Robotics Brings Science To Life

Ho'okele Staff

MC2 Johans Chavarro

Navy Public Affairs Support Element West, Det. Hawaii

Students from elementary, middle and high schools around the State participated in the 2015 Hawaii Regional SeaPerch Underwater Robotics for Youth competition Feb. 21 at U.S. Coast Guard Base Honolulu.

Sponsored by the Office of Naval Research and managed by the AUVSI (Association for Unmanned Vehicle Systems International) Foundation, SeaPerch is an innovative underwater robotics program that equips teachers and students with the resources they need to build an underwater remote-operated vehicle (ROV), allowing students to learn about science, technology, engineering and mathematics (STEM) and robotics and electronics.

According to Coast Guard Lt. Cmdr. Andy Goshorn, regional naval engineer for the Coast Guard and event coordinator, the SeaPerch competition is a way for students to put what they have learned about robotics and engineering to the test, with this year's competition attracting the highest attendance to date.

"This year we had 40 teams and around 200 students," said Goshorn. "That's about 20 students and four more teams than last year, and being out here you really see that [the students] love the competition and the challenge. They have this resiliency to really double down when they face obstacles during the competition and to not give up. And most of all, they have a good time doing it."

Students built their ROVs from a kit comprised of low-cost, easily accessible parts, following a curriculum that teaches basic engineering and science concepts with a marine engineering theme.

This year, the Pearl Harbor Naval Shipyard Association provided funding for the kits, which were distributed to interested schools.

To assist with the build process, Goshorn and his team provided mentors to individual schools and also organized a "build day," which allowed students from different schools to meet with mentors and receive assistance on soldering circuit boards, waterproofing the engines and wiring, and field-testing their ROVs.

Anne Calef, a fifth grade teacher at Hale Kula Elementary School, said aside from the chance to learn about the hardware, tools and concepts involved in building the ROV, the project also provided the students with lessons in communication and teamwork.

This year's competition consisted of a video and poster presentation, as well as two challenging underwater events: the "obstacle course," where teams navigated their ROV through a series of large rings oriented in different directions, and a "finesse course," which tested the capability of each team's ROV to perform individual tasks, such as maneuvering and actuating equipment on the pool floor.

For many participating students, seeing their creations come to life throughout the project was both exciting and rewarding despite whatever unexpected challenges came up.

"My favorite part for the whole project was working on the robot," said Melissa Takahashi, a student at August Ahrens Elementary School. "Getting to build the robot and then seeing if it actually worked and fixing the problems it had was really fun."

Coast Guardsmen, along with volunteers from Pearl Harbor Naval Shipyard, Space and Naval Warfare Systems Command and Navy divers assigned to Mobile Diving and Salvage Unit 1, spent the competition evaluating the robots' performance, resetting obstacles in the water and retrieving ROVs from the courses.

In the end, Goshorn said the competition allowed more than just a way to teach students about ROVs, it allowed them to see how STEM can transcend paper and pen to affect change and create.

For more information about Hawaii SeaPerch, visit http://seaperch-hawaii.org/ and http://www.seaperch.org/index.