

AU engineering students to compete in robot battle competition in Minnesota

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EAGAN, MN A pair of Alfred University engineering students, one a recent graduate, traveled to Minnesota this weekend to test the fighting skills of a robot constructed as part of a senior design project. William Fabrizio of Bartlett, NH, who received his bachelor's degree in mechanical engineering at commencement on May 14, and Martin Klingensmith, a senior-to-be electrical engineering major from Adams, NY, competed in the Mech Wars VIII robot warrior competition May 21 and 22 in Eagan, MN. The pair entered their robot, called "The Hairy Vetch," to compete in the super heavyweight division of the Mech Wars, a robot competition sanctioned by the Robotic Fighting League (RFL). Robot competitions, in which remote-controlled robots battle in an enclosed area, have grown in popularity in recent years. For the last four years, there have been teams of AU mechanical and electrical engineering students that have collaborated to build a fighting robot as part of their senior design project. In 2001, a team of students created a robot called "The Purple Haze," which was taken to a competition in San Francisco. Construction on "The Hairy Vetch" began during the 2002-03 academic year and was used as a senior design project for five former AU mechanical and electrical engineering students. It was taken over by Fabrizio and fellow engineering students Travis Fisher and James Palmer in the spring of 2004 and the team worked to improve its design and performance throughout the 2004-05 year. "We experienced some design problems" that prevented the robot from being used in competition last spring, Fabrizio explained. "My partners and I discovered some flaws and problems that we worked on throughout the year." When Fabrizio, Fisher and Palmer had finished modifying The Hairy Vetch, it weighed in at about 250 pounds (the low end of the 221-340 pound super-heavyweight division). One major improvement was the addition of casters to the front, which improved the robot's turning radius. The object of robot battle competitions is for the operators, using remote control, to immobilize the opponent robot. Each robot is equipped with various "weapons" it uses during battle. The Hairy Vetch has a plow on the front operators use to attempt to tip over or otherwise incapacitate their opponents. The robot is protected by an aluminum shell and large steel spikes mounted on the back. Some robots are equipped with such weapons as pneumatic hammers or spinning saw blades. Others are designed to lift and throw the opponent robot. In some instances, robots are severely damaged in the fighting. Robots can also win by scoring points, determined by the "hits" they deliver in battle. "It's scored almost like a boxing match," Fabrizio explained. Fabrizio, who competed in a competition earlier this year in Daytona Beach, FL, said the competitions are fun, and afford competitors an opportunity to 'talk shop' with other robot designers. As important is the knowledge and experience they gain while completing the design project. The robot design project at Alfred is unique in that electrical and mechanical engineering students collaborate, giving each the chance to learn about the other's discipline. "I learned a lot about electronics and radio control systems," said Fabrizio. "It taught me a lot about project management." "The electrical system and motor controls are directly related to what I eventually want to do in my career, developing electric-powered vehicles," added Klingensmith. Klingensmith and fellow electrical engineering student John Feig, a senior-to-be, will take over The Hairy Vetch next year. Mechanical engineering students will join them as part of their team and work to make continued modifications on the design with hopes of competing again next year. "We'll continue making improvements," Klingensmith said. "We plan to re-do the entire electrical system."