navigator 1.

an autonomous coordinated underwater swarm platform.

Our goal: develop the framework for a versatile, asymmetric, and unstoppable short-range UUV swarm.

Capabilities.

Strike

- 120 km range with 10 kg payload.
- Deployable by air (parachute), sea (submerged or surface vessel), and land (shore/dock launch).
- Cheap and expendable ($1500/unit).
- Onboard independent computing, recognition, and decision making.
- Real time data relay to decision maker over short-range comms.
- Coordinated strike on vulnerable points of a ship. Not stoppable with conventional defense.
- Configurable with mine-triggering features (magnetic field, acoustics).
- GPS-based waypoint navigation, with IMU approximation for submerged navigation.

Defend

- 10-15 day loiter time.
- Acoustic friend or foe recognition and tracking.
- Wayfield controls distributes swarm across area of interest.
- Dual-ballast tilting to lay dormant in vertical position (minimizing acoustic signature and greatly reduces sensors needed on craft).
- Minefield can be safely deployed without expensive, manned mine-laying vessels.
- Visual sonar hybrid vision model with passive sonar monitoring.
- Local device to device communication for threat monitoring.
- Mass producible (100% generic off the shelf and 3D printed components).

Intended Deployments.

1. Mobile Minefield
2. Search and Destroy
3. Observe and Report

Combining the data collection, processing, and reacting stack in real time.

Semi Active Observation.

The vehicle loiters by loading the tail ballast and unloading the front ballast, effectively tipping the vehicle upwards. This gives the front-mounted camera and hydrophone a wide view of the ocean above without expensive all-around sensor suites.

Data Relay to Decision Makers. Fast.

Short-range acoustic communication across the swarm gets information to a mothership, which then uplinks via a secure starshield connection. Observation and classification are done onboard using a GPU, then relayed in seconds to the decision makers.

React.

Decision makers can choose to strike a target before it exits the swarm field. The swarm will coordinate high-volume attacks on predetermined or reasoned vulnerabilities of a surface vessel. Modern surface vessels lack countermeasures for optical guidance systems and large volume underwater attacks.