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Joint high-school team tops squads from 21 states, 9 countries in challenge

You may have been able to hear the strains of the Queen power ballad “We Are the Champions” playing all the way from Orlando, Fla. to Fredonia, as the ZO3 Robotics team won an international competition last week.

The team, which includes members from Ozaukee and Oostburg high schools, finished first in the Ranger Division of the Marine Advanced Technology Education (MATE) robotics competition in Florida.

The students were competing against secondary-school teams from 21 states and nine foreign countries, including China, Taiwan, Russia, Egypt, Macao, Hong Kong, the Netherlands, the United Kingdom and Canada.

The Explorer Division drew teams from 23 colleges and technical schools from around the world.

ZO3 Robotics was the only squad to finish with a perfect score in the underwater mission. Final scores were also based on engineering evaluation, technical report and poster board.

In the competition, students build and control a remotely operated robot to survey and repair a simulated sunken ship on the bottom of a swimming pool. The robot must collect samples and cap the flow of oil that is leaking from the ship’s fuel tanks with a magnetic patch.

The team’s underwater robot relied on a control system that included an Arduino microcontroller, a Play Station II controller and a laptop computer.

Students fabricated a waterproof box called a dry housing to protect the underwater electronics and computer components.

The estimated cost of the parts used in the robot was $5,500.

Under the rules of the competition, students are not allowed to watch the progress of their robot while it is in the water.

Instead, they monitor the activity by watching input from eight onboard, waterproof cameras displayed on two multiplex TV monitors.

The ZO3 Robotics team followed a business model for its operating structure, dividing into

business, research and development, accounting and engineering departments.

The team's CEO, Ozaukee High valedictorian Eric Hartnett, was awarded an individual award for his standout performance in the engineering presentation.

Hartnett was on last year's robotics team, which finished second in the international competition.

"Taking second place last year in Houston was by far the biggest letdown I have felt in my life," he said. "Having worked so hard, staying up late all those nights, and putting everything down on the table only to fall short by a couple of points, was unbearable.

"At first these emotions limited my capabilities because of the fear of failing once again. As time went on, I was able to change the way the emotions affected me, so by the time we had advanced to the international competition, I felt that we were there for a reason. To capture what was so close last year."

Hartnett said the team also took time for some fun at the beach and the hotel pool.

"After all, we were in Florida," he said.

Other Ozaukee High team members and their duties included: Carissa Conine, technical engineer and writer; Marissa Thill and Kaelyn Griffin, testing coordinators; Evan Lallensack, technical engineer; Rose Paulus, testing coordinator; Brooke Dieringer, fundraising coordinator; Zach Vogt, electrical engineer; and Amanda Nordby, public relations; Sara Crynock, accountant.

Oostburg students Seth Opgenorth, electrical engineer, and Alex Wynveen, director of communications, rounded out the team.

The faculty mentors were Ozaukee High science teacher Eric Meinnert and former OHS teacher Terry Hendrikse. Dustin Richter and Randy Vogt were community mentors, and Terry Browne served as business mentor.

Image Information: MEMBERS OF THE ZO3 Robotics team posed with their underwater ROV on the deck of the competition pool in Orlando, Fla. The team, which included students from Ozaukee and Oostburg high schools, finished first in their division, beating teams from 21 states and nine foreign countries.