Lab 1: Intro to Physical Computing

Instructions for Lab Assignment

This lab will serve to get the Arduino environment set up on your laptop and to familiarize yourself with building circuits around the arduino hardware. We will be using pre-existing code and the arduino board to control an LED and make it blink.

Steps

- Go through the initial tutorials on setting up the Arduino environment on your laptop and to complete the blinking LED lab. Instructions for different platforms are available directly at http://www.arduino.cc (Links to an external site.)Links to an external site.. Here are direct links to the more common platforms: Windows (Links to an external site.)Links to an external site., Mac OS X (Links to an external site.)Links to an external site.. and Linux (Links to an external site.)Links to an external site..
- Make the LED blink by following this tutorial (Links to an external site.)Links to an external site.. Throughout the course, keep in mind that the Arduino website has lots of great resources and tutorials you can use. This sketch (Arduino code / Arduino program) is also available from the Arduino IDE (software) from the menu: File --> Examples --> 01.Basics --> Blink
- Try to have the LED blink in different speed. This process ensures that LED is not blinking due to the existing program on Arduino but that you are indeed uploading your own program to your Arduino successfully.
- For this lab assignment and all future labs, we will be asking you to post both image(s) and descriptions of your project. Please look at these example lab posts for what kind of information you should include. Most labs have a portion where you do something creative. For this week, your lab will probably look very similar to what we showed in class. That is OK. Just make sure you have your own photo of your own work.

Hints

- After the sketch is open in your Arduino IDE, go to Tools --> Board --> select "Arduino Uno"
- In the Arduino IDE, go to Tools --> Port --> select the Serial port (USB port) where your Arduino cable is plugged in to your computer
- Fritzing is a special program to allow people to draw simple diagrams (or schematics) of their circuits with Arduino and breadboards, and they have a website for sharing these. You can see the diagram for this lab here (Links to an external site.)Links to an external site.. In general, a lot of the more simple or common circuits have nice Fritzing diagrams available online that you can use as you make your circuit.

- Use one color wire when attaching things to source (positive terminal)
- Use black color wire when attaching things to ground (negative terminal)
- Be consistent and always use the same color for source and for ground. This helps prevent errors.
- Keep things neat. This helps prevent errors.
- LEDs are polarized. The **short leg** must go to **ground**
- The 220-ohm resistor is labeled red, red, brown, gold. It is not polarized