

Managing Geospatial and Georeferenced Web Resources using G-Portal

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ABSTRACT

G-Portal [1] is a Web-based digital library that collects metadata of geospatial and georeferenced resources on the Web and provides digital library services to access them. It adopts a map-based interface as its primary point of access to visualize and manipulate the distributed geospatial and georeferenced content. A classification-based interface is also provided to classify and visualize all resources. This interface is supported by a flexible classification language and the backend classification engine. Annotation capabilities are supported, allowing users to contribute geospatial and georeferenced content as well as their associated metadata. Queries on resources based on keywords in attributes and geospatial locations are also supported.

The main features of the system that will be demonstrated are summarized as follows:

- *An integrated user interface for accessing geospatial and georeferenced web resources.* G-Portal utilizes the geospatial attributes of the resources to provide a map-based interface as the primary point-of-access to the resources. Map navigation aids are provided to locate resources on maps. A classification-based interface is also provided as an alternative to allow visualization and categorization of resources, especially those without geospatial attributes. These two interfaces are synchronized to ease the exploration of resources.
- *Flexible classification scheme with language support and classification engine.* The classification-based interface is supported by a flexible classification scheme that offers a language for users to define rules that group resources into categories and to organize the categories into a taxonomy. A classification engine has been implemented to convert these classification rules into XML and to perform resource classification.
- *Annotation Module.* A flexible resource annotation framework for managing annotations of heterogeneous web resources has been designed and implemented. It enables users to contribute not only the annotation content but also the schema of the annotations. This annotation module also allows other digital library services, such as visualization and classification, to be extended to annotations since annotations are also treated as resources.
- *Resource Storage and Querying Modules.* In G-Portal, all metadata resources are represented in XML and they are compliant to some resource schemas defined by their creators. A hybrid storage approach has been adopted to store the geospatial attributes of resources into a relational database with spatial support (Informix Database) and the rest of the attributes into a database that supports efficient storage of XML data (Tamino XML Database). An XQuery-like query language known as \mathcal{RQL} (Resource Query Language) has been designed and implemented to support queries over the geospatial and georeferenced metadata resources. A user-friendly query interface has been implemented.

Keywords

Digital Library Portal, Geography, Classification, Annotation, World Wide Web.

Setup Requirements

This demonstration requires a PC with Internet access (preferably broadband access) and with a standard web browser with Java 1.1 support.

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1. REFERENCES

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