



ELECTRICAL AND COMPUTER ENGINEERING SENIOR DESIGN DAY

Friday, December 10, 2004



Electrical and Computer Engineering Department
Information Technologies Building
The University of Connecticut

www.engr.uconn.edu/ece/SeniorDesign

ECE Senior Design Day Schedule	
1:00 – 2:45	Project Demonstrations ITE C19 and ITE C43
3:00 - 5:30	Oral Presentations by Design II Teams ITE C80
3:00 – 3:10	Welcoming Remarks (John Ayers)
3:10 – 3:30	Message Board Sean Watterson (CMPE), Andy Semyanko (EE), Anthony Lupo (EE) This project is designed to produce a device to convey short messages to a general audience located in a common area in the ITEB building. Sponsor: ECE Advisor: J. Ayers (ECE)
3:30 – 3:50	Wireless Sensor Network II David Crouse (EE), Michael Diaz (EE), Darko Budimir (EE) Often one may wish to install a simple home security system but be unable to afford the cost of installing the wiring. This project wirelessly networks motion detectors to ameliorate this problem. Sponsor: ECE Advisor: H. Lee (ECE)
3:50 – 4:10	Smart Home Entertainment Jesse Rackliff (CMPE), Steven Butler (EE), Zbigniew Roginski (CMPE) We developed a centralized home media network for distribution and playback of video and audio files. We designed custom audio and video appliances, which access stored media on a central server. Sponsor: ECE Advisor: J. Chandy (ECE)
4:10 – 4:30	Smart Home Stephen Palma (CMPE), Edward Marchionne (EE), Diego Castillo (EE), Bryan Artiano (EE) Smart home is a system that will monitor for any situation that might cause damage to a home. The system will then shut off devices in the house and notify the homeowner. Sponsor: ECE Advisor: R. Bansal (ECE)
4:30 – 4:50	Automated Inspection for a Manufacturing Process Alejandro Wille (EE / CSE), Shailan Lala (CMPE), Ali Awdi (MEM), Jeff Euen (MEM), Donald Gwizdat (MEM), Haley Meader (MEM) We studied the tradeoffs involved in different technologies for the automatic inspection of large manufactured components. Sponsor: Sikorsky Advisor: J. Ayers (ECE), Zbigniew Bzymek (ME)
4:50 – 5:10	Biomedical Imaging / Flow Phantom Yan Huang (CMPE), Sujit Singh (EE), Jeff Nishimbi Tshilenge (EE) We have designed a pump system to simulate blood flow in the carotid artery located in the neck. This pump will produce functions that resemble different blood pumping aspects of the heart controlled by the user. Sponsor: Pfizer Advisor: M. Fox (EE)
5:10 – 5:30	Homing Robot Zachary Chaves (CMPE), Phillip Johnson (EE), Gregory Wilkosz (EE) Need to get something to somewhere and don't want to pay delivery charges? The GPS Homing Robot will get the job done. Sponsor: ECE Advisor: J. Ayers (ECE)
5:30-6:30	Sandwiches & Refreshments ITE Concourse

ECE Senior Design I Teams

Web-Based Interface for Modeling in Failure Space

Lee Dumond (EE), Jay Jeng (EE), Kristian Balinski (CMPE)

Our goal is to develop an efficient, intuitive, and user friendly web-based graphical interface that will allow the creation of system models. The program will capture basic fault-test relationships that include information such as failure modes, tests, resources, pre and post setups and the dependencies between failure modes and tests.

Sponsor: Qualtech Systems Inc. Advisor: J. Chandy (ECE)

Elastomer Durability Tester

Brian Pile (EE), Samuel Yuspeh (EE), Andrew Chemistruck (CMPE/EE), Loi Chen (ME), Phillip DeMello (ME), Anthony Guarnier (ME)

Rogers Corporation develops elastomers and would like to do long term fatigue testing of these materials. They have asked for a cyclic pneumatic compression tester to be designed and fabricated. This tester will have an adjustable preload and cyclic rate, adjustable to 2000lbf and 10 Hz respectively.

Sponsor: Rogers Corporation Advisors: L. Wang (ECE) & Nigel Sammes (ME)

Photovoltaic Power Interface

Andrew Chemistruck (EE/CMPE), Edli Papadhima (EE), Everton Palmer (EE), Carl Zwolinski (EE)

Proton Energy Systems develops fuel cell solutions for the generation of hydrogen. They have asked for a small demonstration unit to be developed that would interface with a solar array to produce hydrogen for backup power purposes.

Sponsor: Proton Energy Advisor: M. Fox (ECE)

Fire Fighting Robot Team Theta

Ki-Hing Chan (EE), Oladayo Odina (EE), Randy Balkaran (EE)

The purpose of this project is to build an autonomous fire-fighting robot that will compete in the Annual Trinity College Fire-Fighting Robot contest in April 2005.

Sponsor: ECE Advisor: M. Fox (ECE)

Fire Fighting Robot Team Delta

Altin Dabulla (EE), Richard Liang (EE), Luis Cruz (EE)

Our team's goal is to build a robot that will compete in the annual Trinity College Fire Fighting Robot competition in April 2005. The objective is to put out the fire of a candle in the shortest amount of time.

Sponsor: ECE Advisor: J. Ayers (ECE)

Impedance Matching System

Garrett Lovejoy (EE), Joseph Mercuri (EE), Sakarin Seedasome (EE)

We have designed a system which will provide real-time impedance matching between a transmitter and an antenna.

Sponsor: ECE Advisor: R. Bansal (ECE)

Engine Datalogger

Michael Kieslich (CMPE), Stephen Gendreau (EE), Volkan Konuralp (EE)

Tuning of a modern combustion engine is a difficult task. The automotive tuner has to monitor all gauges while simultaneously noting the changes needed to bring the engine's tune within specifications. A data logger allows the tuner to have a real-time display of the most important variables.

Sponsor: ECE Advisor: L. Wang (ECE)

Ethernet Transceiver Using Two Physical Channels

William Donat (EE), Donville Riley (EE), Calvin Zulick (EngPhys)

Sometimes in telecommunications it is desirable to use paths that aren't equally reliable at a given time. This necessitates the ability to choose the most dependable path. We will build a standalone device that monitors for errors in two parallel bidirectional Ethernet paths in a point-to-point configuration. The device will select the best path for transmission while staying transparent to the network.

Sponsor: ECE Advisor: J. Chandy (ECE)

Landmine Detector

Nicholas Young (EE), Keron Henry (CSE/EE), Ryan Singh (EE), Chengkai Hsiao (EE)

We have designed a robot which will perform systematic searches and locate landmines.

Sponsor: ECE Advisor: R. Bansal (ECE)

You're Invited

The Electrical and Computer Engineering Department would like to invite you to the Fall 2004 Senior Design day to be held in the Information Technologies Building at the University of Connecticut on Friday, Dec. 10, 2004, from 1:00 PM to 6:30 PM.

You will have the opportunity to tour the Senior Design Labs (ITE C19 and ITE C43), view presentations of projects completed by the graduating seniors, and view presentations by all Senior Design students.

Sandwiches will also be served to our guests.

If you have questions please contact: Prof. John Ayers at (860) 486-2207 or E-mail to jayers@engr.uconn.edu. We look forward to seeing you here!

Directions

Directions: Interstate 84 to Exit 68. Route 195 south. Descend hill into University of Connecticut and follow the signs to South Garage. *[Take the first right after mirror lake (Mansfield Road). Take the second left (Gilbert Road). At the end of Gilbert Road turn right onto Hillside. Parking is available in South Garage, on your left.]* From South Garage, take a left onto hillside Road and a right onto Fairfield way. The Information Technologies Building is the second building on the right of Fairfield Way, located between the School of Business and the Library. Please contact Prof. John Ayers (860) 486-2207 if you have questions.

About ECE Senior Design

Electrical and Computer and Engineering Design I and II is a two semester design sequence (ECE 290 and ECE 291) taken by Computer Engineers and Electrical Engineers in their last two semesters at the University of Connecticut.

The course objective is to provide an opportunity for students to apply their engineering knowledge to solve open-ended design problems using a multidisciplinary team approach.

Students work in teams of three or more students. Each team is multidisciplinary in nature. This is normally accomplished by including students from different programs (EE, CMPE, and ME). In some cases, all participants on a particular team may be from the same program. In such a case, team members are chosen such that the members have different concentrations, expertise, or strengths.

Thanks to Our Industrial Sponsors

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