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Their robotics STEM from love of science

By VALERIA M. RUSS
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You can tell right away that Shavar Miles isn't big on talking. He speaks with a quiet, shy voice.

But the 14-year-old student says his robotics do the talking robot.

He made it dive below the parking lot outside the

The Sea Perch is a project to destroy ocean mine Warfare Center in Philadelphia

As Shavar, who will be at the hotel could watch a meeting room, fellow Clemente students Damaris Feroje and Emil Sadrin, introduced the Sea Perch before a small audience. All three students said they're considering careers in engineering.

"It opens your mind," said Damaris.

But, added Emil, "it's a lot of work and effort."

The Clemente students' demonstration, and robotics demonstrated by students from Baldi Middle School and Overbrook High and Penn State and the University of Pennsylvania were part of the Science, Technology, Engineering and Math (STEM) Talent Development Forum at the hotel.

The middle- and high-school students assembled robots from kits supplied by the Delaware Valley Industrial Resource Center (DVIRC), an economic development group that is focused on encouraging Philadelphia-area students to develop career interests in science and technology.

One award-winning design by the Overbrook robotics team looked as though it was made with PVC pipes and pieces of wood. But it had intricately connected electrical wiring attached to a battery pack to allow a robotic arm to move.

The DVIRC supports the funding of robotics programs in Philadelphia-area public schools.

"This program prepares our students for the future and helps build the highly skilled and technically savvy work force that corporations are searching for," said Velda Morris, a robotics education specialist in the Philadelphia schools' Office of College and Career Awareness.

Evelyn Cruz, a robotics teacher at Clemente, noted that the students learn about electrical and mechanical engineering, as well as computer programming and design, "so that they can see what the robot will look like on a computer screen and not just drawn on paper." The students also learn about making videos, she said.

The forum was co-sponsored by the National Council for Advanced Manufacturing and the DVIRC.

Raheem Manning, 17, who just finished his junior year at Overbrook, showed off two robotic projects from his school's team.

One design, a robotic arm similar to the kind used by NASA in space, won first prize in an area competition in the 2004-05 school year, Manning said. The other robot, a larger prototype of a nanorobot that will be used to manipulate DNA, won second prize in the 2005-06 year, he added.

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"We got to take both of these robots to the national competition in [Auburn,] Alabama," said Manning, the captain of the Overbrook Robotics Club.

Manning said he enjoys working with robotics because "it is challenging."

Students from Penn State demonstrated a replica of a Martian rover and students and a lecturer from Penn created a stir with a six-legged, camera-equipped, walking robot named RHex that can run, climb stairs and leap obstacles. RHex was "modeled after a cockroach," said Joel Weingarten, a visiting lecturer at Penn.

"If you're going to model a robot after an insect, then a cockroach is a good one because they run fast and they're impossible to destroy," Weingarten said.

He said RHex is the kind of robot that can be used after disasters including earthquakes to go into crumbled buildings to search for signs of life.

