



## Introduction

### • Elevator pitch

Naval defense forces struggle with limited underwater vehicles. Our Semi-Autonomous Underwater Vehicle (SAUV) provides real-time detection at 6 meters, balancing autonomy and operator control. Unlike fully autonomous vehicles, SAUV reaches 20 meters depth at a cost under 8,000 SAR, offering an efficient and affordable defense solution.

### • Problem statement

This project will design and prototype a semi-autonomous underwater vehicle that uses a sensor, a controller, a camera, and explosive mechanisms to identify and attack enemy vessels, ensuring improved security and operational efficiency.

## Objective

• This project aims to design a semi-autonomous underwater vehicle to work in the sea, having the ability to detect enemy vehicles, sending a signal to the base to inform the workers in the base, and controlling the vehicle by the base to attack the enemy.

## Constraints

- Budget less than 8000 SAR
- High corrosion resistive material
- Hydrodynamic drag
- Pressure Variation
- Buoyancy and stability

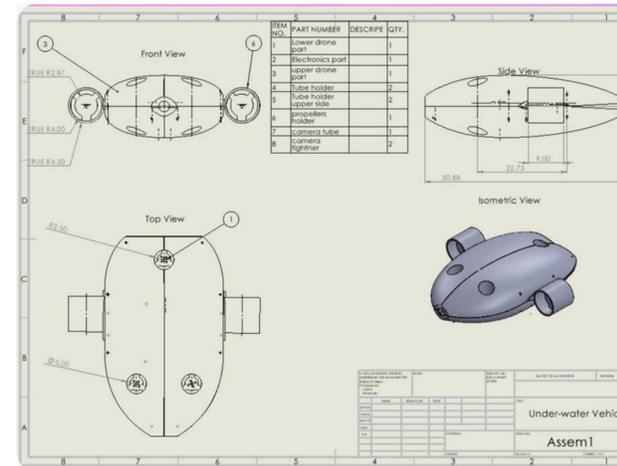
## Specifications

- Operate at sea water
- Speed 3 m/s
- Depth range 20 m
- Vertical speed 0.5 m/s
- 5 Motors
- PLA material
- Live video feed camera
- 10 Kg Weight
- Operating time 1 hour
- Detection range 6 m
- Withstanding pressure of 244.4Kpa

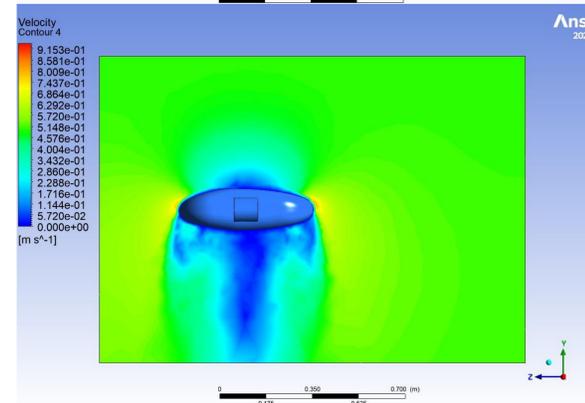
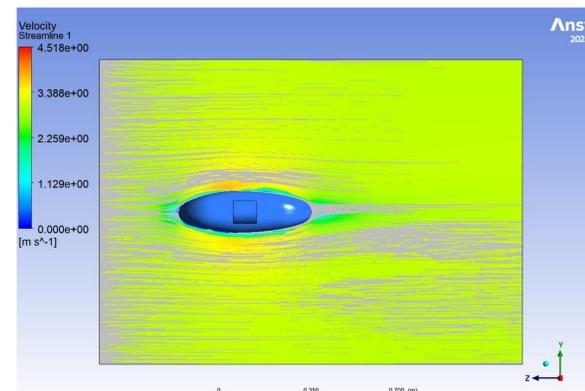
## Conclusion

• This senior project developed a semi-autonomous underwater vehicle (SAUV) that identifies and neutralizes threats via precise explosive attacks.

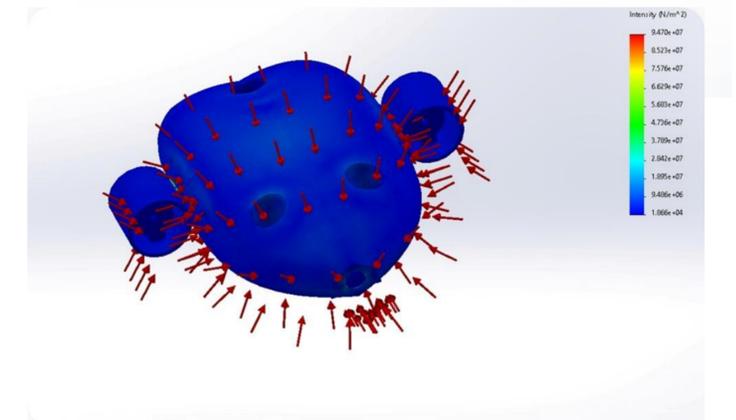
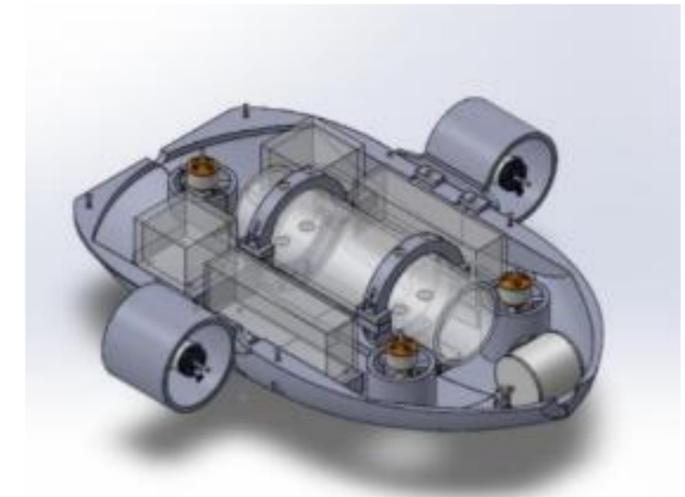
## Drawings & Validation



### • Detailed CAD



### • CFD



### • Finite Element Analysis