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# Implementing 3D Web-GIS System Using X3D Technology

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This paper discusses the development 3D Web-GIS application using Open Standards and Open Source software environment. 3D Web-GIS can provide realistic visualization of spatial information and has immense potential in infrastructure management (life-line and network infrastructure), disaster management and geological modeling. In our previous attempts at developing 3D Web-GIS applications, we have experimented with Java 3D client (Tsunami Geospatial Information Sharing) and also VRML1.0 (Virtual Reality Modeling Language Version 1.0). However Java 3D Client and VRML1.0 technologies have limitations such as a) proprietary solution not compliant to Open Standards b) outdated data format (VRML1.0) that is not amenable to handling large spatial datasets c) lack of integration between 2D Web-GIS clients and 3D geospatial visualization tools. Several of these limitations can be largely overcome by adopting recently emerging technologies such as X3D (ISO standard for real-time 3D computer graphics). In this study, the X3D functionality have been integrated into a 3D Web-GIS prototype system The prototype system has been tested for terrain visualization using medium resolution DEM for parts of Japan. The prototype system is currently being further improved to enable display of geological bore-hole data and also for realistic terrain visualization by combining high resolution digital elevation data and satellite images.

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