

NASA Offering \$1.5 Million Prize in New Centennial Challenge

MSFC-NASA Marshall News

Eighteen teams of citizen inventors from across the globe will compete in the [2014 NASA Centennial Challenges Sample Return Robot Challenge](#) [1] June 11-13 on the campus of [Worcester Polytechnic Institute \(WPI\)](#) [2] in Worcester, Massachusetts. Prize money of nearly \$1.5 million is on the line in this third running of the challenge.

The teams must demonstrate a robot that can locate and collect geologic samples from a wide and varied landscape without human control. The objective is to encourage innovations in automatic navigation and robotic manipulator technologies. Innovations stemming from this challenge may improve NASA's capability to explore a variety of destinations in space, as well as enhance the nation's robotic technology for use in industries and applications on Earth.

At the 2013 competition, NASA awarded \$5,000 to Team Survey of Los Angeles for completing Level 1 of the challenge. NASA expects the 2014 event will advance the progress of the competition even further.

"We are excited to see what these 18 teams can achieve this year, building on the lessons learned during the first two years of the challenge," said Sam Ortega, program manager of Centennial Challenges, which is managed for the agency by NASA's Marshall Space Flight Center in Huntsville, Alabama. "We hope to see broad success with more teams completing Level 1, and that some of those teams are able to tackle the more difficult objectives in Level 2 necessary to take home the big prize money."

Each team must complete two levels of competition. For a robot to successfully complete Level 1, one undamaged, pre-cached sample must be autonomously returned to the starting platform within the 30-minute time limit. Only teams who complete Level 1 will be given an opportunity to compete in Level 2.

To successfully complete Level 2, a robot must autonomously return at least two undamaged samples, including the pre-cached sample, to their starting platform within the two-hour time limit.

Ken Stafford, director of the Robotics Resource Center at WPI, noted that this event takes planetary exploration with robots to another level.

"While current Mars rovers are operated by humans at command centers on the ground, this competition calls for robots to operate completely autonomously," Stafford said. "That point alone makes this a remarkable competition and will tell us a lot about the future of space exploration."

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Returning teams this year include Survey of Los Angeles; Wunderkammer Laboratory of Topanga, California; Intrepid Systems of Lynnwood, Washington; the University of Waterloo of Ontario, Canada; AERO of Worcester, Massachusetts; Fetch of Alexandria, Virginia; Kuukulgur of Estonia; Middleman of Dunedin, Florida; and the University of California Santa Cruz Autonomous Rover Team.

New teams entering the competition are Cephal of Pittsburgh, Pennsylvania; Formicarum of Worcester, Massachusetts; the West Virginia University Mountaineers of Morgantown; the Oregon State University Mars Rover Team of Corvallis; the Retrievers of Schenectady, New York; RPI Rock Raiders of Rensselaer Polytechnic Institute in Troy, New York; Stellar Automation Systems of Marietta, Georgia; Sourcerors of Pittsburgh, Pennsylvania; and Lunambotics of Mexico City, Mexico.

"The level of anticipation and excitement among teams leading up to the challenge is second to none," said Colleen Shaver, event director and assistant director of WPI's Robotics Resource Center. "There's no question that technology continues to evolve, and that will serve the teams well as they modify designs to get ready for the competition."

NASA's Centennial Challenges program does not award funds to competitors unless the challenge objectives have been met. This assures desired results are gained before government funds are paid.

The challenge begins June 11, with awards to be presented June 14. The awards ceremony will take place during the TouchTomorrow technology festival on campus, showcasing the teams and robots as well as NASA and WPI exhibits in science, robotics and space technology.

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Links:

[1] http://www.nasa.gov/directorates/spacetech/centennial_challenges/index.html#.U5H-ZfldVkh

[2] <http://www.wpi.edu/>