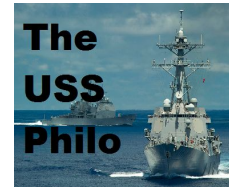




## Team Philo

### Resurrection of the USNA Spirit Vehicle



#### Team Members

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#### Project Sponsor

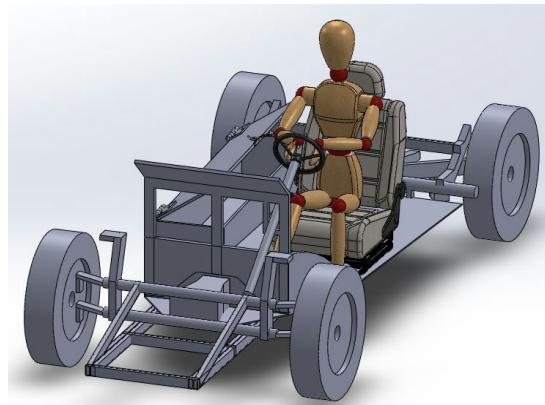
Naval Sea Systems Command (NAVSEA)

Background. The USS Philo was the the Academy's spirit vehicle that was built and maintained by midshipmen. It participated in spirit events such as pep rallies, sports games, and other public venues that needed a fun naval academy presence. Unfortunately, the USS Philo was not properly maintained and was decommissioned last year.

Objectives. This year's team is tasked not only with overhauling the vehicle but more importantly, setting down a framework for the vehicle to be taken care of for years to come. This includes detailed instructions for maintenance and repair as well as an official organization to be tasked with the job.

To this end, the USS Philo Team interviewed a number of customers including members of the Brigade of Midshipmen, Alumni, and the Director of the Division of Engineering and Weapons, CAPT Bitting. From these interviews, the team developed a list of customer requirements for the vehicle which include the ability to drive and operate reliably, to participate in a range of spirit activities, and to excite a Navy crowd.

The project was divided into subsystems including power and propulsion, hull and chassis, and auxiliary subsystems. Last year's team purchased an electric vehicle conversion kit with the idea of simplifying operation and maintenance. This year's team has explored its implementation in this configuration. Last year's team also purchased a new chassis as the old chassis was weathered beyond repair. This year's Philo team has designed a new subframe to support the chassis which includes battery pack storage for the electric drive system and a dashboard which will provide the necessary diagnostic and performance information to the drive (Figure 1).



**Figure 1. The new subframe design built on to the new chassis, including the cockpit, battery box, and dashboard.**

The team decided to reuse the hull from the previous vehicle (Figure 2) as it was determined to be in good structural condition. A new system is being designed to mate the new chassis with the old hull in a way that will easily facilitate maintenance. The previous version of the U.S.S. Philo featured cannons that could shoot candy and confetti using an air compressor. This year's team has designed a T-shirt cannon that will be retrofitted to the existing hull.



**Figure 2. A port side view of the U.S.S. Philo hull that has been separated from the decommissioned chassis.**