Geowiki – Enabling Collaborative Maintenance of Spatial Data

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Key words:

SUMMARY

The focus of this paper is the creation of collaborative geographic datasets through the web. The metaphor we use is the *wiki* technology used on many sites. This technology allows the creation of web contents. The Wikipedia (http://www.wikipedia.org) is one example of this technology.

We know how geographic information (GI) is expensive to create. Some times the initial GI is supported by international, national or regional programs, in particular, on development countries. When this support ends, GI will no longer be updated, and soon it becomes obsolete. We aim to provide a platform on the web where a small community can maintain a spatial data set updated. No sophisticated tools will be necessary for this job, just using existing web technology. The approach can also be valid for larger communities, but for more specific themes. Using chaining services, we can relate the work of different communities.

Some obvious problems are related to the huge amount of spatial data; dealing with different meanings for different people; whether it must be moderated or not; rewarding mechanisms, etc. Most of these are already solved in the text based web.

As opposed to Wikipedia, for example, to corroborate or contradict one spatial contribution we must ask to someone else living by. This is a property specific to GI. Other properties, like support for different spatial resolutions, data reliability, continuous features, etc, also deserve investigation.

The primary goal of this project is to enable collaborative spatial data creation as easy as the wiki content development, taking advantage of the location devices spread. The design goal is to use the existing web technologies and standard, based on open source projects, to offer a framework for collaborative spatial data maintenance. The two case studies were developed using mostly SVG and OpenGIS services (WMS and WFS). Some specific functionalities were written in PHP and Javascript.

Our first case study, very simple, was applied in tourism promotion project. Within the project, it was possible to buy the base spatial data for the entire territory and all known resources were geo-referenced with GPS. To allow the maintenance of all data (non-spatial and spatial) after the funding ended, a web interface was built. On this interface, all points related to resources can be updated by selected users, just by pointing and click.

The second case study is related to the maintenance of industrial areas and parcels. This example required a completely new support. The web interface allows editing polygons and associated attributes. After each editing session, a new version of the data is stored, with

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other useful meta-data, like the user and date/time. At any time, editors can view any previous version. Administrators can return to any version in history. Visitors always see the most recent version of the spatial data.

To publish and manipulate spatial data on the web, there are already very sophisticated tools; but many others are needed. Sometimes, we only need to update a point location to keep up-to-date tourist resources, and we mentioned. To provide a more powerful framework that allows us to maintain industrial areas and parcels up-to-date, we used the wiki metaphor, supported by OpenGIS services: all updates are incrementally stored; editors can view all history; administrators can revert to any previous version. This cannot be used to create rigorous spatial data sets from scratch; but it is good enough to enable small communities to maintain and be responsible for their own spatial data.

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