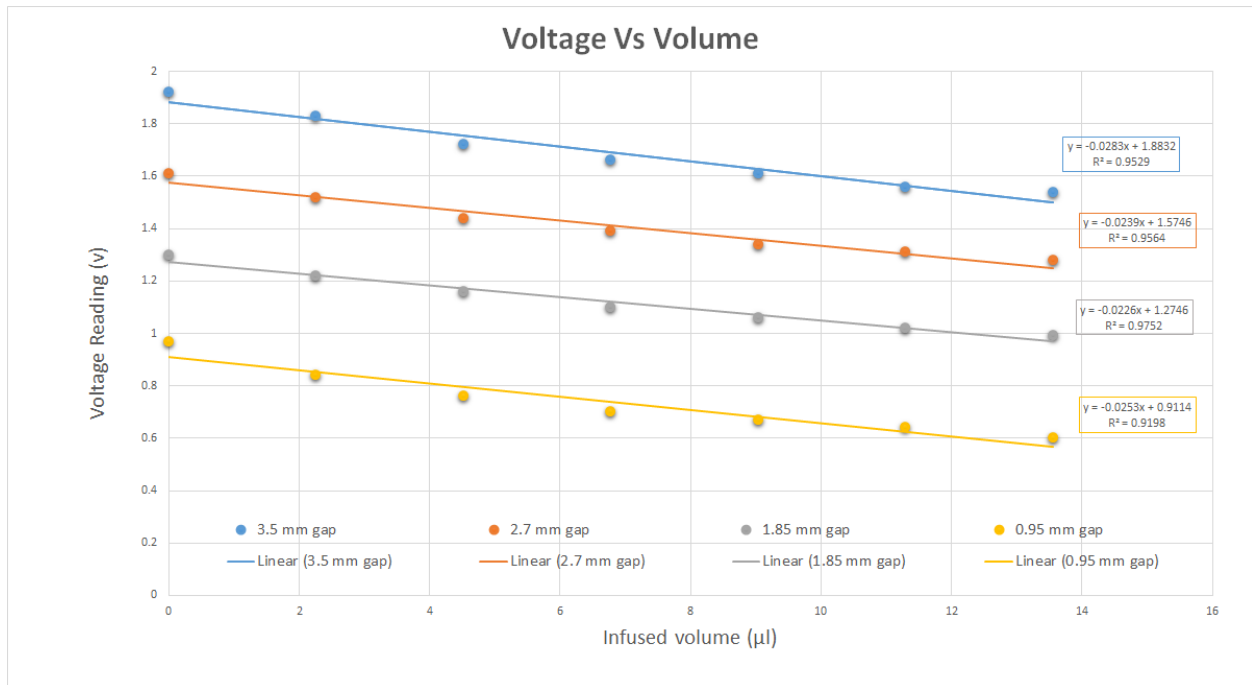


A capacitive sensor is currently being used to monitor the volume of the meniscus being balanced on the copper chip. Due to restrictions in equipment, and a requirement that was set at the beginning of the project requiring the use of labview for data acquisition, the capacitive sensor had a circuit built around it because capacitance could not be measured in real time. Instead the output voltage from the circuit was measured in real time to monitor liquid levels. It was important that a predictable relationship existed between output voltage, and liquid volume.



DI water was infused at 2 µl increments. a 10 V_{p-p} 100 Hz sinusoidal source was the input voltage from the circuit, the output voltage was monitored continuously. As seen in the graph above there was a strong linear relationship between volume and voltage which will allow for accurate monitoring of liquid levels during the test.

One of the concerns that was brought up moving forward was that this sensor has never been used on an oscillating meniscus; this experiment has never been attempted before, so it is not known how the oscillation will affect the sensor. Some feasibility testing will be performed on the system to determine if a redesign will be required. Over the next few weeks the test performed over the summer will be repeated with an oscillating meniscus. If the output voltage from the circuit has the same relationship shown in the graph above it will prove that the sensor can be used moving forward with the experiment.