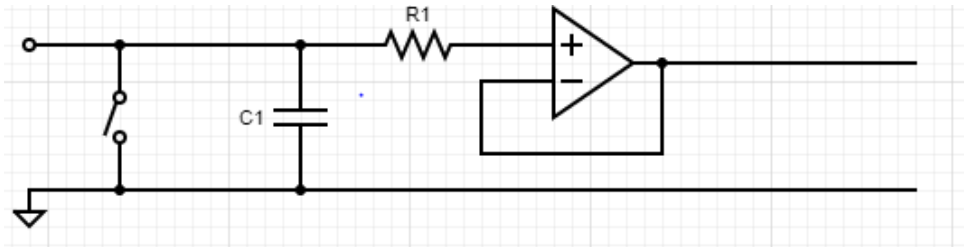
EE/CprE/SE 491 WEEKLY REPORT 04
10/21/19 – 11/3/19
Group number: sdmay20-11
Project title: Design of a Charge Measurement Device
Client &/Advisor: Jacob Starr/ Long Que
Team Members/Role: Nicholas Wolf – Scribe, Internal Meeting Facilitator – Daniel Frantik, External Meeting Facilitator – Brandon Degelau, Test Engineer – Ben Buettner, Chief Engineer – Keagan Plummer, Report Manager – Colin Ishman

- Weekly Summary: For this week, the full group discussed the charge measurement methods to choose which method will work best for our application. After choosing this method, we began looking for parts of that we could work for our application. To start testing the method as soon as possible, we began looking at using parts that ETG can provide immediately. We also began looking as specifications to narrow our component search for the high voltage methods. We were able to get a few updates on the power supply and documented the method we have chosen to proceed with.
- **Past Week Accomplishments:**
  - FJ01P120 XP POWER SUPPLY - $1,995.00
    - Would require most of this semesters budget to purchase
    - 12-week lead time
  - 

    - Circuit we have decided to implement
    - Many reputable sites use this method or similar methods to measure charge
    - Simple design, easy to replicate for multiple pin application.
    - Feeds into ADC
  - Component requirements moving forward
    - Capacitors
      - High accuracy (1% or less)
      - High voltage rating 1 kV
    - Buffer
      - Very High input Impedance (>1000 GΩ)
      - Very low input current (<3pA)
      - Adjustable offset to increase accuracy
- **Pending complications:**
  We have been after receiving quotes a quote from a manufacturer, the cost of a power supply that can do what we need is still a lot of our budget. We will need to discuss with the client best course of action on obtaining the power supply.

- **Individual Contributions:**

Name	Contributions	Hours this Week	Hours Cumulative

Keagan Plummer	Weighed pros and cons of different charge measurement circuits and choose a design to begin working on our low voltage tests. Began component research.	12	37
Ben Buettner	Weighed pros and cons of different charge measurement circuits and choose a design to begin working on our low voltage tests. Acquired components from ETG and devised a plan to build and start tests.	12	37
Nick Wolf	Weighed pros and cons of different charge measurement circuits and choose a design to begin working on our low voltage tests. Documented circuit chosen for our records. Helped formulate an initial test plan for the "ETG" circuit.	12	37
Colin Ishman	Weighed pros and cons of different charge measurement circuits and choose a design to begin working on our low voltage tests. Began Researching ADCs and began thinking of code view the output digitally.	12	37
Dan Frantik	Weighed pros and cons of different charge measurement circuits and choose a design to begin working on our low voltage tests. Began researching components for first prototype.	12	37
Brandon Degelau	Weighed pros and cons of different charge measurement circuits and choose a design to begin working on our low voltage tests. Assisted in devising plan to build the "ETG" circuit and test at low voltages.	12	37

- **Plans for Upcoming Week:**
  - Research high voltage circuit protection methods
  - Build the first parts list to order for the initial prototype
  - Build and test the "ETG" circuit at low voltages