OSR

OPTIMIZED SIGNAL ROUTING

Team Members:
Johnny Clemente, Nik Hargenrader, Austin Hicks, Calvin Mattson, and Andrei Sawruk
Faculty Advisor: David Baumann
Project Sponsor: Delphi Steering Systems
Industrial Customer Contact: Tim Bennett

Presentation: 4:00 p.m., CAS 123
Demonstration: 4:45 p.m., CAS 122

Team OSR has built and tested a unique connection harness to establish proper signal routing during Delphi's steering system testing process. The programmable signal router that will provide a more cost-effective and efficient testing device. It will allow Delphi engineers to program the routing of signals in any configuration needed to establish proper interfacing to any model of steering column.

The 2006-07 senior project team Universal Signal Routing handled Phase I of the harness by developing the design and proof of concept. OSR completed Phase II which was the construction of a prototype, and testing and manufacturing six signal routing boxes for Delphi.

Team OSR's work with Delphi was featured in the March issue of *Upper Peninsula Business Today* magazine.

The School of Engineering and Technology is comprised of the following disciplines:

- Computer Engineering
- Electrical Engineering
- Mechanical Engineering
- Manufacturing Engineering Technology
- Industrial Technology
- Engineering Management

All of the senior engineering and technology students at Lake Superior State University are required to complete a challenging senior design project.

The students work in teams and use a composite of their technical and general education courses to successfully complete these projects.

Each project requires a detailed technical engineering analysis and is a challenging and realistic experience for our graduates. The intention of the senior design project is to provide valuable engineering experience that will help the team members transition well from academia to industry or graduate school.

For more information about LSSU's School of Engineering & Technology, contact the office at 906-635-2207 or visit us online at
http://www.lssu.edu/eng

LAKE SUPERIOR
STATE UNIVERSITY

The School of Engineering & Technology

presents the

Class of 2008 Senior Design Project Presentations & Demonstrations

**Friday • May 2, 2008
1:00 p.m. - 5:00 p.m.
in the
Center for Applied Science
and Engineering Technology**

INTEGRATED VASCULAR INNOVATIONS

Team Members:
Aaron Hoffmann, Michael Stumpo and Stephen Tillotson
Faculty Advisor: Andrew Jones
Project Sponsor: Cardio Vascular Research Institute of New Mexico
Industrial Customer Contact: Dr. George Chandran

Presentation: 1:00 p.m., CAS 123
Demonstration: 1:45 p.m., CAS 119

Team IVI designed a medical thrombosis prevention prototype to decrease the risk of lower-extremity venous thrombosis, blood clots in the leg veins of human individuals. It improves blood circulation by applying pressure to different parts of the patient's lower extremities in a timed sequence. The parts of the device include two cuffs: one for the upper thigh and another around the foot along with a controller to synchronize the operation with an air pressure supply unit. It allows medical professionals to conduct clinical trials and produce documentation to assess the effectiveness and safety of the device.

Team members travel to New Mexico to visit Dr. Chandran's clinic and validate the device on a patient. Above, Mike Stumpo operates the device while Dr. Chandran observes. At left, Aaron Hoffmann, points out the location of the vein. The cuffs can be seen on the foot area and the upper thigh.

SUPERIOR VISION SYSTEMS
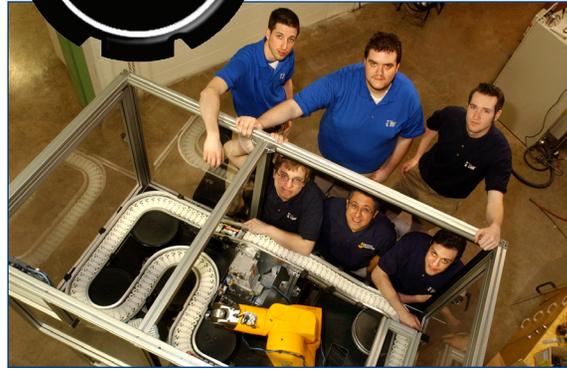
Team SVS poses with its portable robotic workcell for an AMT news release.

Team Members:
James Claus, Tim Horrigan, Andrew Lucarelli, Andrew Richards, and Aaron Worden
Faculty Advisor: Taskin Padir
Project Sponsor: Applied Manufacturing Technologies
Industrial Customer Contact: JP Rasaiah

Presentation: 1:45 p.m., CAS 123
Demonstration: 2:30 p.m., CAS 125-Annex

Applied Manufacturing Technologies, Inc. required a portable robotic workcell to demonstrate current technology at tradeshows and open houses. Team SVS designed and built a workcell which integrates a robotic arm, vision system, and conveyor system. It accepts a user-defined product order via a touch screen, and relay the information to the robot arm. The robot fulfills the order through the use of a camera to recognize the products, retrieve them from the conveyor system and place the products on an output shelf.

OFF ROAD DESIGNS

Team Members:
Charles Birbeck, Matthew Brehmer, Jason Filek, Anthony Fleming, John Geukes, Jacob Hauser, and Christopher Parlowe
Faculty Advisor: Jon Coullard
Project Sponsor: Lake Superior State University-SAE
Industrial Customer Contact: Paul Duesing

Presentation: 2:30 p.m., CAS 123
Demonstration: 3:15 p.m., CAS 122

The key goals for Team ORD were to design and build a lightweight, fast, and strong mini Baja vehicle to compete at the Baja SAE Illinois Competition in June. The competition will consist of several dynamic and static events that will test the performance of the vehicle. Dynamic events measure the acceleration, handling, and endurance. Static events measure the quality of the design, safety and costs.

ONLINE ROBOTIC SYSTEMS

Team Members:
Paul Bonamy, Gail Dyer and Justin Hester
Faculty Advisor: Wael Mokhtar
Project Sponsor: Lake Superior State University
Industrial Customer Contact: Morrie Walworth

Presentation: 3:15 p.m., CAS 123
Demonstration: 4:00 p.m., CAS 125-Annex

Team ORS has implemented an internet-based robotic system. The controls between all the components of the project are designed for ease of use and allow for future expansion. Each component was researched and designed to meet safety and usability specifications provided by several organizations. The online system can be used by anyone, regardless of experience level.

There are three modes of operation: Users can play games using prepared programs; a freeform mode with interactive controls; and a programming mode which allows users to write custom code.