

Signalling a sea change

EVENT Having won NIOT's underwater vehicle contest, five city students are headed for a bigger challenge in San Diego

Five engineering students from Chennai have designed a machine of the first water — an autonomous underwater vehicle (AUV) that won a national design competition for students conducted by the National Institute of Ocean Technology (NIOT).

NIOT is sending the famous five — Anand Sunderasan, R. Rajesh and M. Saroj from Panimalar Institute of Technology, B. Prassanna from SSN Engineering College and S.V. Kaushik from SMK Forma — and their magnificent machine to an international AUV design contest at San Diego, being organised from July 17-22 by the Association for Unmanned Vehicle Systems International (AUVSI) and the United States Office of Naval Research.

The AUV has a completely water-sealed pressure hull where a dedicated system is lodged. "Our system contrasts sharply with those of our competitors — most of them chose to install laptops instead of designing their own systems," says Prassanna.

All the major components, barring the five thrusters — which were imported from the U.S. — are placed within the pressure hull. The instruments include a pressure sensor for calculating depth, an inertial measurement unit for studying the AUV's orientation and three image-



CHUGGING AHEAD The Chennai team with its autonomous underwater vehicle (foreground) that won the NIOT contest

processing cameras for safe navigation. A grabber, which holds objects in response to signals sent by the computer based on inputs from the image-capturing unit, is another remarkable feature.

"With relevant enhancements, the vehicle can be deployed in missions to study oceanic eco-systems," says Anand.

The 24-kg AUV, weighing one kilogram in water, operates on the principle of negative buoyancy, whereby the thrusters help dunk it to the bottom, and a kill-switch is employed to bring it to the surface. "For real-time applications, involving seas and oceans, an acoustic

modem will replace the kill-switch," says Kaushik.

In the NIOT contest — called 'SAVE 2012' — this Chennai team survived three rounds. Sixty teams made it to the first, Preliminary Design Report. Twenty were in the second, Conceptual Design Report. "From the second round, the competition was intense. We faced a panel of eight scientists, including one from DRDO," recalls Anand. "Two trials were conducted in the final round," says Prassanna.

Eight teams were in the finals, called 'prototype only', but only five produced their vehicles. Crossing the choppy waters of stiff com-

petition, the five boys from Chennai finished first ahead of IIT Kharagpur and Ambedkar Institute, Delhi.

"Looking back, the eclectic composition of our team gave us an advantage — three of us are 'triple E' students and the other two are mechanical and computer engineers in the making," says Prassanna.

A smiling Anand adds, "We have won the battle, but can rest only after we win the war. We are looking at improving our underwater vehicle for the big contest at San Diego."

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