(b) Resistor Color Code taken from
http://www.resistorguide.com/

A Word of Caution

Danger

Delay is a blocking function. While delay is running you will not be able to read sensor inputs, compute mathematical calculations, or change pin outputs.
An alternative is to use the *millis()* function instead.

A Couple of Helpful Resouces

- Fritzing - http://fritzing.org/home/
- Arduino - https://www.arduino.cc/
- Basic Electronics - https://www.electronics-tutorials.ws/
- LATEX - https://www.sharelatex.com/

Questions

Any Questions?