# "One ROV, Many Possibilities "

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## Abstract

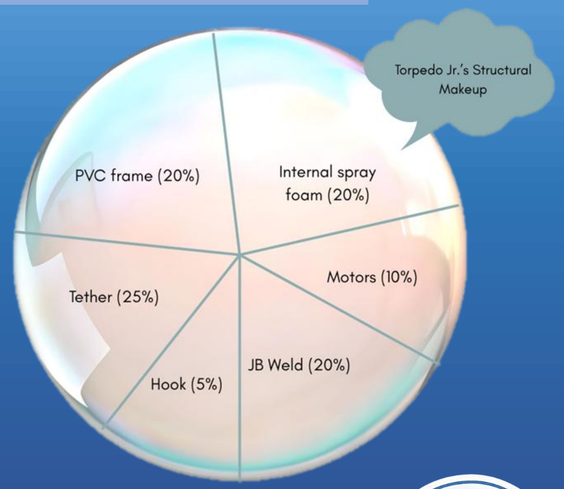
Instead of trying to find Nemo, our SeaPerch is searching for the specimens and samples of the ocean world. Hurricanes destroy multiple infrastructures every year, which results in billions of dollars lost. Our SeaPerch can explore what has been lost. Our ROV, Torpedo Jr., was constructed for inspecting confined spaces in the deep sea. The frame of our SeaPerch is perfect for the underwater exploration in shipwrecks, pipes, and caves. There are places in the ocean that cannot be reached with a gigantic submarine, so we created Torpedo Jr. to collect data in a short amount of time.

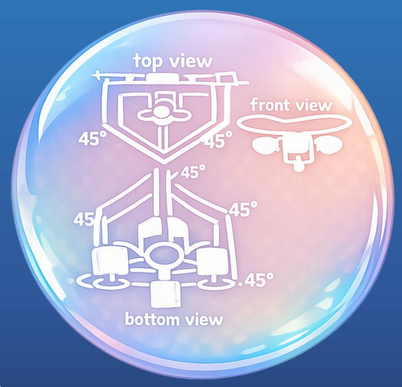
## Background & Motivation

Many marine biologists and scientists do not have the tools or machines to collect the information that is required for tests. Unfortunately, certain experiments cannot be conducted, and new information will remain undiscovered.

## Methodology

Our team utilized the EDP (Engineering Design Process) during the assembly of the ROV. We approached this project envisioning our ROV would have an arrow-shaped frame. However, Torpedo traveled through the water irregularly with constant halts and slight pauses. We needed to discard Torpedo and create Torpedo Jr. with a hydrodynamic pentagonal frame.

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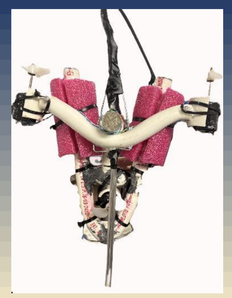
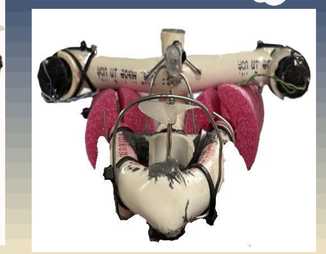
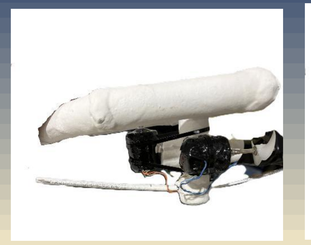


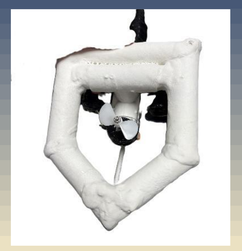


To this:

Torpedo

Torpedo Jr.





## Results & Discussion

Why did our team alter our ROV design? Well, we modified it due to a few complications. While testing Torpedo, we realized that the motors were faulty and caused the ROV to move in rough, interrupted movements. When we constructed Torpedo Jr., we specifically crafted its frame to meet our requirements we were looking for.

## Next Steps

How can our ROV assist in the real world? The SeaPerch could hypothetically aid marine biologists by inspecting confined underwater spaces during storm response. The ROV could fit through collapsed tunnels and shipwrecks sitting on the seafloor to collect samples for testing. Our team has posed questions in the past relating to STEM, such as "How can we improve upon our current ROV?"

## Conclusion

During the engineering process, we learned how to work collectively as a team, as well as improve upon our deliberation skills. The SeaPerch community has learned about us through our competitions, and that we have won three competitions this year.

## Acknowledgements

Our entire team would like to thank our coaches for all the time that they volunteered not only to guide us throughout the entire build and experimental process, but also for their support at competitions.