SUPERIOR DATA ACQUISITION SYSTEMS

Data Collection Device

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

Steering Wheel Angle Measurement

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 transistion well from academia to industry.

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

AUTOMATED MACHINE SOLUTIONS

Automated Workcell Prototype

Team Members:
Amanda Cardinal, Dominick Flasck, Bart Hautala, James VanSickle and Luke Wackerle

Faculty Advisor: Nael Barakat

Project Sponsor: Walbro Engine Management

Industrial Customer Contact: Corey Knapp

Presentation: 1:30 p.m., CAS 123

Demonstration: 2:15-3:00 p.m., CAS 122

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.

ADVANCED ROBOTIC SIMULATIONS

Robotic Simulation Software

Team Members:
Stacey Balamucki, Paul Coccimiglio and Jay Patel

Faculty Advisor: Jim Devaprasad

Project Sponsors and Contacts:
Applied ManufacturingTechnologies
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 result will allow companies such as AMT the ability to enhance the application of simulation technology.

BRAKE AND CLUTCH DATA ACQUISITION

Brake Cylinder Seal Testing

Team Members:
Ryan Borchert, Conrad Fortino, Jonathan Tuomi and Jonathan VerStrate

Faculty Advisor: Jon Coullard

Project Sponsor: Affinia Brake Parts, Inc.

Industrial Customer Contacts:
Kenneth Kopp and Gene Morgan

Presentation: 1:30 p.m., CAS 212

Demonstration: 2:15-3:00 p.m., CAS 122

BACDA designed and built two prototype systems for testing seals within brake master cylinders. The first system will gather, record and graph the output pressure vesus piston displacement of a brake master cylinder. The second system will ensure the brake master cylinder will encounter pressure within a range specified by the Society of Automotive Engineers and improve Affinity's seal production.

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

IEC constructed a second energy conversion laboratory trainer for LSSU's mechanical and electrical studies. In addition, IEC implemented data acquistion 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.

Robot for Aquatic Development and Research

CONTROL SYSTEMS DIVISION

Underwater Vehicle Motion

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.

Robot for Aquatic Development and Research

ROBOTIC EXTREMITY DIVISION

Underwater Robotic Arm

Team Members:
Nicholas Kowalski, Mark Reese and Matthew Reese

Faculty Advisor: Wendy He

Project Sponsor: Lake Superior State University

Presentation: 3:00 p.m., CAS 123

Demonstration: 3:45-4:30 p.m., CAS 125

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.