ECE 1778 - Creativity and Programming for Mobile Devices
February 2013
Programming Assignment #P3, for Programmers

Location, Motion Sensors and Image Capture

The goal of this assignment is to learn the basics the location-based services in phones, the accelerometer motion sensors and to be able to accept and display camera input. It will help to understand the 'Android Life Cycle' described in Lecture 4.

Also, please note, that you will also be asked by your Apper partners for some instruction on an aspect of computer engineering or science, relating to one of Search/Indexing, Databases, Digital Signal Processing, Networks or Continuous Optimization.

1 Reading & Learning

Read the following sections from the course texts, if you are developing on Android:

i. Pages 1215 through 1220 ("Accessing Location-Based Services") of the **The Busy Coder's Guide to Android Development** version 4.4
ii. Read through the Android Developer Reference information on sensors, starting here:

http://developer.android.com/reference/android/hardware/Sensor.html

and here:

http://developer.android.com/reference/android/hardware/SensorEvent.html

iii. Pages 1247-1251 ("Using the Camera") from the **Busy Coder's Guide to Android Development,** version 4.4.

The equivalent from **Beginning iPhone 6 Development Exploring the iOS SDK** by Mark, Nutting, LaMarche and Olsson**,** can be found in:

i. Chapter 18, "Where Am I? Finding Your Way with Core Location and Map Kit"
ii. Chapter 19, "Whee! Gyro and Accelerometer!"
iii. Chapter 20, "The Camera and Photo Library."

2 Assignment

NOTE: in writing your code for this assignment, please be sure to follow 'Braiden Brousseau's Guide To Quality Apps' that was given as part of Assignment P1. Part of your grade will be assigned for fulfilling them.

Write an Android application that, in response to being shaken, takes a picture 1 second after the shaking stops, and also records the GPS location at the same time. Each location should be stored in a growing list; when the user touches the list item, your application should display the picture taken at that location. The list should be maintained over separate invocations of the app, and it should be possible to delete a list item, which would remove the corresponding image in the file system.

To test this application, you will have to use an actual mobile device, and so may need to borrow one of the Nexus S devices available for this.

Due date: Tuesday February 12th, 6pm, marked out of 10, 0.5 marks off every hour late. **Submit your solution through the Blackboard portal, associated with this assignment.**

What to submit: a zip file containing your complete project, runable from Eclipse, or runable from Xcode 4.5.2 if on iPhone.