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Tech High's experience at national robotics competition 'one big highlight'

By Nicolas Grizzle



Tech High's robot, "Gloria Machina," makes a pit stop at the regional competition two weeks ago at UC Davis.

Greg Weaver is finally getting some sleep, something that hasn't been the case lately for the advisor of Tech High's robotics club. Members of the club returned late Sunday night from the "Super Bowl" of robotics, the national competition held in the Georgia Dome in Atlanta, Georgia, where they finished 41st out of 86 teams. "The whole thing was one big highlight," said Weaver.

It was more than just seeing some cool robots and meeting some cool people, it was networking with industry bigwigs and solidifying an interest in robotics.

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"It's a pretty great experience to see that many people interested in technology in one place," said team member Dylan Field, a sophomore. His job at the competition was scouting and finding weaknesses in other alliances.

One highlight for him was talking to a man from a main engineering company, telling him the details of "Gloria Machina," Tech High's robot (the name translates roughly from Latin to "Glory to the Machine"). Government agencies, including the CIA were recruiting at the competition, as were about 20-30 universities, said Field.

Though the Phantom Robotics team's bot did not finish in the top-eight like it did at the regional competition at UC Davis, there were no major failures on the robot, which Weaver says is "a big success by any standards." This couldn't be said for all other bots, as Gloria Machina broke the arms off three other robots on its own. "It happens," said Weaver. "They just got in the way."

The competition is hosted every year by FIRST (For Inspiration and Recognition of Sciences and Technology) Robotics. Tech High's team got to meet its founder, Dean Kamen, who holds over 150 U.S. patents, including the Segway scooter. "(The national competition) is just this really cool thing with bigwigs who aren't bigwigs, they're just down-to-earth people," said Weaver.

The cash to get there

"It's sort of mind-boggling the budget that's required to compete on a national level," says Weaver. The funding for this trip came in large part from corporate sponsors. "The only reason we were able to go to nationals is because the CEO of MV Transportation said 'If you get to nationals, we'll provide \$10,000 toward transportation costs,'" he said.

Private donations are also accepted. One venue for this is the club's pasta feed, held at Rancho Cotate High's multi-use room April 27. Call 792-4825 for more information on that.

The club competed in two regional matches this year, one in San Jose and one in Davis. At the Davis event, the team earned the Regional Engineering Inspiration Award, the second-highest honor bestowed at a competition, which earned them the invitation to the nationals. This year marked the first time the club had competed in more than one regional match, and Weaver says he'd like to do more. "It would be a lot of fun to get out of California," he said, adding that competitions in Hawaii, Seattle and Michigan are also possibilities.

Regional specialties

At the national competition, the team noticed strengths and weaknesses of other robots from different parts of the country. Robots from California, specifically near Silicon Valley (like Tech High's team) have "great whiz-bang programs and nifty little electronic gadgets," said Weaver, while teams from Michigan, an area known for car manufacturing, had "hot shot drive trains."

Some teams also had two, three or four-speed transmissions on their robots. Gloria Machina had the one-speed standard transmission which came with the robot kit from FIRST given to all teams. The kit varies from year to year, but teams can make their own parts, just as long as they're newly constructed for that year's competitions.

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The competitions are announced in January of each year by FIRST. The challenge differs from year to year - this year's was picking small round innertubes and hanging them on horizontal poles at different heights.

Well-established teams from Oregon and Washington were of interest to Tech High's team, and for that reason Weaver said he'd like to compete in the Seattle regional possibly as soon as next year.

'Gracious professionalism'

Part of the reason Weaver wants to compete at multiple regionals in different areas is because of the prospect of learning new techniques and inspiring new ideas in the team.

"There's a nature of gracious professionalism in the robotics community," says Weaver. "I emailed one of the mentors (of a competing team) and within 20 minutes he had sent me blueprints of his transmission."

Other teams have specialties, like advanced electronics and transmissions, which help them compete. Weaver said this year's robot was solid, and that the mediocre placement at the national finals was due in part to a weak alliance rather than a weak bot (Tech High finished with an individual record of 5-4, while the top three teams finished 6-3, 5-4 and 4-5). But the possibility of learning from other advanced teams is not something the team wants to eliminate. "It's not necessarily because we need it, but it opens up more possibilities for us," he said.

Tech High currently has the only robotics team north of the Golden Gate, and that makes it tough to visit other schools and exchange ideas. But Marin investment banker Lawrence Goldfarb is trying to change that. He currently sponsors a team in Davis and wants to start one in Marin. Elsie Allen High School in Santa Rosa reportedly had a team in the past, but did not compete this year.

Tech High Phantom Robotics is planning on competing in September with the same set of rules and goals at FIRST's competition this year in a friendly recreation by Western Regional Robotics Forum in San Jose. This will give the team a chance to try adding a lifting arm to Gloria Machina, reducing the overall weight and gain more experience driving the bot.

Pit Chief Blake Hooper said the competition was "amazing." Favorites for him included checking out the other robots, and the junior came back from his first trip to Atlanta with lots of new ideas, especially with the drive train and arm mechanisms.

There are few competitions at the college level for robotics, but the hope of FIRST is to inspire high school students to become engineers on their own and invent new advancements to society. Corporate sponsorship is growing among the high school-level teams, and even though it can be difficult to get money to travel to the far off competitions, it pays off.

"Was it worth it?" Weaver asked himself. "I think so."