The School of Engineering & Technology presents the
Class of 2005
Senior Design Project Presentations and Demonstrations
Friday • April 29, 2005
1:30 p.m. - 4:30 p.m.
in the
Center for Applied Science and Engineering Technology
Lake Superior State University

SUPERIOR DATA ACQUISITION SYSTEMS

Team Members:
Scott Chrispell and Christopher Cummings
Faculty Advisor: Morrie Walworth
Project Sponsor: Continental-Teves
Industrial Customer Contacts:
Robert Andersen and Justin Zilke

Presentation: 2:15 p.m., CAS 123
Demonstration: 3:00-3:45 p.m., CAS 125

Team SDAS has designed and produced a device that collects data from in-vehicle computers, which then store the information to a PC for future analysis. The device will be used to test and verify automobile safety systems for Continental-Teves.

STEERING SENSOR SYSTEMS

Team Members:
Ray Bone, Kyle Cass, Scott Jamison and Lucas Sgouraditis
Faculty Advisor: Paul Duesing
Project Sponsor: Continental-Teves
Industrial Customer Contacts:
Bob Andersen, Justin Zilke and Steve Bryan

Presentation: 3:00 p.m., CAS 212
Demonstration: 3:45-4:30 p.m., CAS 124

SSS has designed and built a system to determine the rotational angle of the vehicle's steering wheel, as well as an adjustable stop/trIGGERING system for accurately stopping the steering wheel at a desired angle. This system will help to assess and improve Continental-Teves' electronic vehicle safety systems.

Cooperative Education Participants

The following students, who have or will be completing their senior design projects through cooperative education employment at various industries, participated with this year's teams during the fall 2004 semester:

BACDA: Russ McClelland
SDAS: Joe McNamara
SSS: Ben Eles

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

- Computer Engineering
- Electrical Engineering
- Mechanical Engineering
- Manufacturing Engineering 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.
AMS has developed a workcell prototype to replace a manually-operated machining process using an automatic tray feeder, robotic arm, bowl feeder, and programmable logic controller. The completed turn-key system will reduce human involvement and simplify the production process. It will be implemented at Walbro’s Cass City plant.

Robot for Aquatic Development and Research

Team Members: Loren Ayotte, Danielle Kowalski, Nate Laughlin, Robb Melenyk, Joe Prevo and Nemanja Rafajlovic
Faculty Advisor: Morrie Walworth
Project Sponsor: Lake Superior State University
Presentation: 3:45 p.m., CAS 123
Demonstration: 1:30-2:15 p.m., CAS 124 Annex

RADAR-C.S.D.’s focus was to expand the knowledge of LSSU’s underwater remotely operated vehicle (ROV), improve its performance and verify the vehicle’s communications. The team defined and created experiments to derive a mathematical model which represents the motion of the ROV.

ADVANCED ROBOTIC SIMULATIONS
Robotic Simulation Software

Team Members: Stacey Balamucki, Paul Coccimiglio and Jay Patel
Faculty Advisor: Jim Devaprasad
Project Sponsors and Contacts:
Applied Manufacturing Technologies
Tom MacLean and Stan Keene
DELMIA Corporation
Roy Smolky

Presentation: 2:15 p.m., CAS 212
Demonstration: 3:00-3:45 p.m., CAS 124 Annex

ARS conducted research on the application of a new robotic simulation software package provided by DELMIA. The project focused on the development of two new features for the software and validating the functionality of two existing features. The results will allow companies such as AMT the ability to enhance the application of simulation technology.

IEC constructed a second energy conversion laboratory trainer for LSSU’s mechanical and electrical studies. In addition, IEC implemented data acquisition and modifications to both the existing and newly-built trainers. The trainers will enhance the teaching of fundamental engineering concepts in electro-mechanical energy conversion, fluid mechanics, thermodynamics and heat transfer.

INTERNATIONAL ENERGY CONVERSIONS
Energy Conversion Lab Trainer

Team Members: Brian Carnecki, Tony Herrick, Krystian Jakimik and Brian Onishenko
Faculty Advisor: David McDonald
Project Sponsor: Lake Superior State University
Industrial Customer Contacts: Matthew Carroll and Paul Duesing

Presentation: 3:45 p.m., CASET 212
Demonstration: 1:30-2:15 p.m., CASET 122

RADAR-RED designed and fabricated a robotic arm for LSSU’s underwater remotely operated vehicle (ROV) to enhance its functionality. The arm will enable the ROV to interact with its underwater environment and retrieve objects for applied aquatic research.