

Systems Integration & Design

Frequency Input Modules for the Superior Data Aquisition System (SDAS)

Team Members:

Richard Cassing, Amber Kardes, Eric Peterson
and Tom Weeks

Faculty Advisor: David McDonald

Project Sponsor: Continental-Teves, Inc.

Industrial Customer Contact: Robert Andersen

Presentation: 1:45 p.m., CAS 212

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

Two prototype frequency input modules were developed and manufactured by Team SID. They enhance the aquisition of signals from a variety of sensors during the testing of vehicle safety systems with the custom SDAS instrumentation system.

The modules allow Continental-Teves to record wheel speeds from their own, as well as competitors', vehicles. They will obtain and analyze data, provide it to the SDAS system, and display it to the test driver. This information is used to calculate braking distance and stopping time of test vehicles. From these results, a benchmark can be created for the electronic safety systems while supporting their development and testing.

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 2005 semester:

CAPT: William Ciccone

SET: Hannu Keranen

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 transistion well from academia to industry or graduate school.

THE SCHOOL OF ENGINEERING & TECHNOLOGY

presents the

Class of 2006 Senior Design Project Presentations and Demonstrations



Friday • April 28, 2006

1:00 p.m. - 4:45 p.m.

in the

Center for Applied Science
and Engineering Technology



**Lake Superior
State University**



Mobile Robotic System

Team Members:

John Benjamin, Brad Bertels, Greg Johnson,
Kate Kuuskman, Ben Mitchell and Leith Nader

Faculty Advisor: Jim Devaprasad

Project Sponsor: Lake Superior State University

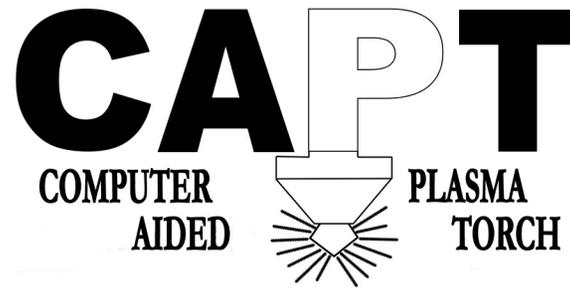
Industrial Customer Contact: Morrie Walworth

Presentation: 2:30 p.m., CAS 212

Demonstration: 3:15-4:30 p.m., CAS 125

Team APES designed and constructed a *mobile robotic system* (MRS) for the School of Engineering and Technology. The self-contained system will serve as a demonstration tool to showcase the School's various robotic and automation technologies for academic and industrial audiences.

The MRS is "mobile" in the sense it can easily be transported. The system is centered around an industrial robot and incorporates a variety of technologies including part feeders, vision systems, programmable logic controllers and sensors. These technologies are demonstrated by having the MRS perform two tasks: Solving a Rubik's Cube, and the assembly and testing of an automotive distributor.



CNC Plasma Cutter

Team Members:

Andrea Caines, William Ciccone, Jacob Darga,
Courtney Dusnik, Dean Pighin and
Adam Truckey

Faculty Advisor: Robert Hildebrand

Project Sponsor: Lake Superior State University

Industrial Customer Contact: Jon Coullard

Presentation: 3:15 p.m., CAS 212

Demonstration: 4:00-4:45 p.m., CAS 122

The CAPT team designed and built a functional computer numerical controlled (CNC) plasma cutter for the School of Engineering and Technology's Manufacturing Processes Laboratory.

Some of the major tasks involved in the machine's construction included the fabrication of custom parts, extraction and assimilation of several components from supplied devices, and integrating several different systems together to work as one.

The machine uses either a manual or an automated process to cut a variety of metal types into an array of shapes and sizes. It will be a valuable addition to the learning tools that are incorporated by the engineering curriculum.



Automotive Pedal Assembly Tester

Team Members:

Patrick Durham, Troy Hahn, Hannu Keranen,
Tim Newell, Chris Peavey and James Secord

Faculty Advisor: Jon Coullard

Project Sponsor: DURA Automotive

Industrial Customer Contact: Bryan Cassiday

Presentation: 1:00 p.m., CAS 212

Demonstration: 1:45-2:30 p.m., CAS 122

Team SET designed and built an automotive pedal assembly tester that will be used in a production environment at DURA's Gladwin facility.

DURA manufactures adjustable brake and accelerator assemblies that will be installed into all 2008 Daimler-Chrysler RT minivans. Each assembly needs to be tested at the end of the production line prior to shipping to assure quality control. The end-of-the-line tester will become an integral part of the assemblies' production line, testing for various specified characteristics and functionality requirements.