Sharkbait: Unmanned Underwater-Air Hybrid Vehicle

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Problem Statement

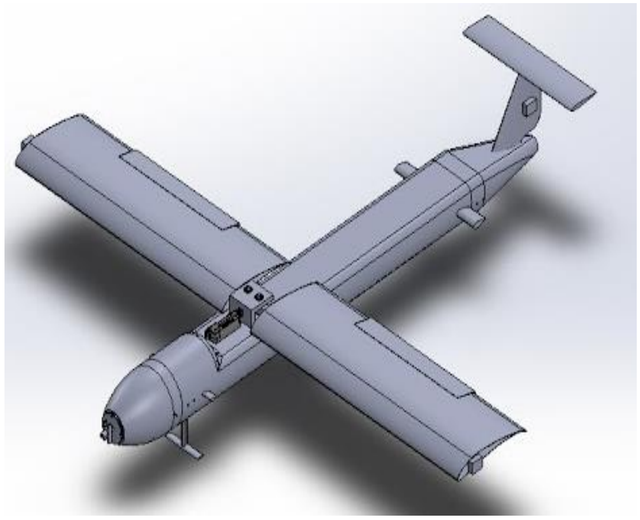
To design, build, and test a hybrid unmanned vehicle. The vehicle shall perform as an aerial vehicle, underwater vehicle, and transition between these modes without external intervention.

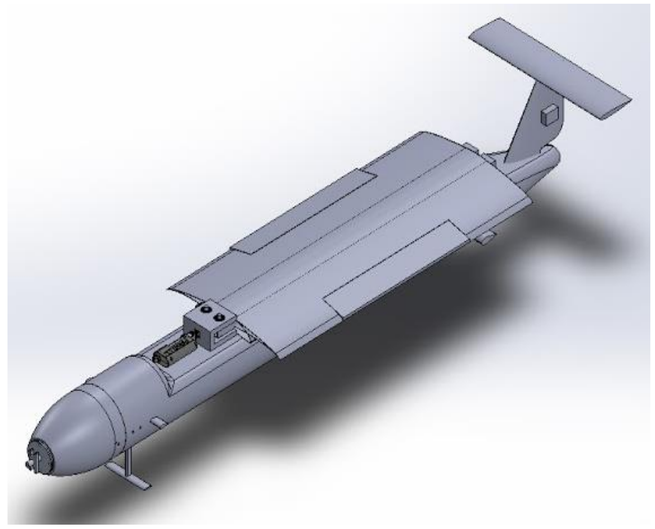
Objectives

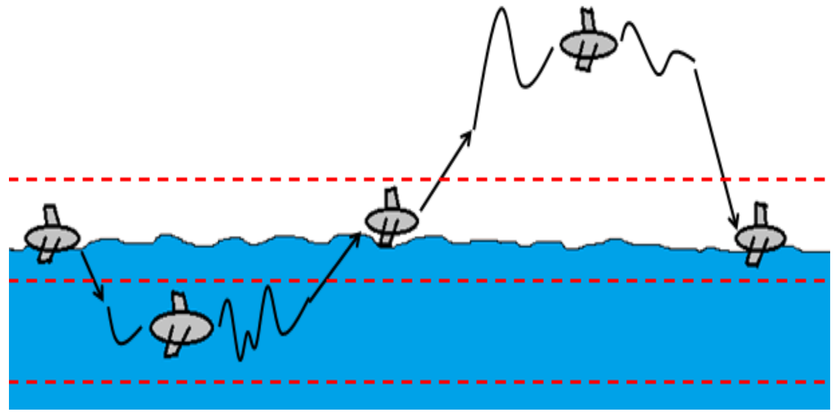
- Dive
- Swim
- Transition from water to air
- Fly
- Transition from air to water
- Provide video footage throughout its mission

Three Phase Mission

- Transitional Phase (Ascent/ Takeoff/ Decent)
  - Duration Time: 3 min
- Steady Swim
  - Duration Time: 3 min.
  - Minimum velocity of 3.28 ft/s
- Steady Flight
  - Duration Time: 3 min.
  - Minimum velocity of 49.21 ft/s

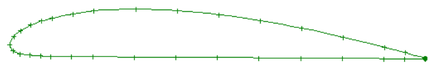




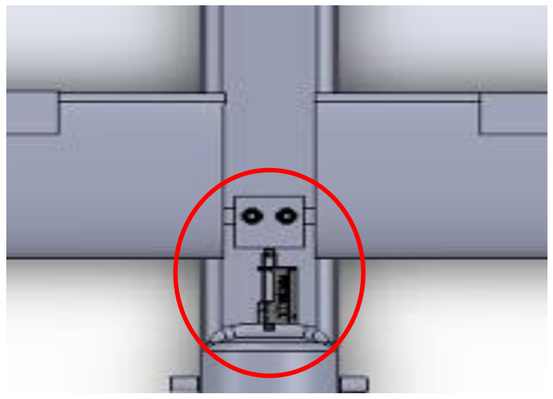


Three Critical Technologies

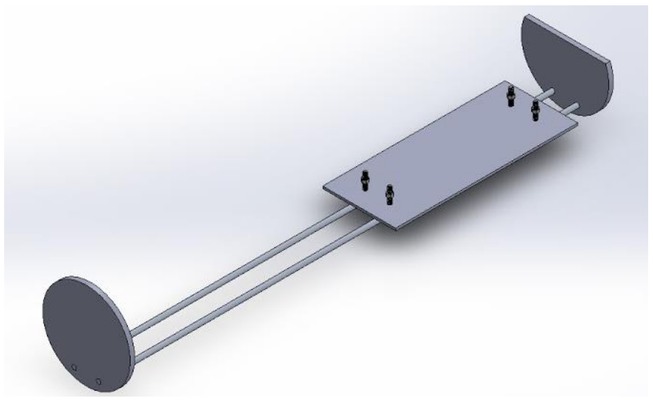
- **Hydrofoil**



- **Wing Extension Mechanism**



- **Internal Rail System**



NORTHROP GRUMMAN

Engineering & Science Student Design Showcase at Florida Institute of Technology