Micro-Teaching: Object Based Learning

Getting Hands-On with Arduino's / Microcontrollers

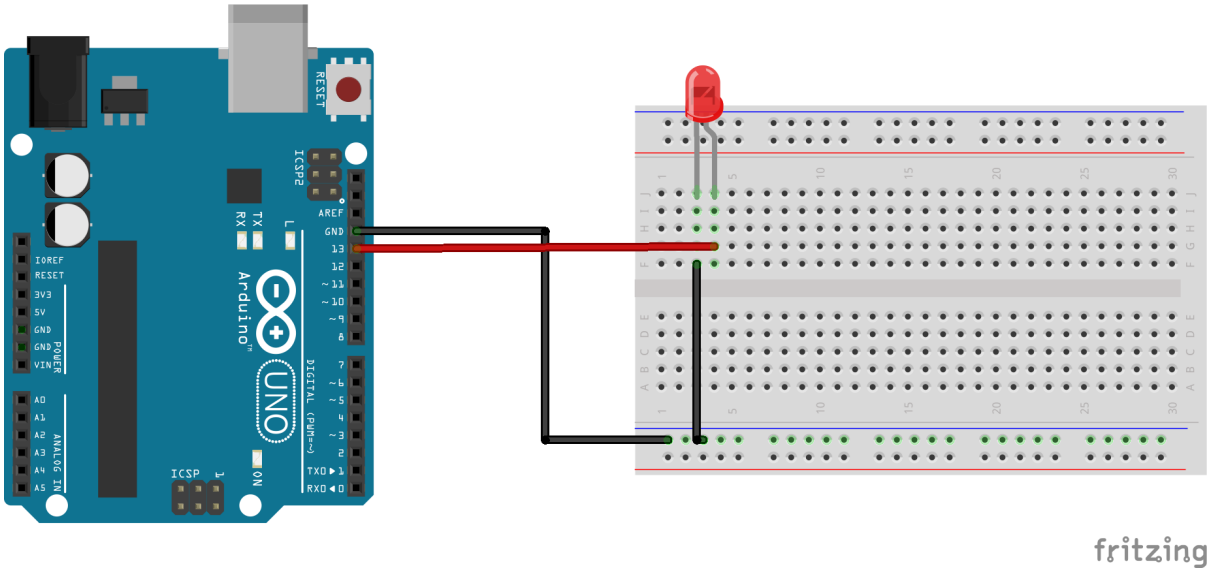
Lead By Elliott Hall, Specialist Technician in Wearable Technology

Getting Started:

Within the 20-minute activity, you'll get hands on with an Arduino Uno, an example of a microcontroller development board. Students at the London College of Fashion use these boards within wearable tech to build working prototypes of their ideas. Within this session you'll get to your hand at building some different examples, starting with some basics and quickly working up to some more complex ideas/projects.

For the first 3 Activities there is no need to unplug anything, just keep building up the circuits until you get to the end, within each of the 4 different activities you'll discover a new thing that the microcontrollers can do.

Activity 1 – Blinking a Light

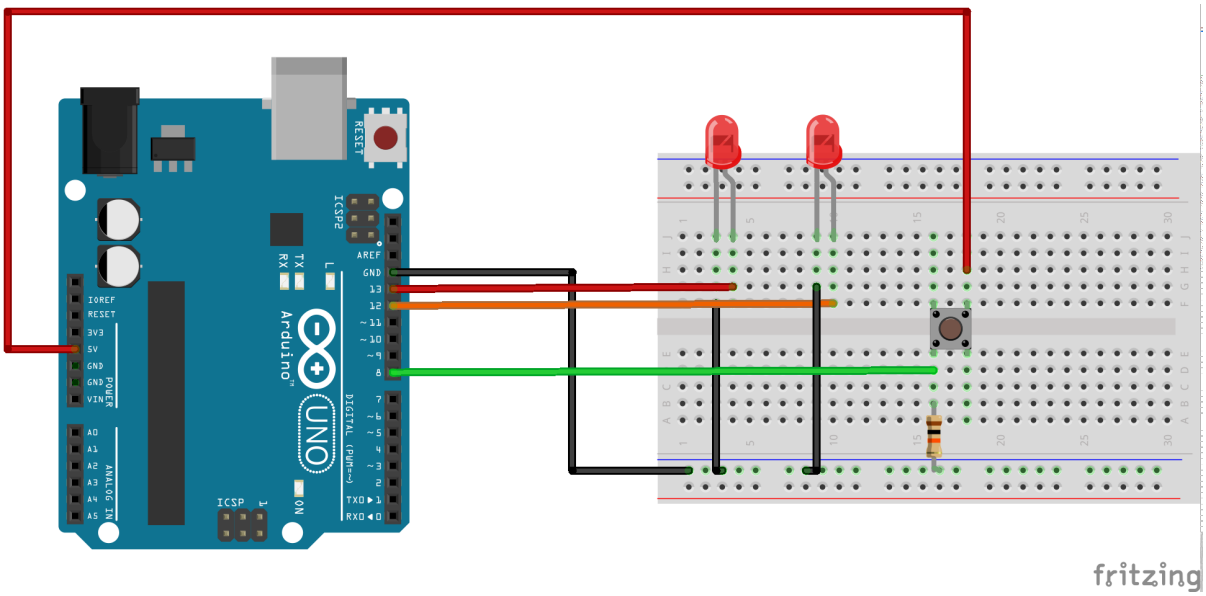


Expected Result: A blinking LED

Troubleshooting*: If you're LED isn't blinking, try turning the LED around so the long leg is connected to pin 13 (shown in Red).*

- Also make sure you are using Arduino 'A'

Activity 2 – Input, Controlling an Output



Expected Result: When you press the button, the second LED should turn on!

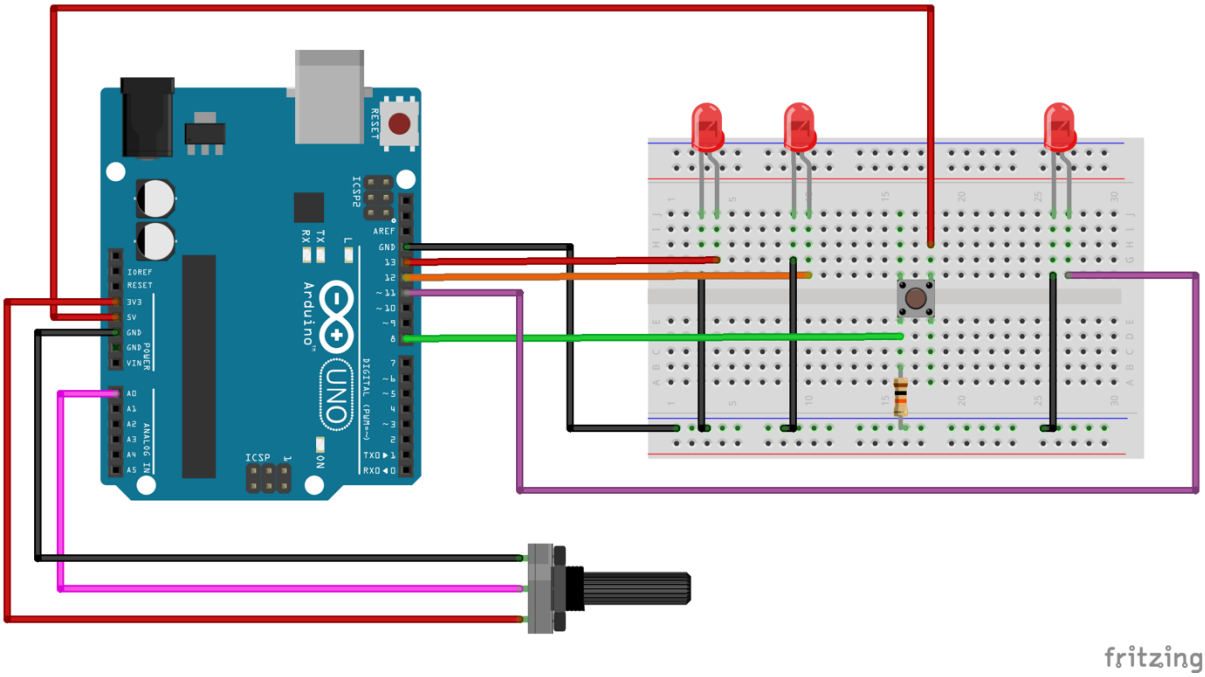
Troubleshooting*: If you're second LED is not turning on try the following and remember you can always ask, a new pair of eyes always helps:*

- Double check all your connections are correct.

- Check to see that the long leg of the LED is connected to pin 12 (Shown in Orange)

- Check that the resistor, is connected to GND (Black) and is also connected to the same connection as pin 8 (shown in Green). Lastly make sure that the 5v (Shown in Red) is on the right-hand side as show in the diagram.

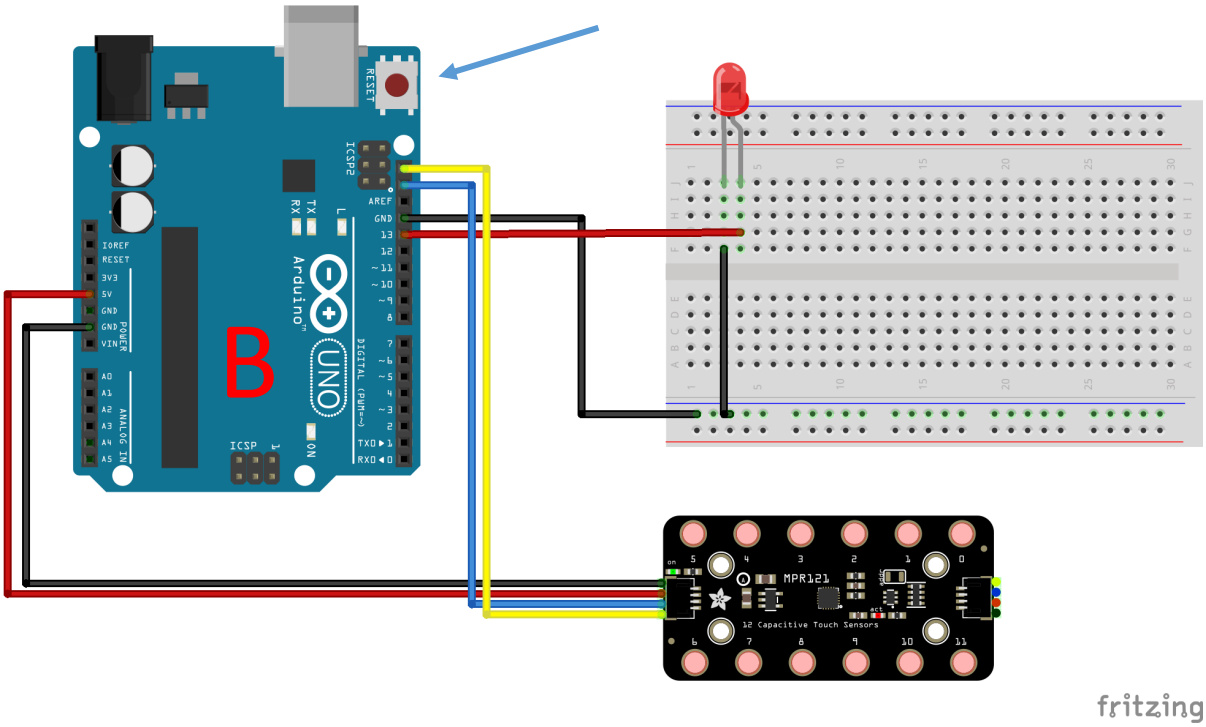
Activity 3 – Fading Light (PWM)



Expected Result: An LED that fades on and fades off.

Troubleshooting*: If you're LED isn't blinking, try turning the LED around so the long leg is connected to pin 11 (shown in Purple).*

Activity 4 – Conductive Inputs



Expected Result: When you touch the fabric, the LED should turn on, when you let go it should turn off.

***Troubleshooting**: If yours is not working try the following tips:*

- Make sure you are using the Arduino labelled "B"

- If you're LED isn't turning on, try turning the LED around so the long leg is connected to pin 13 (shown in red).

- Try pressing the 'Reset' button next to the USB (shown by the blue arrow), then wait a second or two before attempting to touch the fabric.

- Make sure the fabric is not touching anything else that is metal such as a laptop.