



# Seas the Day

The SeaDog ROV  
Presented by: MACS



# Seas the Day

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## Demographics:

- Two females and one male
- Ages 14-16
- Reside in North Philadelphia





# Team Breakdown

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- Taylor Neel CEO
- Skylar Hazelwood Team Manager
- John Humenik Engineer
- Trinity M. Porter Engineer





# Mission Statement

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Our mission is to make an underwater ROV that helps to clean-up the polluted oceans and maneuvers through the water as smoothly as possible.





# Recruitment

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Seas the Day recruited by using announcements at school and talking to fellow cadets, especially those who participate in programs like boat-building and Sea Cadets.

Possible candidates were then put through a rigorous interviewing process by the team manager to make sure they would be fit for the job.



# Budget Management

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Seas the Day felt we did not need to use any extra money because we felt confident that with our building skill and the materials that were given to work with we could produce a ROV capable of cleaning up the ocean.

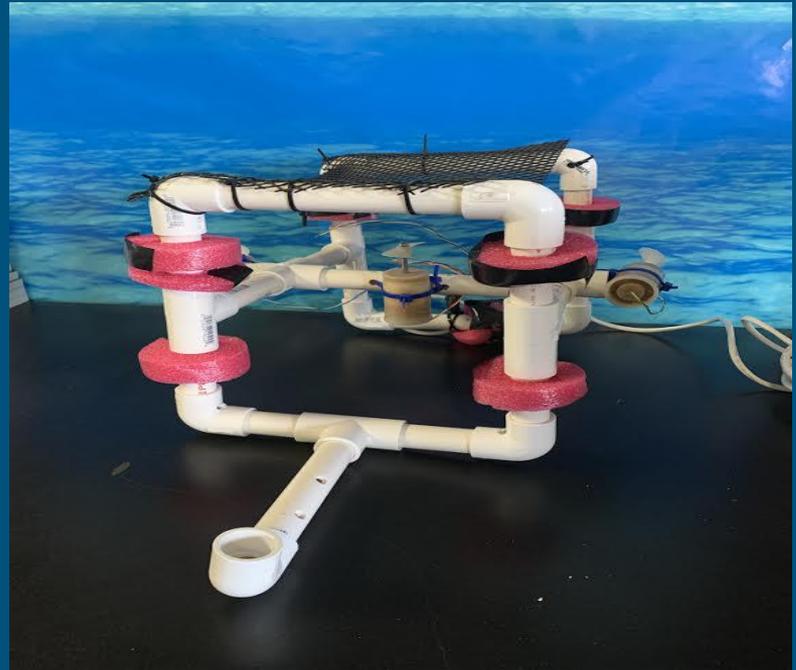
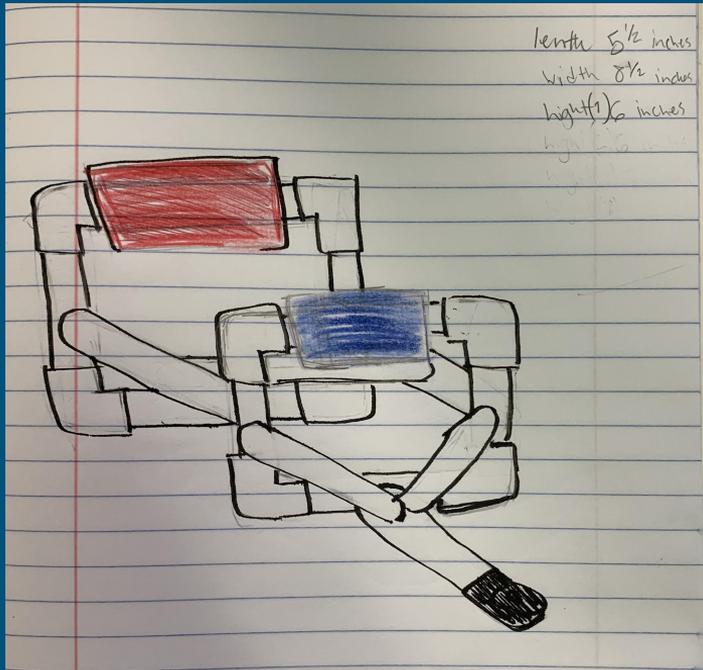


# Design Process

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1. First, we discussed the mission and talked about what our SeaPerch needed to be able to do.
2. Next, we sketched what we wanted our SeaPerch to look like based on the mission.
3. Then, we finalized what the SeaPerch would look like and the measurements for each piece of PVC pipe.
4. We measured and labeled each piece of PVC and then cut the pieces to the correct size.
5. Lastly, we put all of the PVC pipes together based on our sketch.

# Design





# Research

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- Soldering techniques for the control box
- Buoyancy - the perch's buoyancy is neutral/slightly positive so that the ROV is underwater but not sinking
- Human factors - Trinity is the best driver based on practice tests in the pool



# Testing

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- Electrical Test - checked for shorts and that the control switches worked using a multimeter
  - First without the tether cable connected we made sure that none of the switches had a low reading
  - Then we attached the tether cable and activated each switch to check that they each had a reading of about 10 ohms



# Testing

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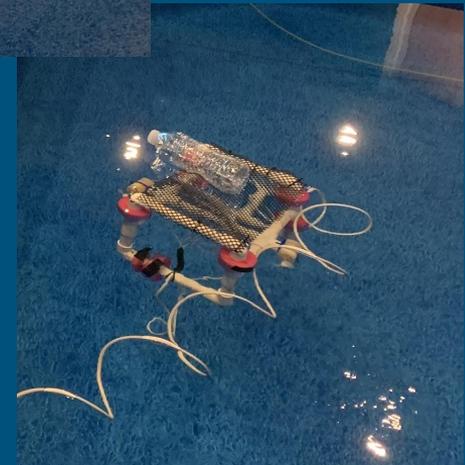
- Buoyancy - trial and error attaching pieces of pool noodles in different locations/different amounts on the ROV until neutral/slightly positive buoyancy was achieved



# Testing

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- Weighted hoops - tested to make sure the 'arm' coming out from the front of the perch was capable of picking up and carrying weights in the pool
- Plastic bottle - made sure the net on the top of the ROV is capable of picking up and moving the bottle





# Lessons Learned

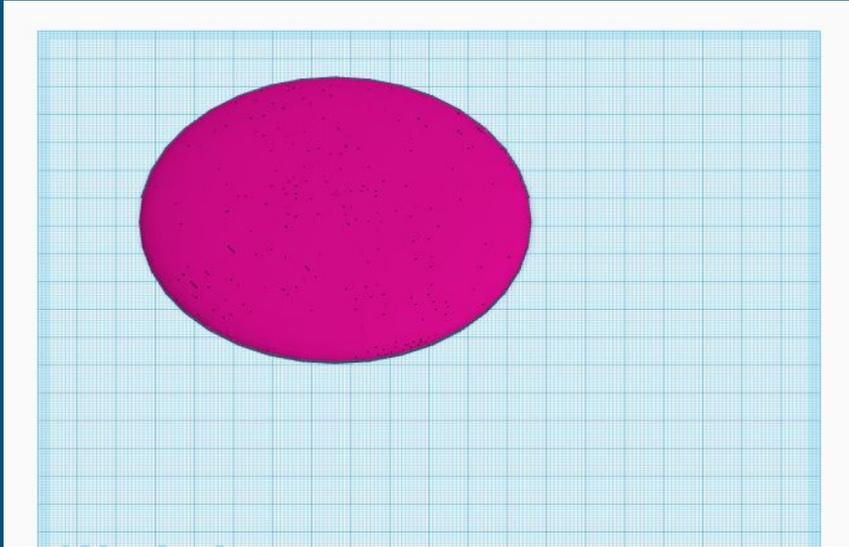
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- Noodles need to be secured to ROV otherwise they will fall off or move out of place
- Buoyancy - the detachable arm is necessary to achieve the perfect buoyancy
- Trinity is the best operator based on timed trials and maneuverability (not bumping into the sides of the hoops)



# Future Improvements

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A modification that could be made in the future is adding a 3D printed disk about 15 cm wide, onto the arm to help with pushing targets.