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### Sharkbait: Unmanned Underwater-Air Hybrid Vehicle

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# Sharkbait: Unmanned Underwater-Air Hybrid Vehicle

Morgan Steinert, Sal Van Casteren, Jake Watson, Nick Bueno, Alexa Eldridge, Michael Diotte, Patrick Klein, Zach Costello, Kyler Harmeling, Cameron Izzi, and Asim Conrad

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## Problem Statement

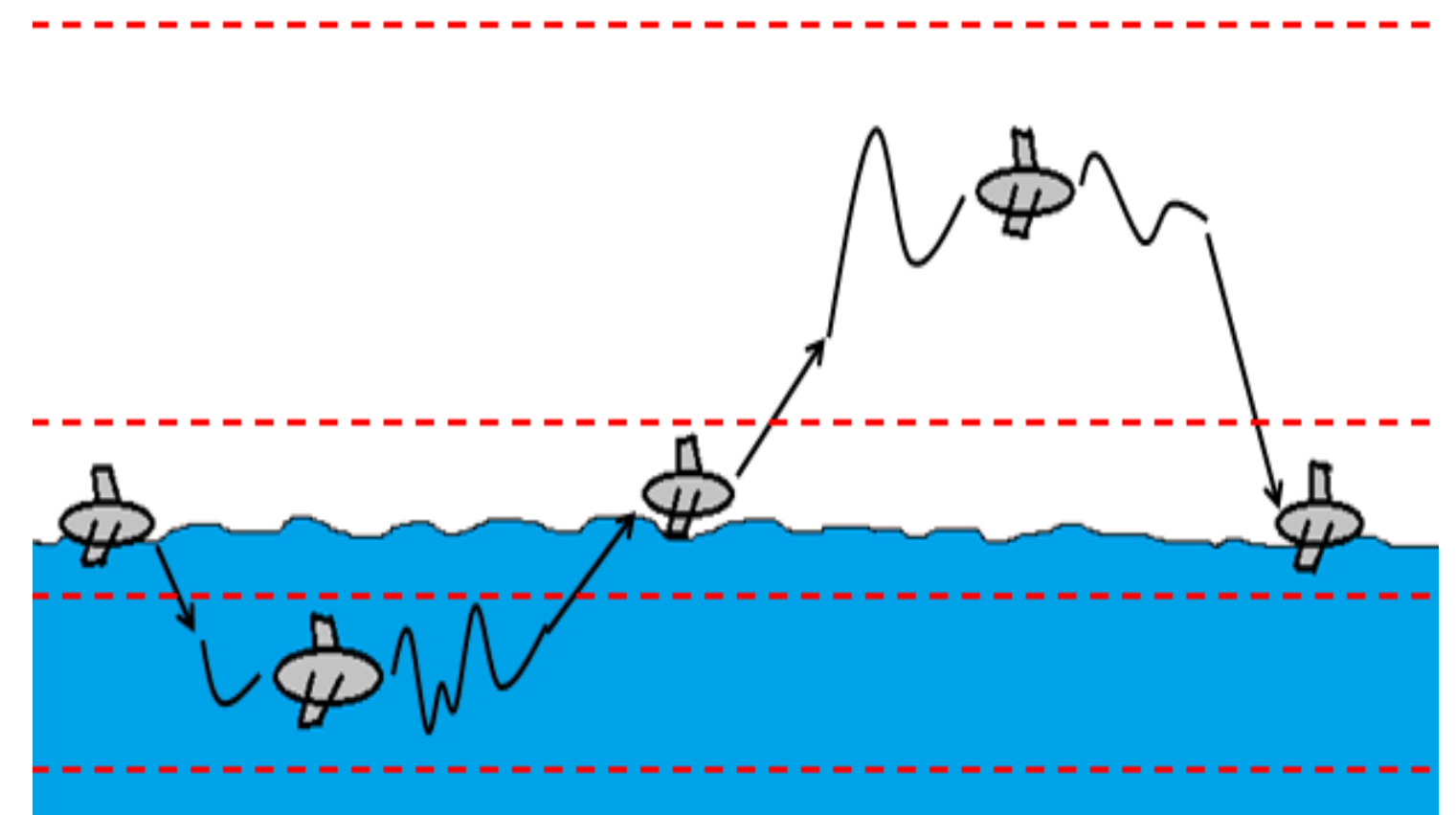
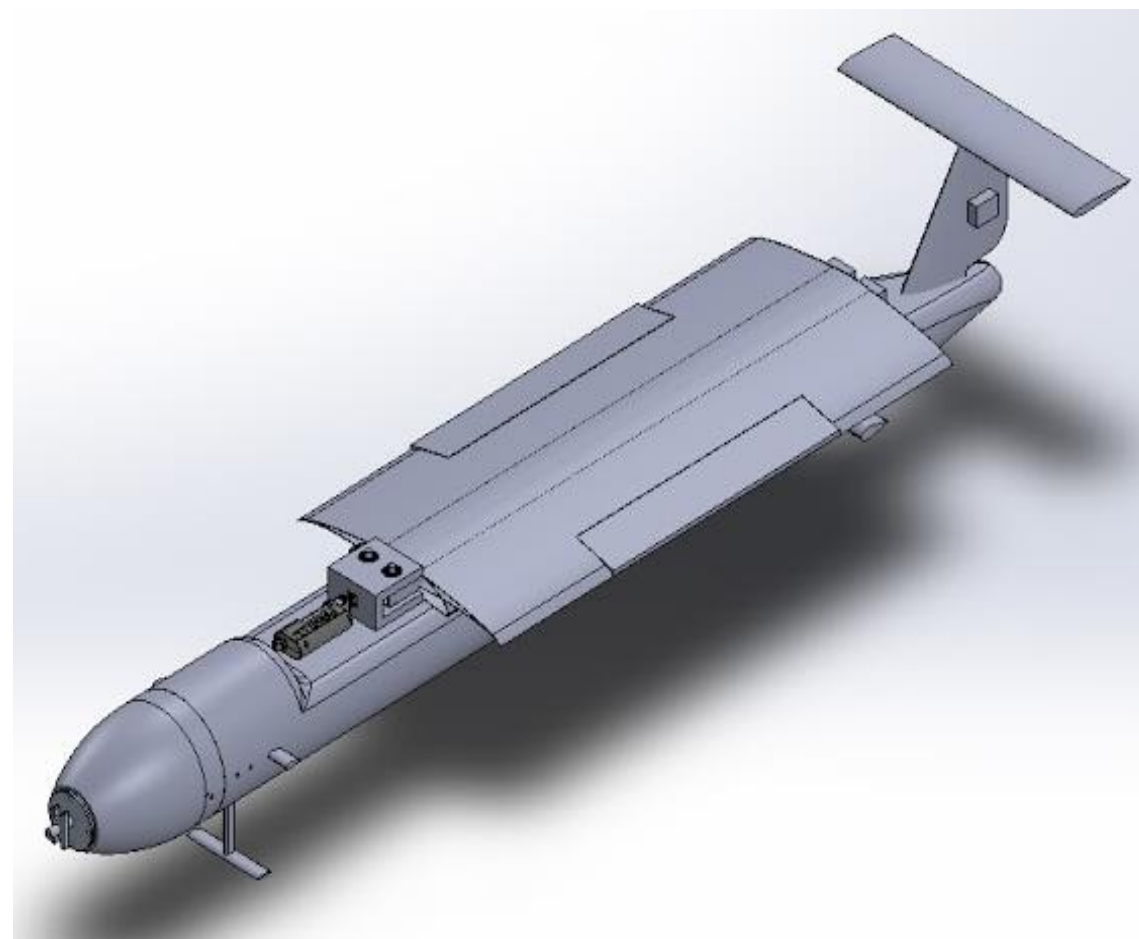
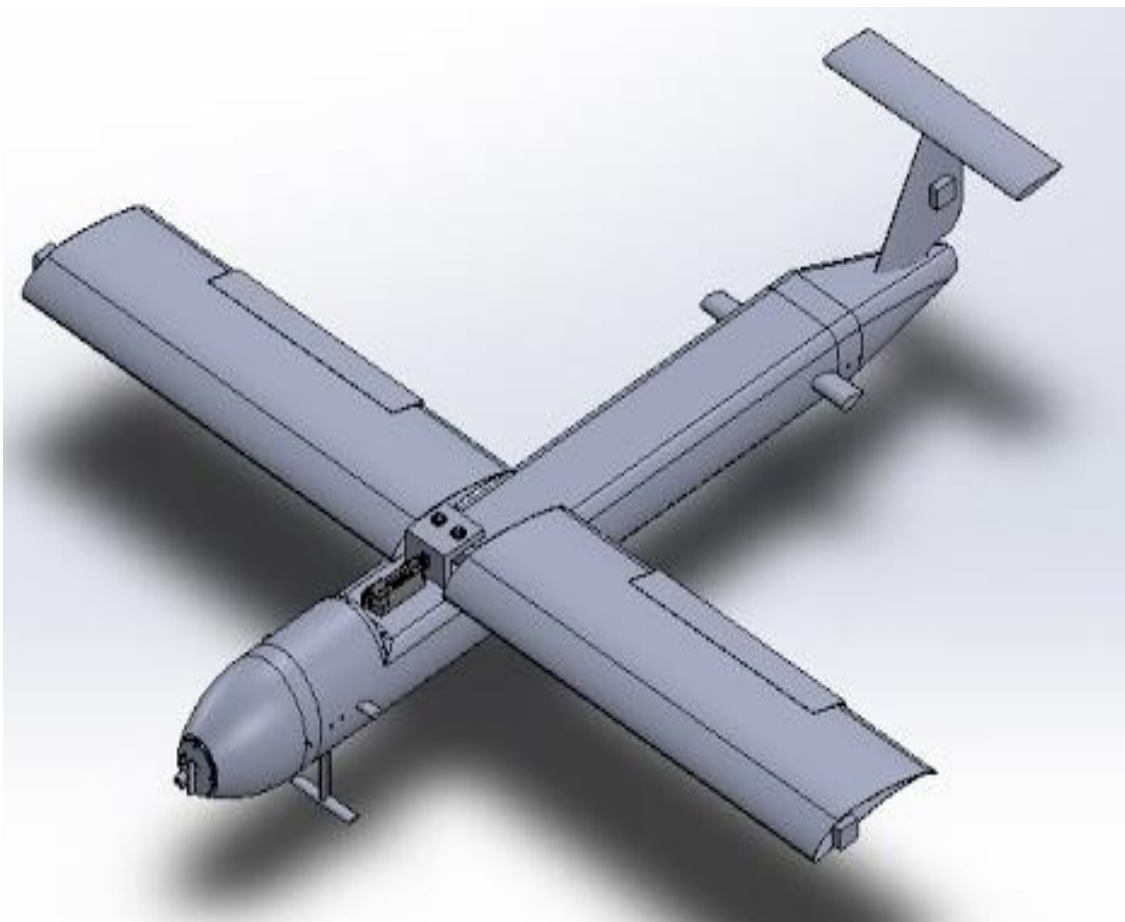
To design, build, and test a hybrid unmanned vehicle. The vehicle shall perform as an aerial vehicle, underwater vehicle, and transition between these modes without external intervention.

## 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

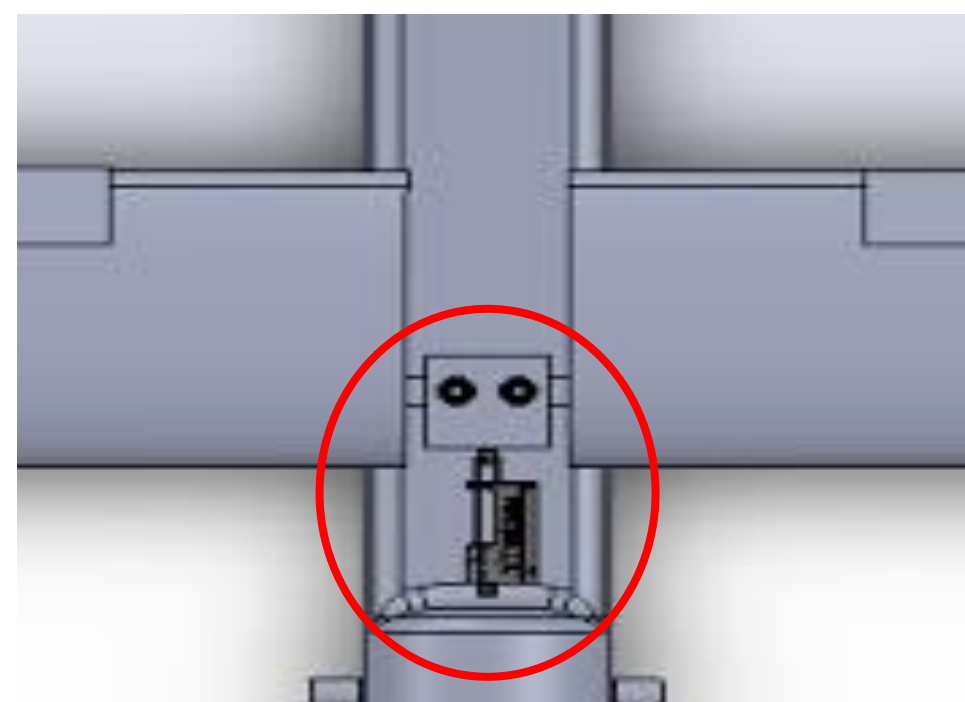


## Three Critical Technologies

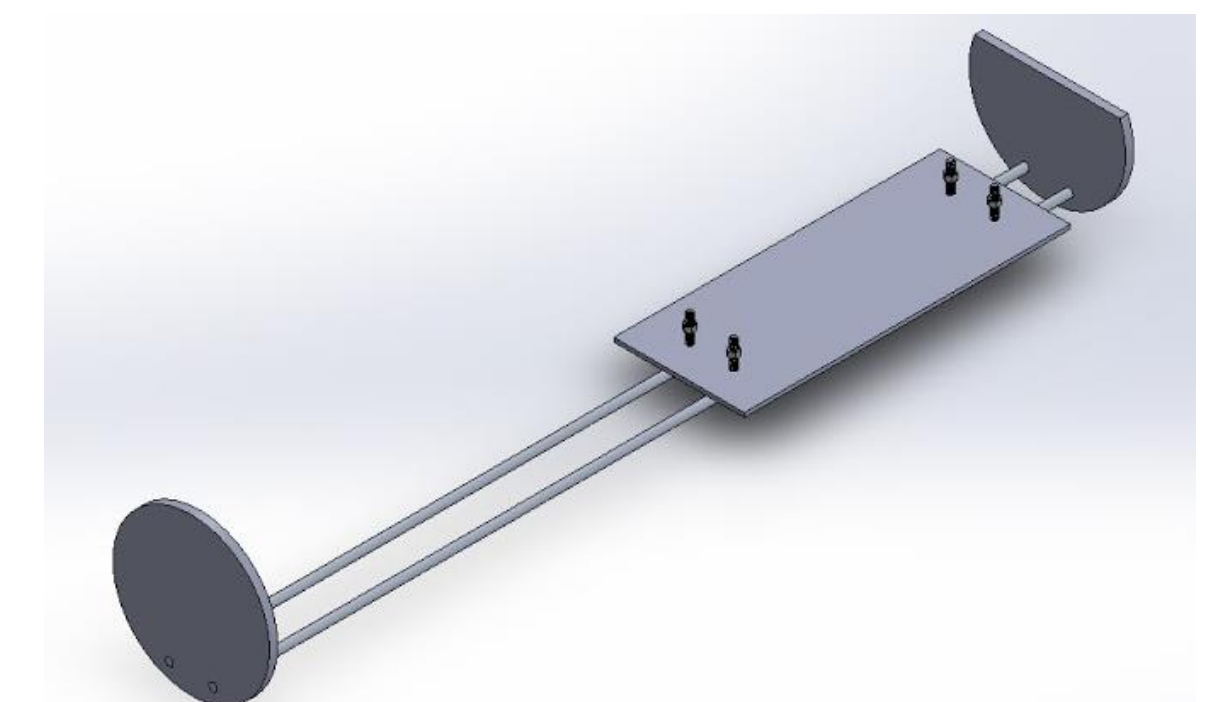
- Hydrofoil



- Wing Extension Mechanism



- Internal Rail System



**NORTHROP GRUMMAN**



Engineering & Science  
Student Design Showcase  
at Florida Institute of Technology

