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
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)
Soldering cont.

Only solder metal to metal!
Soldering
Soldering

Component should be flush to the board ...

... why?
tag urself soldering equipment edition

soldering iron
- super hot and knows it
- will burn you if not careful
- microwaves all their food for too long

solder wire
- seems tough but melts easily
- gets sick if you don't wash your hands
- "what doesn't kill you makes you stronger"

desoldering pump
- mom of the group
- there when you need it the most
- two shot wonder

wet sponge
- nice and soft
- backs away from fights
- says moist to annoy you

clamp
- definitely lifts
- has a truck and will help you move
- gives good hugs

wire
- bendy and twisty
- can eat whatever they want and still stay thin
- always wants to play strip poker

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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
- 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.

● Ask if you feel unsure of 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
  - Be able to explain any incorrect answers
New Circuit Elements

- LED
- Potentiometer
Resistive Touchscreen Soldering

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

- Review Imaging 1: Intro to Breadboarding
- Very important skill to 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
  - Twist component leads together before soldering
Notes

- **LED:** polarity matters -> Longer one is positive
- **Male to male wires** are at **TA desk**
  - Wire stripper at your lab station
  - The base of the stripper is a cutter
- **Water Squirters, 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