

Iowa State students take a lighter, more autonomous 'lunabot' to NASA competition

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Chris Walck, a member of Team LunaCY and a graduate student in mechanical engineering, operates the student-designed and student-built lunar excavator during a recent session in the team's campus shop. Larger photo. Credit: Mike Krapfl

Jared Peterson, working away in the Caterpillar Mechatronics Laboratory in Iowa State University's Hoover Hall, recently held up a small electric motor.

See the [coils](#)? said the senior from Lake Lillian, Minn., who's studying [mechanical engineering](#). They're supposed to be copper colored, not

black and charred.

"Little things like this happen," Peterson said of the burned-up motor. "It's part of the learning process."

And so [Team LunaCY](#), an Iowa State student club dedicated to designing and building robots for NASA's Lunabotics Mining Competition, still has some last-minute work to do. The team will pack up its \$25,000 project on Saturday and head for the [Kennedy Space Center](#) in Florida. This year's competition is May 21-26.

Student teams from 58 universities - including 20 international schools - have been designing, building and testing excavating robots that dig, scoop and collect a dusty, abrasive mix that simulates [lunar soil](#). The goal is to mine and deposit at least 10 kilograms of the moon dirt within 10 minutes. Points are also awarded for dust tolerance, communications, robot weight, power requirements and autonomous operation.

Ben McNeill, who just graduated with a degree in mechanical engineering and is project director for Team LunaCY, said Iowa State's third entry in the annual contest is a step up.

"It's a lot better robot," he said. "It's more efficient, yet it's able to mine more material than last year's robot."



Team LunaCY's robot is designed to scoop up simulated lunar soil. Larger photo. Credit: Mike Krapfl

Major improvements include aluminum construction rather than steel, cutting the robot's weight in half. The robot is also loaded with sensors - including some built into the bumpers - that will allow the robot to drive and operate on its own.

Chris Walck, a graduate student in mechanical engineering from Urbandale, has been leading the development of the electronic and control systems for this year's robot.

He admits to be a little nervous heading into competition.

"It's problem-solving time," he said. "We're kind of in the Plan D phase right now on a couple of things. But we're doing all right, better than we have in the past."

And while building a [robot](#) that collects moon dust may sound like a far-fetched project for the 25 students on Team LunaCY, Walck said he's

gaining some experience he can apply to his new engineering job.

"This has been a really good learning experience," he said. "A lot of the problems we have worked on here have been very practical."

Provided by Iowa State University

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