

BACKGROUND

Most pressure fed rocket engines make use of high pressure pressurant tanks that should be topped off after pressing propellant tanks. One of the ways to accomplish this safely is to make use of a remotely controlled high pressure quick disconnect (QD) system. The system would be responsible for disconnecting the high pressure pressurant fill line after refilling the pressurant tank to nominal pressures. By excluding the need to have a manual high pressure disconnect while the pressurant tank is at max pressure eliminates a source of risk during the fill process.

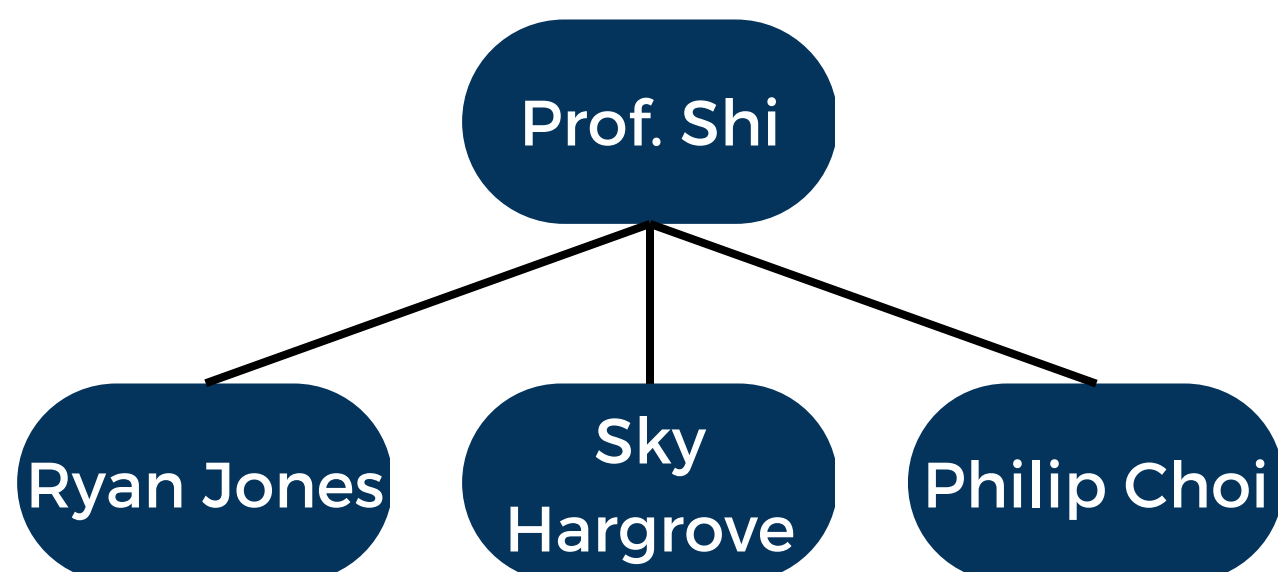
GOALS

- System should be able to be actuated directly from the current electronic system
- System must be compatible with the current Preliminary Test Rocket (PTR) meaning the QD should be able to withstand its own weight when perpendicularly placed on the hoisted PTR assembly
- System must not leak excessively

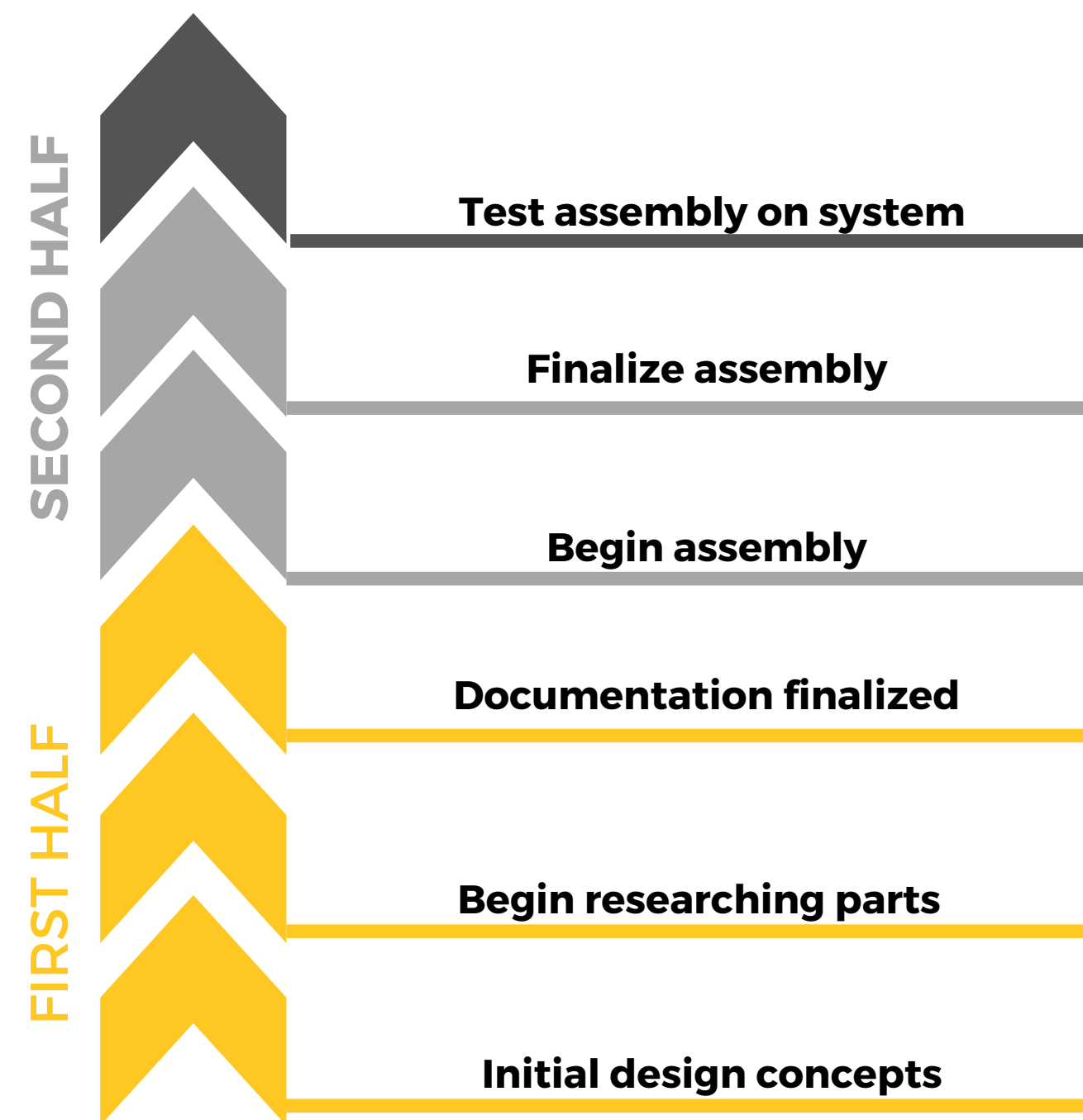
EXPECTED DELIVERABLES

- Full CAD assemblies and parts
- Written assembly guide
- Complete Manufacturing guide
- Functional prototype interfacing with commercial QD

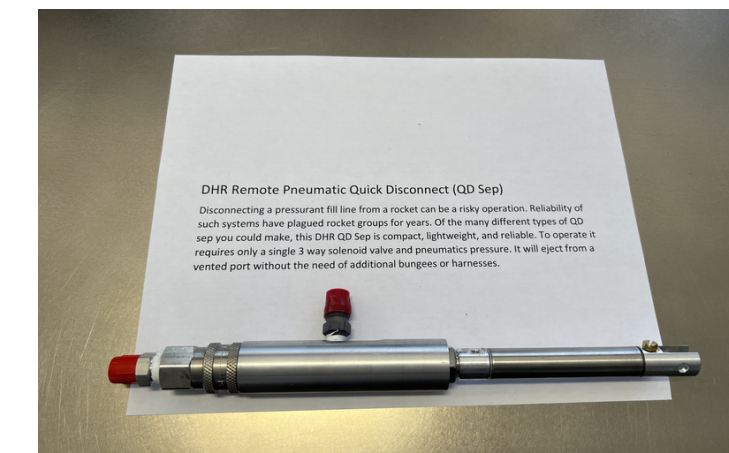
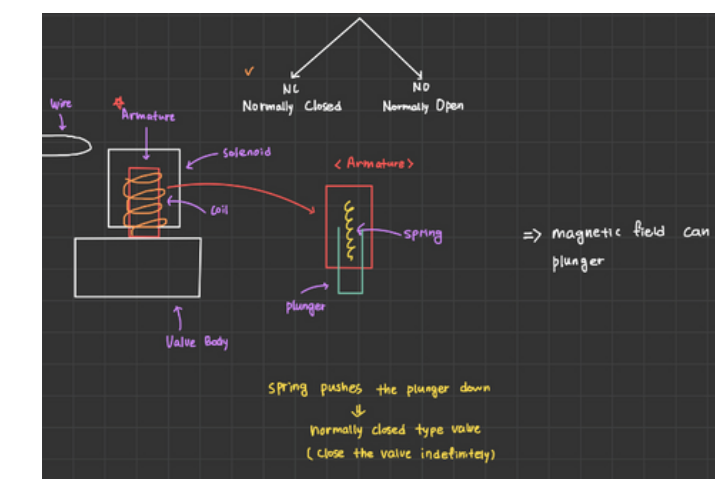
TEAM STRUCTURE



TIMELINE



PROGRESS



- Created multiple designs for the High Pressure QD system
- Designed a system utilizing a pressure fed QD system
- Researched components to withstand up to 5,000 psi
- Utilized components in lab to incorporate into the design, saving costs on the overall design

HIGH PRESSURE QD BUDGET

