

UC SANTA BARBARA

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UNDERWATER "R2D2" IN DEVELOPMENT

Think of it as an underwater R2D2.

Beeping and clicking along, it carries out whatever mission it has been programmed for. Its designers call it the Volkswagen of its kind.

Shaped like a missile, powered by batteries, and designed for any number of possible missions, this "autonomous underwater vehicle" or AUV, is a pet project of the researchers at the Ocean Physics Lab at the University of California, Santa Barbara.

Still in development, the project lacks only for about \$100,000 and a little more time from its creator, Derek V. Manov, director of the Ocean Physics Lab, who is quick to mention that the funder's name will be carried prominently on the side of the vehicle, once it is complete.

This unique AUV can be programmed to check environmental indicators, for example to "sniff out" oil leaks. It can also "listen" to the underwater environment and check the water for key indicators such as temperature, salinity and light. The bioluminescence of a red tide could be observed.

The UC, Santa Barbara vehicle will be a low-cost version of the multi-million dollar AUVs designed and built at other institutions.

"They are making the Ferraris and the Rolls," said Manov. "We are making the Volkswagens. If you need a Ferrari, great, but maybe a VW will do the trick."

"Ours is technically innovative but low-cost and efficient, and built for specific applications," said Manov. "There are several other larger vehicles that do it all, but maybe you don't need it all. We could build 20 for the cost of one of those."

This AUV will have built-in directions and a certain path to follow. But those could be changed remotely at any time. And the information it picks up can be downloaded into a computer for analysis. Communications could be carried out via satellite or cell phone.

"It could even carry a miniature camera and be used by a museum," said Manov. "Although that would cost more. But really, the possible instrumentation we could include is unlimited."

The staff at the Ocean Physics Lab, headed by oceanographer Tommy D. Dickey, spends most of its time developing instrumentation for and analyzing biogeochemical data from prominent international ocean research activities like the Bermuda Testbed Mooring in the Atlantic Ocean, or the Arabian Sea Investigation, in cooperation with other leading oceanographic institutions. But they are clearly smitten with this small-fry vehicle that sits on a table in the lab and is so portable that one person could carry out to a truck and drop into the Santa Barbara channel for a data run.

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