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PUTTING THEIR

SKILLS

TO THE TEST

Robotics team wins international competition learning real-world skills along the way

Shelby Anderson

While most students were enjoying the start of their summer vacation, students from **Ozaukee and Oostburg High Schools** were busy winning an international underwater robotics competition.

A team of 12 students from the two high schools engineered an underwater, remotely operated vehicle (ROV) that took first place in the Ranger Class at the Marine Advanced Technology Education (MATE) Center's international underwater robotics competition, June 21-23 in Orlando, Florida.

The team from Oostburg and Ozaukee High Schools qualified for the international competition after winning the 2012 Wisconsin ROV Competition in March at the University of Wisconsin-Milwaukee and Discovery World in Milwaukee.

Winning the international competition, which featured 50 teams from a dozen different countries, was definitely exciting, but Oostburg High School science teacher and

team mentor Terry Hendrikse said the competition is just the final step in a year-long project.

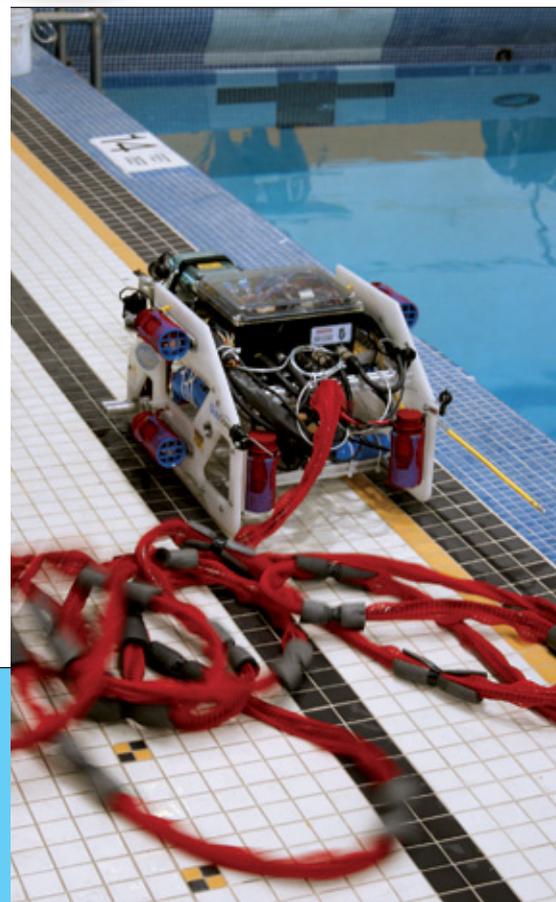
"This project is not about winning or losing, but rather about passing important skills along to the next generation," Hendrikse said. "The students on this ROV team have literally become world-class engineers, creative designers, CAD drawers, computer programmers, technical writers, presenters, accountants, and problem solvers."

■ Getting Started

The competition challenges high school students to engineer an underwater robot or ROV that can maneuver underwater and complete tasks such as picking up and moving objects, negotiating very tight



Watch the ROV team's underwater robot in competition! Visit wasb.org and select "Wisconsin School News" and then click "Current Issue"...



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spaces, and other exercises.

In addition, each team gives a presentation to a panel of engineers, explaining the rationale for the design of its ROV.

To tackle these challenges, the Oostburg and Ozaukee High School team formed a company complete with business, research and development, accounting and engineering departments. Eric Hartnett, Ozaukee High School graduating senior, led the team throughout the process as team CEO.

During the course of the building and development of the robot, students learned technical, real-world skills as well as “soft” skills, such as working collaboratively and communicating among team members.

“I learned how to be a better verbal and written communicator with the help of working on the written technical report and oral engineering report,” said Oostburg graduating senior Seth Opgenorth. “Being on this team has been the most rewarding experience of my high school career.”

■ Innovation & Collaboration

The project required the students to try a number of different options and scenarios to determine what would work best for their ROV. Students learned that failure wasn’t necessarily a bad thing and that it often, ultimately, led to better ideas.

“Things don’t always go as planned,” Opgenorth said. “For example, the team spent a lot of time working on having a laser for underwater distance measurement. We finally were able to get one working, only then to find out at the competition that lasers aren’t allowed. This really showed us the importance of having a backup solution.”

Hendrikse added that the ROV program gives students the kind of innovative, collaborative learning opportunities that education stakeholders believe need to be provided to students.

“Education is going through major reform and I am excited to be part of these changes,” he said. “Engineering an ROV and running a company provides learning

opportunities far removed from a traditional classroom. These opportunities have real-life application and are very purposeful in preparing students for college and their careers.”

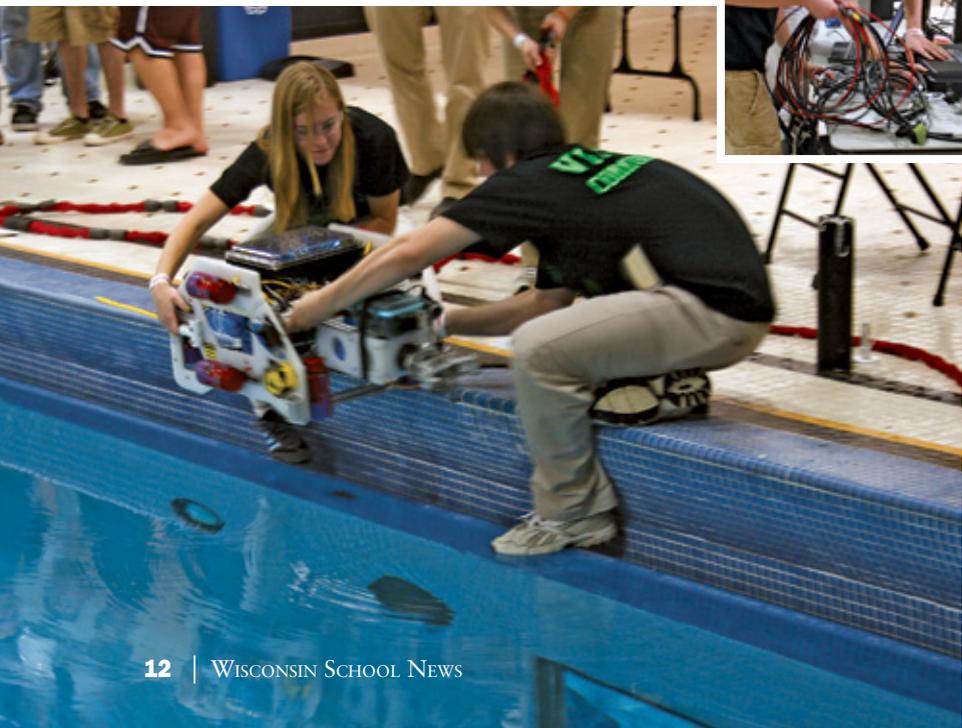
■ Winning

The team’s hard work paid off this summer in Orlando where they took first place in the international competition. The team excelled in the engineering presentation and throughout the rounds of the competition. However, when the final round of the competition began, the team knew it had to perform well to secure first place.

Hartnett, the team’s CEO, was at the controls for the final exercise of the competition, which involved using a Velcro patch to cover up a hole in the side of a model ship. Dealing with currents in the pool and other challenges, the team was able to maneuver its robot and placed the patch on the ship with 10 seconds left on the clock.

“The moment when the velcro patch was adhered over the hole on

Teamwork: Students from Oostburg and Ozaukee High Schools placing their ROV in the water before a competition (below). Over the course of the project, students learned advanced engineering and robotics skills (right).



WISCONSIN ROV Teams

A total of five ROV (remotely operated vehicles) teams from Wisconsin competed in the Wisconsin MATE Regional ROV Contest.

.....
Lakeview Technology Academy/Aquanaut ROV, Pleasant View

.....
Ozaukee and Oostburg High Schools

.....
Sauk Prairie High School

.....
The Prairie School, Racine

.....
West Bend High Schools



The Ozaukee and Oostburg ROV Team: Each member of the Ozaukee and Oostburg ROV Team had a specific title and role in the overall effort of planning, building, and operating the team's ROV (remotely operated vehicle).

the ship was easily the most intense and pivotal point of the competition," Hartnett said. "During the last mission run, we had been fighting currents the entire time. To add to the pressure, we knew the run had to be perfect in order to be in the running

for first place overall."

The team was awarded a perfect score on that last exercise to win the competition.

"It takes outstanding individuals working together with laser focus to achieve this level of success,"

Hendrikse said. "I am extremely proud of these talented students for their accomplishments and am looking forward to watching their continued success as they begin college and their careers." ■

Anderson is editor of Wisconsin School News.



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