



#### **Project Overview**

Transnational Criminal Organizations (TCOs) are using unmanned, autonomous surface vessels to transport contraband undetected across the Maritime Boundary Line. Such vessels are difficult to detect, so they pose a threat to national security, law enforcement, and public health. This project is focused on the design and manufacture of an autonomous surface vessel capable of transporting a payload across ocean waters. The end goal of the project is to provide useful ideas and information to the United States Coast Guard, who have intercepted a few vessels of this nature. Rather than improve upon or remaster one of the vessels confiscated by the USCG, the team shall design and build a device of their own concept. With a budget of \$4500, the team is expected to manufacture a model that meets or surpasses the abilities of the existing vessels. The team's final design shall not exceed a material budget of \$700, which correlates to the estimated cost of the previously intercepted vessels.



# Diagram of the PID Controller

# Materials Used

Electronics	Mechanical	Mounts & Fasteners
Batteries (6x)	Sealed Hatch (1x)	4-40 Heat set inserts & Screws
Arduino Due (1x)	Propellor Shaft (1x)	10-32 Fasteners & Lock nuts
GPS (1x)	Universal Joint (1x)	Servo Mount (1x)
Bluetooth (1x)	Pushrod (1x)	Motor Mount (1x)
Servo (1x)	2 lb EPS foam	Rudder Mount (1x)
DC Motor (1x)	Fiberglass (~5 yds)	Electronics Enclosure (1x)



ME: Shane Cooke, Jorge Martinez, Kyle McCoy, Andrew Preece, Juan Rojas ECE: Ahren Kimo Aguinaldo, Frank Aosman, Abdulaziz Bandar, Jason Lin, Ivan Orozco



### Exploded Views & Renders







### Key Requirements

• 2 to 4 knot Operating Speed • 66 Nautical Mile Range at 2.5

• Stealth against Radar, Visual, • UV and Salt Water Resistant













#### Team



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