

University of Bridgeport engineering students awarded \$4,500 Connecticut Space Grant to build lunar explorer for NASA competition

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A team of University of Bridgeport engineering students has been awarded \$4,500 by the Connecticut Space Grant College Consortium to build a lunar excavator that can be controlled via the Internet to travel over the surface of the moon and collect samples for scientific research.

The students designed their lunar regolith explorer for NASA's Lunabotics Mining Competition on May 25-28.



A model of a lunar excavator designed by a team of UB engineering students. It will be built with funding from a Connecticut Space Grant College Consortium grant, and entered in NASA's Lunabotics Mining Competition at the Kennedy Space Center in Florida next month. requirements.

The Consortium's ESMD National Design Challenge Project Grant was announced earlier in the week, giving the UB team a little over a month to build the machine and get it to the Kennedy Space Center in Florida, where the NASA competition is being held.

The UB students will be among 26 university teams who will send lunar excavators over a rough-and-tumble relay course designed to simulate the surface of the moon. The machines will have a limited amount of time to collect as many samples as possible. Judges from NASA will choose the winners.

Challenges are significant: Excavators must collect as many samples as possible in a short amount of time since their power sources are limited. At the same time, the moon's environment is harsh, with huge fluctuations in temperature and a surface that can easily tip a roving machine that isn't sufficiently stabilized. Competition entries also must meet size and design

"Whichever excavates the most will win," predicted graduate student Nicolae Gari, an electrical engineering major who is the team leader. "During the competition we'll control it by computer to dig for samples. Power was the big issue for us: we made ours very light so we could put in a heavy battery and have as much power as possible."

Other team members include mechanical engineering graduate students Song Fangyuan, Peng Lu, and Grace (Yajuan) Shi, and undergraduate computer engineering majors Edwin Gravrand and Matthew Breland.

They are advised by electrical and computer engineering assistant professor Xingguo Xiong and mechanical engineering assistant professor Jeremy Li.

The students began designing the excavator last October, and the nature of work made it imperative to assemble an interdisciplinary team whose members could tackle the project's many mechanical, computer, and electrical requirements, said Xiong.

We felt the opportunity to compete was very exciting," he added. "The students have worked hard and we're proud of them."