

Project Overview

The objective of this project is to redesign a thermostatic mixing valve for a modular thermal management system used by General Atomics. The goal is to reduce size and weight while maintaining precise structural integrity, and compatibility with existing system components.

Meet the Team



Jaden Li
ME Team Lead



Natalie-Noelle Puspos
ME



Aidan Kiswoto
ECE Team Lead



Noah Deneau
ME



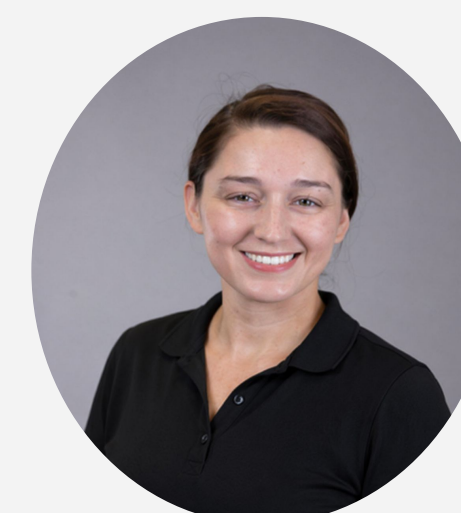
Emanuel Diaz-Sanchez
ME



Merabi Khachidze
ECE



Nicolas Doutt
ME



Sara Hilera
ECE

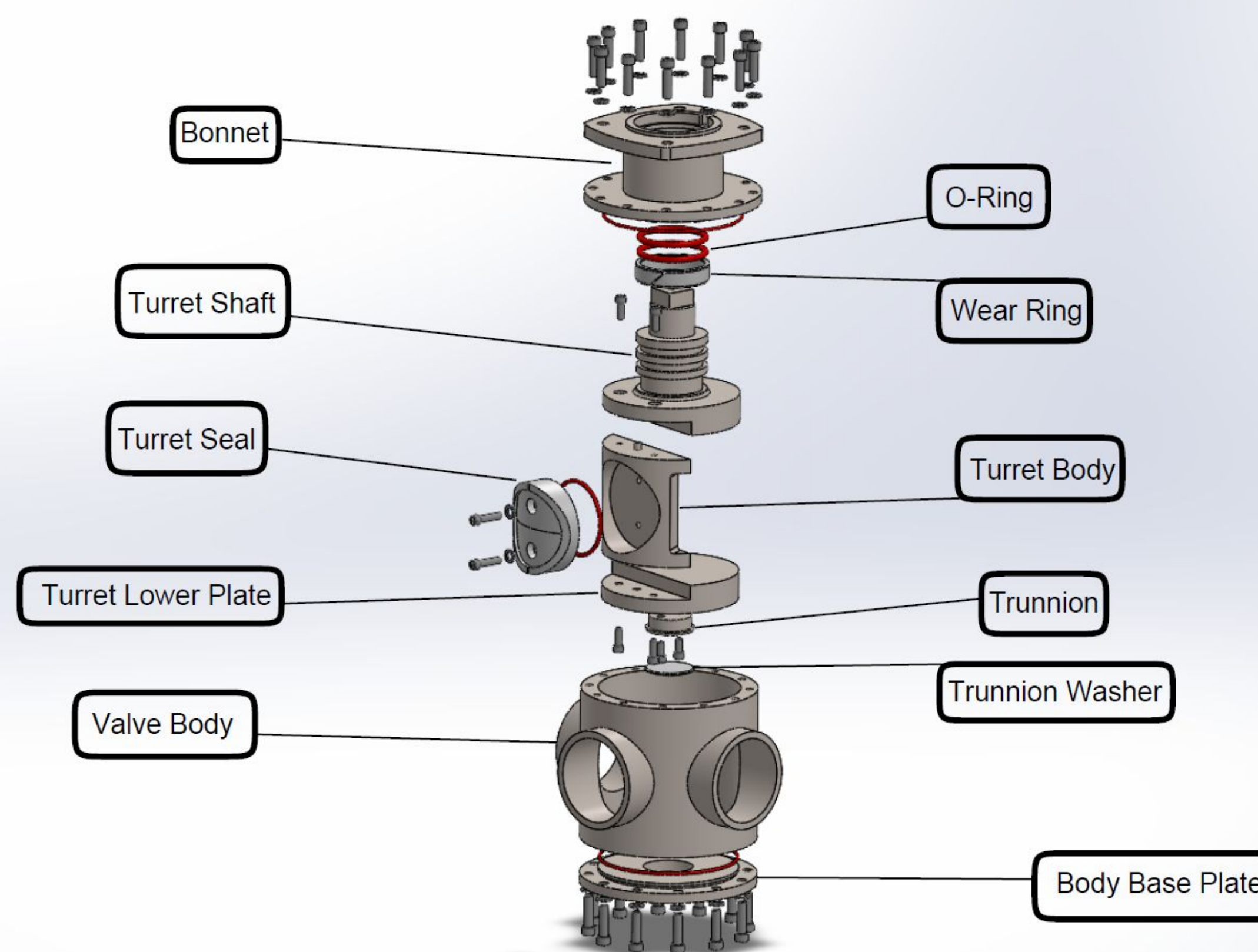


Tarun Nair
ECE

Acknowledgements

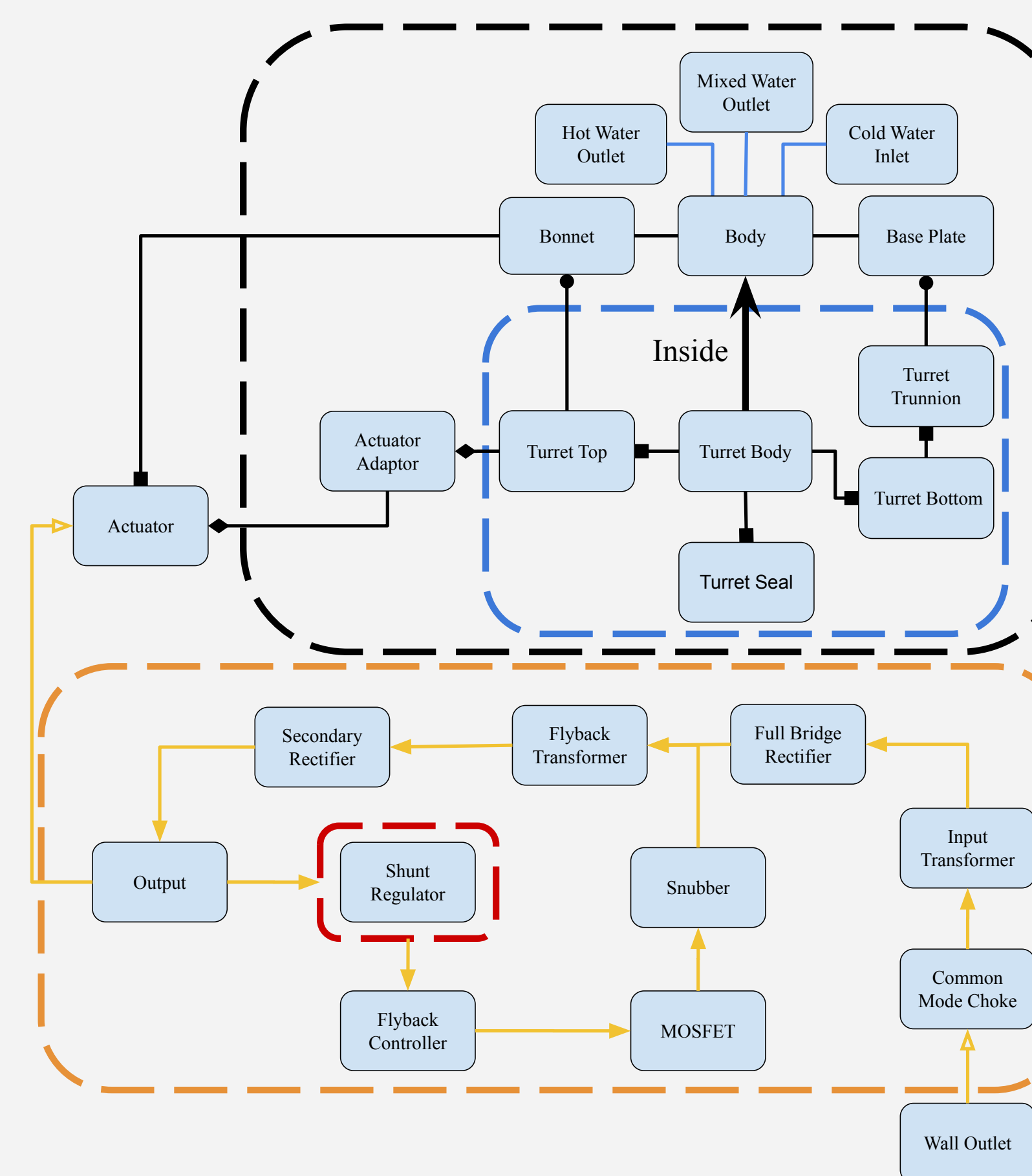
The team thanks General Atomics for their support and guidance. Special thanks to Travis Scott and Vidya Rangaswamy of General Atomics as well as Dr. Scott Shaffar, Dr. Christopher Paolini, Mark Bruno and both the SDSU Mechanical Engineering and SDSU Electrical and Computer Engineering Departments.

Full-Assembly CAD

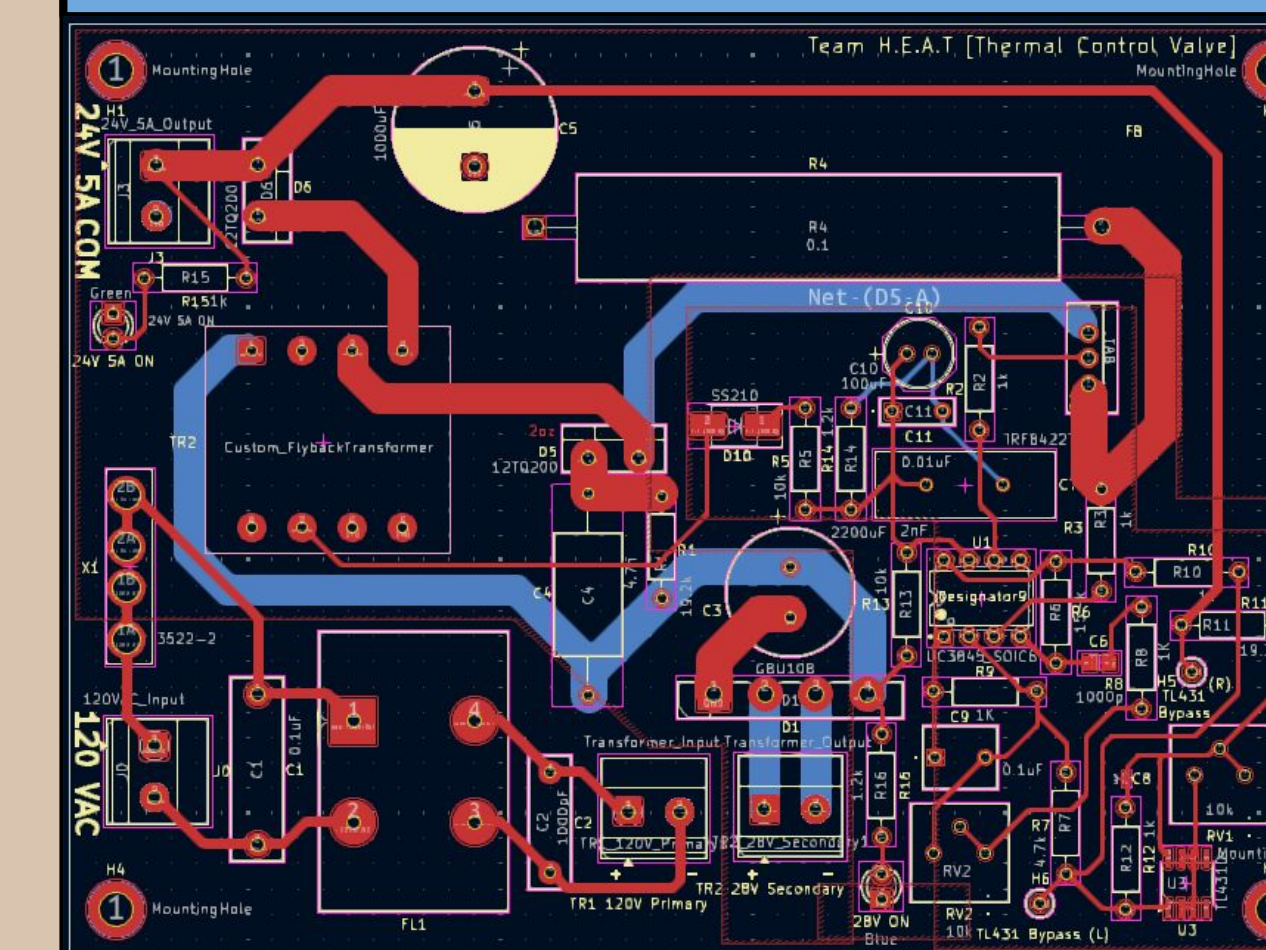


System Level Diagram

- Lines:
 - Mechanical Connection
 - Electrical Connection
 - Fluid Connection
- Boxes:
 - Mechanical Assembly
 - Electrical Assembly
 - Feedback Loop
 - Turret Assembly
- Connections:
 - O-Ring Seal
 - Interlocked
 - Bolted
 - Wire
 - Board

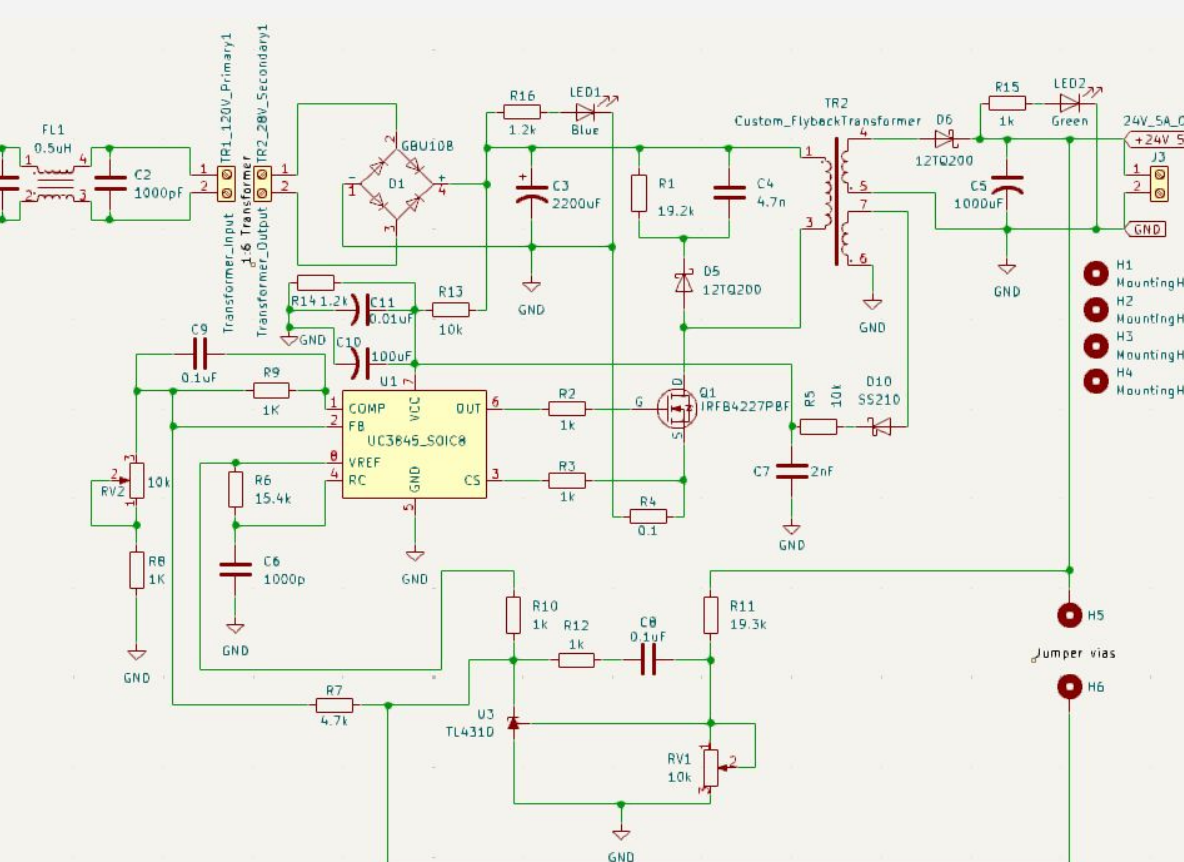


Electrical Design

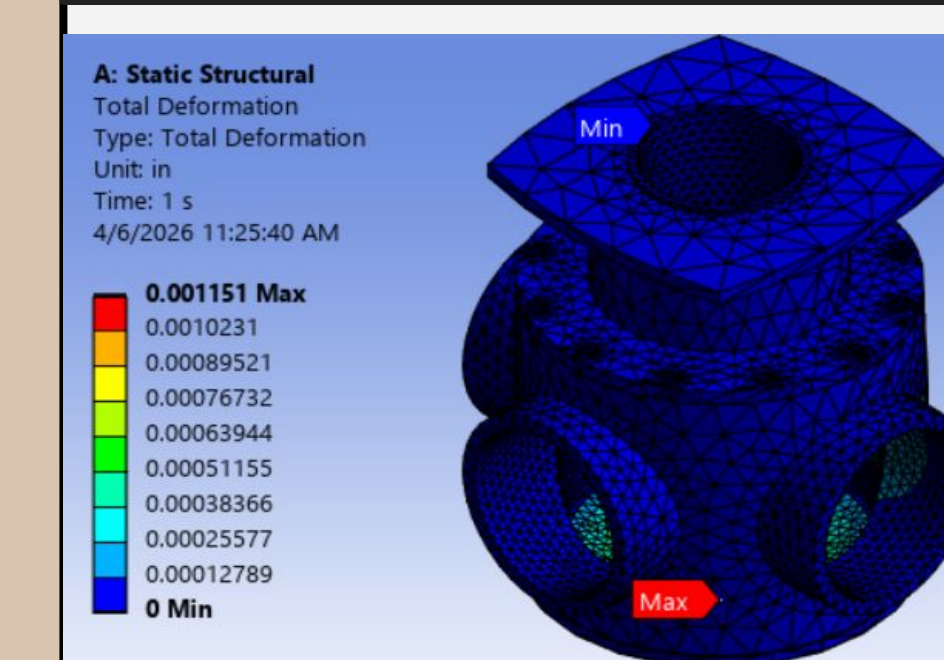


PCB Board Layout

Schematic Layout

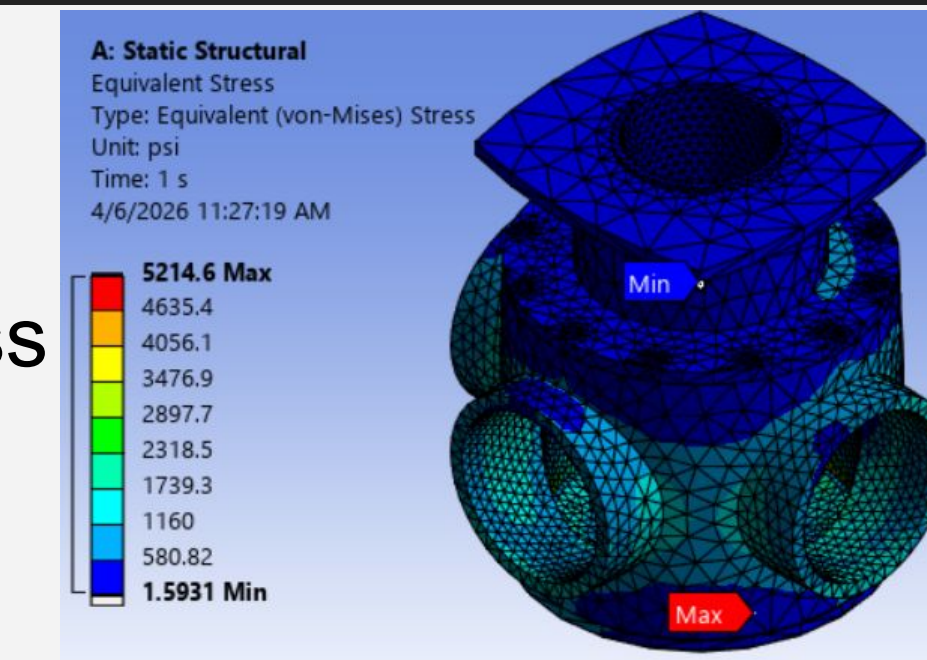


Analysis

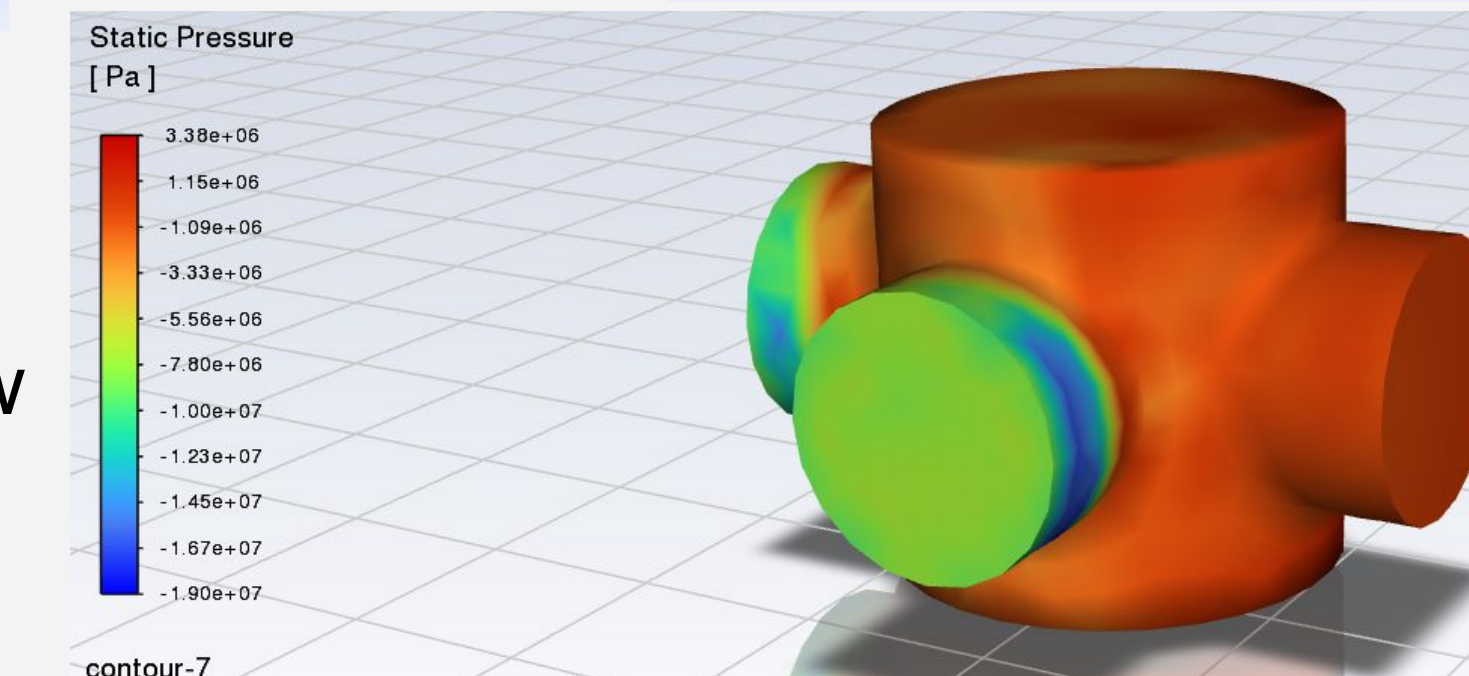


Deformation

Stress



Fluid Flow



Prototype & Manufacturing

