OCN 479-001

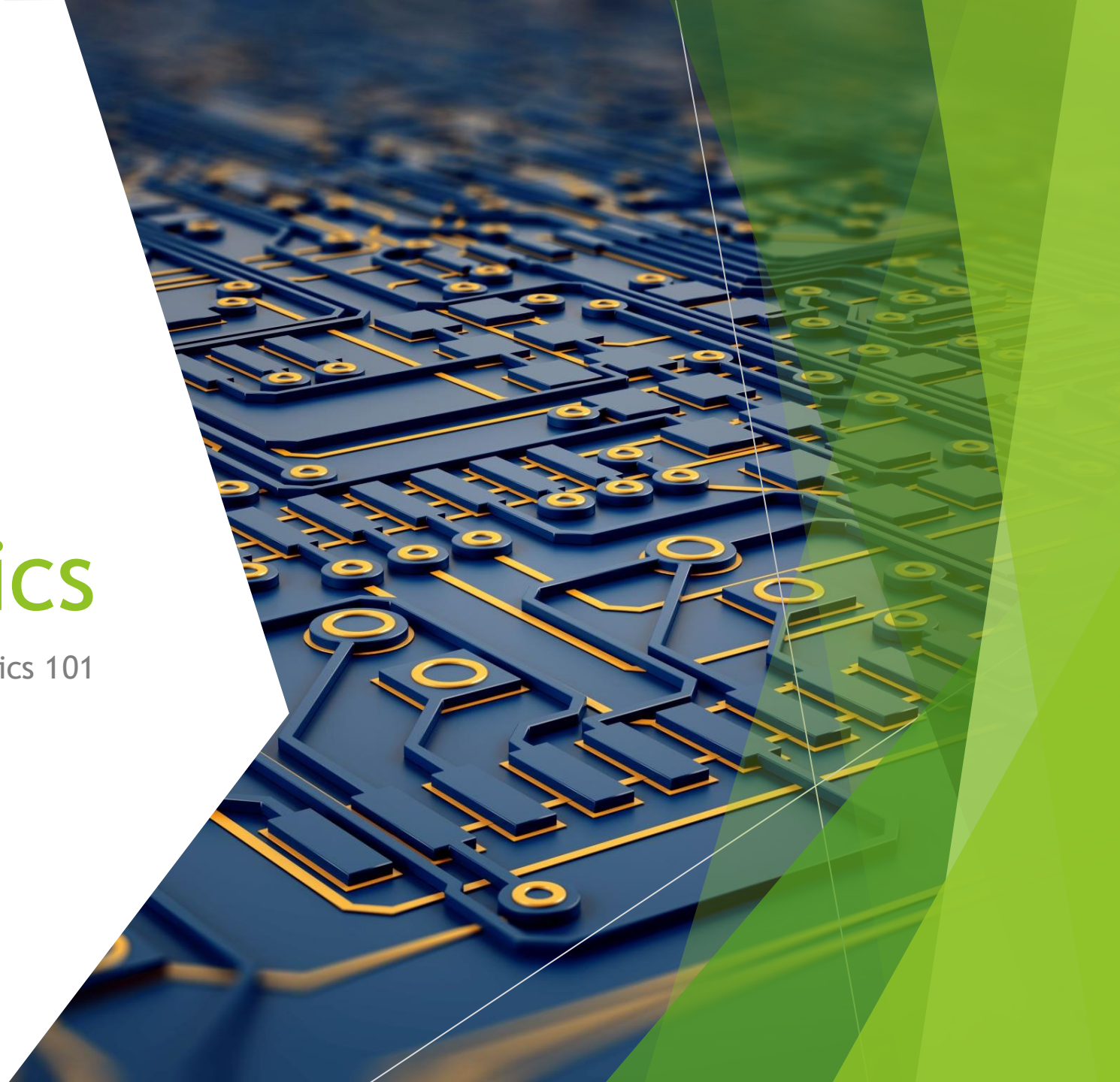
Electronics 101

Today’s plan

- Oceanographic Instrumentation Lab Tour
- Lecture
- Pick up where you left off with GitHub intro and
- Complete second lab activity (building off first)

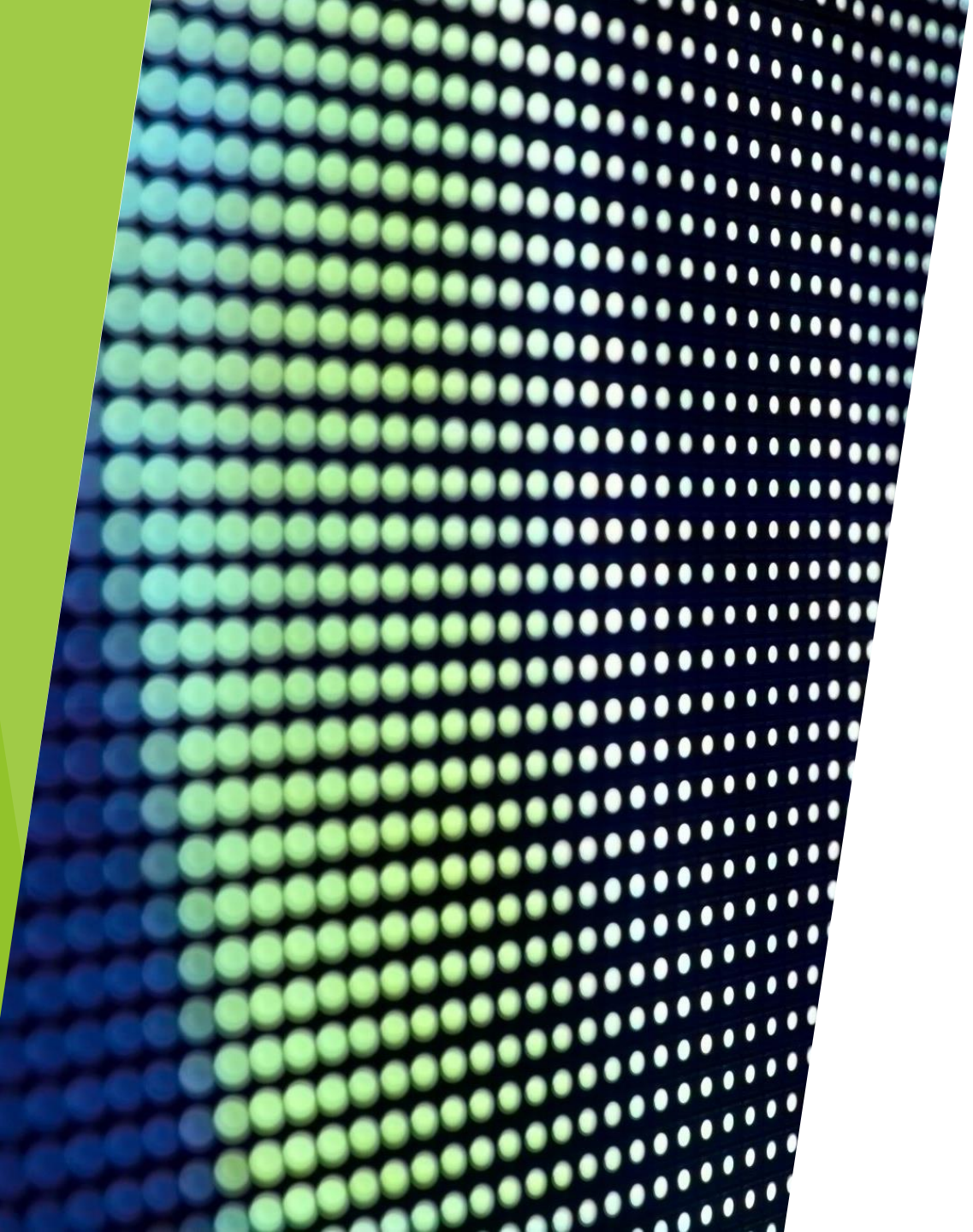
Today’s topics

Working with Electronics 101



Electronics 101

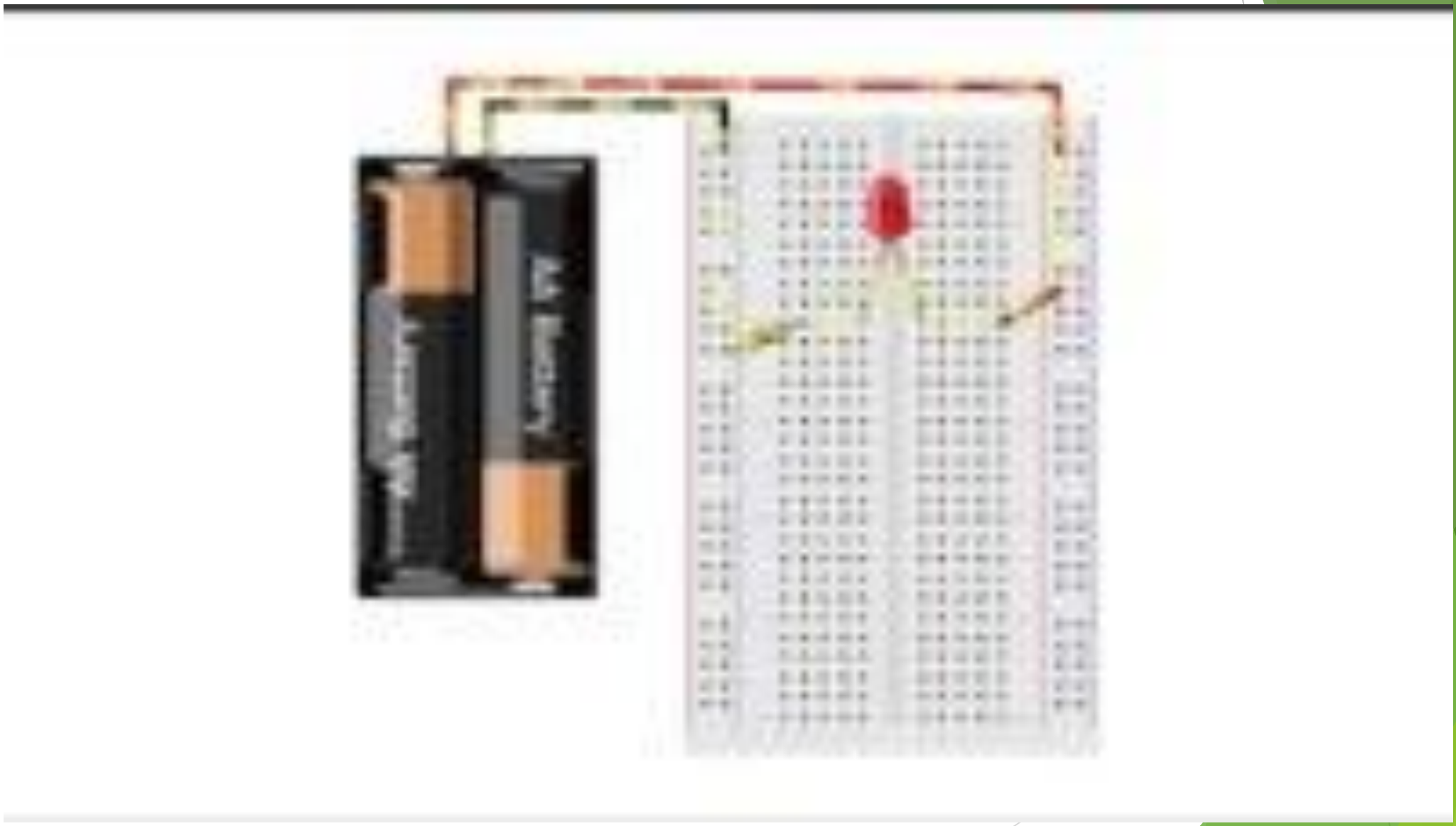
- Ohm's Law: V = IR
  - Watch https://www.khanacademy.org/science/physics/circuits-topic/circuits-resistance/v/circuits-part-1 for more if additional background needed
- Building circuits
  - Breadboarding circuits
  - Soldering wires and components
- Key electrical components
  - Power supply (battery)
  - Resistors
  - Capacitors
  - LEDs (often soldered onto boards, sometimes built separately into circuits)
  - Transistors: one of the most important inventions of the 20th century (Time Magazine)



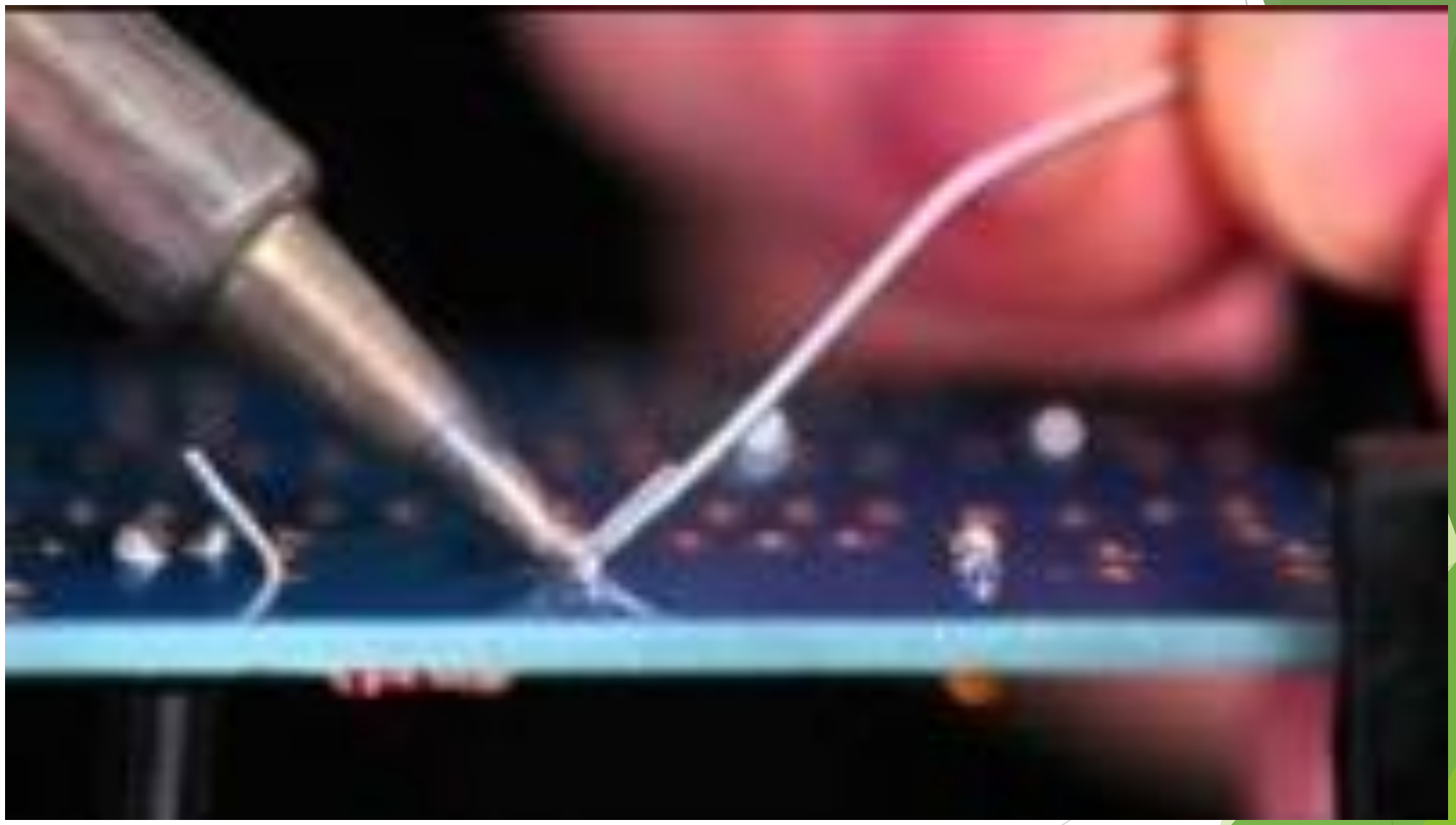
Next up:

Background and how-to videos

Part 1: How to use a breadboard



Part 2: Soldering



Part 3: Transistors (and way too much bass—sorry)

Part 4: How to use Multimeter

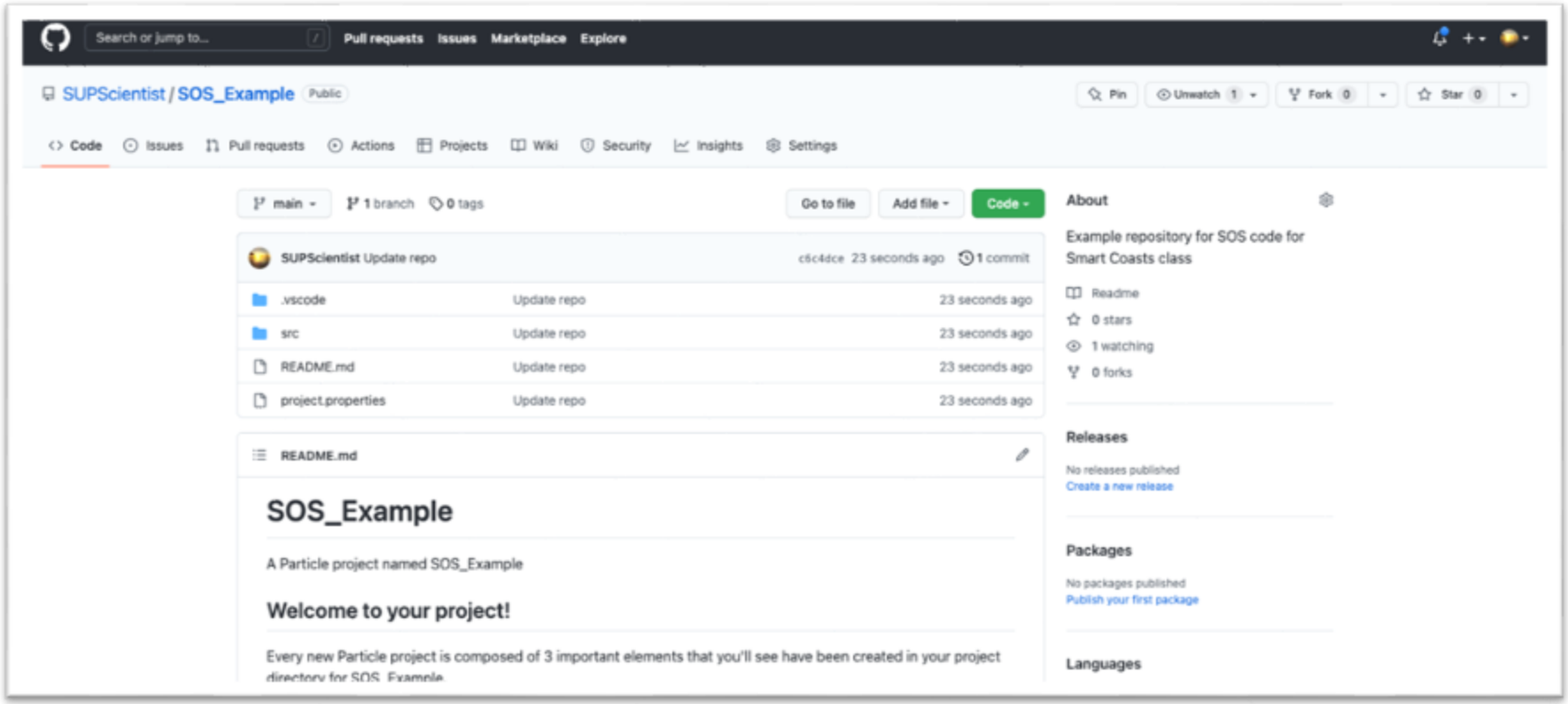
- Live demo
  - Check voltage, resistance, and connectivity of parts of your circuits

Today's lab

1. Complete and send me links as described in assignment post on Canvas

Homework (due next week) **Everyone**—not just 1 per group

- Canvas Assignment:
  - Send me the link to your group's SOS code repository—see guidelines on next slide
  - It MUST show at least two github users and that the final version includes changes from a pull request
  - More information here: https://github.com/SUPScientist/Smart-Coasts/tree/main/Class-03-Presentation1#lab-exercise.



SOS code repository must look like close to this for credit

Grad Students (mandatory)
Interested Undergraduates (extra credit)

- Short presentation (~ 5') on why you signed up for this class and what you hope to get out of it
- If working on sensor development/sensor communications/datalogging/etc., please include details on your project and, especially, where you think a team of Smart Coasts students might be able to help
- We'll use these to start forming teams/project plans for the rest of the semester where possible (no promises that all "pitches" will be viable projects for this semester, but some may be chosen)