

SPLINT

Mobile Computing: Landscape Visualisation in the field using Spatially-Aware PDAs

3D Visualisation in the Field

The aim of this project is to investigate the use of computer-generated landscape visualisations in the field, through the implementation of spatially-aware mobile computing. Users compare photorealistic 3D views, derived from RADAR Digital Surface Models, with their real-world counterparts in the landscape. In addition they generate images representing hidden landscapes (geology) and past landscapes (glaciated scenes, as shown in the image below), exploring the use of these in the field with the aid of GPS-enabled Personal Digital Assistants (PDAs). Automatically delivered audio commentaries, relating to visible landscape features of interest, are used to further enrich the users' experience.

Student Experience

Students gain experience of using commercially available digital data in the field, and are encouraged to critically evaluate the degree to which these data represent the real landscapes they see before them. They also evaluate the usability of spatially-aware mobile devices in fieldwork, presenting their findings using video diaries.

Software Implementation

The 3D landscape visualisations are produced by the students in the Bryce 5 package. The PDA application was created using the Visual Basic Compact Framework.

Contact

If you would like more information about this project please email gemma.polmear@nottingham.ac.uk. If you would like more information about SPLINT developments at Nottingham in the areas of mobile computing and 3D visualisation then please email gary.priestnall@nottingham.ac.uk.



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Project Information

Project Lead	Gemma Polmear	Email	gemma.polmear@nottingham.ac.uk
Project Title	Mobile Computing: Landscape Visualisation in the field using Spatially-Aware PDAs		
School or Dept	School of Geography		
Programme/ Modules	MSc GIS and BSc Geography Year 3 (Mobile and Field GIS)		

What are the main aims of this project?	<p>The aim of this project is to explore the use of spatially-aware mobile computing to augment real scenes with computer-generated models of the landscape past, present and future.</p> <p>More specifically students are asked to address the following questions;</p> <ul style="list-style-type: none"> •To what extent are Digital Surface Models such as NEXTmap (5m resolution) and Shuttle Radar Topography Mission (SRTM, 90m resolution, as used in Google Earth) representative of the real landscape observed in the field? To help answer this question various 3D landscape views are created in the field centre and uploaded as a series of spatially referenced waypoints on a PDA application. Google Earth data is also taken into the field on tablet PCs linked to GPS. •How effective are various mobile computing technologies, and other techniques, for augmenting the real scenes in the field? An important part of the project presentation is an evaluation of the effectiveness of using such technologies in the field supported by photographic and video evidence.
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