

Extracting Map Route Information

Prerequisites:	- none
Reccomended background:	- Experience with map APIs (Google Maps or StreetMap) - Python programming - Web programming
Level:	This topic is appropriate for Bachelor and Master Students
Language:	German or English

INTRODUCTION

One of the main research areas of ComNets is opportunistic networking (OppNets). In such networks, data is exchanged among nodes upon direct physical contact, e.g. when two smartphones come close to each other via Bluetooth. Thus, OppNets are very much dependant on mobility of people, carrying the devices. Most of our research is evaluated under simulation and we use different mobility models to mimic the movement of real people. However, these models are random and sometimes very unrealistic, e.g. letting the people move in the same patterns during day and night.

In this student job, we would like to explore the possibility of manually creating GPS traces with Google Maps or OpenStreetMap of imaginative people. Instead of tracking real people, the idea is to create routes manually with different means of transportation and to store them as GPS traces. For example, we could create a person and a sample day of her life as follows: she is living in Fizz, at 8:03 am she left her room to go for classes in NW1, then went to the main mensa at 12:31, came back to NW1 at 13:14, then took the tram to go to Domsheide at 18:02, made a walk to Schlachte to meet some friends at 18:24, returned to her room at 22:02 with the tram. The exact routes she took are taken from navigation data from Google Maps or OpenStreetMap. This example is invented, but it is realistic and plausible. It does not break any privacy, but gives us concrete and realistic information to use in our simulations.

The target of this project is to develop a process for creating such daily schedules, and to create a first database of them.

WORK TASKS

- Explore how to extract GPS data from navigation routes in Google Maps and OpenStreetMap.
- Extract sample routes.

Depending of the achieved results, the project can be continued to program scripts for putting together different routes and to develop a web interface to create full day routing information.

CONTACT

If you are interested in this work, please contact us via mail: projects@comnets.uni-bremen.de