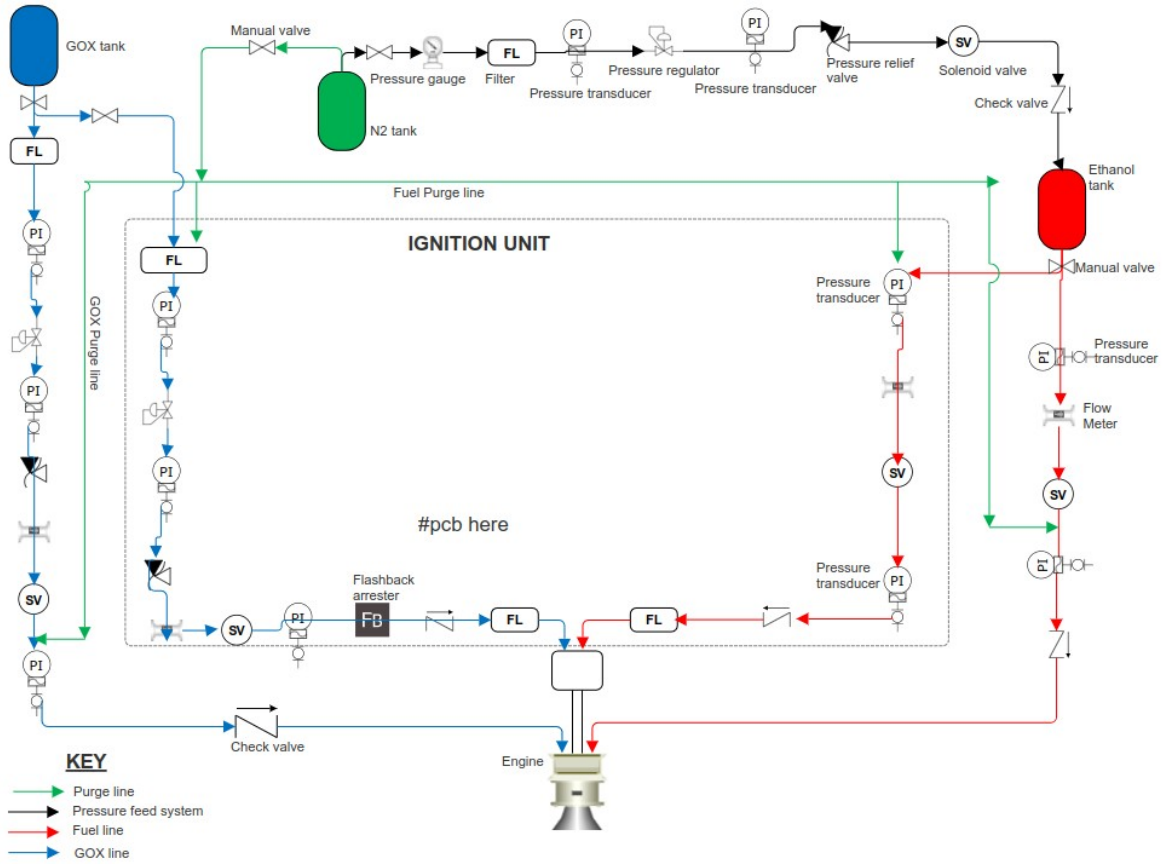
Liquid Propulsion Report

Week 5

Tasks Allocated for this Week

- Complete P & I D
- Adding purge lines
- Design test stand
- Purchase the required equipment
- Etching the PCBs(Power Distribution Board and Control Circuit)

Piping and Instrumentation Diagram



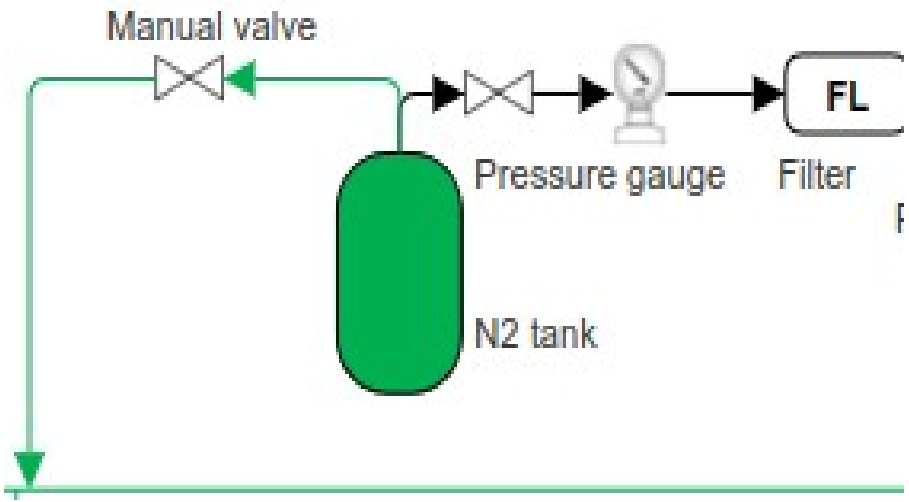
Parts

- Pressure panel
- Pressure Feed System
- Fuel Line
- GOX Line
- Purge Line
- Igniter

- Design inspiration: PSAS rocket

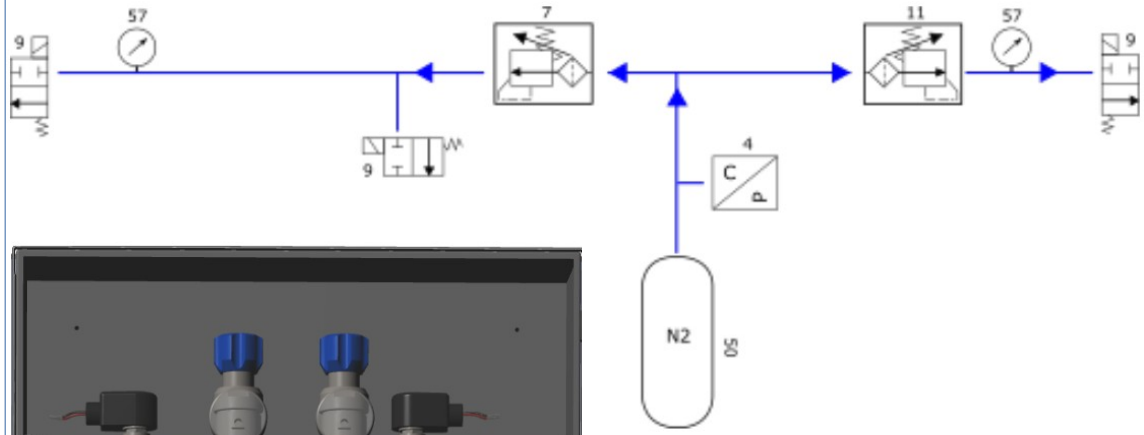
Pressure panel

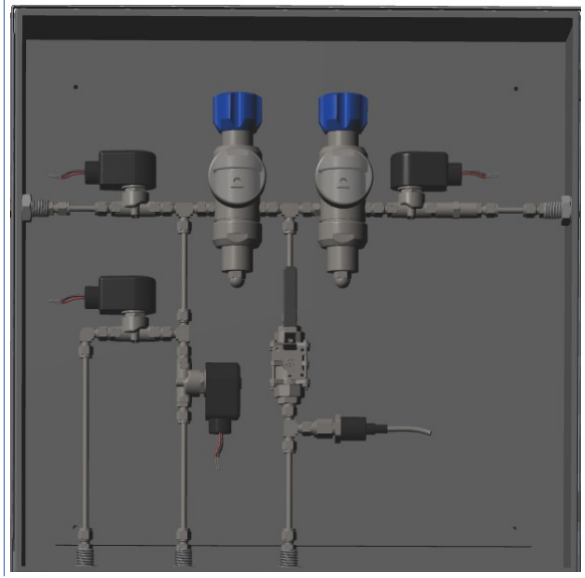
Our design



For purging and pressure feeding fuel tank.
We don't pressurize the GOX tank.

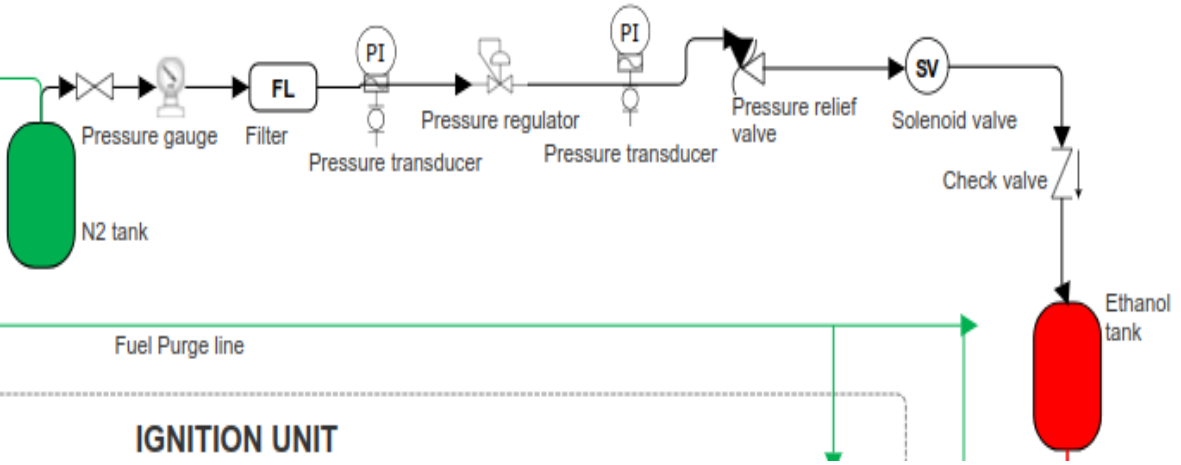
PSAS design

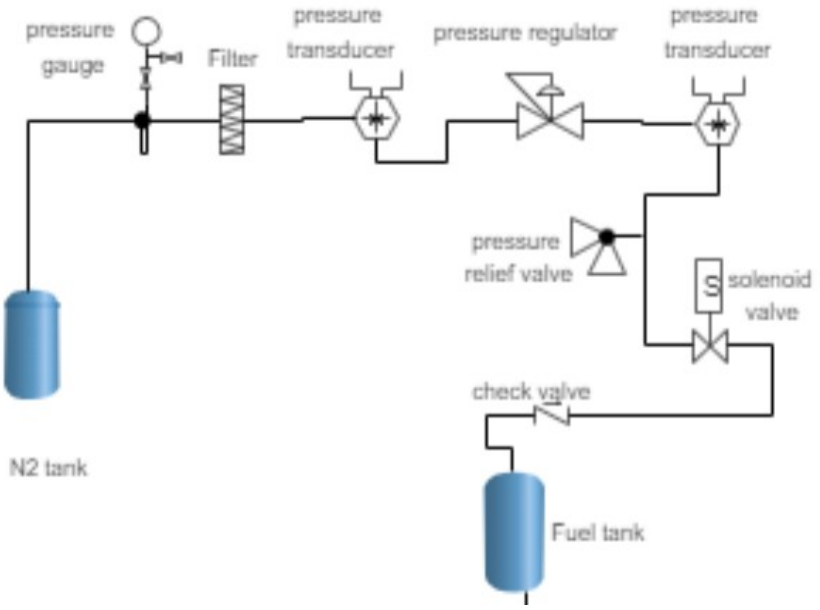




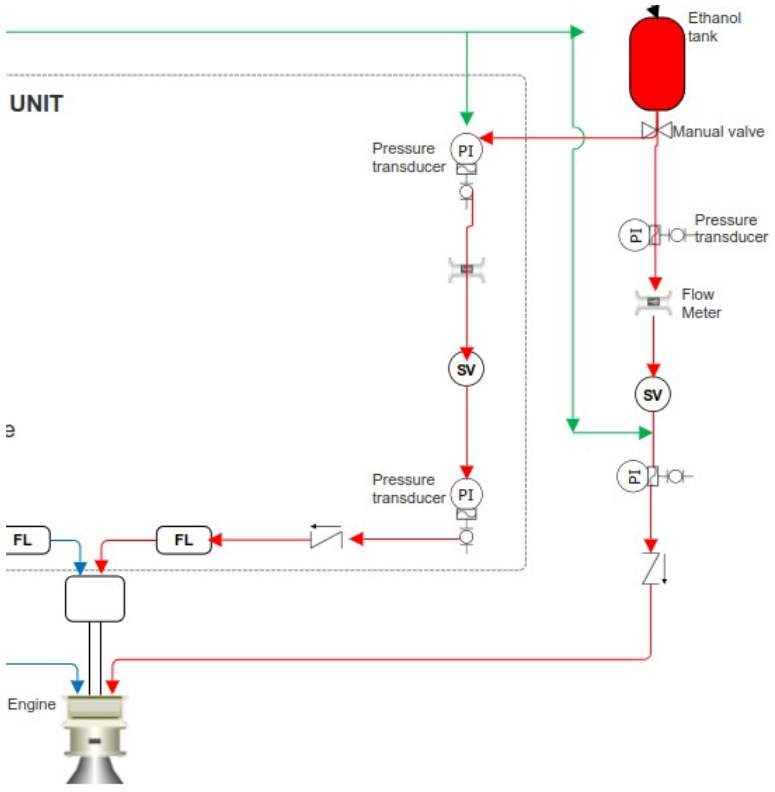
For purging and pressure feeding fuel tank.
Pressurize the LOX tank.

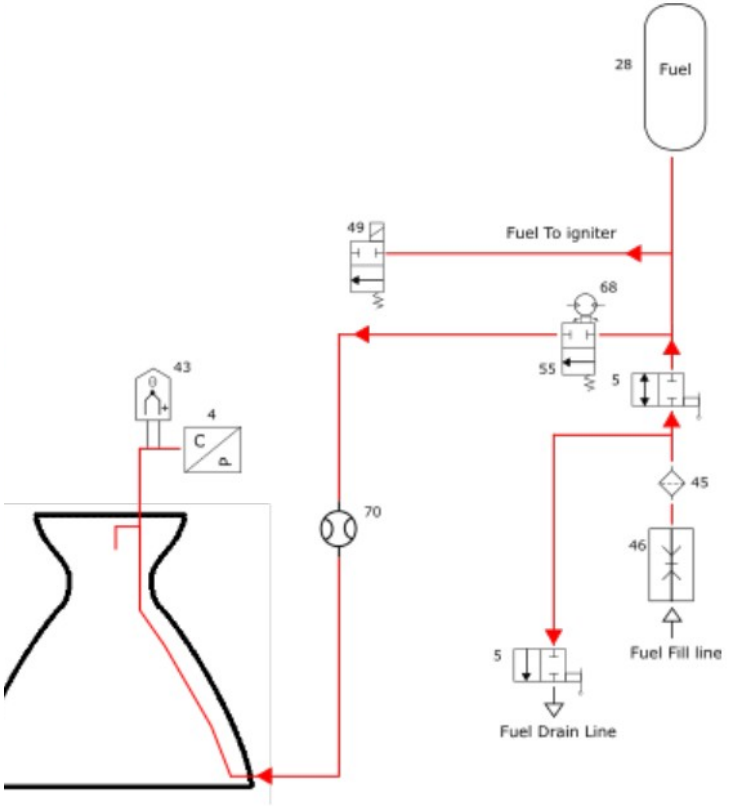
Pressure Feed System



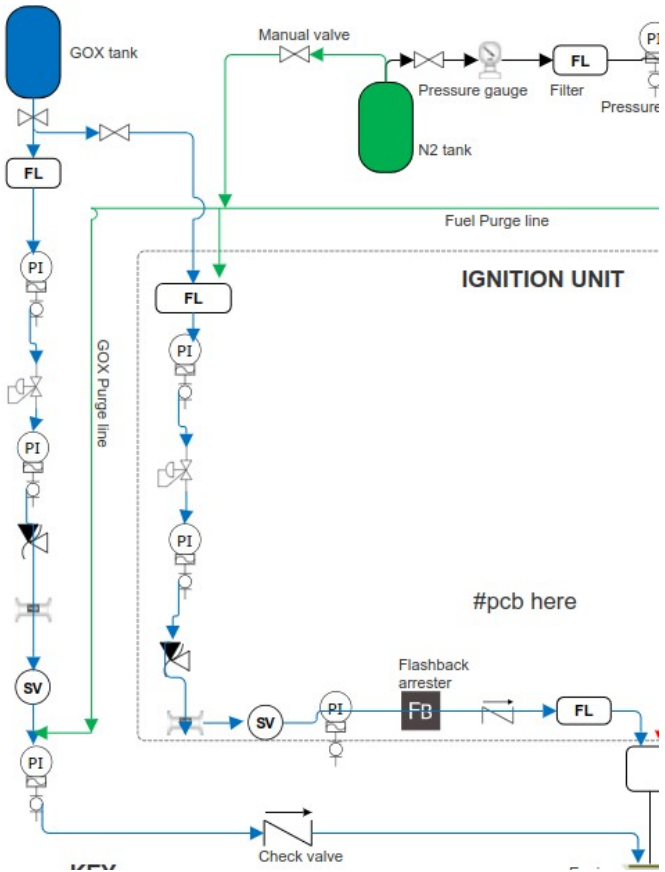


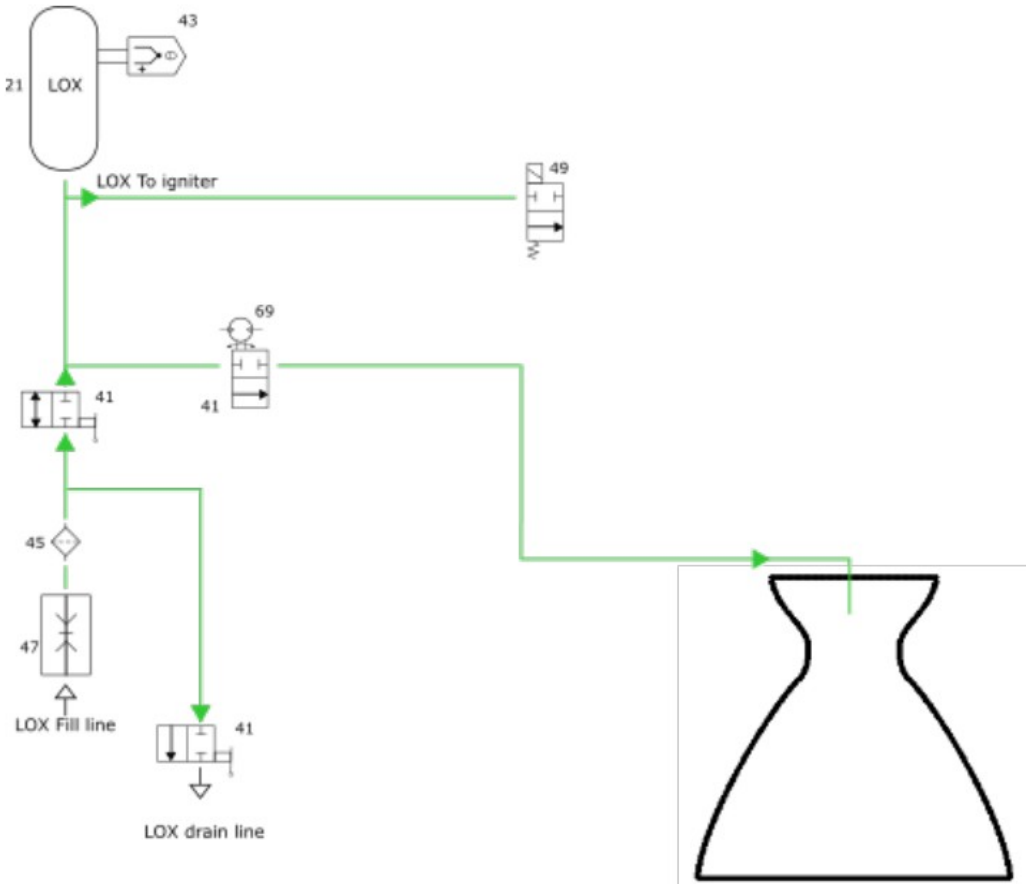
Fuel Line


UNIT
Ethanol tank
Manual valve
Pressure transducer
PI
Pressure transducer
PI
Flow Meter
SV
SV
Pressure transducer
PI
PI
FL
FL
Engine

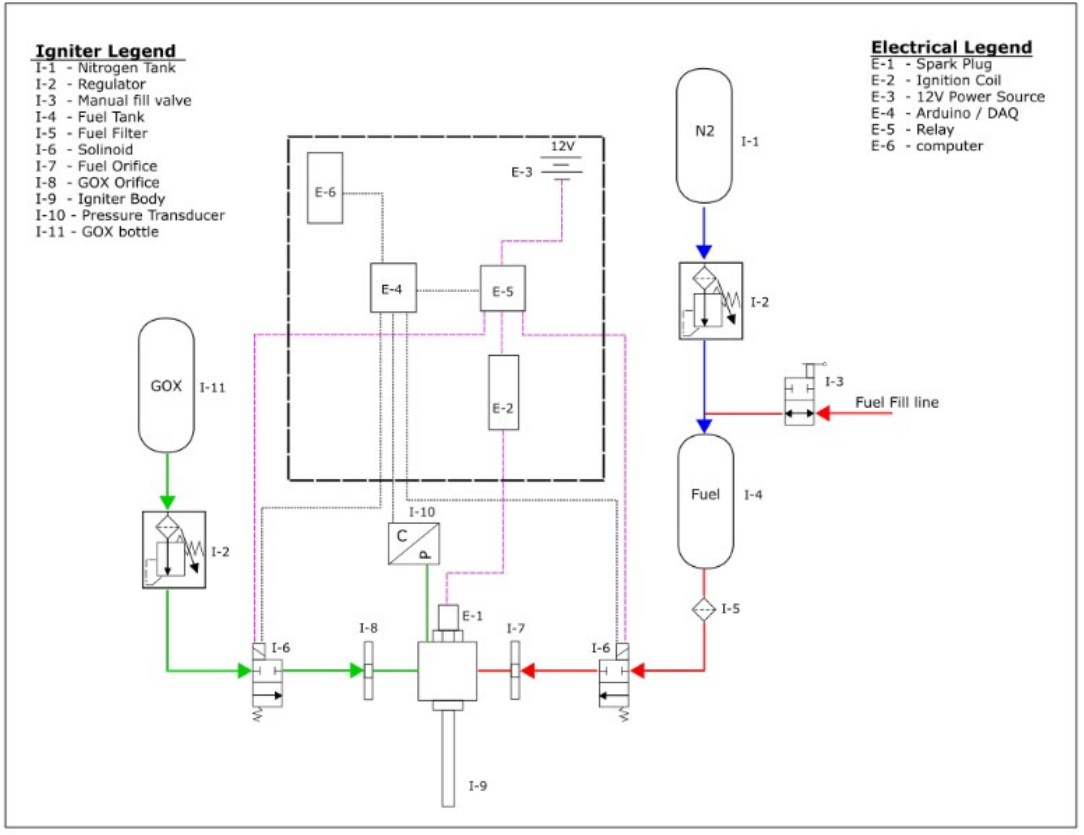

28
Fuel
49
Fuel To igniter
68
55
5
43
4
C
P
45
70
46
5
Fuel Fill line
Fuel Drain Line

GOX line


GOX tank
Manual valve
Pressure gauge
FL
Filter
Pressure
N2 tank
FL
Fuel Purge line
IGNITION UNIT
PI
GOX Purge line
#pcb here
Flashback arrester
FB
SV
Check valve


21
LOX
43
LOX To igniter
49
69
41
41
45
47
LOX Fill line
41
LOX drain line

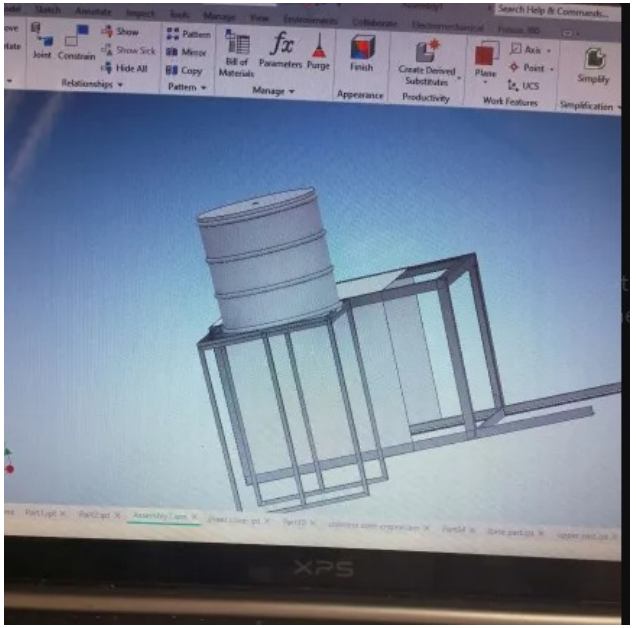
Igniter

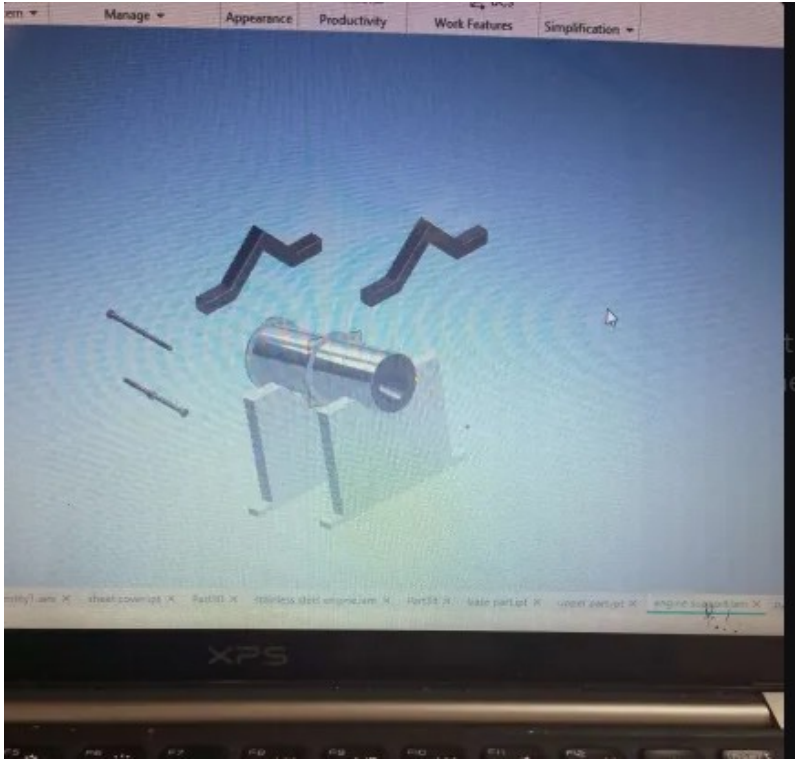


PSAS Igniter

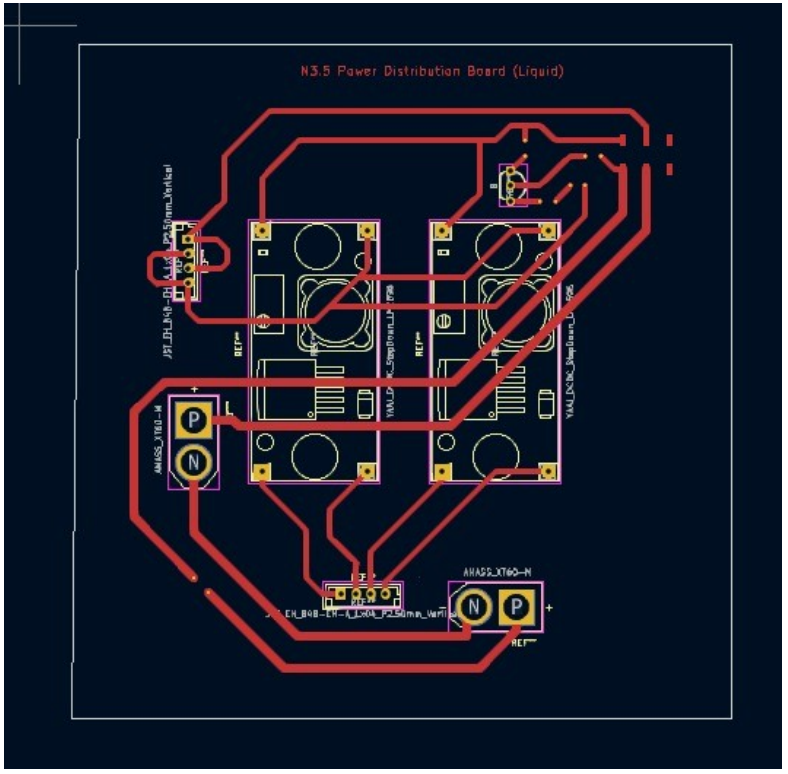
Test stand design

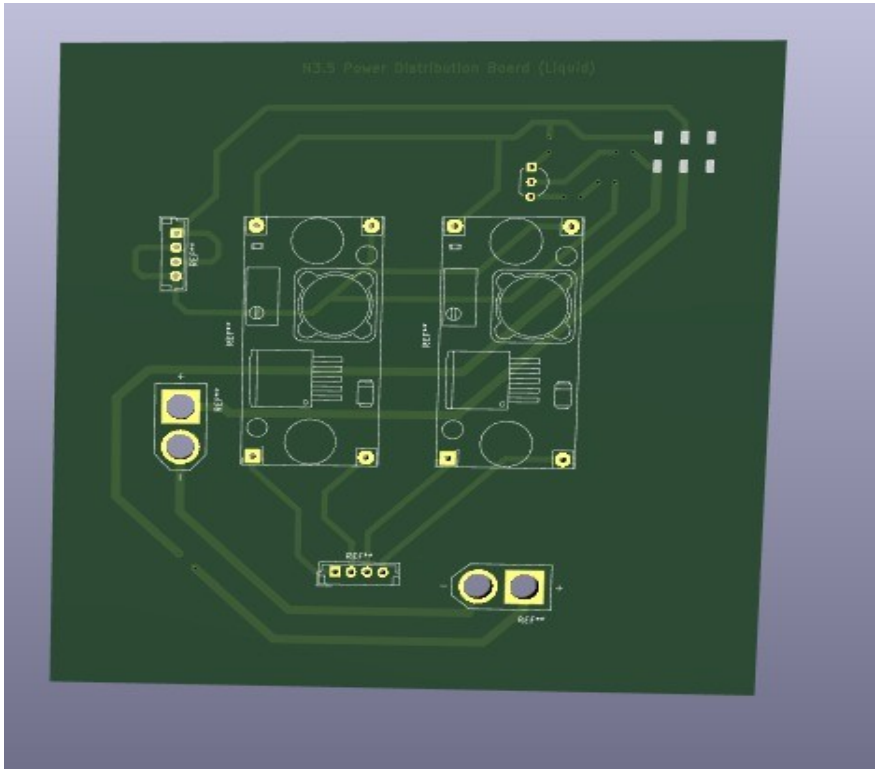
- We come up with three design
- Circular load cell





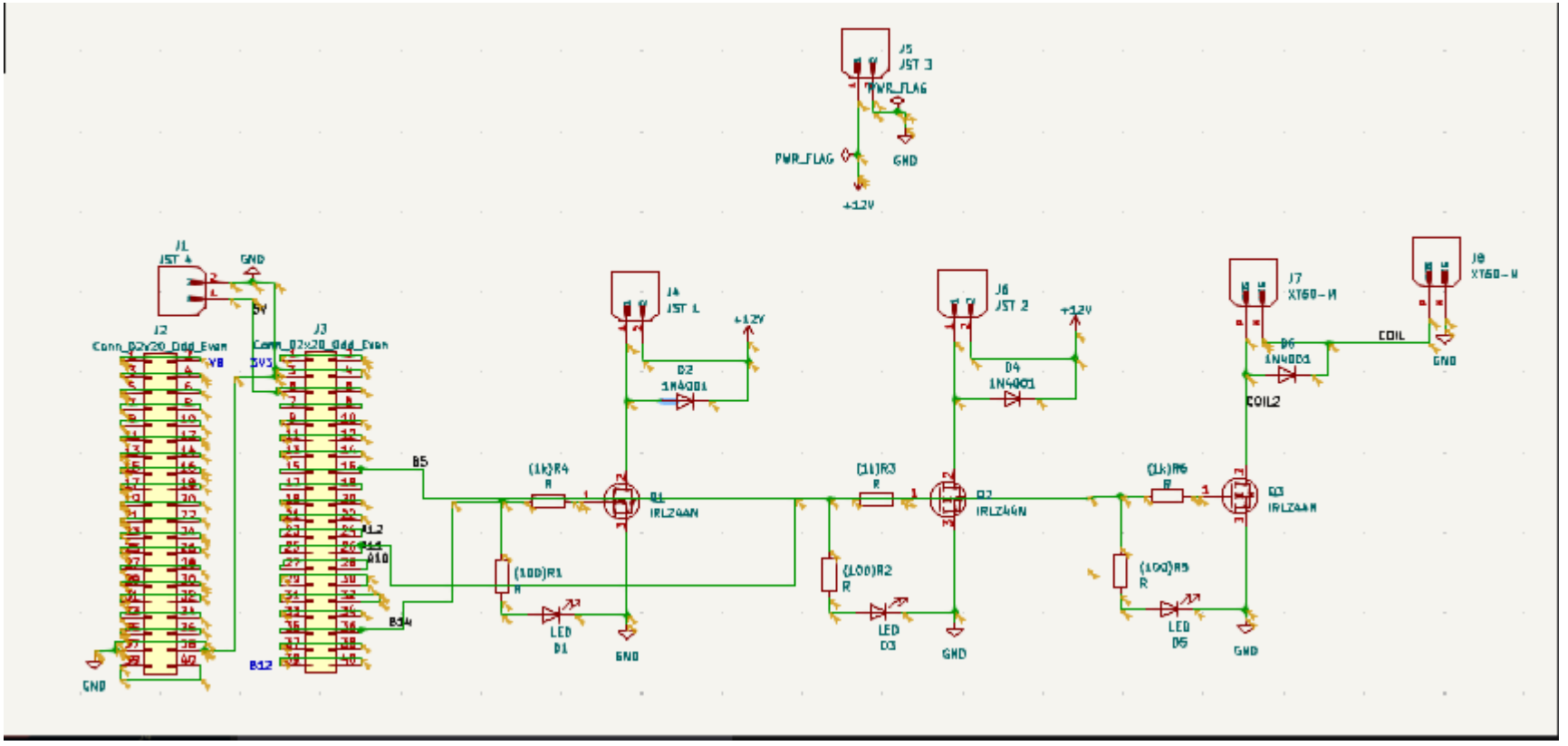
Power Distribution Board



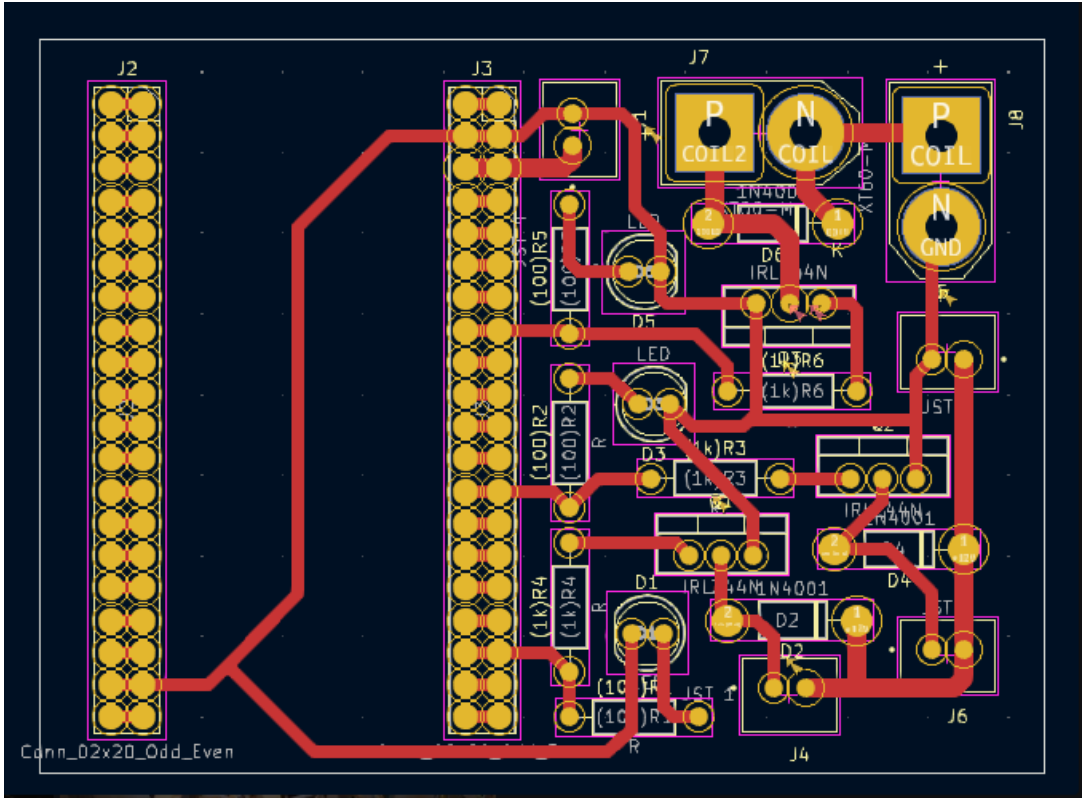


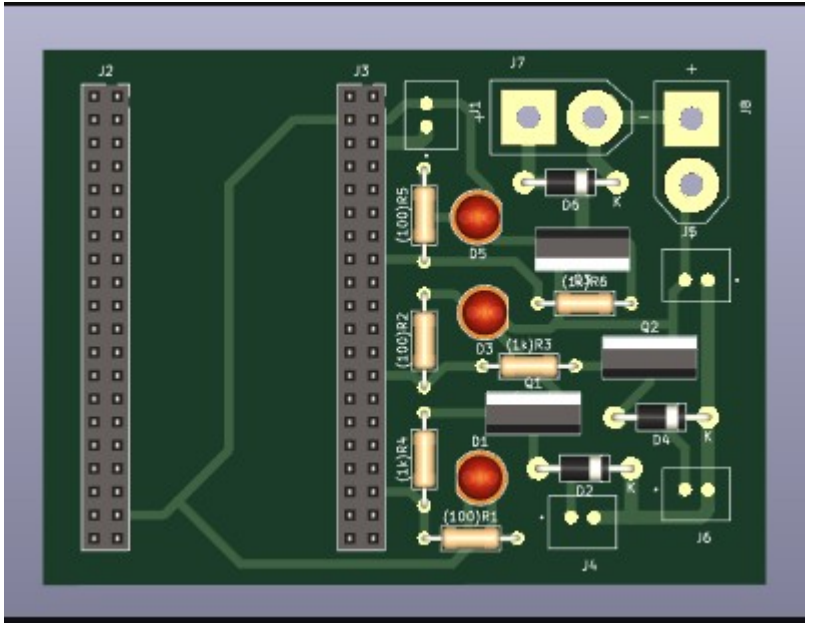
Control Circuit (#69)

Final PCB schematic



Copper Trace PCB





Next Week’s Tasks

- Complete the design of the test stand
- Fabrication of control and power PCB
- Testing of the new PCB’s
- Simulating the strength of the different test stand designs

THANK YOU