Announcements

● Today’s lab is all about soldering!
  ○ Be safe, let us know if you are unsure or if you get hurt
  ○ First aid at the TA desk
● Lab Partners for Touch 1 and 2 should not change - exchange contact info!
● Remote labs will be available soon
  ○ Choose whichever is more comfortable for you
  ○ In-person labs will continue for the foreseeable future
Semester Outline

- Imaging Module
- Touchscreen Module
- APS Module
Today’s lab:

- Learn to solder
- Build simple LED fader circuit
- Make resistive touchscreen PCB
- Breadboarding basics
Equipment for today:

- Power Supply
- Soldering Iron
- Launchpad
- Desoldering Pump
Soldering!

- Like hot glue for circuits
- Ensures there’s a physical connection for all your components.
PCB (Printed Circuit Board)

Pad (Copper plate)
Only solder metal to metal!
Soldering
Soldering

Component should be flush to the board ... why?
Soldering DON’TS

● Don’t eat while in lab today (or ever)!
● Don’t solder your jumpers
  ○ Use the wires from the TA desk
● Don’t solder plastic and other non-metals
  ○ Strip your wires! Wire strippers are at your station
● Don’t use too much solder
  ○ but also not too little
● Don’t hold your soldering iron like....
Soldering DO’S

● Wet the sponge and clean the tip when you start.
● Use the clamp: components should be stable before you start soldering.
  ○ Push components **ALL THE WAY IN**
● **Safety first;** don’t burn yourself.
  ○ If you do, let us know immediately!
● Ask if you’re unsure about what you’re doing.
● Clean up after yourself, turn off all equipment
Soldering intro quiz check

● Before you are allowed to start soldering, have all members of your group show a TA/ASE your quiz score and email confirmation
  ○ Quiz is linked in the lab
  ○ Each individual must take their own quiz
  ○ Be able to explain any incorrect answers
LED fader circuit diagram
New circuit elements

- LED
- Potentiometer
Resistive touchscreen soldering

We will go more in depth next week on how this all works!
Just solder for today :^)
Breadboarding basics

- Similar to Imaging 1: Intro to Breadboarding
- Build up breadboarding skills
  - Connect to concepts in lecture, including Voltage Dividers and KVL
- Very important skill: prototype, debug, and translate theoretical ideas into real circuits
Notes

- Apply solder on the side with text of touchscreen
  - These are the coordinates on the PCB (use them)
- Be careful when soldering your resistive touchscreen! You only get one per group. Make sure to bring it back next week.
- Don’t use your jumper wires, use the wires at TA Desk
- Make sure the components are all flush (pushed all the way down) with the PCBs before soldering
- Cut the soldered joints of the resistors to be VERY SHORT using the Precision Cutters at the TA Desk
  - Twist component leads together before soldering
Notes

- LED: polarity matters -> Longer one is positive
- Do not use your lab kit jumper wires. Male to male wires are at the TA desk
  - Use the wire stripper at your lab station
  - The base of the wire stripper is also a wire cutter
- Water Squirters, Precision Cutters, and solder rolls STAY on the TA Desk
  - Only need few inches of solder (@TA desk)
  - Water squirters for sponge is also @TA desk
- You must tin your soldering iron before checkoff!

TURN OFF IRON IN BETWEEN EACH BOARD YOU SOLDER