Members in Attendance

- Josh Mendez (Sponsor/Advisor)
- Felix Moss
- Annika Boyd
- Eisa Alsharifi
- Nathan Truong

Questions/Agenda Items

- Circuit design notes
- Show circuit sim to josh, confirm design
- Ask about any requirements for physical design

Notes

- Circuit design notes
    - Create module on top of esp32 instead of soldering esp32 chip to circuit, spends less time working on circuitry
    - Confirmed time constant at 2.5sec with current components
    - Need to design power supply and add virtual ground (talked about last week)
    - Needs bipolar ADC
    - Using full esp32 allows for future feature additions
    - Variable gain
        - implement potentiometer for second stage on feedback resistor for variable gain
        - pot may need to be calibrated
    - Output voltage range is -3.3V to 3.3V
    - If using virtual ground, we do not need a bipolar adc, just a regular one that can handle small values
    - **Confirmed we are using virtual ground method**
    - Need better ADC than one present on esp32
        - MAX1032
        - This adc josh already has code for
        - Provides a better resolution (can read lower values)
    - Update LTSpice to reflect the use of virtual ground
- Show circuit sim to josh, confirm design
    - Confirmed
- Begin designing pcb, pcb container, and tube. Ask about any requirements we may need for these
    - Make sure circuit works first
    - Put working circuit into small box
    - Don’t start cutting metal until a working prototype
    - Autodesk 360 CAD software for machining design

    - Use 3D printing for prototyping
- LTSpice Pulse range
    - 1pico to 100nanao
- Slight reassignment of roles
    - Felix now in doing 3D print along with Nathan
    - Nathan doing KiCAD and 3D printing

Next Week Action Items

- By next week, have full simulation with single supply and virtual ground
- Nathan is kicad master, gather all footprints
- Try to avoid using the reflow oven
- Make sure Felix gets CAD program installed
- Annika pick ADC
- Eisa begin exploring code
- Ask about the use of multiple channels: How it will work, what will it look like, what will we do with the two different data sets