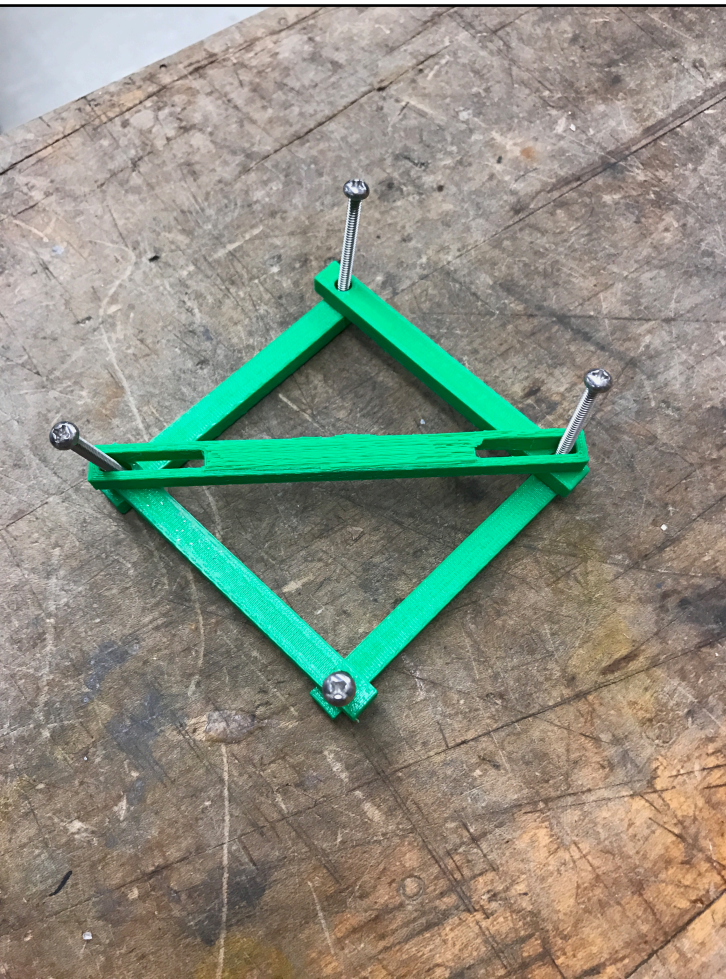


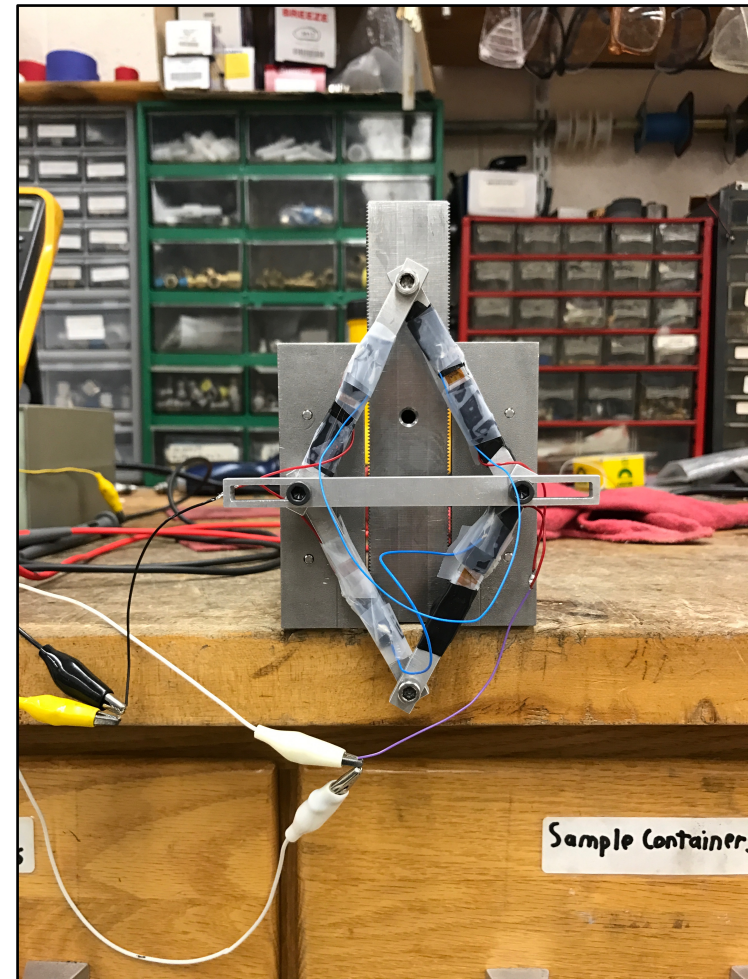
Strain Gauge Displacement Transducer



Geosc597-003

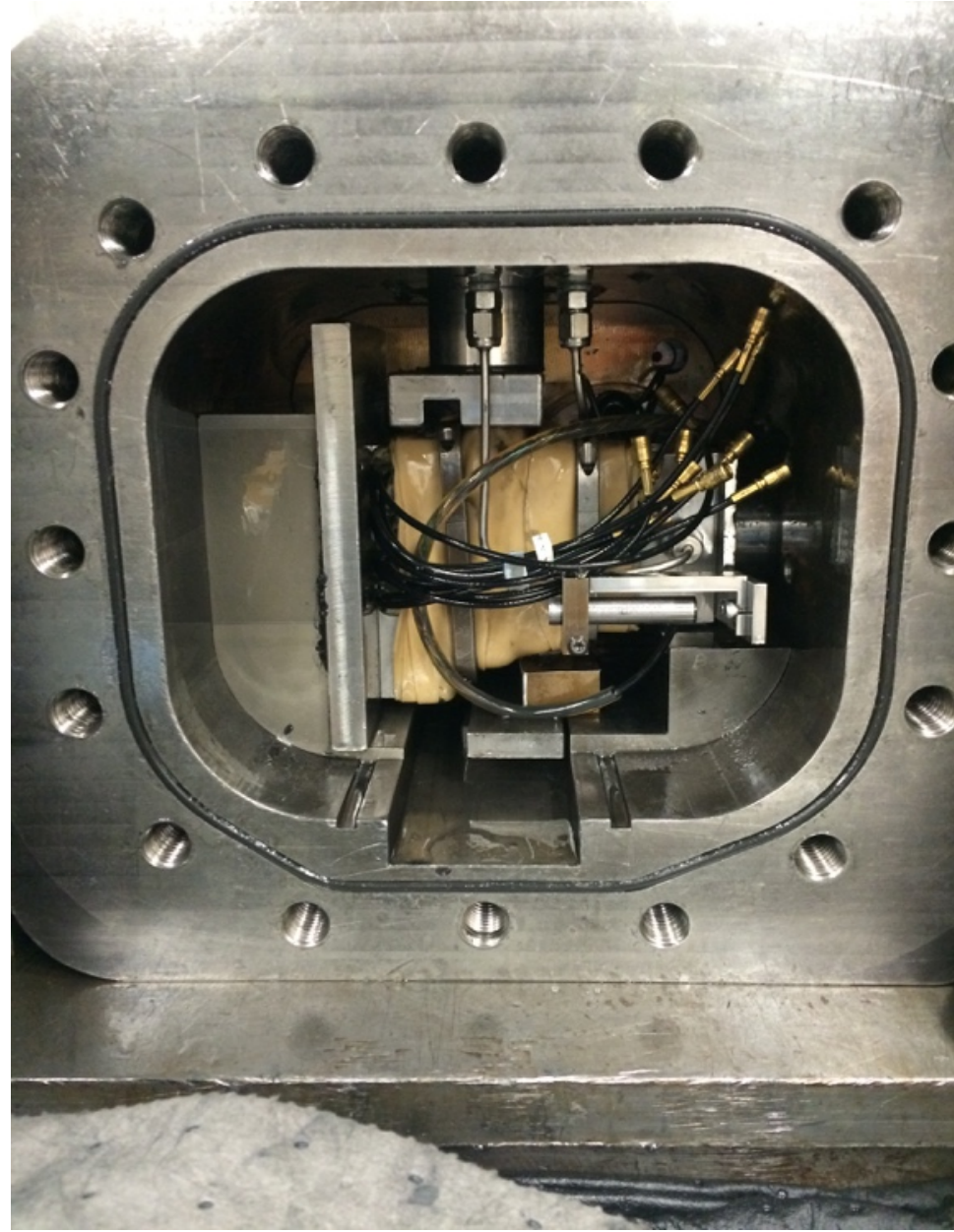
12/8/16

Ben Madara



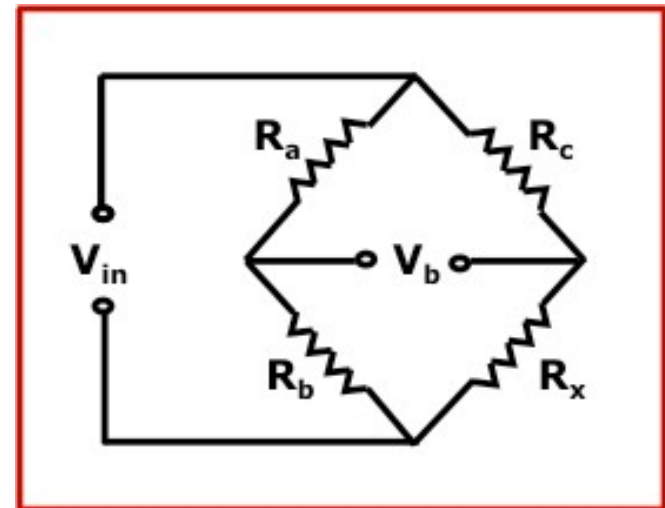
Problem

- Indirect measurement
- Space limitations



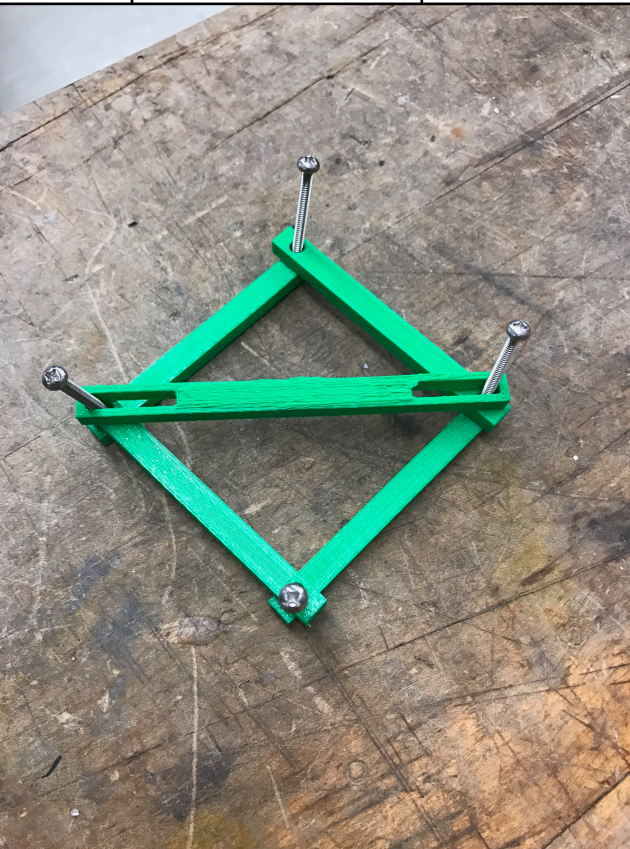
Solution: Strain Gauge Displacement Transducer

- Mechanical
 - 3d print for sizing
 - Diamond shape design to employ Wheatstone bridge
 - Prototype larger for simplicity
 - High elastic yield point (aluminum alloy)
- Electrical
 - Wheatstone bridge
 - Signal amplification
- Programming
 - Record data through Arduino

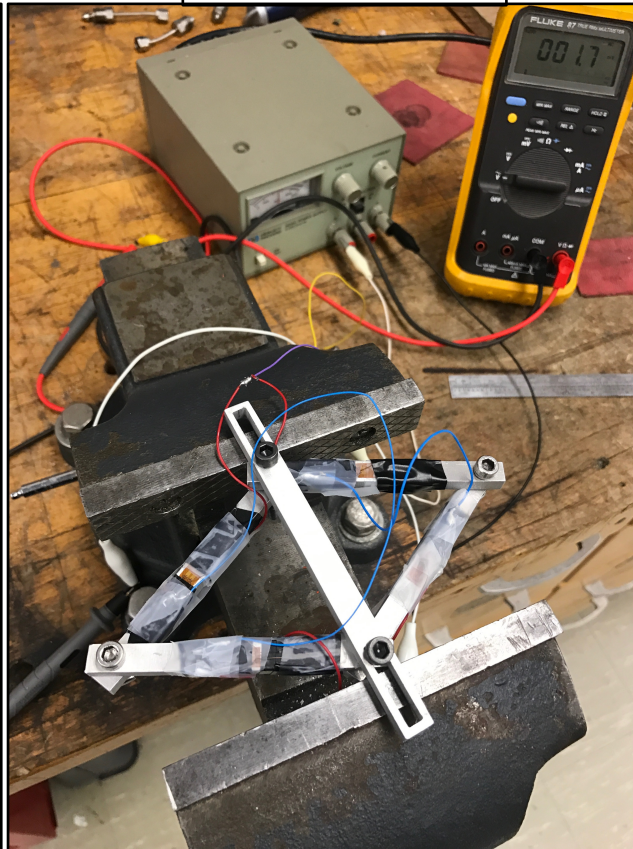


Workflow

3d Print

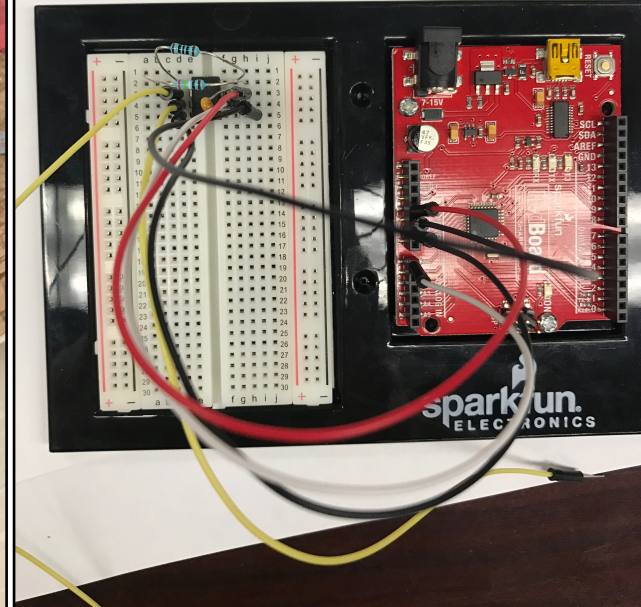


Bench Test

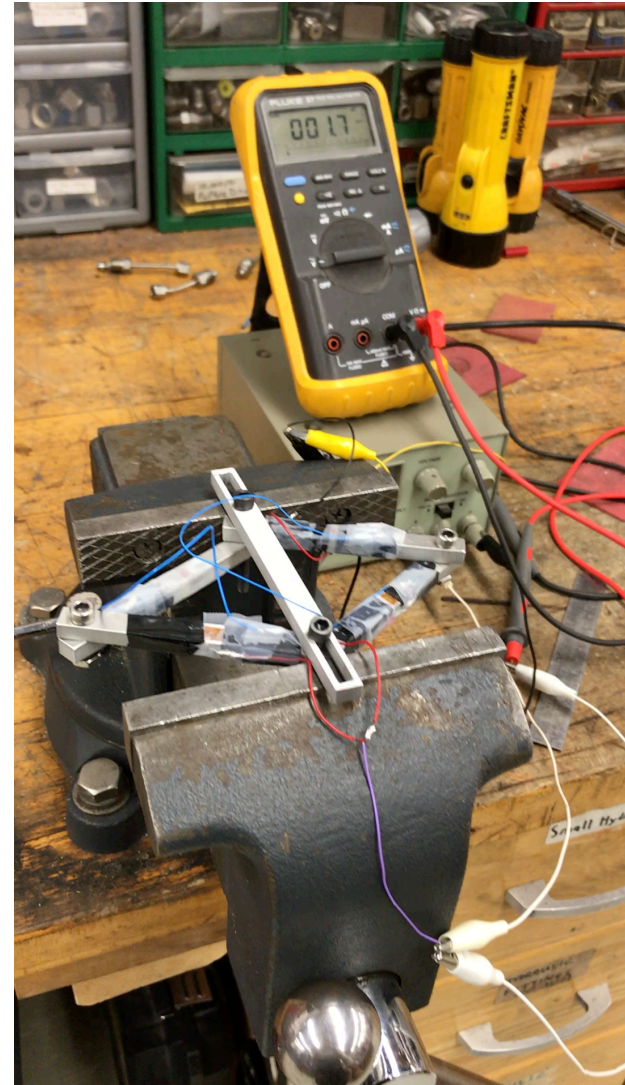
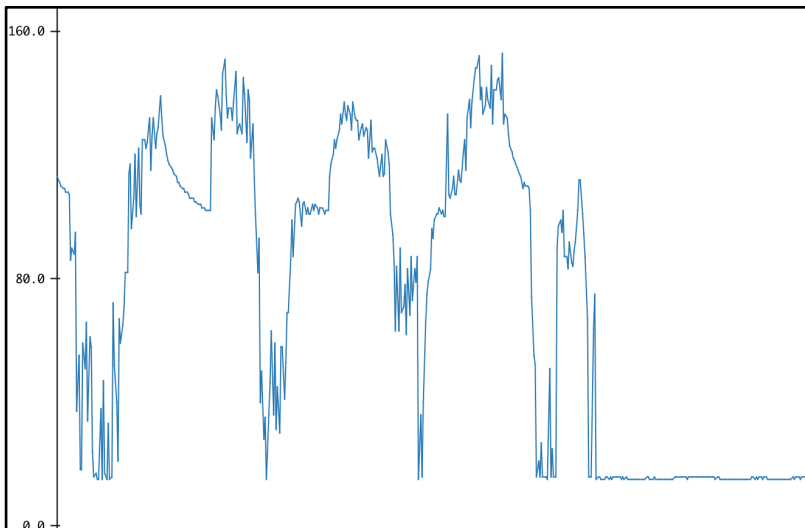
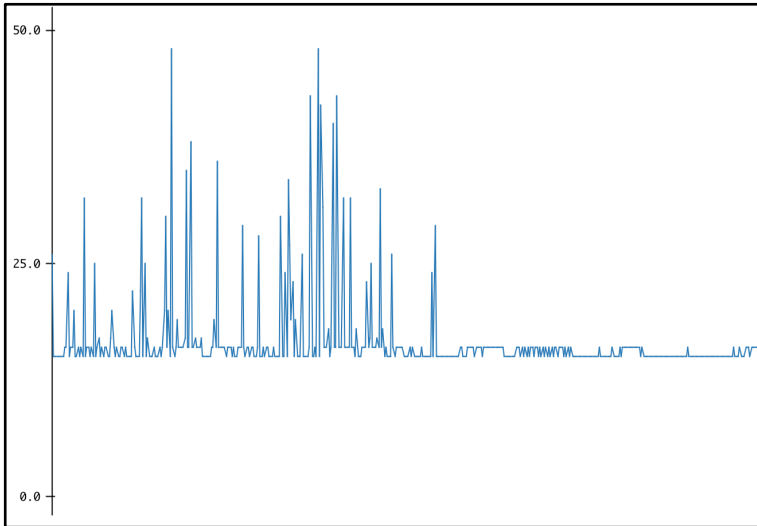


Programming

Amplifier: INA128
Resistors
Capacitor



Results



Results/Future Work

- Still too noisy for calibration
- New strain gauges and amplifiers
- Downsize for Pressure Vessel

