

EE/CprE/SE 491 WEEKLY REPORT 05

11/4/19 – 11/17/19

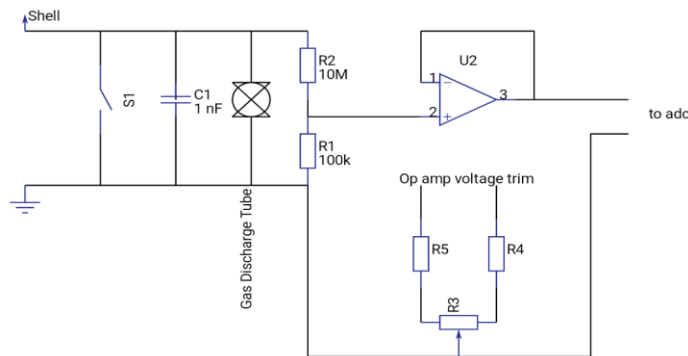
Group number: sdmay20-11

Project title: Design of a Charge Measurement Device

Client &/Advisor: Jacob Starr/ Long Que

Team Members/Role: Nicholas Wolf – Scribe, Internal Meeting Facilitator – Daniel Frantik, External Meeting Facilitator – Brandon Degelau, Test Engineer – Ben Buettner, Chief Engineer – Keagan Plummer, Report Manager – Colin Ishman

- **Weekly Summary:** For this period, the group focused on generating a more precise design schematic and began looking at parts that we may be using. With this we attempted to create the low voltage model from parts the ETG had available and ended up drawing the conclusion that the parts weren't precise enough to spend much time testing with. We were able to conclude the research on the High Voltage power supply. The client should be able to send us one within the next few weeks.
- **Past Week Accomplishments:**



- - Gas Discharge tube for high voltage protection
  - 1nF should allow us to easily see every nC change in the shell
  - Voltage divider to allow us to read the voltage with the ADC
  - Op amp trim for added accuracy. Controls op amp offset
  - Switch to discharge the capacitor
- Parts being considered currently for high voltage model

C1210C102FDGACAU0	1 nF capacitor
INA818IDR	Op amp
B88069X2160T502	Gas discharge tube
C3M0120100J	MOSFET
CRCW080510MODHEAP	10M resistor
HVCB1206BDE10M0	10M resistor (alternative)
ERJ-PB3B1003V	100k resistor
3590S-1-103L	10k pot
ERJ-PB3B1002V	10k resistor
0733910070	SMA
51494-2	SHV

- **Pending Complications:**

The only problem that we faced this week is that we couldn't get a lot of work started using parts from the ETG. There parts aren't as precise as we would have liked for testing.

○ **Individual Contributions:**

<u>Name</u>	<u>Contributions</u>	<u>Hours this Week</u>	<u>Hours Cumulative</u>
Keagan Plummer	Started research of parts for the high voltage model. Improve current circuit schematic.	12	49
Ben Buettner	Started research of parts for the high voltage model. Improve current circuit schematic.	12	49
Nick Wolf	Started research of parts for the high voltage model. Improve current circuit schematic.	12	49
Colin Ishman	Started research of parts for the high voltage model. Improve current circuit schematic.	12	49
Dan Frantik	Started research of parts for the high voltage model. Improve current circuit schematic.	12	49
Brandon Degelau	Started research of parts for the high voltage model. Improve current circuit schematic.	12	49

○ **Plans for Upcoming Week:**

Begin looking up parts for the low voltage model.  
Continue to fill BOM for high-voltage model  
Discuss with the client possibility of using an MCU  
Add the schematic for powering devices.  
Find a suitable ADC