

Virtual Environmental Planning system (VEPs)

System Architecture summary

The Virtual Environmental Planning Project (VEPs) demonstration tools attempt to provide planning information online. This approach involves the implementation of rich web applications supported by digital 3D models and various concepts and techniques of Web2.0.

Many cities have established web sites or online portals in the scope of e-government projects. These tools mainly show 2D plans and support the submission of comments and opinions by e-mail or online polls.

We want to present a tool that enables users to explore a 3D model of the planning area and to generate comments that are related to an object or a geo-position. These comments can also be answered by other users, so that communication is not limited to the submission of comments; it is also possible to generate a geo-referenced online-discussion about a certain aspect.

This type of 3D public participation tool can be realized using Open Source technology and is also based on OGC standards in order to create data and module integration capabilities.

Architecture overview

The general structure of a VEPS application consists of three components, a 3D view, a 2D map and a communication tool (fig. 1). The three modules have separate connections to their data stores; there is no central component that manages the data for the client. The three modules can be regarded as separate applications running in one website. In order to show information that belongs to one object or comment these separate modules have to be synchronized on the client side.

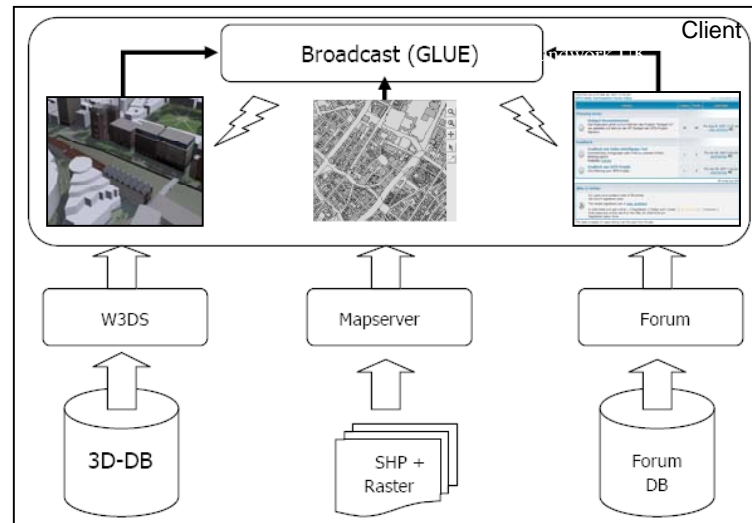


Fig.1 VEPs System Architecture, © VEPs

This architecture allows developers to exchange components and replace them with their own implementations. The only restriction is that the new component has to support the client side API.

Interactive 3D model: The 3D component is one of the two main components in the participation tool. This component visualizes the 3D scene, and is part of the user interface. The user can explore and navigate the 3D scene and interact with the model. This interaction capability is important because it generates the connection between 3D objects and the comment tool.

Communication component: The communication tool allows users to submit comments about the 3D data. The VEPs project developed a 'Comment Markup Language' schema using existing OGC Web Feature Service (WFS). The use of a WFS to manage comments has the advantage, compared to a forum solution, that comments are related to an object or a geo-position. That means a comment is a feature with

a spatial context; geometry (point) and attributes (text, topic, author, etc.), fig 2.

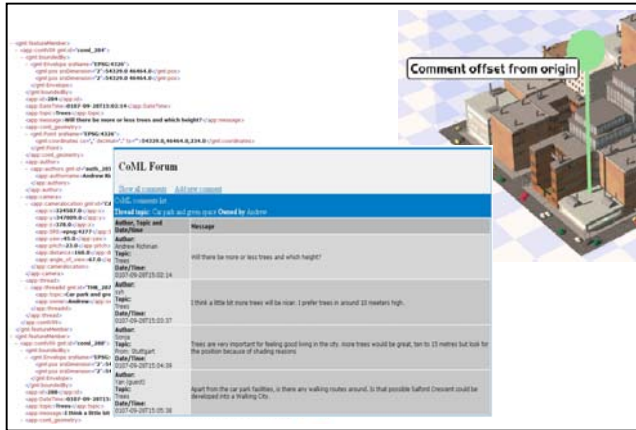


Fig 2 VEPs Comment Markup Language

2D Overview map: Supports users in terms of navigating. The 2D map displays the current position of the user in the 3D world and also the positions of the geo-referenced comments, along with interactive functions.

Client side module integration: To integrate the modules it is necessary to provide a technique so that the components can communicate with each other. For the VEPs applications this needed to be flexible in terms of extending the client tool by additional components. The Architecture uses a 'broadcast' module (fig. 1) that sends event messages to all components that are registered at the 'broadcast'. In that way the individual module only has to implement one API function, the one called by the 'broadcast' to transmit the message.

Further information

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