



Aquatic Search Vessel (ASV)

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ME 4371 Design II
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Need of Design/Objective

Objective:

To create a design that tackles the challenges of delayed responses to missing persons in aquatic environments, employing a semi-autonomous watercraft with capability of being deployed with sonar for faster, cost-effective, and more efficient recovery missions.

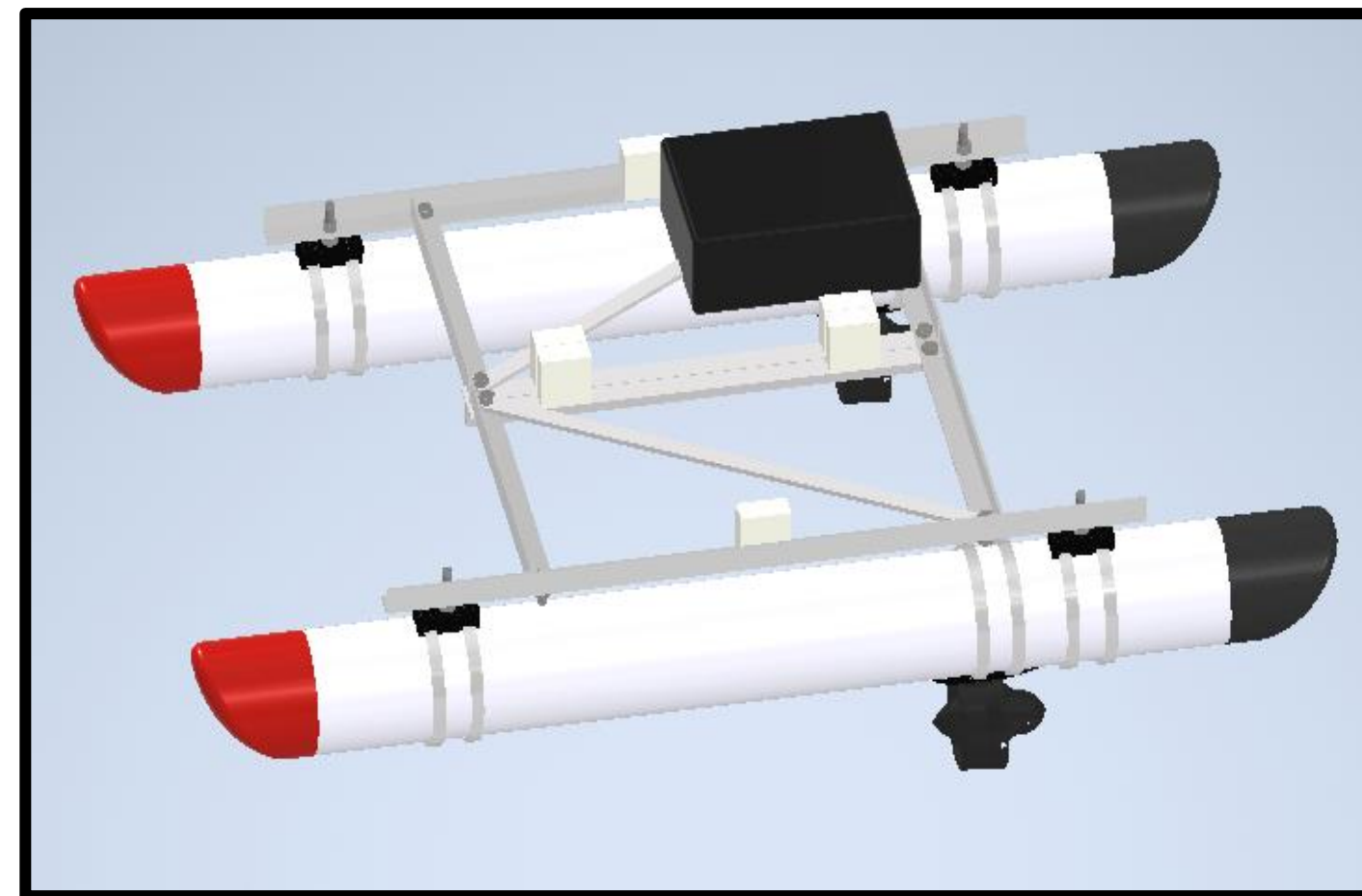
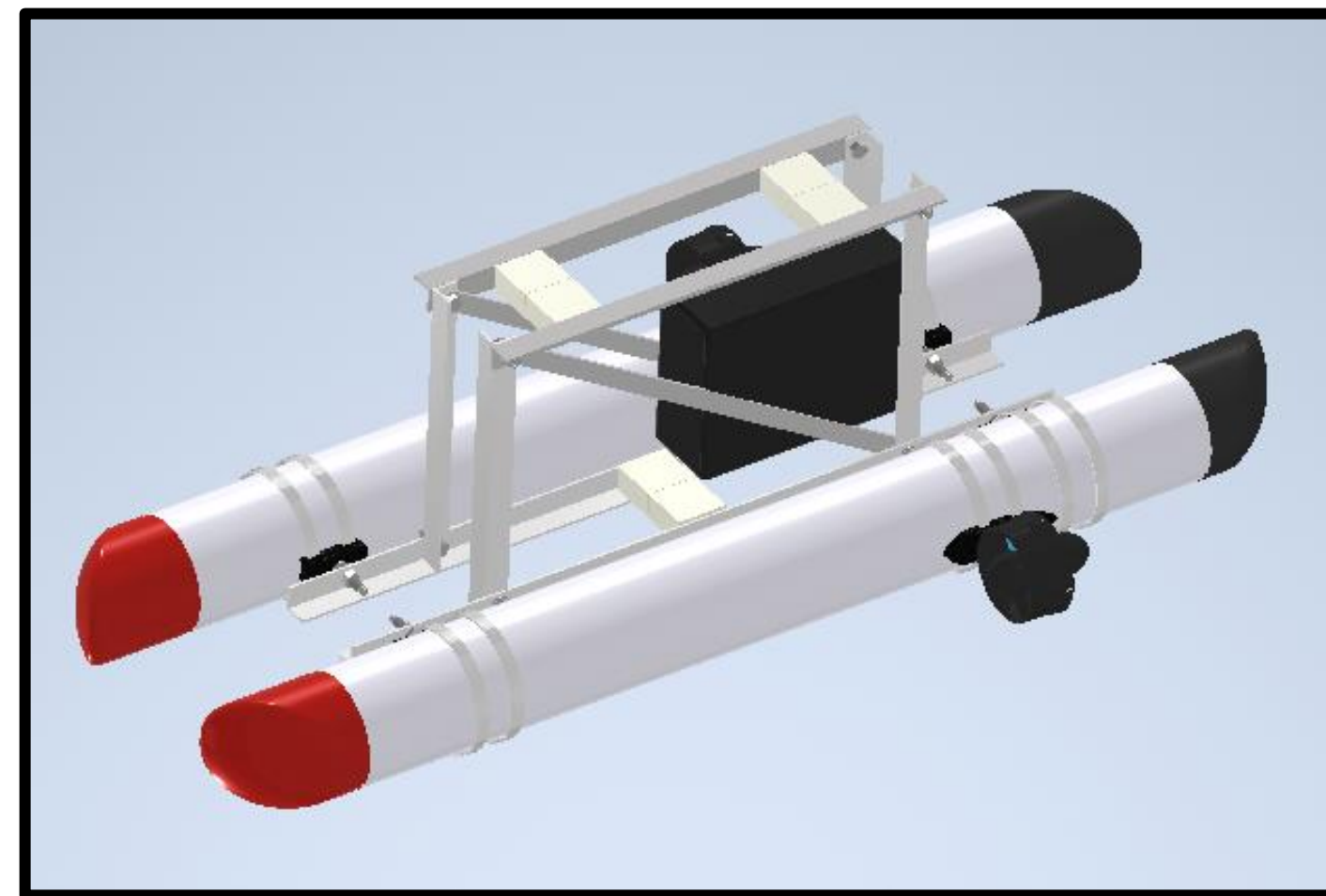
Need of Design:

- Reduce response times
- Reduce the number of skilled operators
- Eliminate need for deploying a manned boat

Requirements:

- Portable
- Cost efficient
- Easy to use
- Lightweight
- Accurate location tracking

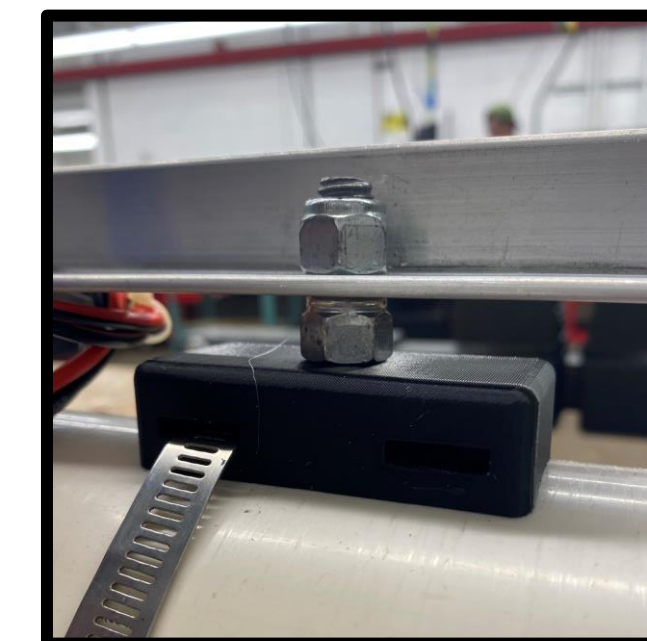
Final Design



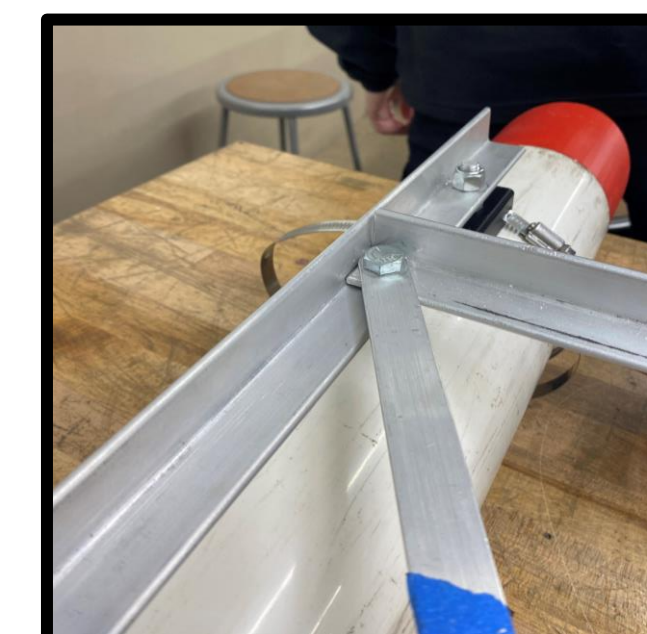
Manufacturing



Floats are made of PVC with 3D printed hydrodynamic end caps



3D printed spacers were designed and implemented to secure the frame and motors on to the float assembly

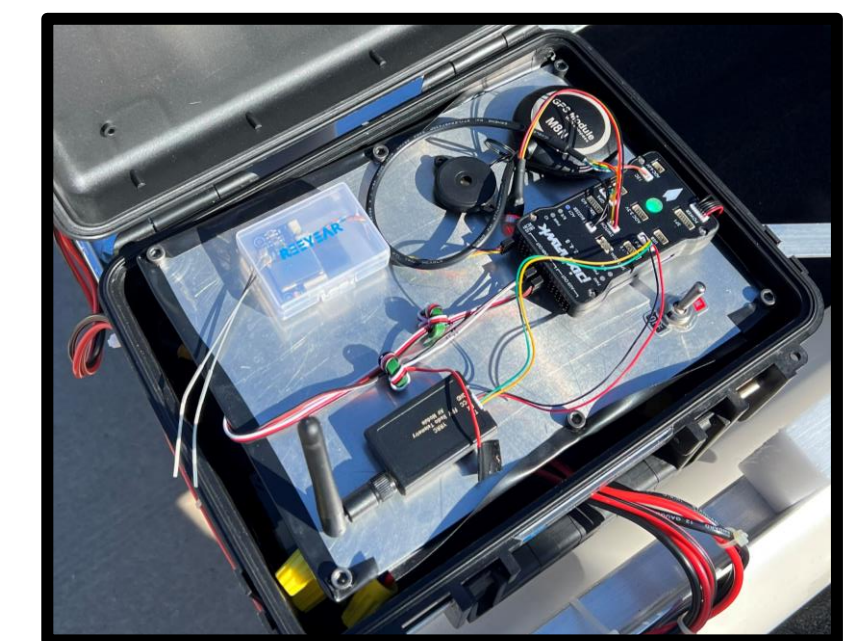


The frame is manufactured using 1" aluminum L-beams and flat strap.

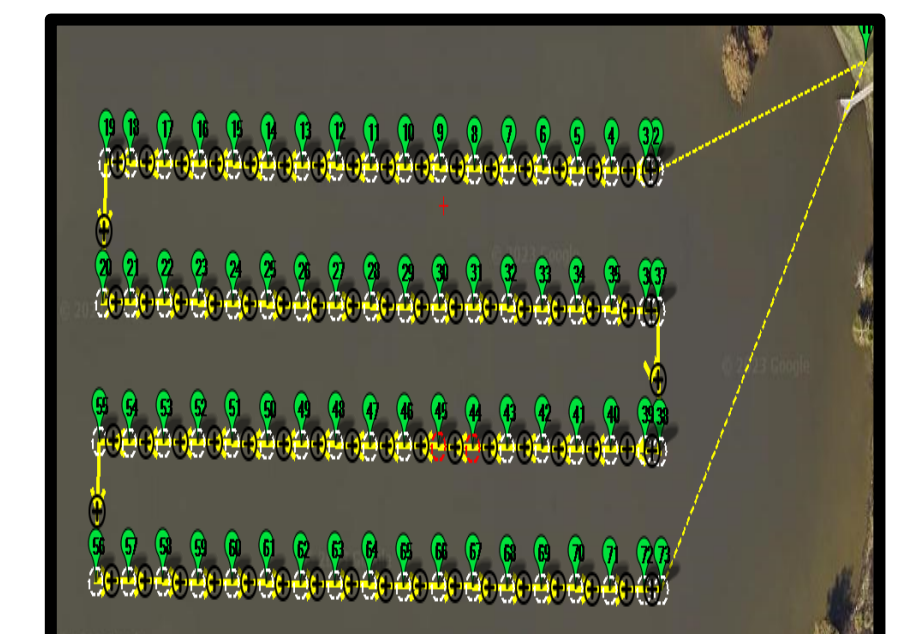
Controls



Vehicle is propelled using two Diamond Dynamics 13.1 Amp thrusters



Controls housing containing flight controller, telemetry, RC receiver, and more.



Ground control software auto-generating survey grid over specified area.

Results

- A semi-autonomous aquatic vehicle with remote control override
- Mission Planner (GCS) generates search grid pattern
- Foldable for greater portability and reduced storage footprint
- Capable of carrying approximately 30 pounds
- Capable of running at 50% power for approximately 30 minutes
- Platform capable of having a sonar transducer mount integrated

