CST8227 Lab 01: Teensy Lab Kit

Lab Objectives:

1. ** **Important** **: Pickup your lab kit, featuring the Teensy 3.2 microcontroller and various components, from the Connections bookstore, located on the Woodroffe campus.
   a. You'll need to bring photo ID – to identify who you are.
   b. Show your timetable – to show you're enrolled in CST8227.

   Detailed instructions regarding pickup are posted on Brightspace. Please read.

Required Equipment:

- Your laptop, as specified in BYOD
- **IMPORTANT**: you need to provide your own USB cable with 5-pin micro-B connector
  o the USB cable must be rated for charging (i.e. power) **AND** data transfer (!)

Part A: Protoboard Preparation and Layouts

Welcome to CST8227 – Interfacing!

Your lab kit for the course include the following items:

- 1 x Teensy 3.2, a 32-bit Arduino-compatible microcontroller
- 1 x Teensy 3.2 Reference Card
- 1 x Teensyduino Tutorials 1 to 4 Parts Kit
- 1 x protoboard
- 1 x wire set
- 4 x switch, large (12mm)
- 8 x red LEDs
- 4 x green LEDs
- 4 x yellow LEDs
- 2 x shift registers (Texas Instruments)
- 2 x 7 segment displays
- 1 x Piezo buzzer
- 1 x light dependent resistor (LDR), otherwise known as a CdS (Cadmium-Sulfide) or a photoresistor
- resistors:
  o 16 x 220-ohm resistors
  o 8 x 180-ohm resistors

1. Remove the protoboard from its packaging and dispose unwanted packaging by either recycling or putting into a trash can.

2. Remove the "sticky-tape" from the bottom of the protoboard and attach the conductive plate (aluminum).

> Do a better job of *squaring* the conductive plate to the protoboard than what I did ☹

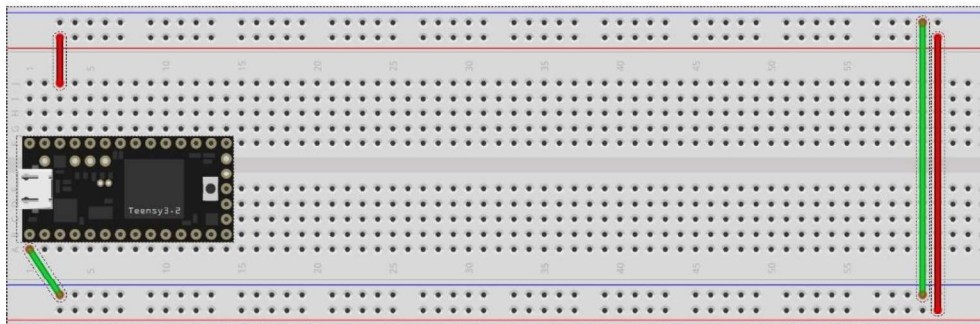3. Attach your Teensy to the protoboard according to this schematic:

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Attach your Teensy to the protoboard thusly.
Stick the aluminum plate squarely (edge-to-edge) to the
underside of the protoboard.

Course Standard for Wire Colours:
* Red when attaching to Vcc rail
* Green when attaching to GND rail; Black and Blue are
permitted as well

pharasb@AlgonquinCollege.com

a. The fritzing app, by default, does not include a Teensy 3.2 part, so I made one:

Deliverable:

Use your mobile device and take a "selfie" of you and your prized Teensy attached to the protoboard. If you are uncomfortable taking a self-photo, please substitute with your Algonquin College Student ID Card.

Upload your photo to Brightspace before the due date.

Postlab:

Congratulations on receiving *your* lab kit ---- it's yours to keep as you've paid for it ☺

FAQ: I have a Teensy… that's nice. What can I do with it?
Answer: The Teensy is a popular microcontroller and developers often post their projects to PJRC.com, home of the Teensy.

Enjoy!