Important test results and final testing outcomes

1. Basic Circuit
   1.1. Initially, we started by directly giving a voltage, controlled by a potentiometer, to the non-inverting input of the op-amp, with the op-amp output connected to the gate of an NMOS transistor (using a single circuit). For the circuit diagram, refer to the design documentation.
   1.2. We noted that the current was varying over a small voltage range, due to the quadratic characteristics of MOSFETs. This made it difficult to have fine control over the current value.
   1.3. Because of this, we moved towards BJT. Here, we observed that the maximum value of current reached was ~2.5A. So, we decided to have two circuits in parallel.

2. Integrating with microcontroller
   2.1. Then, we gave the non-inverting voltage through a DAC controlled by an STM microcontroller.
   2.2. This required some fine-tuning of the parameters in the microcontroller code.

3. CC-CV switching
   3.1. For CC-CV switching, we first tried implementing a switch using an MOS transistor. This malfunctioned in our fabricated PCB.
   3.2. Then, we used current control to maintain constant compliance voltage across the load in CV mode.

4. Implementing UART
   4.1. We also included control of current using UART.
   4.2. This can accurately read and write the current values.