

# CIS6930/4930 Mobile Networking - Spring 2010

## *Experiment Roadmap*

*(or What to expect in the next experiment)*

Due Date: 2010

Start Date: January 27, 2010

### **Abstract**

In this class you are expected to conduct several experiments/analysis, the goal is to familiarize you with traces, devices, basic analysis, and programming and to give you a head start for brainstorming ideas for your projects. Below are experiments we are currently proposing, if you have alternative suggestions please email them to Dr. Helmy or to the TA, Udayan Kumar

## **1 Experiment 1**

The goal of this experiment is to familiarize with the device (Nokia N810, N800 or OpenMoko) and start collecting Bluetooth/Wi-Fi AP traces. We will try to provide every student with a device that she/he has to carry for rest of the semester and collect traces. This period will also allow you get familiar with programming techniques/environment needed to implement your project ideas.

## **2 Experiment 2**

If we are to use our devices for message transfer in DTNs, we have to understand how distance between the two devices and duration of encounter matters. Most of the wireless technologies around including Bluetooth and Wi-fi, use rate adaptation i.e. the rate of data transfer changes as the error rate/distance between two devices increases. This rate adaptation can affect the amount of data that can be transferred between the devices encountering each other.

For this experiment we would use the bluetooth radio and measure how distance affect the rate of data transfer.

## **3 Experiment 3**

We want to get started with trace analysis in this part. Options for traces are

1. To process Bluetooth traces collected by students in previous semesters and current semester traces
2. To process WLAN traces from UF, USC or other traces available at MobiLib [2] and CRAWDAD [1] trace libraries.

The objective of this experiment is understand/discover/analyze the patterns available for communication via short-range radios. And finally to design a scheme/protocol/application that can leverage this analysis and understanding for information transfer in DTNs.

## **4 Experiment 4**

Brainstorm and come up with 1 application per person in the group that can benefit from the bluetooth/trace analysis, explaining clearly with flowcharts and other diagrams in 1-2 pages per application.

## **References**

- [1] CRAWDAD: Community Resource for Archiving Wireless Data at Dartmouth, August 2008.
- [2] Wei-jen Hsu and Ahmed Helmy. MOBILIB: Community-wide Library of Mobility and Wireless Networks Measurements, June 2008.