

Members in Attendance

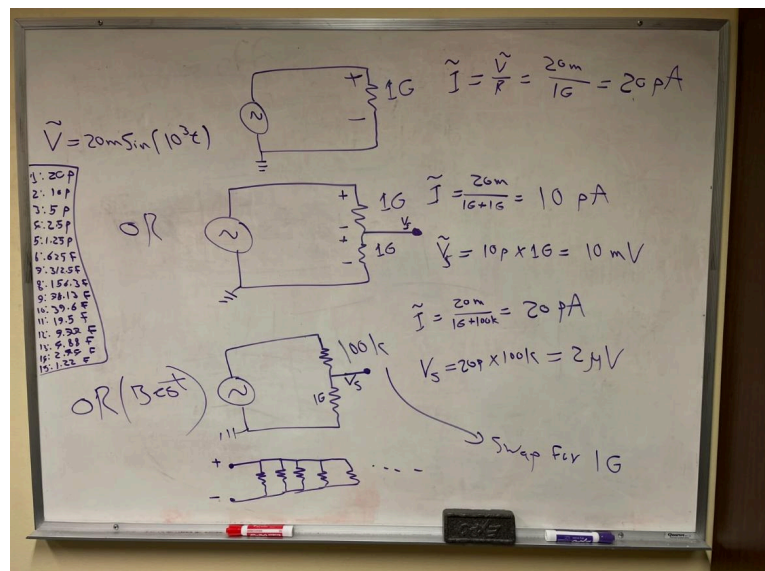
- Josh Mendez (Advisor)
- Felix Moss
- Annika Boyd
- Eisa Alsharifi
- Nathan Truong

Agenda

- Circuit Updates, Questions, Concerns
- AutoCAD Updates

Notes

- Circuit Updates
 - Created small signal circuit
 - input square wave or sine wave
 - Output small charges for small circuit simulation
 - This output feeds into the electrometer
 - Picture:



- LTSpice
 - Tested with virtual gnd at 4.5V
 - Everything works, but now we need a new ADC
- ADC
 - Need to switch ADC
 - (At 100nano input current) Our voltage changed from (at 100nano input current) 3.28V originally to 7.78V now
 - 7.78V is too high for our current ADC

- CREATE DECISION MATRIX TO PICK NEW ONE
 - MAX1032 (14bits)
 - We need 18bits
 - To get to the minimum charge of 1 fA
- Will need to use a microcontroller to program
 - Can also use microcontroller to open and close switches to control the gain of the amplifier stage
 - Or could just use a multi-turn digital potentiometer
 - Or several resistors with switches
 - Good thing about resistors with switches is that it allows for exponential changes
 - ADC
- OP AMPS
 - Also create decision matrix for this
- AutoCAD
 - License acquired, Felix has done a few tutorials
 - Will start design once circuit schematic and approximate layout is established
 - Will begin looking for example faraday cup design, example circuit enclosures, and example measurement tubes to house electrodes

Deliverables for Next Week

- Layout breadboard
- Choose ADC
 - Decided on MAX1032 in meeting
- Finalize the PCB on KiCAD
- On Wednesday go to EPL for PCB
- Send any other components needed for purchase to Josh
 - Keep them large