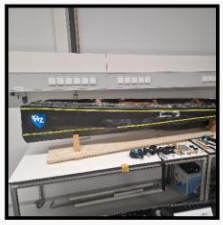
HZenzor

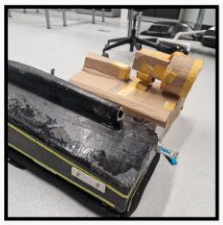
January 16, 2025 | Wesley van Schaijk

Installing a steering and propulsion system

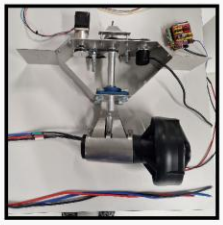


The year is 2018 when the HZ University of Applied Sciences receives a request to develop a crewless vessel to do measurements in areas affected by sand replenishment from the Dutch Department of Waterways and Public Works. The HZenzor was the answer to this request.

During the planning however, as can be seen in the picture to the right, the watertightness of the coating was determined to be untrustworthy. The removal of the original coat, filling and smoothening of the hull, and recoating of the vessel followed.



To begin with the installation phase of the project, a cardboard mock-up was made with the desired end result. This enables the planning of required actions to get the boat into a state where the desired results is possible.



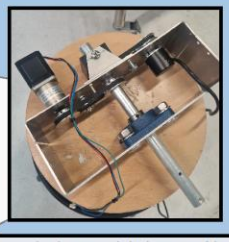
In previous iterations of the project. Students have engineered a new steering and propulsion system for the HZenzor 1. During this iteration, the system should be installed. Making adjustments to the design as the projects moves into the next phase of connecting the electrical systems.

After cleaning up the coating of the vessel, it was time to enable the system to be fitted inside the boat. After shortening the keel and covering the hole with flax, a container was designed to hold the shaft in place. In addition, the container holds an oil ring to ensure watertightness.

During the work on the HZenzor, the Rotterdam University of Applied Sciences was visited for a tour of their Autobots projects. This to learn from our colleagues on potential developments that might be interesting for the HZenzor.

Problems arose during the installation of the system as its width barely fit the vessel. The complete system was also too high, so the lid would not close on top of the boat.

A final watertightness test was done with the system installed. The final stages of the project include the finalization of the report, the transfer-documents and starting with the electrical work. Installation of the battery has been discouraged by the new FabLab managers due to the state of the electrical wiring.



To combat the issues with the dimensions of the system. The frame was redesigned and remade. The top of the frame was reused as a time and material saving measure, the bottom was completely replaced. In addition, wooden studs where added to the inside of the hull to enable the distribution of forces along the length of the hull.