In this project, interactive visualization of 3D geo-
graphic information should be implemented on a GPS-
enabled PDA device.

Traditional GPS map informa-
tion only provides 2D cartographic
information. To enhance spatial
perception, understanding and ori-
entation, however, the user needs a
3D view of and from its current
geographical location that matches
the real world.

The goal is to implement a
client-server terrain display system
where the PDA client sends visuali-
zation requests based on its GPS
data to a remote real-time render-
ing server. The 3D graphics server
in turn generates the visualization
of the requested view on-demand
and returns it to the client.

We target a streaming visuali-
zation architecture where images
are generated in real-time on a
graphics server and interactively
displayed on the client.

The system design will require
to incorporate a number of compo-
nents such as user-interaction, GPS
data acquisition, networking, 3D
rendering and video streaming into
one client-server system.

The project requires to get fa-
miliar with a PDA/GPS SDK as well
as with 3D rendering (OpenGL)
and video streaming (MPEG4). The
system is to be developed in C/C++
on Mac OS X and/or Linux.

workload:
literature 20%
theory 20%
implementation 40%
testing 20%

The project may be suitable
also as a group project for two or
three students.

Project is extensible to include
GPS-map and other GIS informa-
tion displayed on top of the 3D
visualization.

contact: Prof. Dr. R. Pajarola
pajarola@ifi.unizh.ch
http://www.ifi.unizh.ch/vmml/