One more look at Design Day - December 2015

The official Michigan State University slogan, “Spartans Will,” is never shown more clearly than at the twice-a-year Design Day celebrations of MSU’s College of Engineering.

Now in its 22nd year, Design Day takes place on the last day of classes, and has dozens of student teams presenting design ideas for everything from improving manufacturing processes to consumer smartphone apps.

This year, there were 48 senior capstone project teams involving 245 students competing for awards. Thirty-six of the projects were sponsored by Michigan-based companies and institutions, for which the students were solving real-world engineering problems.

Elsewhere in MSU’s cavernous Engineering Building, another 93 teams and 357 students in freshman engineering classes were showing off their skills at the earliest stages of higher education.

Design Day also features a pre-college outreach program that involved five middle and high schools and 200 students from around Michigan.

“What’s most interesting to me is how creative the projects are,” said Dean Leo Kempel. “When you walk around the halls you are struck by how professional the students are, how intense the projects are, and what they are able to get done in four and a half months. In the corporate world, projects like this may take a year or two.”

Kempel highlighted a project sponsored by the Grand Rapids retailer Meijer Inc., an app that allows shoppers to scan the bar code of an item and show its price — not just at Meijer, but at competitors like Wal-mart, Kmart and Amazon. And if it’s more expensive at Meijer, the app gives you a virtual coupon you can use at checkout that lets Meijer meet its competitors’ prices.

“I’m just blown away each time I see what these students have done,” Kempel said. “And this is the smaller of our two Design Days.” (The spring 2016 Design Day — the bigger of the two — is April 29.)

Kempel said the fact that 82 percent of senior projects are sponsored by Michigan-based businesses “just emphasizes that MSU is all about the state of Michigan. More than 60 percent of our graduates stay in Michigan, too.”

Touring the projects with Kempel was Melanie Foster, a member of the MSU Board of Trustees, and a real estate investor with a background in landscaping and sod farming. Said Foster: “What I’m struck by is the collaboration involved in these teams. As they go out into their careers, collaboration is such an integral part of the work force. I’m also struck by how many of the projects have a real-world, real-time practical application.”

Among the other interesting projects was a toe guard for an athletic wheelchair, made of an adjustable PVC frame and a foam pad that’s attached to the wheelchair with hose clamps, developed by Jillian Hubbard of Sterling Heights, Dylan Smith of Saginaw and Collin Wing of Laingsburg. Freshmen Blaire Izbicki of Pepperell, Mass., and Karly Kruger of Stockbridge developed a first aid smartphone app that's both funny and useful. And a team of Jordyn Castor of Grand Rapids, Debayan Deb of Kanpur, India, Whitney Mitchell of Alto, Max Miller of Pittsburgh, Pa., and Cody Pearson of Hudsonville developed an incredibly slick text recognition smartphone app for the Okemos-based screen capture technology developer TechSmith.
In civil engineering, the winner of the Rolla Carpenter Award was Entourage Engineering, Chris Rothhaar of Beulah, Alex Zucker of Laingsburg, Alex Wangeman of Boyne City, Tom Bonney of Rockford, Kaleb Sondgerath of Climax, Steven McConnell of East Lansing, and Tony Brehmer of East Lansing, for their design related to the reconstructed former MSU power plant on Shaw Lane.

In electrical and computer engineering, winning third place was a team that designed an RFID luggage tagging and tracking system, team members Marwan Baraya of Lansing, Emmanuel Wadueh of Accra, Ghana, Brian Prange of Waterford Township, Henry Nguyen of Utica, N.Y., and Ziyue Xing of Sichuan, China. Winning second place for a design for an e-bike motor and controller, team members Myles Moore of Clarkston, Tyler Borysiak of Trenton, Alex Sklar of Walled Lake, Joshua Lamb of Dimondale, and Stephen Dunn of Okemos. And first place went to a power monitoring system for factories, team members Victor Tobenna Ezenwoko of Lagos, Nigeria, Jacob Jeeb of Saginaw, James McCormick of Eaton Rapids, Alex Lange of Troy, and Zhihong Qian of Zhejiang, China.

In mechanical engineering, the winner in a design competition for a wheelchair power folding ramp, was a team made up of Patrick Frahm of Frankenmuth, Matthew Marchetti of Clinton Township, Lance Roth of Midland, and Michael Schwartz of Clarkston.

Also, in mechanical engineering, the ME 481 presentation award went to a redesign of a variable timing camshaft sponsored by Hitachi Automotive Systems Americas Inc., team members Dan Bowers of Romeo, Ryan Glynn of Rochester, Andrew Shih of Novi, Shane Toreki of Romeo and Robert Wygant of North Muskegon.

And the ME 481 Edison Undergraduate Design Award, went to an advanced orchard spraying system design sponsored by the MSU Organic Pest Management Lab, team members William Burek of Livonia, Dylan Etheridge of East Lansing, Tyler Finses of Grand Rapids, Jeffrey Hilk of Saginaw, and Mark Taylor of White Lake.

In computer science and engineering, the Auto-Owners Exposition Award went to a global service desk mobile app sponsored by General Motors, team members Brian Hart of Sterling Heights, Michael Palmer of Grand Rapids, Corbin Rangler of Jackson, Evan Hlavaty of Howell, and Sean Rabaut of Pontiac.

Also in computer science and engineering, the MSU Federal Credit Union Award went to an integrated silent authentication system sponsored by Symantec, team members Chris Perry of Okemos, James Mariani of Sterling Heights, Tyler Erskine of Saginaw, Scott Binter of Downers Grove, Ill., and Dan Parlin of Traverse City.

The TechSmith award went to the above-mentioned text recognition system, team members Jordyn Castor of Grand Rapids, Debayan Deb of Kanpur, India, Whitney Mitchell of Alto, Max Miller of Pittsburgh, Pa., and Cody Pearson of Hudsonville.

Finally in computer science and engineering, the Urban Science Award went to a patient service delivery planning app developed for Spectrum Health, team members Jim Torres of Clawson, Justin Oh of Seoul, South Korea, Josh Curl of Chesterfield Township, Charles Bean of Milford, and Luke Stanton of Livonia.

-- Story by Matt Roush, courtesy of Tech Century, a publication of the Engineering Society of Detroit

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