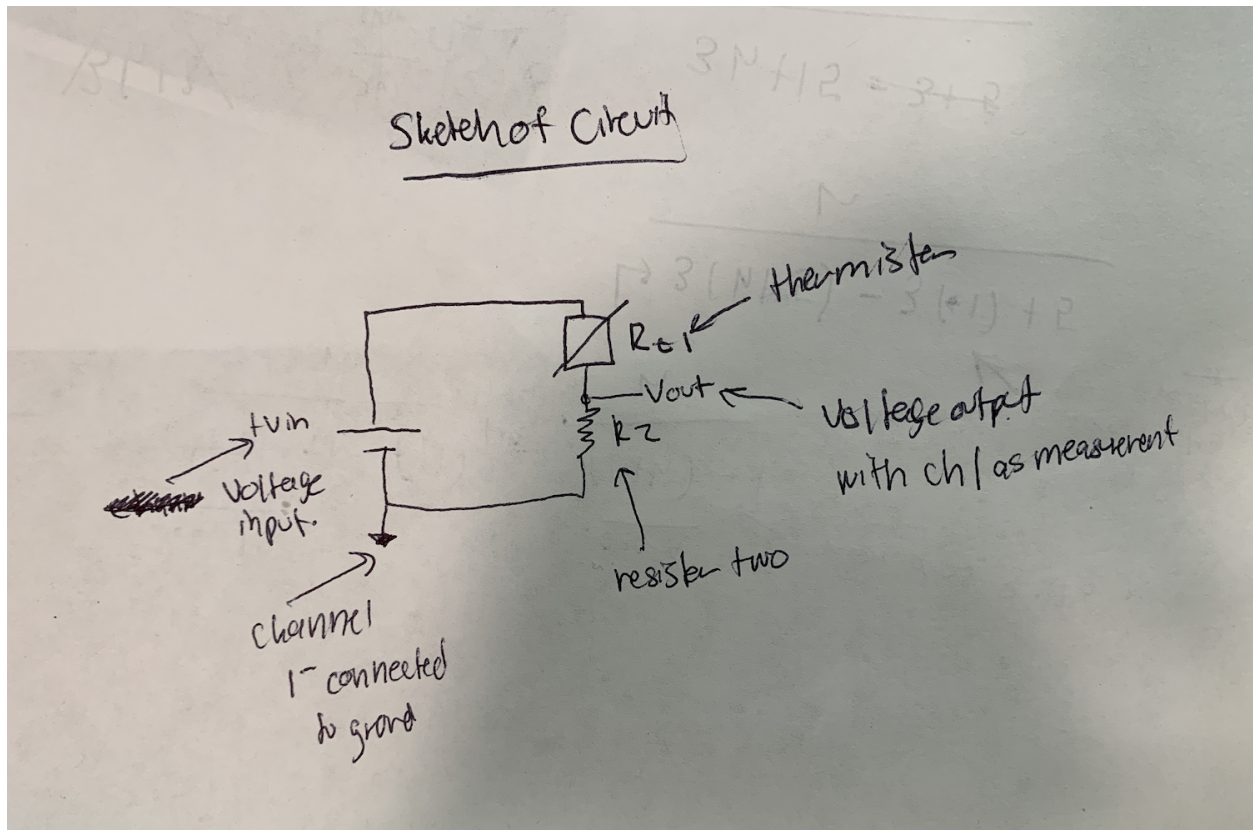


Lab 2

My circuit diagram



Explanation of circuit diagram

I chose a resistor value by experimentation. My breadboard was plugged into my O-Scope and with each resistor value I plugged in, I observed the spike in V_{out} . I found 100 Ohm's to be a good middle ground between 10 Ohm's and 1000 Ohm's after calculating their V_{out} 's by hand (calc listed below with 92 Ohm's (R_{t1} at 100 Celsius or boiling water) as the Value of R_{t1} at).

$$5/(92 + 10) * 10 = 0.5(v_{Out})$$

$$5/(92 + 100) * 100 = 2.6(v_{Out})$$

$$5/(92 + 100) * 1000 = 4.6(v_{Out})$$

The value of the resistor matters because it determines how quickly my voltage out would drop as the water temperature decreased. For example, with a higher resistor value and hot water, the value of V_{out} would've been high, but once the cold water was introduced, the value of V_{out} would've not only dropped exponentially because the electrons would be moving slower.