

6.883 – 5508 Problem Set 2
Due Wednesday March 1, 2006

Always at the right place at the right time

Please check the wiki for updated information (and also for how to read the GPS information).

1 background

Spacial services, such as GPS, and constant communication have made it possible to know where ones family and friends are located. For this assignment, you are to use a portable bluetooth GPS receiver, and connect it to your ipaq via bluetooth. About every five minutes you should take a reading from the GPS device. It will not work indoors, although one can often place the receiver near a window or even just outside the window.

Periodically, you should upload (send) your position to our central server, ozone.csail.mit.edu/Tracking/upload.php, or some other server. The server simply keeps track of all the records. You may download (request) all the tracking information contained on the server, or just some part of it.

Your ipaq should act as a server as well, allowing anyone to query its current position.

2 main thrust: location larconey

The truth is that no one likes to be tracked. Some of us like to sneak off every now and then, perhaps to visit a museum to see the new art exhibit. Since you will be writing the code for the location gathering service, it is very likely that your code will contain bugs. Many people do not like bugs, but they can be our friends. Some bugs, for example, do not have very good vision and have a poor sense of direction. Bugs could cause our ipaqs to make inaccurate reports as to our whereabouts.

The goal of this exercise is to write "buggy" code that will report your location according to where you should be rather than where you actually are. This is for responcees to location queries.

3 hints

The server is used mostly as a way of helping your bugs. You can use the information on the server in several different ways. For example, if two people are near each other, it is possible to get their location information confused in the future. That is, Alice and Bob keep honest updates of their location, but when they come near each other, they decide to reverse roles and Alice reports Bob's position and vica-versa.

Another possibility is that over time, one learns how much variance to their location is typical, and then in the future, know how to fake their position so that it resembles past paths.

There are many other possibilities.

4 some details

Location path information is uploaded to the server using an xml-like format:

```
<Position_Record>
  <ID> (s,a,n) this is your info from PS-1 <\ID>
  <TIME> time in python time.time() format <\TIME>
  <PLACE> gps coordinate <\PLACE>
<\Position_Record>
```

Location path information can be downloaded from the server using a request record that asks for the records of (s,a,n) identifier, or specifies (*,*,*) for all records.

If anyone wants to write a more sophisticated server, please feel free to do so and post the information on the wiki.

5 what to hand in

Please give a short writeup of your strategy to fake your location. Your code should also be handed in. Finally, a list of times when we can probe your ipaq for locaton information.