FERRIS STATE UNIVERSITY

College of Engineering Technology

ELECTRICAL/ELECTRONICS ENGINEERING TECHNOLOGY

AND

COMPUTER NETWORKS AND SYSTEMS

SENIOR DESIGN PROJECTS PRESENTATIONS

APRIL 20, 2012

Welcome!

Welcome to the 22nd annual Senior Projects Presentations of the Electrical/Electronics Engineering Technology and Computer Networks & Systems Department! We are pleased to welcome parents, prospective employers, alumni, faculty and staff, and our industrial advisors, all of who continue to support our program and students. Without you, today would not be possible.

"The only place success comes before work is in the Dictionary. Hard work is the price we must pay for success. I think you can accomplish anything if you're willing to pay the price." – Vince Lombardi

Beginning in the fall of 2011, our seniors began to plan their projects. They learned what is involved with managing a project, setting timelines and budgets, allocating resources, and the actual design engineering of the project. Continuing with the design created in the fall, the project was implemented during 13 weeks of the spring semester. Please enjoy the presentations today and see the results of a year of hard work.

Enjoy!

Gary Todd
Associate Professor
April 15, 2011

Presentation Schedule

8:30	RF TV System
9:00	Inexpensive Smart House
9:30	CODE BLUE
10:00	Break and Visit Student Projects
10:30	Lifecycle Logger
11:00	SCAMP
11:30	ORANGE
12:00	Lunch (All EEET/CNS Students, Faculty, Staff, Advisors, Alumni, Employers and Guests)
1:00	Awards Presentations

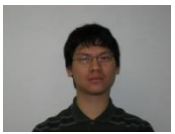
RF TV SYSTEM

Advisor: Bob Most

The RF Operated TV System is an external circuit system that can be attached to the TV plug. It has been observed that a TV consumes energy when it is in standby mode. The system designed will turn on the TV using a radio frequency signal which will eliminate the standby power consumption. It will utilize a Power Harvester chip that will convert an ultra-high frequency (902MHz – 928MHz) into electricity. The frequency will be a generated frequency from a MAX2904 Single-Chip Transmitter. The PIC16F1827 will operate as a pick and will control a relay; in turn, that relay will allow the television to operate. The PIC16F1827 will be programmed in C language.

Ken Downer - Ken is a senior in the Electrical/Electronics Engineering Technology program and will graduate in May 2012. He is an active participant in the "Big Event" and other community organized events. Ken's strengths include working with his hands, wiring, working with others, speaking and problem solving. His hobbies include sports, working outside, and golfing.

Sara Sweeney – Sara is from Williamston, MI. She is a senior in the Electrical/Electronics Engineering Technology program and will be graduating in May 2012. Her background is in industrial automation with some programming. Sara works at the Ferris State University Writing Center as a tutor helping students with their writing assignments. In her free time, she enjoys watching and playing sports, going to concerts, and spending time with friends and family.



Peter Diep – Peter is a senior in Electrical/Electronics Engineering Technology and a junior in Energy System Engineering. He will be graduating in May 2013. Peter has been active in the Human Powered Vehicle Team for the past two years and one year with the Robotics Club. He has been a tutor/lab attendant for three years. Peter is strong in programming in high level language, programming micro-controllers, and drawing 3D models. In his spare time, he enjoys playing video games, going on jogs, and spending time with friends and family. He is currently looking into a master's degree and a position with an alternative energy company or energy saving technology.

Muheez Opebiyi - Muheez is a senior in the Electrical/Electronics Engineering Technology program and will be graduating in December 2012. He is an international student from Nigeria in West Africa where he worked as a higher technical officer in Ogun State Water Corporation. He is presently working as a student tutor. His strengths include programming in high level language, AutoCAD, and Corel Draw. In his free time, Muheez likes watching American soccer and troubleshooting electrical electronic equipment. He is currently seeking a position with any electrical and/or electronic firm.

INEXPENSIVE SMART HOUSE (ISH)

Advisor: Murry Stocking

The Inexpensive Smart House (ISH) was developed to meet the needs of the homeowner on a budget. As the technology has evolved to help people get things controlled in their daily life, a project was designed to automate a house inexpensively. This project will enable the average income earner to adjust the thermostat, know when a smoke or carbon monoxide detector has been triggered, and will be able to manipulate lighting within their house simply by texting to make changes, or being texted upon alerts from the system thus enabling peace of mind or comfort using a standard cell phone.

Frank Gruber - Frank is a senior in the Electrical/Electronics Engineering Technology program and will be graduating in May 2012. Frank has been active in the Army Reserve and was deployed overseas twice while attending Ferris State. His strengths include industrial automation and working with Programmable Logic Controllers (PLCs). In his free time, Frank enjoys spending time with his wife and two kids. He is currently seeking a position as an Electrical Design Engineer with a government contractor.

Faissal Alshammari - Faissal is in the Electrical/Electronics Engineering Technology Program and will be graduating in Dec 2013. He has been employed by Sahara Petrochemicals Company in Saudi Arabia for two years as an instrumentation technician. In his free time, Faissal enjoys swimming and reading books. At present, his goal is to get the Bachelor of Science degree first and go further to aim toward the Master's degree.

Sultan Almassar - Sultan is a senior at Ferris State University enrolled in the Electrical/Electronics Engineering Technology Program. Sultan's concentration is in industrial automation with five years' experience - three years as an automation technician with a steel company (UNICOIL) and two years as a senior technician for a petrochemical company (Saudi Kayan). Sultan enjoys working with instrumentation and process control. In his spare time, he enjoys learning about new technology in the market and reading and watching documentary programs.

CODE BLUE

Advisor: Warren Klope

Through the use of Bluetooth communications, critical information such as driver's name, date of birth, and license number can be passed from one vehicle to another. The scope of this project is specifically limited to hit-and-run accidents involving a single parked automobile. Once a collision occurs, the "offending" vehicle responsible for hitting the parked car will transmit this information wirelessly via Bluetooth to the "victim" vehicle. The purpose is to alleviate the innocent party from the stress of this type of incident by providing this information to law enforcement and insurance carriers.

Matt Elliott- Matt is a senior in the Electrical/Electronics Engineering Technology program. Matt is expected to graduate in May of 2012. He is a graduate from Oakland Community College with Associate's degrees in Automated Systems and Robotics. Matt's strengths include Robotics, Automation, and Electronic Principles. He has completed his internship at Nexteer Automotive and plans to take employment there as a Manufacturing/Controls Engineer upon graduation. In his free time, Matt is a three-year member of the Ferris State Men's Club Volleyball team. He also enjoys spending his time in small communities trying to build soccer popularity by facilitating youth soccer camps and doing personal/team trainings.

Trevor Kiley - Trevor is a senior in the Computer Networks and Systems program and will be graduating in May 2012. Trevor has been active in the Institute for Electronics and Electrical Engineers (IEEE) student organization for three years and has held the offices of Vice President and President. Additionally, he has also been employed by the CNS department as a lab attendant and tutor. Trevor's strengths include programming in Java, C, C++ and Python, working with operating systems: Linux and Windows, and basic microprocessor assembly language. Additionally, he has experience in LAN, WAN, and TCP/IP as per the Cisco curriculum. He is currently seeking a position with software or networks companies specializing in development/security.

Ryan Carusi - Ryan is completing his senior year in the Computer Networks and Systems program at Ferris State University and will be graduating in May of 2012. Ryan is finalizing his minor in Homeland Security: Digital Forensics and Security with the hopes of acquiring a job in the security field. He completed two years at Oakland Community College before transferring to Ferris. He has been an active member in the IEEE student organization for the past two years. Ryan looks forward to new adventures ahead of him and expanding his knowledge in the working field.

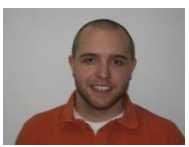
On the cold evening of November 23, 1988, Roger Johnson II was born. Roger's only brother Albert followed a short period after in May, 1991. The little sister that Roger had always wanted finally came 22 years after he had been on this earth; her name is Cheyenne and was born on September 1, 2012. Roger is from Greenville MI and attended Grattan Academy High School where he was active in basketball, volleyball, and a year of soccer. Roger is a senior obtaining the Computer Networks and Systems Bachelor's Degree at Ferris State University and plans on graduating in May 2013. He is a father, full-time student, and works multiple part-time jobs as well. Roger likes to spend his free time with his son and trying to increase his knowledge in technology as a whole. Roger is currently seeking an internship in networking /network administration and would like to pursue a career in networking/ network administration.

Julius Marshall - Julius is a senior in the Computer Networks and Systems Program. He is an active member of IEEE and currently holds the office of president. He is also involved in martial arts with a First Degree Black Belt in Tang Soo Doo. His hobbies are martial arts, networking, hanging out with friends, and playing the guitar.

LIFECYCLE LOGGER

Advisor: Bob Most

The LifeCycle Logger is a small, self-contained device for monitoring and recording the product lifecycle of a variety of machines. The logger ensures an accurate record of the lifecycle of the machine for maintenance, rework, and warranty purposes. The logger will record cycles of the machine using an accelerometer and low-pass filter to accurately determine the machine's cycles. The logger provides a Bluetooth connection as well as a USB connection to edit or extract data and monitor the device in real-time. This device is tailored toward the mechanical industry, but could easily be adapted to suit the needs of other industries as well. The logger will be attached to a machine using proprietary mounting plates with tamper-proof technology to prevent any unauthorized changes to the recorded data. This device can potentially save a company thousands of dollars in warranty repair and/or replacement of their equipment that was actually no longer under warranty. This logger will ensure that the equipment being sent back to the company for repair was not overrun or misused by the client.



Chris Johnson - Chris will be graduating from the Computer Networks and Systems program in May of 2012. He has been active in the IEEE student organization and worked as a network engineer at Allstate Insurance Company in the summer of 2011. His strengths include Cisco equipment, networking, F5 load balancing, and programming in C++, C, Python, and Assembly. In his free time, Chris exercises to stay in shape and enjoys playing a variety of sports. His most dedicated sport is Mixed Martial Arts. He is currently seeking a position with an IT firm or any firm that requires networking and/or network engineers.

Ben Scudder - Ben is a senior in the Computer Networks and Systems program and will be graduating in May 2012. Ben has been active in the IEEE student organization for four years and has held the office of treasurer. He also actively volunteers for his student organization and is involved in nearly all of the volunteer events and jumps at the chance to go on a field trip or to a programming competition, because of the chance to learn new and exciting things. Ben's strengths include programming in high level language and assembly language, designing and maintaining computer networks, and an in-depth understanding of digital systems. In his free time, he is an avid outdoorsman and always enjoys working out and staying healthy. He is currently analyzing all of his options available in the job market and would love to travel and learn and work on new and challenging work.

Andrew Bendall – Andrew will be graduating from the Computer Networks and Systems program in May 2012. He has been active in the IEEE student organization and held the office of community representative, as well as an active member in the High Performance Motorsports Organization for five years. He has been employed by Networking Butler, Inc. of Cadillac, Michigan, as a Network Engineer. Andrew's other interests include off-roading and working on vehicles. Upon graduation, he will continue to work for Networking Butler.

Caleb Mauer – Caleb attended Mason County Central High School in Scottville, MI in 2007. After spending one year at West Shore Community College, he transferred to Ferris State University. He is currently working on a BS in Computer Networks and Systems, an associate's in Industrial Electronics Technology, and a minor in Computer Science. During the summer of 2011, Caleb worked as a systems analyst intern at Alcoa-Howmet in Whitehall, MI. He will graduate from Ferris in May 2012.

S.C.A.M.P.

Advisor: Ron Mehringer

The Self-Guided Changeable Academic Mobile Platform, or S.C.A.M.P, is a mobile robotic platform designed to serve academic groups. The goal of SCAMP is to create a platform that is to be used as a base unit for subsequent academic groups to use and expand its capabilities. The scope of this project is to build the basic platform and add a bit of pizzazz to the basic robot design. In addition to the basic goal, SCAMP will be streaming video and taking still images on its self-guided path. The self-guided path is set by a series of GPS waypoints gathered from a user's input. SCAMP has the flexibility and scalability with the onboard computer and the Velocity Systems' Bravo MiniBox to complete its main goal.

Matthew Aamoth- Matt is in his 4th year of the EEET program. He had an internship with GR Spring and Stamping during the summer of 2011 and is currently working there part time. In the past year, he changed his focus from digital design to industrial automation to better understand the systems used at GRSS. Matt has finished an associate's degree in Industrial Electronic Technology through Ferris State University. When not working or attending class, Matt spends time playing for the club lacrosse team and relaxing.

Michael Peterson – Michael is a senior in the Computer Networks and Systems program and will be graduating in May 2012. He has been employed by Montcalm Community College as an IT Technical Assistant while taking classes at Ferris State University. Before transferring to FSU, Michael earned an Associate's Degree in Computer Repair from Montcalm Community College. His strengths are in computer troubleshooting, support, and network interfacing. In his free time, Michael is an avid Amateur Radio Operator and supports the Michigan 4-H program as a Model Rocketry instructor. He is currently seeking a position in the computer and network support field.

Matt Schau is a current 4th year student in the EEET program. He has completed an internship at Camoplat dealing with automation of machines. He enjoys the outdoor sports of downhill skiing and paintball and the indoor activities of cards, video games and web surfing. Matt will graduate in May 2012 and is currently seeking employment in the automation or electronics field.

Obstolum Triggs - Triggs is a senior in the Computer Networks and Systems program and will be graduating in December 2012. As a junior, Triggs started his own web design and development business working for small businesses and non-profits. He later acquired a position as a developer at both a research and development company and a critical thinking company. In his free time, Triggs enjoys practicing development on different platforms. His life's goal is to invent something that would benefit people around the world.

ORANGE

Advisor: Keith Jewett

This project will provide vehicle drivers with an early warning system designed to alert them of upcoming construction zones and work areas. By using a camera mounted in the cabin of the vehicle, the system monitors the upcoming roadway and can detect construction zone alert equipment such as orange barrels and signs. The system analyses the photos taken and alerts the driver to the oncoming construction area if it determines the vehicle is entering a zone.

For development, a playstation move camera will be used, as well as photo analysis software.

Andrew Craig VanGessel - Andrew is a Senior at Ferris State University in the Computer Networks & Systems program with a minor in Computer Science. He plays trombone in the Athletic Pep band and is the Low Brass/Low Woodwinds Section Leader. He is also a big fan of Android and spends his free time playing video games as well as watching Doctor Who and other shows.

Aaron White – Aaron is a senior with dual majors in the Computer Networks and Systems Program and the Applied Mathematics Program. He will be graduating in May 2012. Aaron has been active in the IEEE student organization for three years and has held the offices of President and Vice President. He has also been employed by the EEET/CNS department as a tutor/lab attendant for almost two years. His strengths include programming in high level language, Linux, and micro-controller mnemonics. In his free time, Aaron enjoys playing video games, wake boarding, and watching TV. He is currently seeking a position with a software development/security firm.

Jim Knowlton - Jim is a senior in the Electrical/Electronic Engineering Technology program and will be graduating in May 2012. Jim has been employed by the EEET/CNS department as a lab attendant. His strengths include programming in C and Freescale assembly. Analog circuitry and Microchip development hardware are also interests of his. In his free time, Jim enjoys watching the Tigers and Red Wings. He also takes his dog on walks and works on electronics projects. He is currently seeking a position with an electronics application or an embedded processor systems development company.

EET AND CNS FACULTY/STAFF

Luiz Costa

Keith Jewett

Warren Klope

Ron Mehringer

Bob Most

Murry Stocking

Gary Todd

Steve Johnson

Thank you for Coming!