



# **Team Silver A: Water Rescue**

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**2.009: Sketch Model Review**

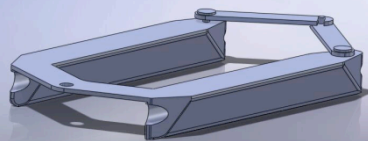
**October, 8, 2009**

# Idea 1: GUARD

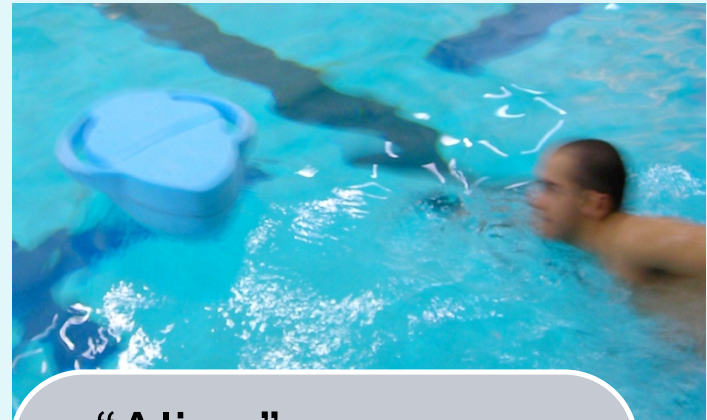
Tele-operated drowning victim retrieval vehicle



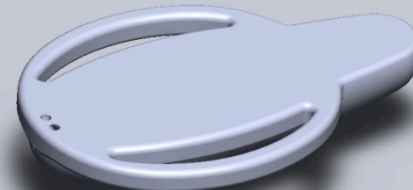
“Catamaran”



Latch to hold  
unconscious victims



“Alien”



Handles for conscious  
victims to hold

# Customers and Needs

## **Lifeguards**

- retrieve swimmers too far from shore

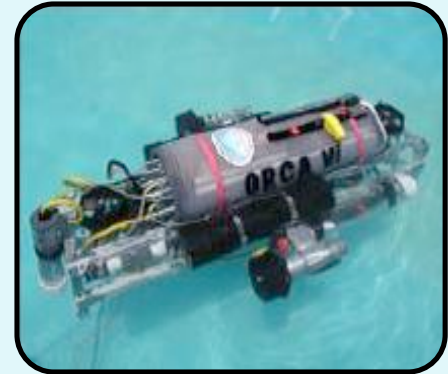
## **Boaters**

- retrieve men overboard
- no need for training personnel
- 6.4 million recreational boats in the US

## **Cruise Ships**

- rapid rescue of vacationers overboard

# Drivable water devices



None for rescue!

Customer Needs	Design Attributes
Effective locating/retrieval of victim	Lightweight tether cable provides electronic control
Reach victim quickly	Stream-lined shape with an even distribution of weight

# Testing



Drag of Different  
Shapes



Buoyancy



Victim Retrieval





# Testing Results

- Drag through water to test power requirements

Conditions	Power to pull at 1 m/s
"Catamaran" alone	~10 W
"Catamaran" with 80kg person	~75 W
"Alien" with 80 kg person	~ 60 W

- People naturally float low in the water
- Orientation of buoyancy is key
  - victim's face can be submerged
- Little buoyant force required (~30 lbs.)

# Takeaways

- Need a lower platform to grab victim
- Must position victim correctly during retrieval
- Needs to work for any body type and size
- Power requirements suggest that this product is highly feasible
- Andy the Z-Center lifeguard: “I’d totally buy it if it could successfully wrap around and retrieve victim”