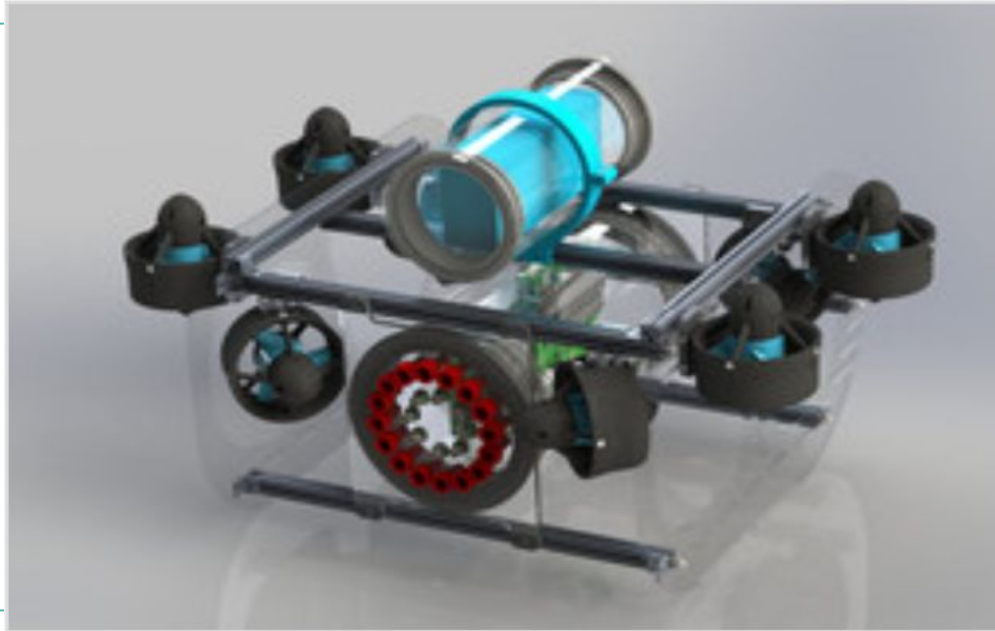


Carnegie Mellon TAUV (Tartan Autonomous Underwater Vehicle)



Albatross

Project Description

Name: Albatross Frame Redesign

Purpose and Specifications:

Our first sub, Albatross, is being reborn to use in competition with our current Kingfisher sub. A frame redesign is needed because the sub is not structurally sound (Moment about its center causing the frame to wobble).

Notes:

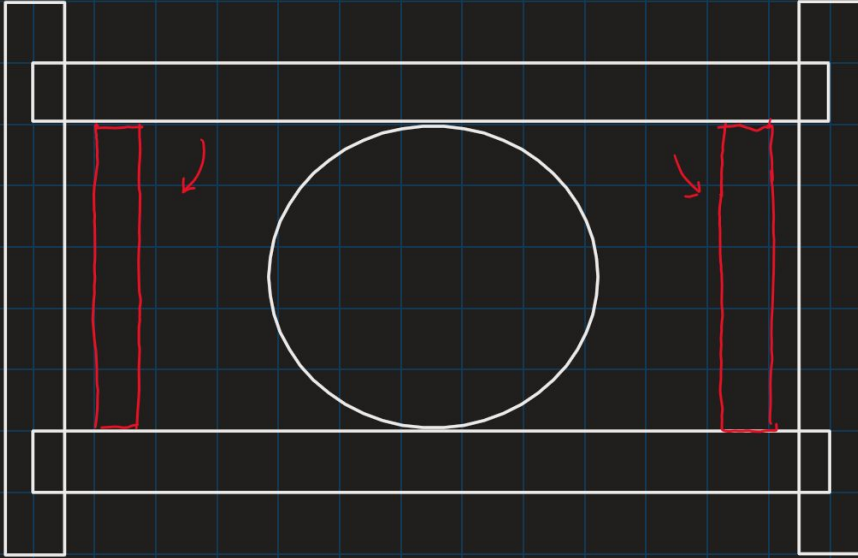
- The Cube profile of the sub should be preserved (Change within reason)
- Make sure thruster clearance is preserved



Revised Design



Redesign- Front view

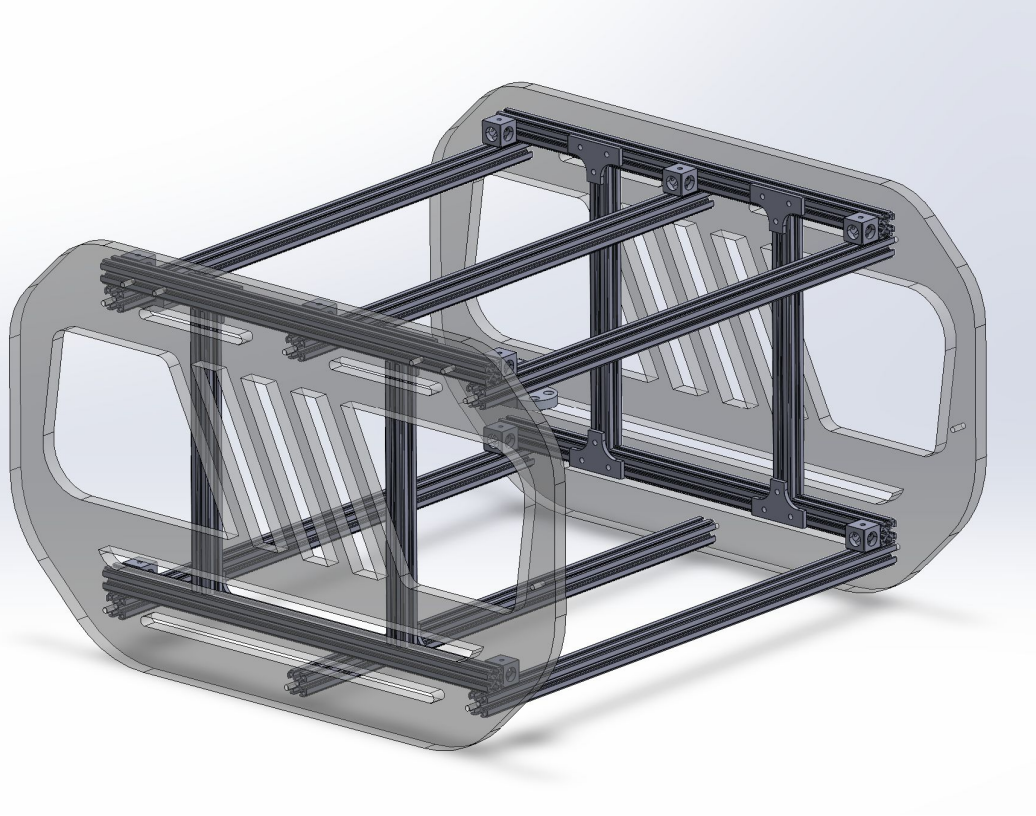


These vertical beams will be connected to the top and bottom horizontal beams

Two of these will be on each side of the sub (front-back oriented)

These extrusions will be made out of 1099 aluminum stock to ensure stability

Redesign- 3D View



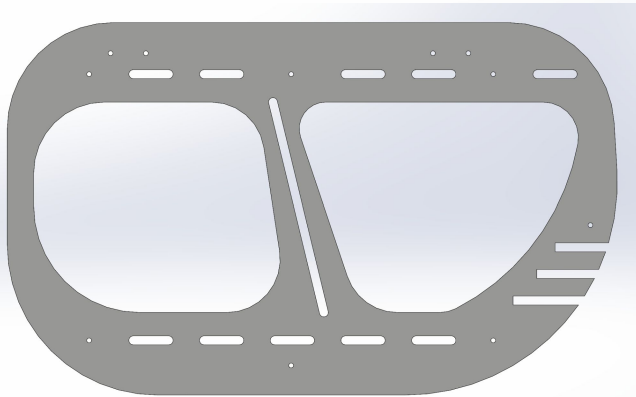
- Using T-shaped brackets and T slotted aluminum extrusion, the vertical beams are placed between the top and bottom beams.

Side Plate Redesign/Thruster Clearance



New Design:

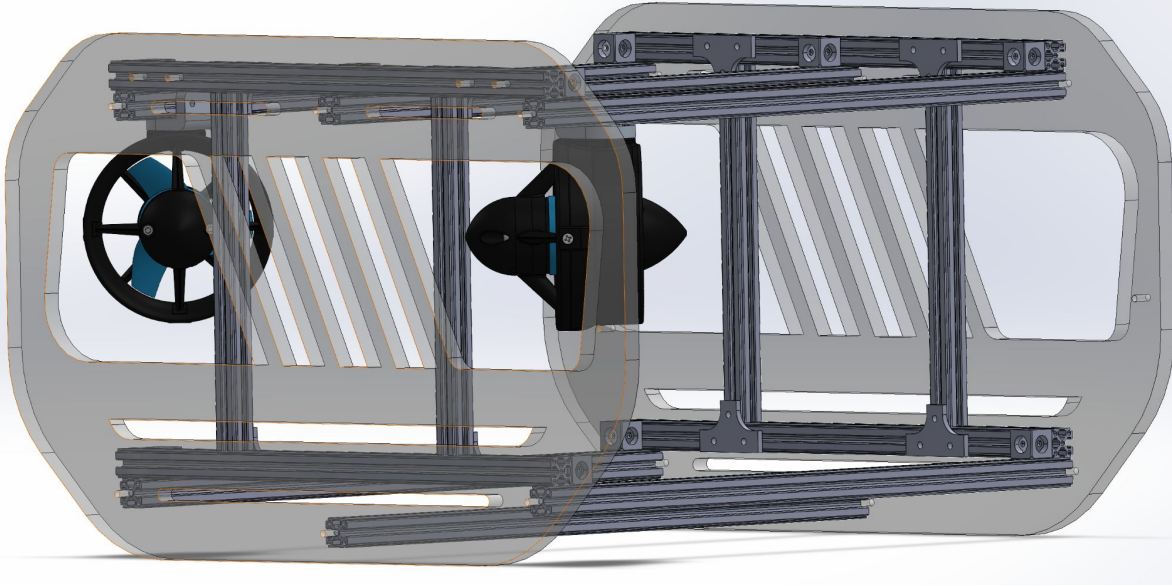
- Utilized chamfers to reduce the material used for frame products
- Made individual oval cuts into longer oval cuts for better mass minimization
- The Center of gravity is at the frames center



Old Design:

- Inconsistent cuts and hole placements
- Unnecessary cuts at the edge of the frame
- The front part of the frame isn't providing any support for the sub and is more for aesthetic than functionality
- The center of gravity of this frame is to the left of center

Side Plate Design/Thruster Clearance



- The thrusters protrude the frame slightly and should be given 1/2in clearance.
- This frame easily gives this clearance while providing support for the extrusion and enclosures

Additional CAD

