



**FERRIS STATE
UNIVERSITY**

College of Engineering Technology

ELECTRICAL/ELECTRONICS ENGINEERING TECHNOLOGY

AND

COMPUTER NETWORKS AND SYSTEMS

SENIOR DESIGN PROJECTS PRESENTATIONS

APRIL 25, 2014

Welcome!

Welcome to the 23rd annual Senior Projects Presentations of the Computer Networks and Systems and Electrical/Electronics Engineering Technology Department. We are pleased to welcome parents, prospective employers, students, prospective students, alumni, faculty, staff, and our industrial advisors. Without the support of all of you, today's presentations would not be possible.

This process started in the fall semester of 2013 when these students took our EEET-418 Project Management course. In this course they learned the theory and techniques of managing small and large scale projects. In the spring of this year in EEET-428, they undertook the task of creating, designing, developing, building, and testing their project. Working together as a team they developed a schedule, assigned tasks, and monitored the progress of their project. Today is the culmination of their efforts. Please enjoy the presentations and the results of our student's efforts.

"To invent, you need a good imagination and a pile of junk." Thomas Edison

Thank you all for coming today,

*Ron Mehringer
Associate Professor*

Presentation Schedule

8:00 KEYNOTE SPEAKER – TOM BRYANT

8:30 PANTOMIME

9:00 BAT HAT

9:30 REMOTE-A-MOW

10:00 REMOTE PHONE APPLICATION

10:30 PARKDOGE

11:00 BULLDOG T-SHIRT DELIVERY ROBOT

11:30 AWARDS PRESENTATIONS

12:00 LUNCH

PANTOMIME

Advisor: Jeff Pedelty

The purpose of this project is to interface an auxiliary touch screen with an iPhone and Android phone. The touch screen will essentially “mirror” and control the phone. Initially, the video signal will be sent to the touch screen via an HDMI connection and the touch control from the touch screen to the phone will be sent via an HID Bluetooth signal. Once these results are verified, the touch screen and accompanying circuitry will be installed in a motorized single DIN car audio deck and powered by a 12-volt source (the car’s battery). In order to use the flip-out feature of the deck, a program will be developed to use the buttons and motors to control the touch screen’s movement, as well as incorporating features like Bluetooth pairing and the device power on/off.



Ahmed Aljuaiten is from Saudi Arabia. Hard working and determined are the main characteristics that Ahmed’s family and friends would use to describe his personality. Ahmed received his Associate Degree in Telecommunications Technology. During the fall of 2008, he worked as an intern for the Saudi Telecommunication Company. Ahmed decided to continue studying to get his Bachelor’s degree. He has been in the United States for four and a half years. In his free time, he enjoys playing soccer, fixing phones and hanging out with friends. Ahmed is going to graduate in the fall of 2014 with a Bachelor of Science Degree in Electrical Engineering Technology.



Matthew Beifuss is an Electrical/Electronics Engineering Technology (EET) student who enjoys spending his free time working on his car and troubleshooting electronic devices. He is scheduled to graduate with the Bachelor in EET in December 2014. Currently, Matthew is employed by Automatic Spring Products Corporation as a maintenance employee under a master electrician and working with the R&D department during PLC based projects. Matthew is determined to fill his future with continuous learning and aiding in the advancement of automobiles in any way he can.



Michael Vandyke is a veteran of the United States Army where he served five years. It’s this experience that spurred his interest in engineering as a profession. Upon discharge from the army, Michael attended Baker College in Muskegon obtaining an Associated Degree in EET. Thirsty for more knowledge, Michael is now a senior in the EET program with a focus in industrial automation. He enjoys his free time in the garage working on cars, always expanding his technical knowledge.



Terry Messenger is a student currently enrolled in the Electrical/Electronics Engineering Technology degree at Ferris State University. Terry knew from a young age that he wanted to make a career in the engineering industry. After graduating from Orchard View High School in 2007, he started on his secondary education at Baker College of Muskegon and eventually transferred to Ferris to pursue his degree in Electrical Engineering Technology. He classifies himself as a “nothing is impossible” kind of guy and loves to work with his hands. He also loves to hang with friends, enjoys nice rides on his Harley-Davidson, and doing his own fabrication and modification to his bikes. Terry recently accepted an electrical engineering position at Chrysler.

BAT HAT

Advisor: Bob Most

The Bat Hat uses ultrasonic technology to replace the function of a guide dog for visually impaired people. The device has sensors strategically placed to sense objects in the path of the user. It then vibrates in the direction of the object at a varying speed to alert the wearer of the distance of the object. A shortcoming of relying on a cane as a mobility tool is that it can be difficult to detect a curb without tactile paving. To overcome this issue, the microcontroller has been programmed so the hat can sense a change of height that a curb would present. This hat is intended to supplement a cane and to replace the necessity of guide dogs for blind people.



Chase Canning was born in Grand Rapids, Michigan, and graduated from Lowell High school. He is a senior in the Computer Networks and Systems program here at Ferris State University. Chase enjoys experimenting with the latest technology along with playing tennis and disc golf in his spare time. He recently interned at Allstate Insurance in Northbrook, Illinois as a NAS Storage Engineer and plans to go back after he graduates.



Jared Hine was born in Jackson, MI where he graduated from Northwest High School with a 3.9 GPA. He is currently a senior in the Electrical/Electronics Engineering Technology program at Ferris State University and plans on graduating in fall of 2014. Jared has landed an internship this summer at Gentex Corporation in Holland, MI. Jared enjoys his free time by tinkering with electronics, playing ultimate Frisbee, and cycling.



Samantha Gignac is a senior in the Computer Networks and Systems program and is also pursuing an Associate degree in Industrial Electronic Technology. Samantha is from Macomb, Michigan and in her free time she enjoys sewing, listening to music, and reading literature. She was the president of the Institute of Electrical and Electronics Engineers (IEEE) chapter at Ferris in 2013 and an active club officer for the past three years. Samantha also gained her Gold award through the Girl Scouts of America for her volunteer work in Tijuana, Mexico and plans on continuing working with girls to encourage women to join the engineering field.



Zachary VanDyke was born in Grand Rapids, Michigan, to Amanda Haynes and Douglas Edwards. He graduated from Northview High School, which is a Blue Ribbon school. He first pursued a Degree in Graphic Design for two years then switched to Computer Networks and Systems. After college he will have an Associate's in Graphic Design and a Bachelor's in Computer Networks and Systems.

REMOTE-A-MOW

Advisor: [Murry Stocking](#)

Remote-A-Mow is a lawn mower which was designed to help the disabled and elderly mow their grass. It is controlled from a remote computer which communicates with the attached pcDuino board. The camera on the mower provides real-time video feedback and can be moved in multiple directions by the use of two servos.



Andrew Sweet graduated from East Jordan Public Schools in 2007 at which point he began to attend Ferris State University. When first entering into Ferris, Andrew was enrolled in the Mechanical Engineering Technology program. After his first two years, he quickly came to realize his love for computers at which point he transferred into the CNS program. Andrew is a senior in the Computer Network Systems Engineering Program.



Donny Alfredson is currently attending Ferris State University in pursuit of a Computer Networks and Systems degree. Donny grew up in Muskegon, MI and attended Reeths-Puffer High School where he enjoyed taking as many computer/networking classes as possible. Before graduating in 2009, Donny earned a Microsoft Certification and was awarded a certificate of honors for excellence in computers. Donny is currently seeking internship and job opportunities in the IT or networking field.

REMOTE PHONE APPLICATION

Advisor: Robert Most

A person will be able to remotely select a song to play by the way of a web application through an interface of a mobile device. The mobile device will log in into the web application to select the song that is stored on a laptop.



Brett Strohkirch is dual majoring in the Computer Networks and Systems and Electrical/Electronics Engineering Technology programs. He has worked for Ferris State's Office of Housing and Residence Life since his freshman year. He currently assumes the position of Desk Service Manager in Henderson Hall. He enjoys spending time with his friends, family, and playing Magic: The Gathering. He is currently searching for careers in the systems administration field.



Curtiss Carlson is in the Computer Networks and Systems program. He came to Ferris after serving 4 years in the United States Marine Corp. Curtiss worked in Air Logistics while serving at Cherry Point, NC and later in Afghanistan. Curtiss works for Shoreline Computer Systems in Holland which has increased his knowledge in computer systems.



Salvador Gonzalez is in the Computer Networks and Systems program and is receiving a minor in Computer Information and Systems. He has attended Ferris State University for 5 years and has upheld above a 3.0 GPA. In his free time, he likes to help his family, sing, and repair computers around his community.



Steven Salter is a Computer Networks and Systems major. He graduated from Reeths-Puffer public schools in 2006 and then went to Muskegon Community College for two years before transferring to Ferris. His father worked with auto CAD in his profession which got Steven interested in computers and helped him make his decision to go into this field. He helps out with the high school youth group at his church and has gone on two mission trips with that group.

PARKDOGE

Advisor: Keith Jewett

The purpose of the project is to create a software program that implements computer vision to assist with the parking experience. The program will use computer optical object recognition with heuristics to calculate useful information to motorists, especially available parking spaces and their locations in near-real time. The results would be accessible initially through a web interface and later and mobile phone application.



Delbert J. Ritchie was raised in southwest Michigan and graduated from Decatur High School in 2009. He then attended Southwestern Michigan College where he studied engineering and worked as a resident assistant. Delbert transferred to Ferris State University in 2010 and is currently a senior in the Electrical/Electronics Engineering Technology program. He worked as an intern for Gentex Corporation in Zeeland MI In 2013, and has accepted a full-time position in the industrial automation field upon graduation.



Ethan S. Wagner is a double major in Computer Networks & Systems and Computer Information Technology. He was born in San Diego, CA and moved three years later to Colon, MI where he graduated from Colon High School and the Branch Area Careers Center. Ethan currently works on campus at the Technology Assistance Center and also at UpNow.biz. He enjoys the outdoors, performing arts, and playing video games.



Mark D. Grulke is a senior in Electrical/Electronics Engineering Technology program. He was raised by his parents, Mark and Pam, in the small town of Rogers City. He graduated from Rogers City High School in 2006 and spent four years at Alpena Community College where he acquired his Associates in Computer Aided Design and also took up Utility Technology and Pre-Engineering. He then transferred to Ferris State to finish his Bachelor's in EEET. He enjoys snowboarding, ice hockey, slow pitch softball and has had an internship with Consumers Energy.



Steven C. Hohman is a Computer Networks and Systems senior from Monroe, Michigan. He is a Magna Cum Laude graduate of Monroe High School. He also holds a Bachelor of Science in Biology and aspires to be a network systems engineer. Throughout his academic career, he has been involved in various student organizations including Residence Hall Association, Entertainment Unlimited, Concert Choir, and Club Fishing.

BULLDOG T-SHIRT DELIVERY ROBOT

Advisor: Bob Most

At sporting events around the country, t-shirts are delivered to the crowd either by hand or rudimentary pneumatic launching devices. The goal of this project was to implement a proof-of-concept system where an operator remotely connects to a robot and pneumatically launches a t-shirt to awaiting fans. The operator connects a laptop, tablet or smartphone via Wi-Fi to the robot, and then positions it for launching. Electronic safety mechanisms are utilized and the system looks like Ferris' own Brutus the Bulldog for school spirit!



Brett Thomas is an Electrical/Electronics Engineering Technology Major that was born in Big Rapids, MI. on March 18, 1986. He graduated from Chippewa Hill High School in 2004 and joined the United States Marine Corps in 2005 as an Avionics Technician. Some hobbies include: Building computers, playing video games, hunting and fishing.



Lucas Nelson was born in Cadillac, MI. He graduated from Cadillac High School in 2000. He served in the United States Navy as a Machinist's Mate in their nuclear power program. He is currently set to graduate from Ferris State University in May of 2014 with a GPA of 3.74. He enjoys hunting, reading, and chess.



Noah Reyburn is a senior enrolled in the Electrical/Electronics Engineering Technology program with a Computer Science minor. He is interested in mobile device development and embedded computer systems. In his free time, Noah enjoys amateur radio, hobbyist inventing, and hunting.

EET AND CNS FACULTY and STAFF



Keith Jewett



Steve Johnson



Sandy Kerridge



Warren Klope



Ron Mehringer



Bob Most



Jeff Pedelty



Murry Stocking



Gary Todd

Thank you for Coming!