Cost-Effective Remotely Operated Vehicles (ROVs) for Ecological Analysis

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In response to the growing issue of global pollution, an inexpensive solution must be manufactured to test for pollutant levels in local bodies of water. These waters can be used by residents for a myriad of reasons such as food, sport, and recreation; therefore, locals should be given an effective method to test their waters at a low cost. Underwater robots are the perfect tool for doing this task, as they are remotely operated, inexpensive, and will protect the operator from any potentially hazardous underwater environments. In order to create this inexpensive vehicle, which is currently not available commercially, extensive research and prototyping must be completed before constructing the final product. A thorough analysis of each component must be done in order for the optimal materials to be chosen. The final robot designed in this project had a cost of $245.00, which is less than half the cost of the cheapest micro-work-class vehicle currently available in the market. The proposed vehicle was tested to ensure its effectiveness at conducting basic ecological sampling and measurements. The two initial hypotheses that stated that a cheaper alternative and more effective solution could be made in comparison to current water testing methods and ROVs were supported by the data collected in this project. As a result, ROVs are a feasible, inexpensive, and effective means of conducting underwater ecological studies and analyses.

Awards Won:
Third Award of $1,000