

ARDUINO LAB 7: DRIVING BIGGER LOADS

HIGH CURRENT

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Name: \_\_\_\_\_ Signature \_\_\_\_\_

**INTRO**

Each pin of the Arduino is limited to around 20 milliamps. This is fine for controlling things like LEDs but not sufficient to control things like motors. One way of having the Arduino control devices requiring larger voltages is to use a transistor, particularly a MOSFET transistor (Metal Oxide Field Effect Transistor). As we learned in the first few weeks of the class, this type of transistor acts as a gate.

**BRIEF DESCRIPTION**

There is an excellent description of this project at <http://itp.nyu.edu/physcomp/Tutorials/HighCurrentLoads>

Please follow those instructions. There is a minor error in the instructions in that they list a capacitor as a required part, when it is not required. I will supply you with the transistor and diode.

You can either use a motor I supply or hack a motorized toy you supply. Extra credit will be given for innovation.

**DEMO 1 (80 POINTS):**

Demo the circuit described in the write-up

Instructor sign off: \_\_\_\_\_

**DEMO 2 (20 POINTS):**

Develop a system that can be controlled via the web. For example, the motor might turn on and off via twitter or a web page you write. 10 points are awarded for implementation and 10 for creativity.

Instructor sign off: \_\_\_\_\_



**QUESTIONS:**

1) Which color (of RGB) is associated with which word?

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2) What does the button do?

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3) What is the Arduino pin number associated with each color?

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4) Are the LEDs in this project controlled by digitalWrite, digitalRead, analogWrite, or analogRead?

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5) What does the variable old\_button do?

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**PART 2: (10 POINTS)**

Just change the Processing code to use 3 different words from a different site.

Instructor sign off: \_\_\_\_\_

**PART 3: (10 POINTS)**

Change the Processing code to use some web information that doesn't involve counting occurrences of words (for ex., stock market info, # of email msgs or tweets, etc)

Instructor sign off: \_\_\_\_\_