Team CATastrophy to compete in Battle Bot Competition

A senior design team will travel to Miami Florida to compete in a Battle Bot competition with their bot, CATastrophy.

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CATastrophy design concept for 2011 Battle Bot competition

Battle Bot competitions are a mechanical fight to the death. Teams come from all over the country with their engineered bots with the intent to take down any bot that stands in their way. Bots are matched up and put into the ring to see who survives. All have a weapon tailored to inflict maximum damage on their opponent.

A senior design team from Mechanical Engineering Technology will be heading to a Battle Bot competition this month. They travel to Miami, Florida February 23-27 to wage war with their bot CATastrophy.

Shaun Egan, Mark Larson, Alexis Owen and Daniel Schmidt have entered the “BotsIQ” national competition at the college level in the 120 pound division. In this division, their bot has many requirements to meet including: it must move at least two feet per minute, be able to turn in a thirteen foot radius, and fit in an eight foot cubed box.

The weapon itself has its own requirements. It must not contain any chemicals, fire, explosives, magnets and no part can move faster than 450 feet per second. CATastrophy has a metal shaft consisting of eight teeth that will shred an opponent’s armor. The shaft spins at 4,500 RPM and inflicts 500 pounds of force on its enemy. It can run into its opponent and slice through it like a meat grinder. CATastrophy has strong armor and an ability to function if it gets flipped upside down. A deadly weapon, tough armor and functionality if flipped will be key factors of its success.

The teams are scored on how many times they flip and hit their opponent as well as damage and maneuverability. Each round lasts three minutes but often does not last that long. The team said that by the time that three minutes is up, one bot has usually been flipped to where it can’t recover and the match is over.

While the competition sounds easy and fun, the work that the students have put into their bot extends far beyond the three minute match. The team meets every week to collaborate and discuss the progress of the bot and its next steps, as well as working on their parts individually. Advisor Janet Dong is there to encourage and guide the team to make sure they stay on a path to success.

"Working with students is really a joy," exclaims Dr. Janet Dong, the team’s advisor. "They are young, energized and passionate to their project. I devote time to facilitating their learning process, making sure that they go through required learning steps. This effort is their Senior Design Project which concludes with the competition. I am there to encourage them to maintain a high standard and use creative thinking skills and synthetic methods to solve open-ended problems which prepares them for the transition from an academic environment to industry."
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CATastrophy's weapon: a metal shaft with eight spinning teeth that slices through its opponents. The Battle Bot project is a national competition project, which requires team members to develop additional skills needed to be successful in a team oriented business world. Mainly learning to function as a team, managing time, writing sponsorship letters, raising funds, establishing budgets, dealing with vendors, dealing with UC legal office for competition contract and UC branding office for permission to use UC logo on the team T-shirts and the bot.

Each student is in charge of an area of development of CATastrophy. Daniel designed the transmission system, Shaun designed the weapon that will be used for attack in the match, Mark created the frame and the armor, Alexis produced the electronic system that CATastrophy will use to operate.

"We designed CATastrophy with the winning bots of the past two years in mind," says Egan.

Contributions from sponsors every year are vital to the team’s success. Everything from cash, donated materials, armor, and machine time were provided in support of their bot and totaled nearly $40,000. Sponsors include P&G, Magellan Aerospace-Aeronca, Trutec, JF Berns, and W.H. Heimkreiter Mfg. Inc. Sponsorship is a large portion of the ability for the students to compete in this challenge. Team member Alexis Owens said that "the sponsorship that we received from all of the companies was essential to the completion of the battle bot."

"The cash from P & G went towards electrical components, raw materials that we had to purchase, registration for the competition, t-shirts, and travel expenses. Magellan Aerospace-Aeronca donated the Titanium honeycomb for our armor. Trutec donated their services to heat treat our weapon to increase its strength and hardness. JF Berns and W.H. Heimkreiter Mfg. Inc. donated machining time for our weapon. Like I said before without these sponsors we would have not been able to even begin to consider this project for our senior design capstone experience," says Owens.

The students are excited to have their senior design project nearly ready for battle, but the thrill of this nationally recognized competition is also a huge plus. "Ever since I first saw Battle Bots on TV when I was nine, I knew I wanted to do that. I saw the opportunity with this contest and I took it," says Larson.

"This year’s weapon is different from previous years and what we hope is that it provides a more powerful attack and shreds our opponents. Winning is good but the most important thing is that the team learns from the whole process," says Dong.

This will be UC’s fourth appearance at a battle bot competition since their first year in 2008 when they won the first place overall award and brought home a new title to Cincinnati. Good luck to this year’s team. Bring home a Bearcat victory!

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