ECE 4890 PreProposal Presentation Schedule

Friday May 3, 2013
EN 101 8:00 AM – ~10:00 AM

8:00–8:15 AM

Team: Kevin Hogg, Andrew Miller, Shaun Raj, Royce Skelton

Title: Sprinkler Control

Sponsor: Brett Skelton

Advisor: TBD

Description: This projects focus is on the development of hardware and software for a residential sprinkler controller system for control of up to 16 watering zones. Ideally the system will be accessible remotely through an interactive application developed on the Android platform. This application will be the front end for the user to schedule and control the system over a home network. There will be a minimum of two sensors for recording outdoor temperature and humidity, as well as the ability to add additional sensors or modules at a later time. The user will be able to customize the watering cycle in nearly infinite ways to meet their watering needs. Each zone can be watered for a set duration, or until some termination logic signal has been received, such as a freezing temperature interrupt. This project will deviate from the current products on the market in that it will be open source, have unlimited scheduling options, more available watering zones, local temperature and humidity sensors as well as future expandability.

8:30–8:45 AM

Team: Micaela Eisman, Greg Zarnoch

Title: Energy Harvesting Pedometer

Sponsor: Sponsored by EM Microelectronic, Colorado Springs

Advisors: TBD

Description: The desire for low power electronics grows as today's technology advances. Cutting down on energy costs is ideal, and the advent of alternative power sources has allowed for the advancement of electronics that use less power. Power consumption is a very important consideration in electronic devices today, especially because the more power a device requires, the faster it will fail when there is a shortage of power. The concept of low powered devices attempts to alleviate some of these concerns.

This design project will utilize harvestable energy to take into consideration the importance of low powered electronics. This device will utilize thermal energy and or mechanical methods to keep the power consumption low. The device will measure physical activity and wirelessly transmit the information using Bluetooth® Low Energy (BTLE), interfacing

with an iOS device to store and manage data for the user. This device will bring to light the fact that low powered electronic devices can become very prevalent given effective usage of harvestable and renewable energy.

9:00–9:15 AM

Team: Jason Aldaz, Angeleah Marquez, Michael Wiseman

Title: Hearing Assistance Device

Sponsor: Leslie Tekamp, UCCS ECE Department

Advisors: Professor Leslie Tekamp

Description: The purpose of this project is to design a hearing assistance device to compensate for the weak tones a person cannot hear. The user will take a hearing test on a GUI. The hearing test will provide a graph which will show the audio threshold for frequencies which humans should be able to hear (300Hz to 20kHz). A headset will compensate for the weak frequencies when watching internet TV or listening to internet music. This document will discuss the operational description, requirements and specifications, design deliverables, and preliminary system test plan.

9:30–9:45 AM

Team: Chris Merrick, Jonathan Johnson, Seth Shoemaker

Title: Battery Thermal Testing Chamber Remote Control System

Sponsor: Dr. Gregory Plett, UCCS ECE Department

Advisors: Dr. Gregory Plett

Description: The University of Colorado At Colorado Springs has an advanced testing facility that allows batteries to be put through a simulation of use under extreme conditions, in particular extremes of temperature. The testing lab has a number of thermal control chambers that run charge and discharge cycles on battery cells at different temperatures.

The testing chambers can currently only be controlled locally; a person must physically log onto the computers at the testing facility or manually entering commands into the machines themselves. When an error occurs at 3:00 in the morning, someone has to go to the lab in order to fix the problem. This is not only an unpleasant proposition, but if a test is off-temperature for too long the results may need to be discarded, wasting valuable lab time. This project is intended to create a system that would allow authorized persons to control the thermal chambers remotely, by logging into a secure server which allows control of the thermal chambers remotely.