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Rashah McChesney The Quad-City Times | Posted: Friday, March 9, 2012 12:24 am

Davenport West High School teacher Jason Franzenburg, junior Eli Shellabarger, sophomore Nicole Kraft, sophomore Pardeep Saini and sophomore Amber Sawvell talk via the web with a Real World Design Challenge team from Des Moines. The Davenport West team won a state level competition in the design challenge and joined forces with the Des Moines team to represent Iowa at the national competition in Washington, D.C. (Rashah McChesney/QUAD-CITY TIMES)
Four students huddled around a laptop, trying to fit all of their faces into a webcam’s tiny frame at Davenport West High School.

Across the state, in Des Moines, several other students did the same as the two groups video-conferenced for the first time to discuss the looming deadlines for the national Real World Design Challenge competition.

A three-student team from Davenport West won the state level competition despite losing several teammates and being unfamiliar with the design process. It was the school’s first time participating in the complex aerospace engineering challenge.

“This year, there were 16 teams that started, and there were five that finished,” said Yvette McCulley, Iowa’s design challenge coordinator.

The competition was the second time Iowa schools participated in the challenge, and McCulley said the final result was much better than the first year when none of the teams that started the challenge finished.

Davenport’s winning team was given the option to partner with the second-place team from Des Moines Hoover High School, and the combined team, its coaches and mentors will get an all-expenses-paid trip to Washington, D.C., to compete in the finals.

GearUp Iowa, a program that focuses on college readiness for grade-school students, has offered money to the Davenport West team for laptops that will run the engineering software and fund a trip so the scattered teammates can meet in person before the final competition in April.

Several people involved said the complexity of the software required to complete the challenge is a major part of the overall difficulty.

Each team is given a suite of industry-donated software licenses for professional-level engineering design programs. McCulley said the software is worth $1 million.

Ralph Coppola, project director for the design challenge, said part of the value of the software packages comes from the option each teacher gets to install 900 licenses to the educational version of CREO, an engineering design and modeling program suite that can cost several thousand dollars a license to buy.

“This is not an opportunity that is designed for every kid,” McCulley said. “This is for students who absolutely have a passion for aeronautics and engineering design.”

Eli Shellabarger, a junior and the West team’s analyst, wants to pursue an aeronautical engineering degree.

He spent several hours in online training sessions learning how to use the programs and how to interpret the data that came out of them.
The newly combined team talked about tweaks to the aircraft’s design, including the position of the wings and adding solar panels to help power the craft’s electric motor.

As the conversation unfolded, Shellabarger launched into a tech conversation with one of the students from Des Moines.

“If I’m right, I figured out on our plane that as long as we weigh under 990 pounds, we’re good with how much lift we can get,” he said.

Jason Franzenburg, the team’s coach, said he isn’t sure they would have completed the challenge if the enterprising junior hadn’t become so comfortable with the software.

Shellabarger shrugged when he heard the praise.

“For me, it was more about figuring out what aerospace is all about, so I know before I get into college,” he said.

For sophomore Amber Sawvell, an aspiring civil engineering and architecture student, the project had a different kind of appeal.

“I thought, ‘Well, space, wow, that’s different,’” she said. “I don’t know anything about airplanes or space, so why not just jump into this and try it.”

Franzenburg said he hoped more students like Sawvell joined the challenge.

“Our robotics is primarily 90 percent males, so I wanted a challenge that would be something a little different that maybe the girls would get into,” Franzenburg said. “That’s what sold it for me.”

The newest addition to the group, Nicole Kraft, is another one of Franzenburg’s students with engineering aspiration.

Kraft laughed when she talked about why she joined the team.

“He just kept saying, ‘You have to do this, you have to do this,’” she said as she pointed to Franzenburg.

Franzenburg was unfazed by the lighthearted accusation.

He said he wanted her to be around more female engineering role models such as Julie Kim, an engineer at Exelon Nuclear who mentors the team.

Kim, a recent college graduate, said the rigor of the project surprised her.

“I just graduated college six months ago, and I thought this was like a capstone senior project,” she said. “These are sophomores in high school.”
Kim said there were a lot of late nights involved in winning the state challenge.

“I don’t know a single high school student that you would go up to and say, ‘How would you like to spend several hours of your time writing a 19-page technical paper, proofread it and most likely not have any recognition for it,’ and they would do it,” she said. “There are three of them right here.”

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