

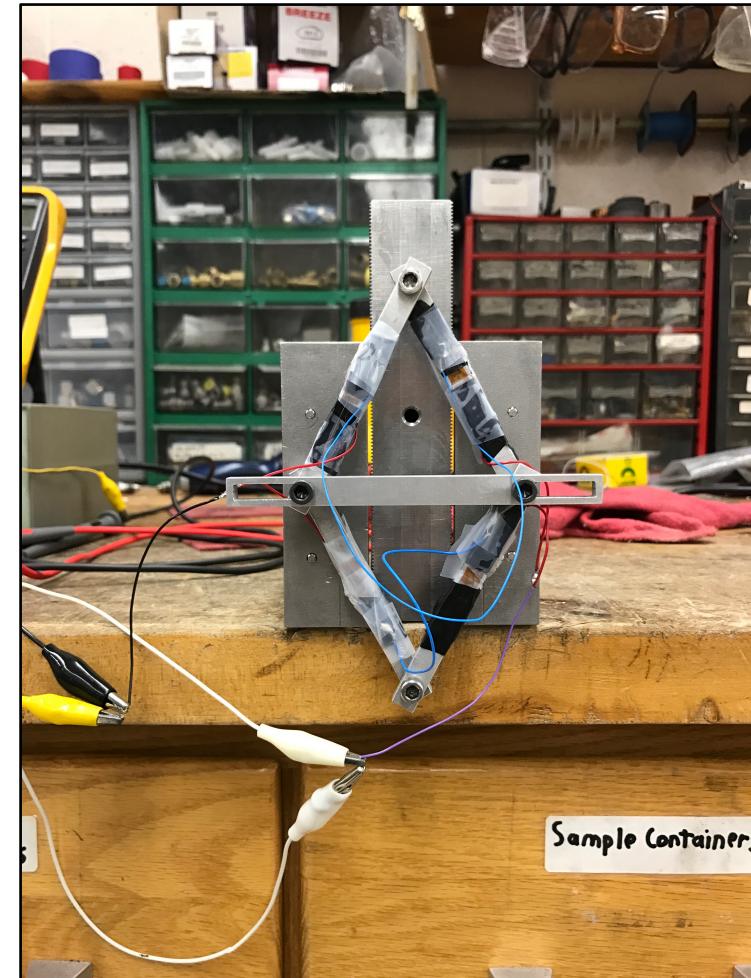
# Strain Gauge Displacement Transducer



Geosc597-003

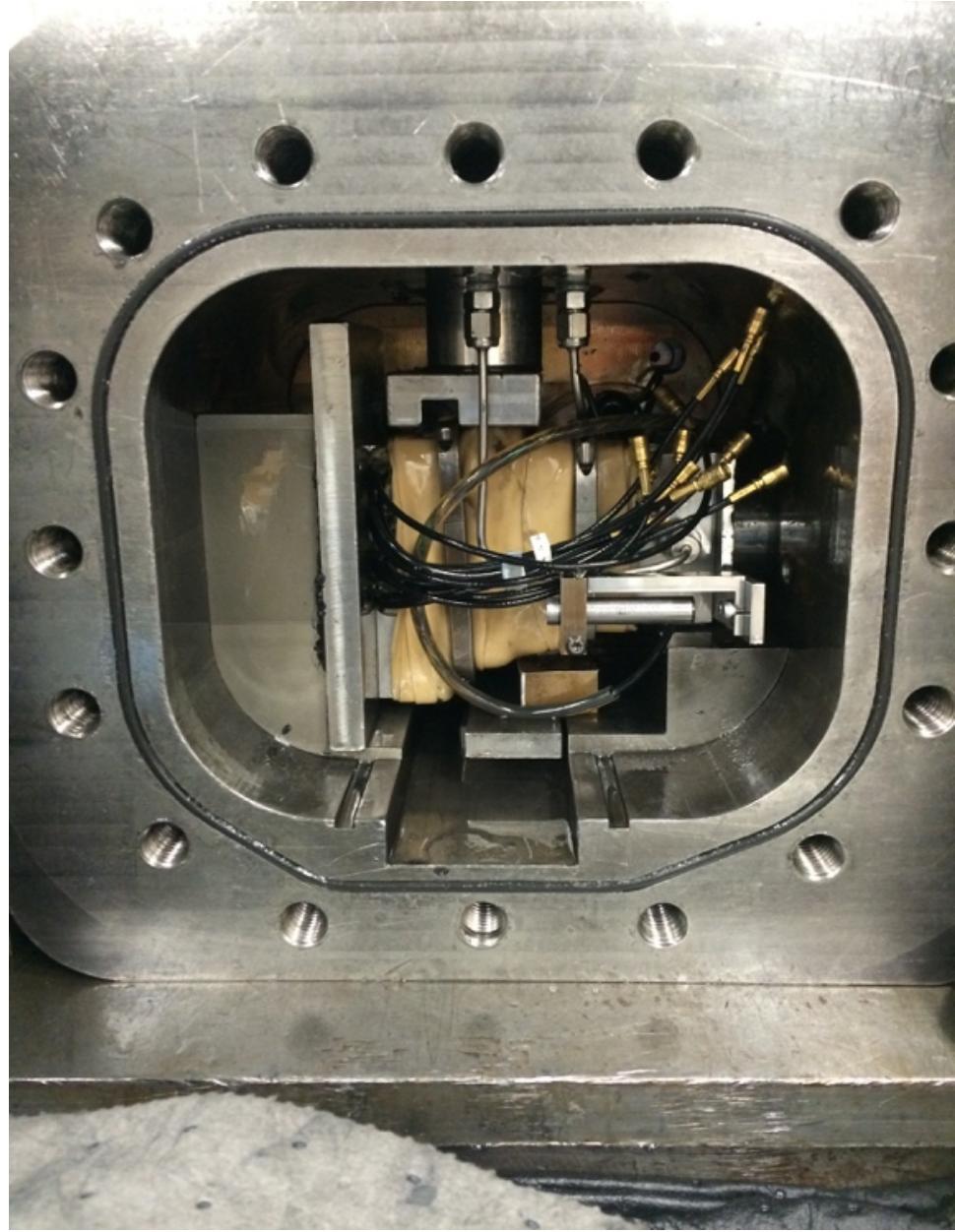
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Ben Madara



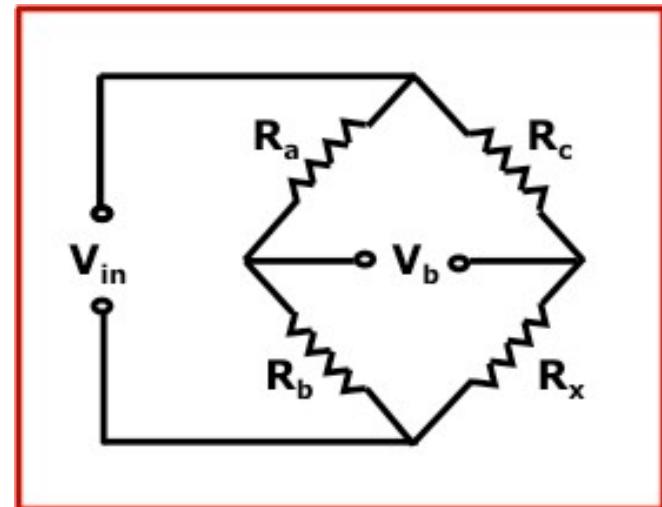
# Problem

- 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

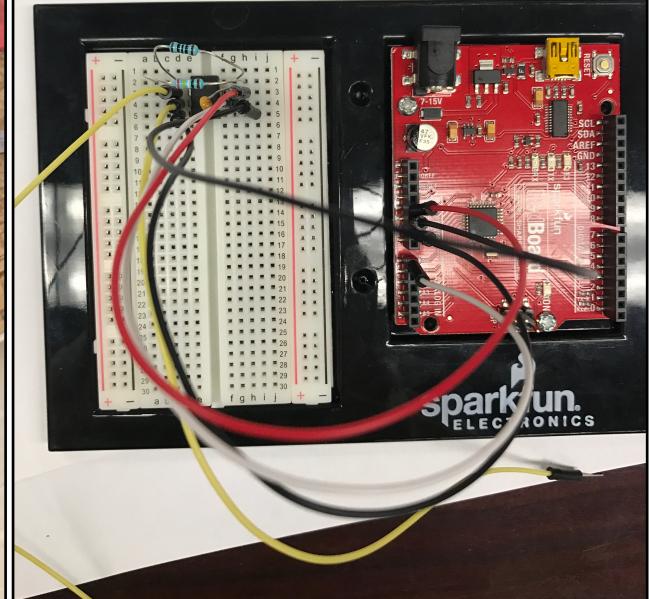


Bench Test

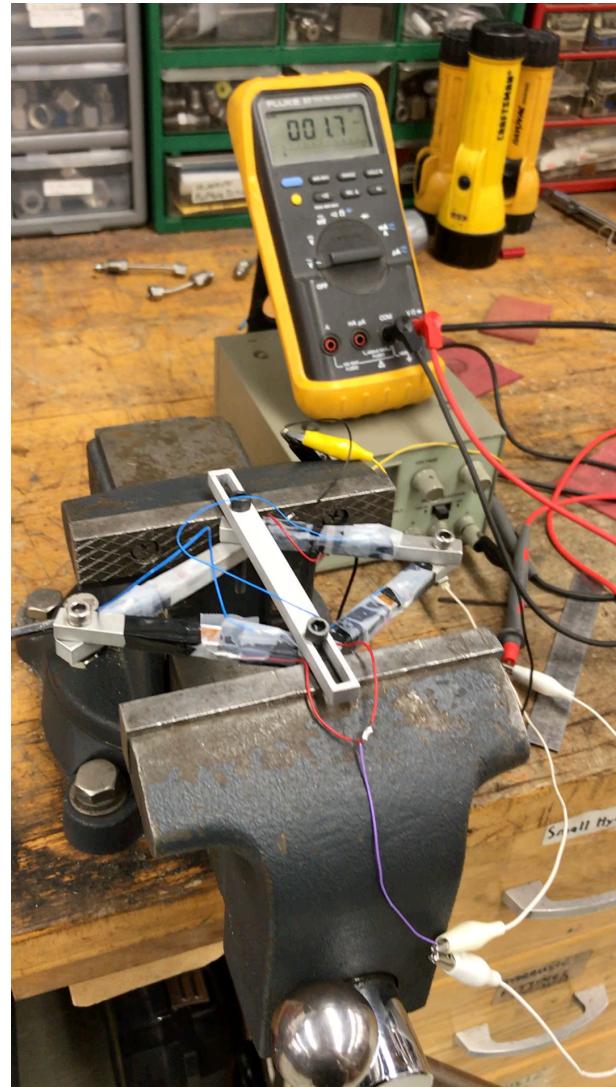
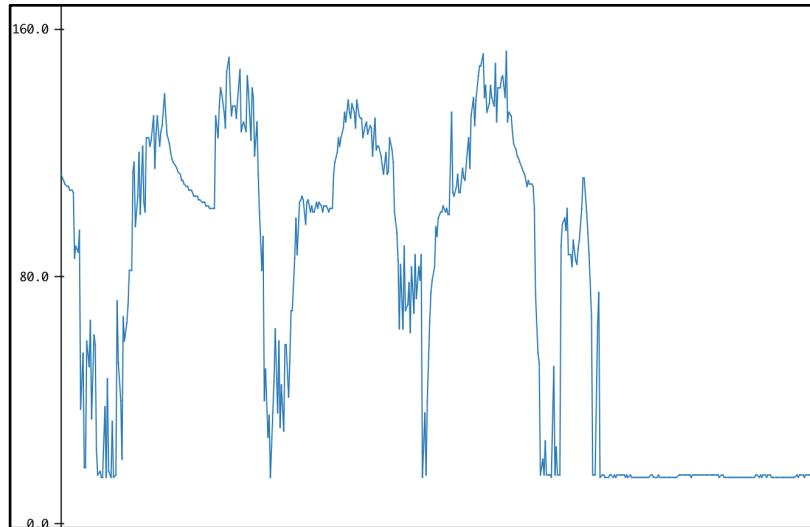
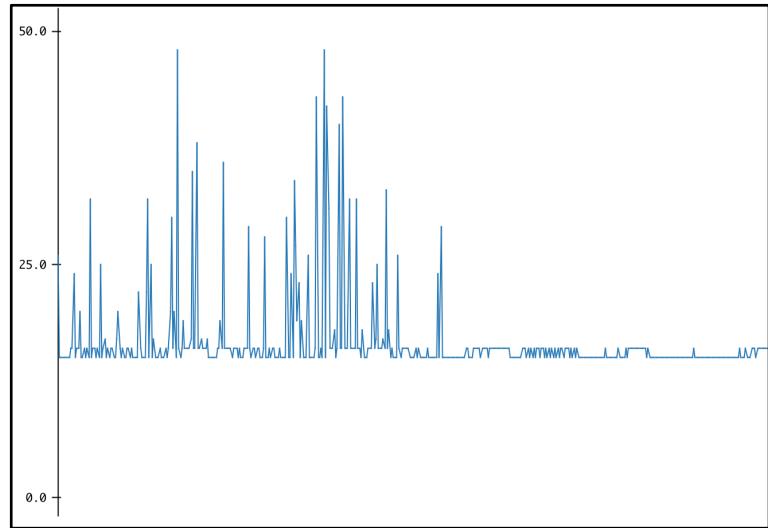


Programming

Amplifier: INA128  
Resistors  
Capacitor



# Results



# Results/Future Work

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

