

# Engineering students 'leading the way'

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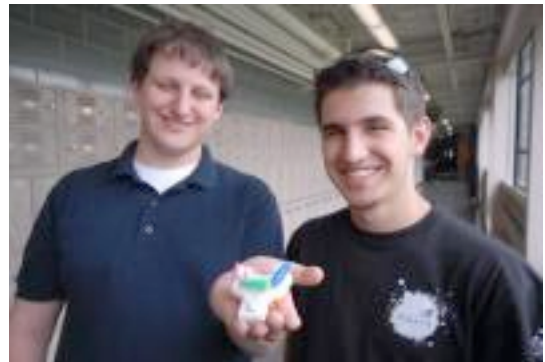
NORTH ADAMS -- Over the last four years, a small group of pre-engineering students have blazed a new trail at McCann Technical High School, as the first class to participate in the Project Lead the Way pre-engineering and engineering design program.

On Wednesday, the group of nine students who have completed the program will celebrate the culmination of their efforts when they present their final projects for their engineering design and development capstone course to a panel of engineers and community members at 6:30 p.m. in the school cafeteria.

"These students have really had to go above and beyond," Erin Mucci, who teaches the engineering design and development course, said Monday. "This program doesn't take the place of academic classes or shop. It's in addition to their regular work."

The group, which originally began with 20 students in the fall of 2005, had to forgo a traditional history class this year, using the Virtual High School online program to complete the necessary credits.

"It's been really challenging," Nathan Dudziak, 18, of Adams, said. "But it's also been worth it."



Dudziak, along with teammates Nathan Samson, 17, of Adams, and Alexander Segala, 18, of North Adams, designed a prototype of a sonic "mouth brush" for their project.

For their final project, the class, which was broken into teams of three members, had to design a product that solves a common problem.

"Our problem was that people often find they can't get their teeth clean like a visit to the dentist," Samson said. "To even try to get that clean feeling is time consuming. Dentists recommend brushing for three to five minutes." Segala added, "Time is precious, so we decided to tackle the problem of cleaning each individual tooth in less time. We designed a brush that brushes around the teeth all at the same time." Using a mouth guard, motors, and bristles from regular toothbrushes, the team developed a prototype "mouth brush" that would use sonic vibrations and the bristles to brush a mouthful of teeth in an estimated 20 to 30 seconds.

"It's similar to the concept on the 'Sonic Care' tooth brush," Samson said. "We've built ours so there are two separate pieces -- the handle with the motors and the mouth guard, which would need to be replaced every six months."

Another team tackled the task of replacing the broken heel control of a shoe [the portion of the shoe that rests against the back of the ankle that can break when a foot slides in], thus extending the life of the shoe and bringing comfort to the owner.

"We came up with the idea because both myself and one of my partners, Rob Daugherty, had broken heel controls in our shoes," Kiersten Sweet, 18, said. "We also did a lot of research on the subject. We found Web logs devoted to this problem and we did a survey, where 67 percent of the people responded this was a problem."

Sweet, along with Daugherty, 17, of Dalton, and Eric Euchler, 18, of Clarksburg, manufactured a plastic shoe insert, lined with Tempur-Pedic foam, that can be used as a quick fix for the broken heel.

Classmates Robert Gaspardi, 18, of Cheshire, Nicholas Briggs, 18, and Brandon Boucher, 18, both of Florida, created a "mountain board" innovation.

"Our problem was that traveling on rough terrain in wooded areas can be time consuming," Briggs said. "The idea was to create a device that made travel easier and that was portable." Like most inventions, the prototype became larger than expected and was stripped of its proposed motor.

"Our portability window was reduced and we've had to change the model from a commuter model to recreational use," Boucher said. "But, it's been a good experience. We've machined all the suspension parts ourselves and learned as we've gone along."

Project Lead the Way was first piloted at the school in the fall of 2005 and earned national accreditation in 2007. Students in the program can also earn college credits for their work in the program.

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