

Autonomous Lifeguard Group

Senior Design Project

May 30, 2013



JOHN ASH

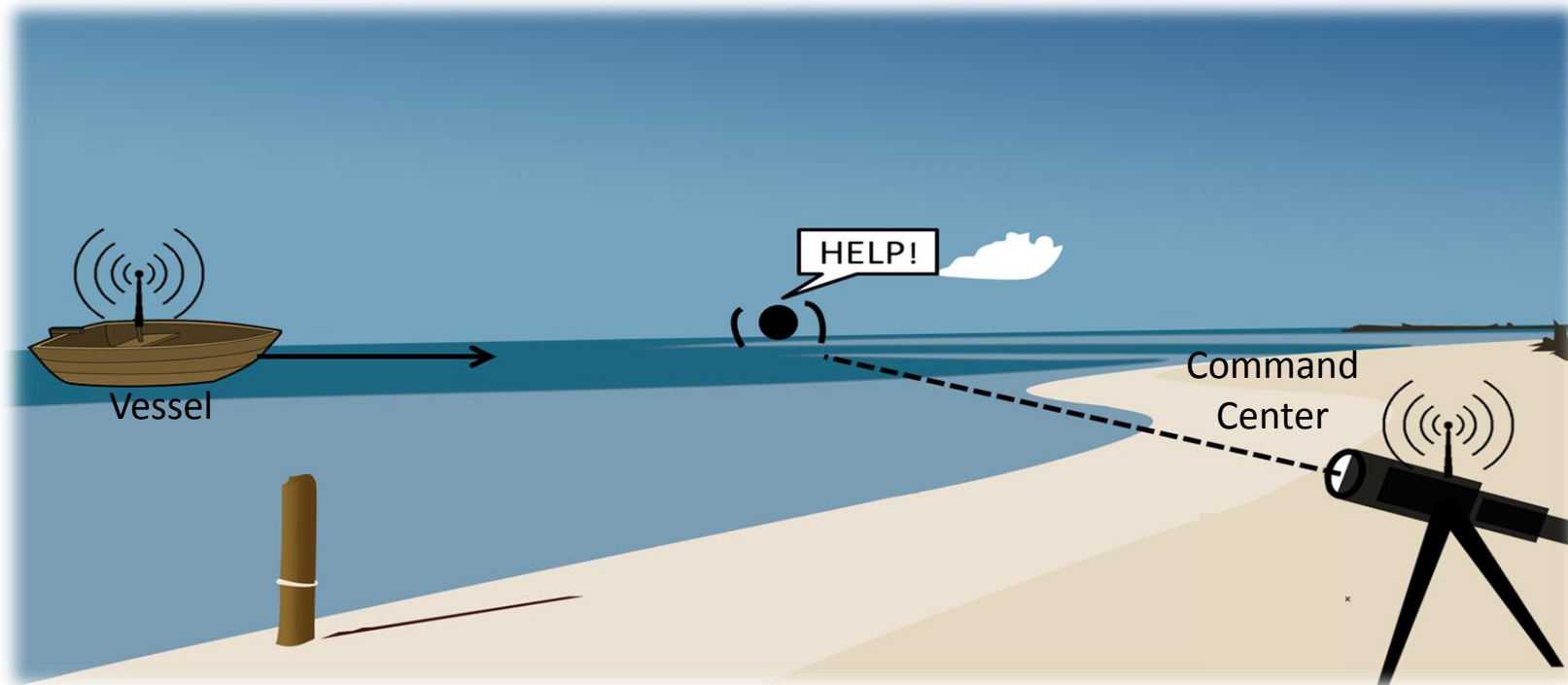
DARREL DEO

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Problem Statement

- 20% of drownings in the US have occurred with a lifeguard on duty in the past 5 years.
- We have developed a deployable autonomous vessel to aid distressed swimmers.



Project Goals

- **Command Center**

- Waypoint triangulation.
- Ease-of-use interface.



- **Vessel**

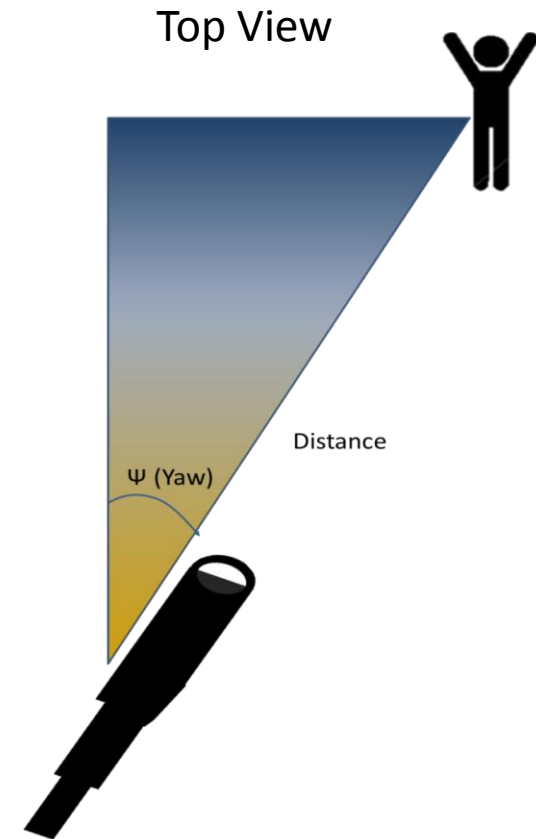
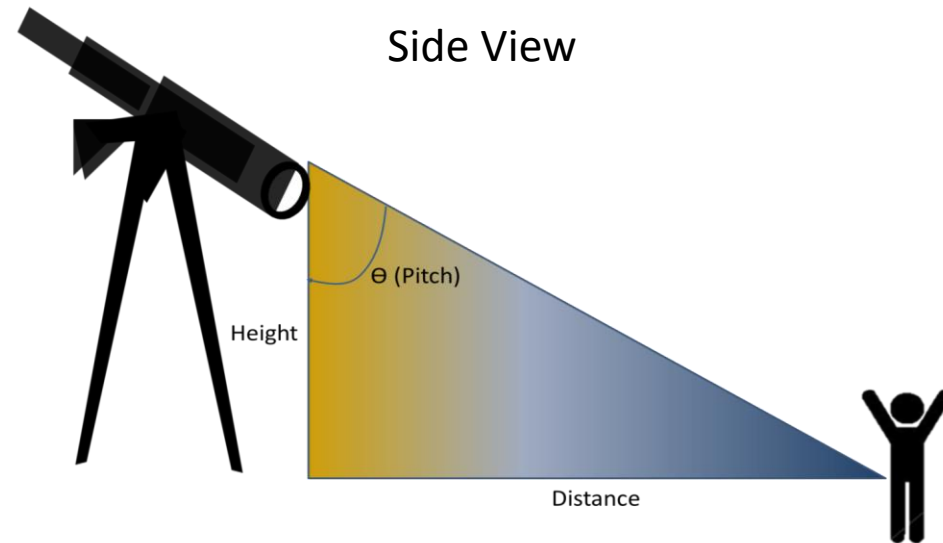
- Autonomous navigation to waypoint.
- Robust physical design as floatation device.



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Our Approach

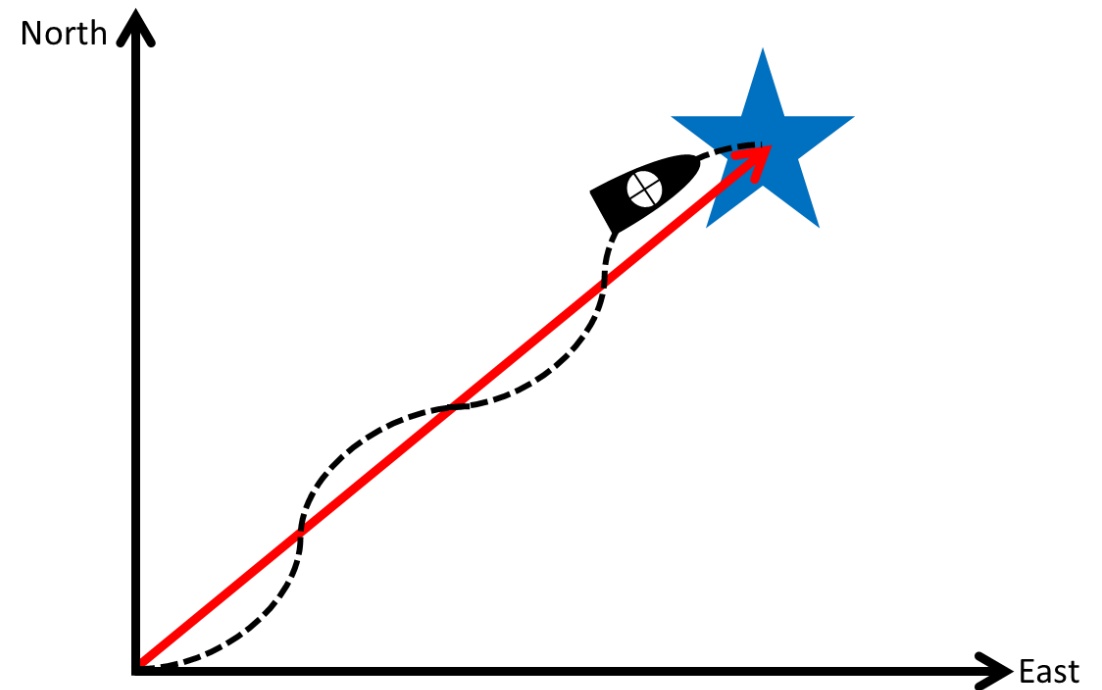
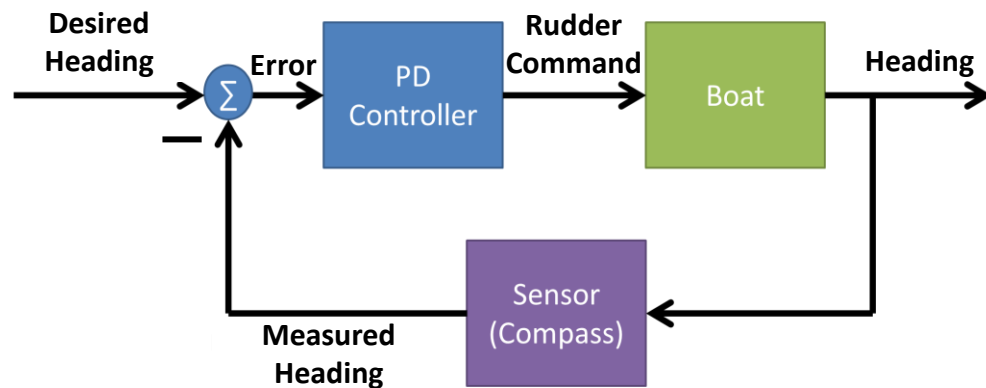
- Waypoint Triangulation
 - Encoded tripod obtains location.
 - Communicates waypoint via wireless.



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Our Approach

- Autonomous Navigation
 - Rudder controller.
 - Velocity scales with distance.



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Results

DEMO

Future Works

- Implement human sensing for search-and-rescue.
 - Audio Detection : Microphones
 - Object Recognition : Open-CV, Thermal Array
 - Collision Detection : Sonar
- Rugged physical design for deployment from ships and helicopters.

For More Information, Visit Us At

LifeguardRobotics.com

