Members in Attendance

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

Questions

- Most likely we should design a picoammeter (ammeter present in electrometers)
- Use either the built-in ADC on an esp32 or use a separate one (what would be good options for this?)
- Do we need to worry about neutralizing shunt capacitance? (See Figure 1-13 in provided textbook)

Notes

- Showed rudimentary circuit (config'd as coulombmeter)
    - Drew circuit on board
    - Voltage over cap is V = -Q/C (output of coulomb)
    - Resistor allows for slow discharge of cap in feedback loop
    - Resistor is very large to allow for time for measurement
    - Want time constant to be 10x longer than it takes to charge cap (want high, like 5 seconds)
    - current flows thru resistors on second stage
    - Vout = (R2/R1)V1 of second stage, amplifies it
    - V1 = Q/10^-10, Vout = 100Q/10^-10
    - May use shunt capacitance

- Don't want to use triax, can just solder direction connections, keeping distance short works
- Faraday cage needed
- Need adc that handles negative voltages and positive votlages
- Circuit block diagram:
    - Faraday Cage
        - Hole for cup ~5mm
    - Charge Amplifier
    - ADC
    - Microcontroller
    - Serial Connection to computer