

## Team: **synclink**



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## About the Sponsor

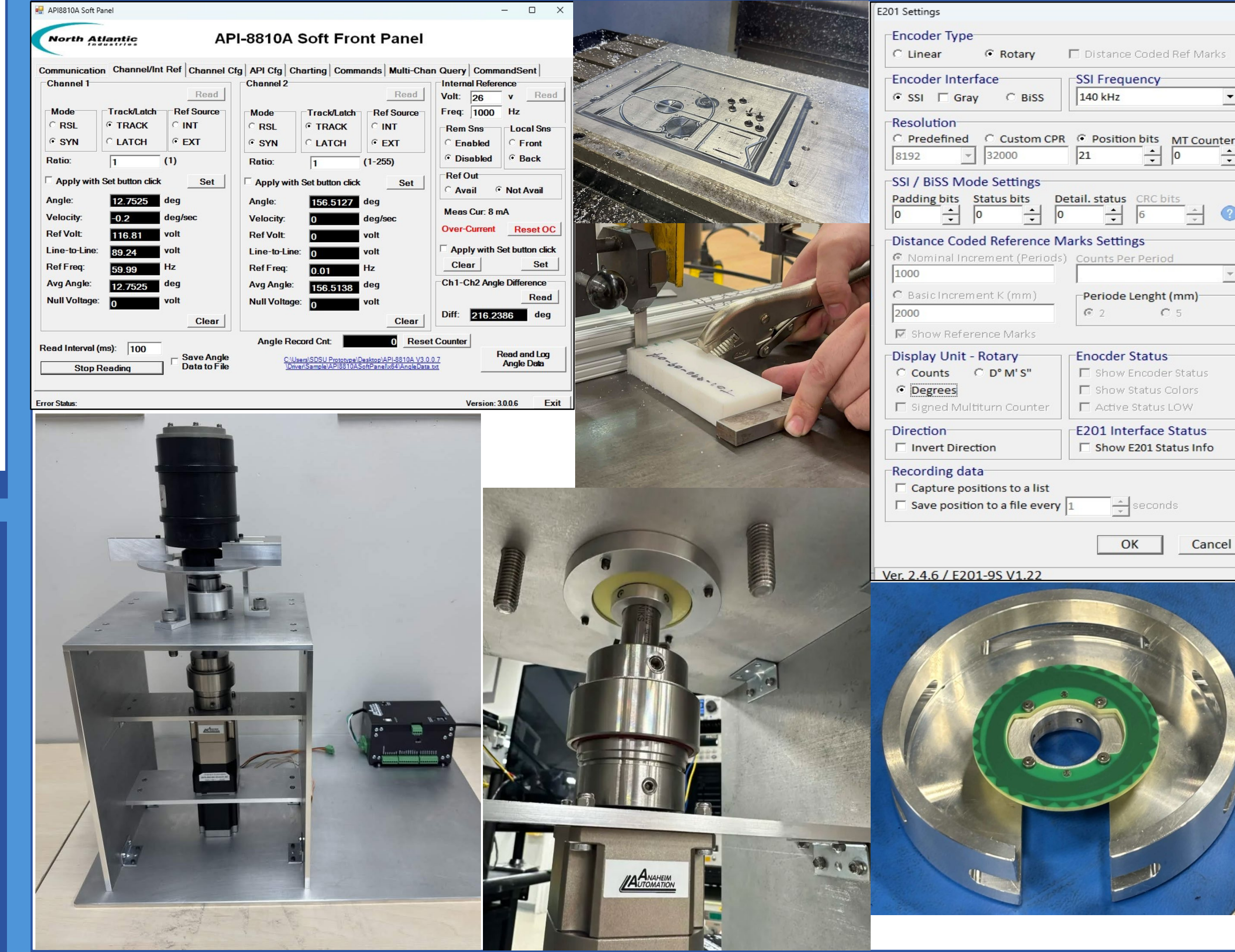
General Dynamics Ordnance and Tactical Systems (GD-OTS) is a prime defense contractor specializing in energetic materials, weapons systems, and motion control. The San Diego site produces rotary control products, of which synchro's are a part of. A synchro is an electromechanical device that outputs an electrical signal detailing angular position when a mechanical torque is applied to its shaft.

## Overview

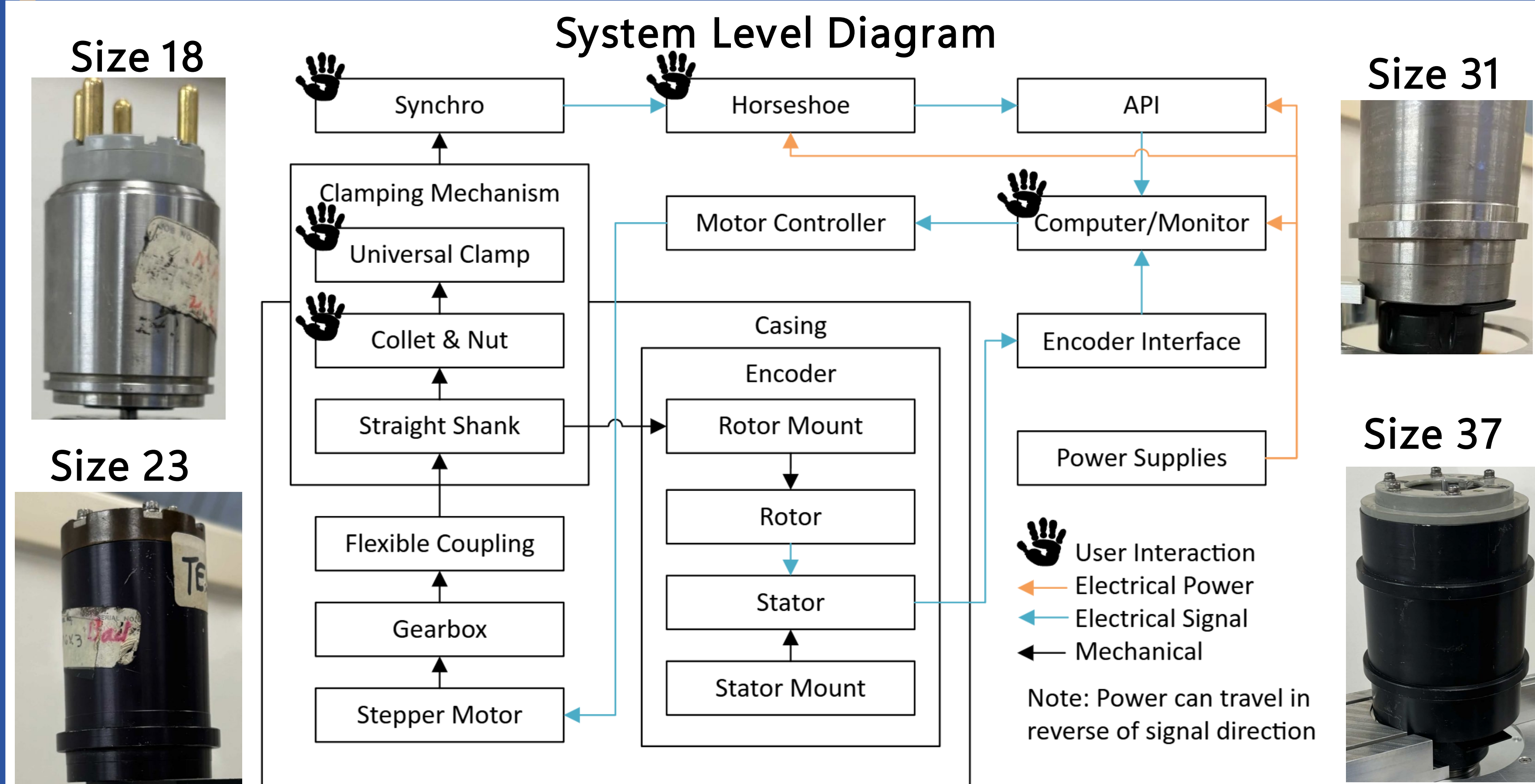
**Problem:** Current synchro testing at GD-OTS is done manually, requiring technicians to physically move the input shaft to capture mechanical and electrical angles. This creates ergonomic risk and results in longer test cycles, reducing production efficiency.

**Requirements:** An autonomous tabletop system is needed to move the synchro output shaft to a specified degree, capture the electrical angle, and calculate the angular error between both measurements. The system must plug into a standard outlet, be programmed in LabView, and be validated through a Gauge R&R study.

## Manufacturing & Integration



## Design



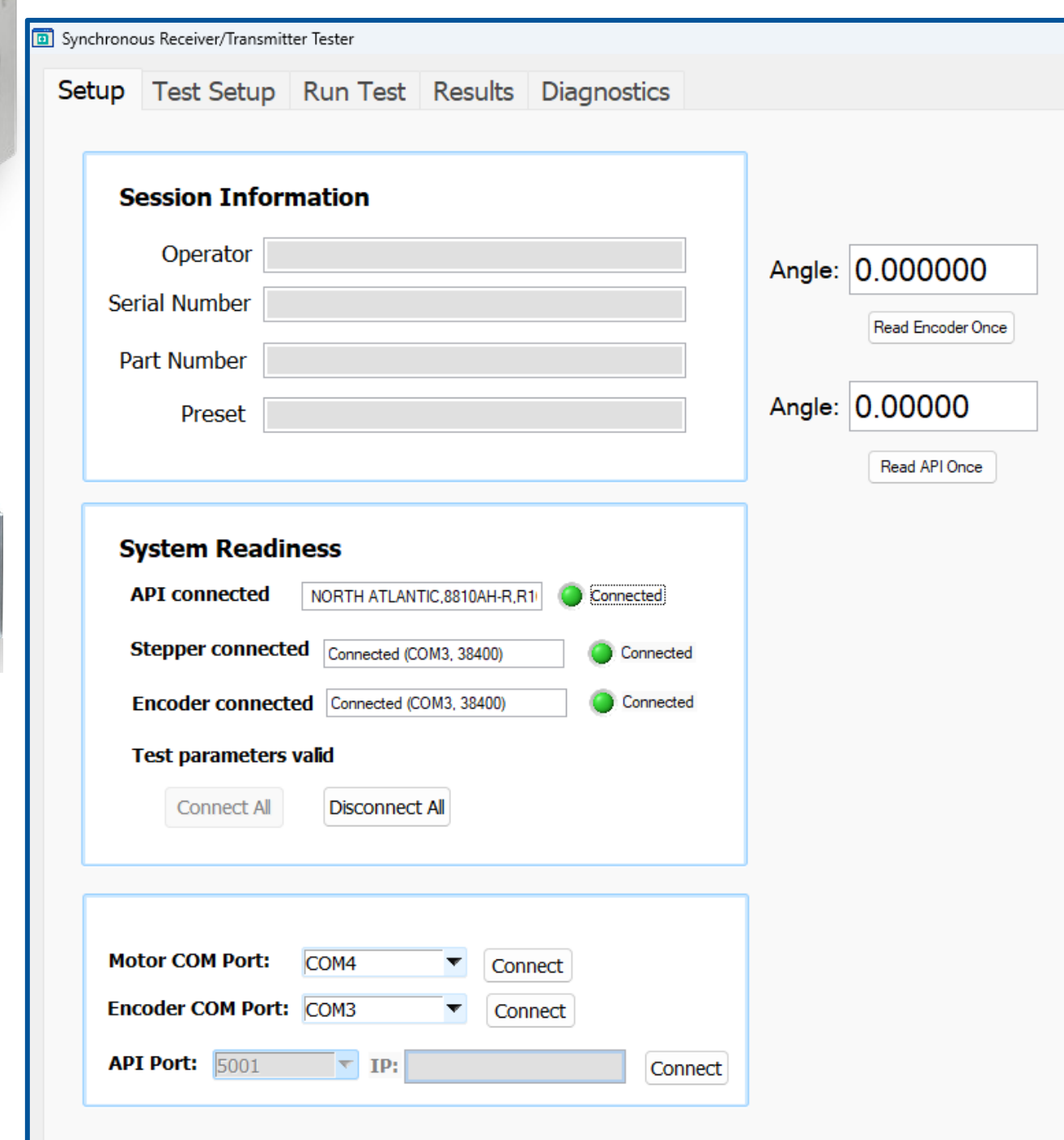
Angular Position  
Indicator (API)



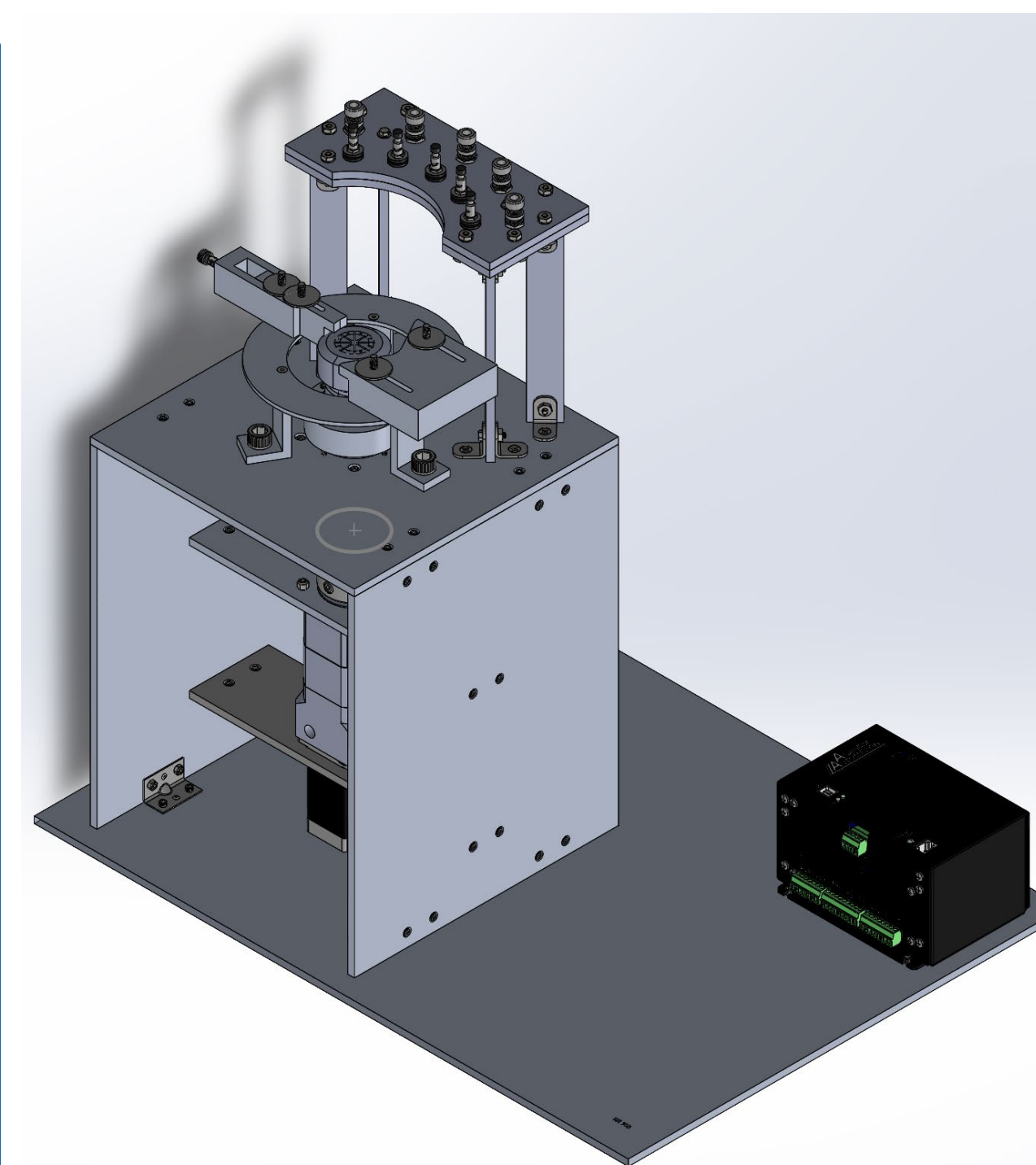
AC Power Supply



Encoder Interface

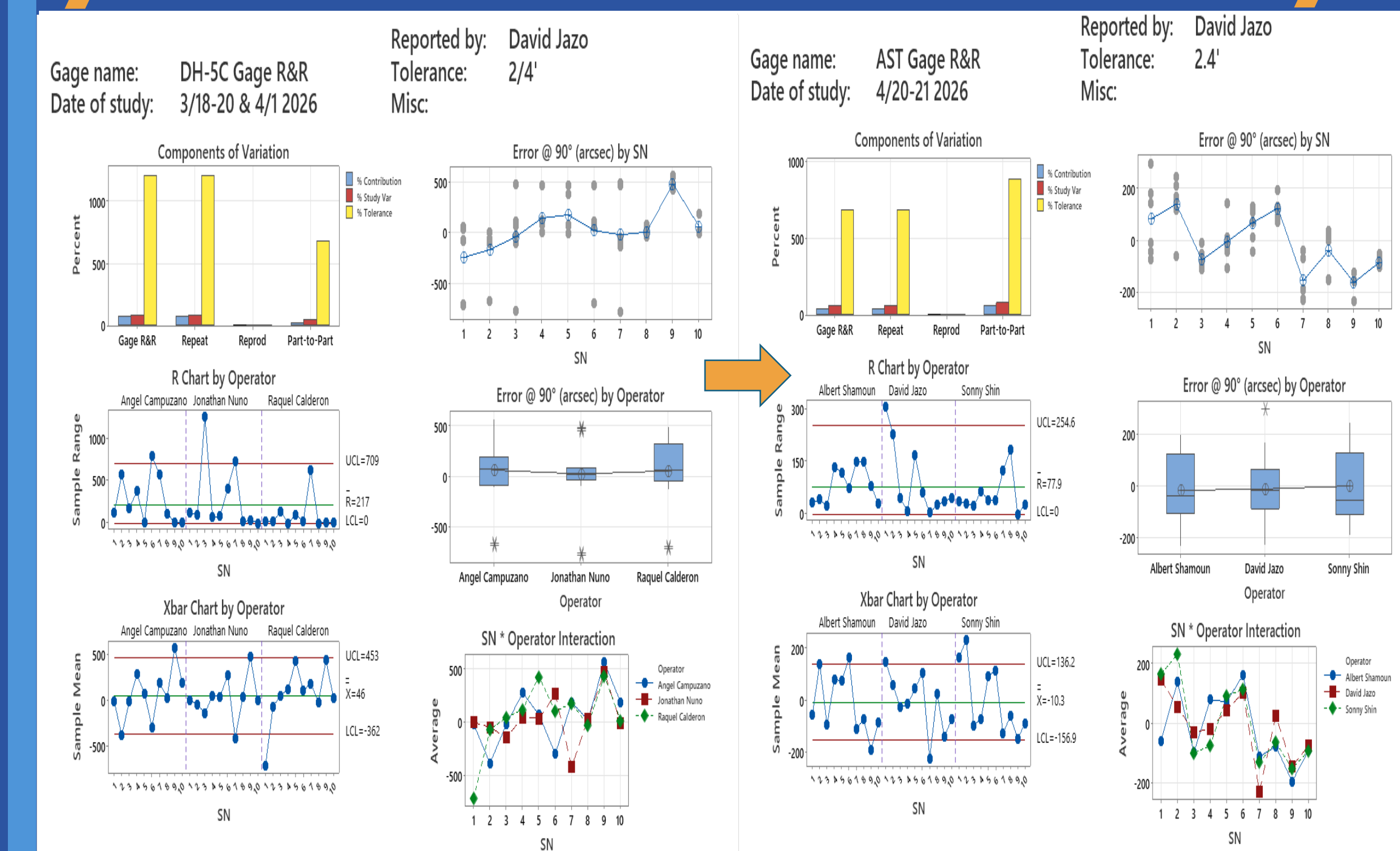


LabWindows  
Custom GUI



Final CAD

## Testing & Analysis



## Acknowledgments

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