

Friday, May 22, 2015

Team Grizzly competing at Amazon Picking Challenge

UPDATE:

Oakland University earned a 3rd place finish among the 28 teams in this year's Amazon Challenge.

Team RBO from Berlin, Germany won the competition, a team from Massachusetts Institute of Technology, or MIT came in second with Team Grizzly finishing third.

Comments from members of the team:

"I am very proud of the hard work the team put into the competition, we competed against 28 top ranked national and international teams, placing 3rd is quite a accomplishment". -Paul Fleck, President, Dataspeed Inc.

"From a hardware perspective, the competition went smoothly. There were no problems with the electrical or mechanical systems. The software, however, was under continuous development. We were testing new approaches and improvements from the moment we arrived in Seattle, all the way up to our single official run two days later. Afterwards, we talked with some of the other high performing teams to exchange ideas and strategies." - Kevin Hallenbeck

"This result is exciting for three reasons. First, it shows that all of our hard work paid off, which always feels good. Secondly, we have shown the benefits and capability of having a mobile Baxter robot, which we can reference when we try to market our mobile base. We made several contacts and received a lot of interest in the base during the entire week. Finally, our 3rd place finish shows that OU trains engineers that can join the likes of MIT and other powerhouse universities at the top of the rankings in an international robotics competition!" -Micho Radovnikovich

Mike Norman documented the competition through his Twitter account: <https://twitter.com/DataspeedMike>

Original preview story:

A team of Oakland University School of Engineering and Computer Science current students and recent alumni have formed a robotics team through Dataspeed, Inc., of Troy, and entered the **Amazon Picking Challenge**.

Team Grizzly will be one of **31 international teams** competing in the event that takes place in Seattle between May 26 - May 28.

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This competition challenges entrants to build their own robot hardware and software that can attempt simplified versions of the general task of picking items from shelves.

The robots will be presented with a stationary lightly populated inventory shelf and be asked to pick a subset of the products and put them on a table. The challenge combines object recognition, pose recognition, grasp planning, compliant manipulation, motion planning, task planning, task execution, and error detection and recovery.

Paul Fleck, team captain and president of Dataspeed Inc. (OU MSSE 1991) decided to enter the challenge to demonstrate the capability of using a mobile 'Baxter' robot to win the challenge.

"The mobility base that Dataspeed Inc. produces is an integral part of the robot and will give our team an advantage over stationary



OU grads and Team Grizzly teammates Micho Radovnikovich, near the robot, and Lincoln Lorenz, seated at the desk, work on their robot entry to the Amazon Picking Challenge.

robots," Fleck said. "Most of the robots will be fixed, like traditional robots, and may have difficulty reaching all the objects."

Fleck said the Dataspeed-OU team is the only team from Michigan invited to the event and that its an honor to compete against other teams from schools including MIT, Rutgers, Worcester Polytechnic and Georgia Tech.

Team member Micho Radovnikovich holds three engineering degrees from OU and is responsible for the motion planning of the robot arms and base and the gripping sequences. He said, "The Amazon challenge represents one of the many challenging tasks facing the robotics field today. How can we program robots to do something that is so simple for humans: sense an object, figure out the best way to pick it up, and just grab it? Participating in this project is very exciting, and drives me to put in the extra hours to field the best system possible."

Lincoln Lorenz is an Electrical and Computer Engineering doctoral student who is responsible for the 3D detection and grip selection of the objects to pick from the shelf for Team Grizzly. He said he has enjoyed the experience of this challenge and that he will be "running mostly on coffee until our robot's run on May 27."

Other team members include Kevin Hallenbeck, Steve Grzebyk, Noah and Nathan Fleck, Brian Neumeyer and Mike Norman.

The Amazon Picking Challenge robots will be scored by how many items are picked in a fixed amount of time, with \$26,000 in prizes being awarded. Participants will be encouraged to share and disseminate their approach to improve future challenge results and industrial implementations.

Learn more about the competition by watching these DataSpeed entry videos:

<https://www.youtube.com/watch?v=g9Mip2qoIAA&feature=youtu.be>

<https://www.youtube.com/watch?v=M1eDITfH0DM>