HCI-631 Project #3:
Visualizing Bluetooth Encounters
Due: Wednesday, March 19 at 9:00AM

In this project you will write a program that visualizes the text output of the Cityware application. You should work in groups of 2-3.

Project Overview

The goal of this project is to learn more about real-time information visualization programming by writing a program that reads the output of the Cityware application and generates real-time visualizations using the Perfuse library. As part of this coursework, you will be given the Cityware application.

Cityware

Cityware is an application that constantly scans the environment for Bluetooth devices, and prints to standard output the devices it sees, along with timestamps, in a comma-separated format. Read the associated documentation about compiling and running this application. A typical line of output from the program looks like:

2008-02-19,10:55:23,0015A03D2BF1,0,Find me!

The first two fields are date and time, the third field is the unique serial number of the Bluetooth device that the computer can currently see nearby, the fourth field is the device class, and the fifth is the name of the device. Note that the fourth field is optional. Also note that when the program starts, it prints out a single line with its own serial number and name. Finally, the program may from time to time print error messages, which you can choose to ignore.

Prefuse

Prefuse is an open-source library for dynamic visualizations. For more information about the library, for downloads, and for tutorials, visit http://prefuse.org/ . You will need to get acquainted with this library, and most probably extend it in order to create your own visualizations.

Visualisation

Your program should take input from the Cityware application and use the Prefuse classes to create dynamic visualizations. The visualizations may convey information such as

- How many devices have been detected in the past x minutes?

- What are their names, how long has each device been in range of the computer?

- How long has each device been in range of other devices?

- What time of day is most active? What day of week is most active?

- How often does a device appear?

- What is the social network that the computer has detected so far? (Note that if two devices appear at the same time, you may infer that these devices are friends).

- Which social ties are the strongest/weakest in the social network?

Turning Your Program In

Your program is due on Wednesday, March 19 at 9:00AM

As before, you should turn in your assignment via e-mail to **vassilis@cmu.edu** whose subject contains the string "631 project3 turnin for " and then your name. What you turn in should take the form of **a single "zip" file** (as an attachment to your e-mail message). This zip file will contain:

- the complete source tree, ready to be compiled
- any other support material (images, readme files, etc)
- a short 2-6 page writeup describing your program, its features, and any relevant screenshots of your program. Please follow this template for your report http://hci-uma.org/courses/saui/saui_template.doc

Do **not** send multiple attached files (i.e., one attachment for each source file). Your email should also describe any extras that you are submitting. Again, be certain to include the string "631 project3 turnin for " and then your name, in the subject of your message.

Grading
Your program will be graded as follows:

- Creativity, how engaging is your visualization?
- Robustness, how well does the application actually work?
- Difficulty, how hard was it to implement?
- Understandability, how well is your code documented?

Tips
You may want to modify the Cityware application and make it throw an event each time it discovers a device. Alternatively, you may keep Cityware untouched, and write its output to a file that is read by your application.

Also, note that the Cityware applications has built-in mechanisms for interfacing with Facebook. In other words, it can send its text output to the Cityware servers, which then analyse it and present it inside Facebook. For more information, visit: http://apps.facebook.com/cityware/menu.php

If you choose to modify the Cityware program, you must not remove its ability to upload the data to the servers.

Resources
Here is a list of web sites you may find useful:

- Kostakos, V. and O'Neill, E. (2008). Capturing and visualising Bluetooth encounters. CHI 2008, workshop on Social Data Analysis, Florence, Italy.
  http://www.cs.bath.ac.uk/~vk/files/chi08a.pdf
- Visualizing text chatting as bubbles http://www.seansavage.com/encounter-bubbles/
- The documentation for using Bluetooth in Java (JSR-82)
  http://java.sun.com/javame/reference/apis/jsr082/