AN OPEN GIS CASESTUDY- OPEN STREET MAP FOR GREAT BRITAIN (OSM-GB)

Open Street Map is the world's largest volunteer collaborative map database. The OSM-GB Project makes it professional-friendly

The challenge

Smart cities and intelligent transport systems are facilitated by unfettered access to up-to-date map data. Founded by Steve Coast in 2004, OpenStreetMap (OSM) is a collaborative project to achieve this creating world-wide free and editable mapping by the citizen, for the citizen. The initial stimulus was the restriction on availability and use of map information and the advent of inexpensive portable satellite navigation devices. It was inspired by the success of Wikipedia. OSM registered users have now grown to over one million around the world who collect data using GPS devices, aerial photography and other copyright free sources.

Implications

This citizen-led approach to mapping has developed in parallel to government-led initiatives. Chief amongst these are spatial data infrastructure programmes such as the UK Location Framework and the EU INSPIRE directive. While initiatives such as INSPIRE tend towards a top-down process of harmonising established government data models and services the OSM approach is more informal and shaped by individuals in terms of what data is captured and how that data is described. National Mapping Agencies such as the Ordinance Survey of Great Britain provide professionally surveyed map data with published specifications and standards driven mainly by government needs. In contrast, OSM mapping relies on the availability of usually local mapping enthusiasts to capture changes. Its more informal structure tends to lead to the capture of a broader range of features of interest to diverse sub-communities such as cyclists and walkers and because of the local interest will often be kept more up-to-date.

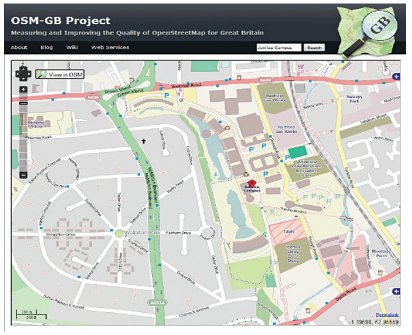

Figure 1: The OSMGB project website (http://www.osmgb.org.uk)

"Surrey Heath has long been an advocate of OpenStreetMap and the inception of the OSM-GB project has enabled us to use OSM data in both our intranet GIS and Qgis desktop GIS systems."
James Rutter, GIS Manager, Surrey Heath Borough Council, UK

OSM data provides an alternative to national mapping for many uses but combining the two in an open source OSM data

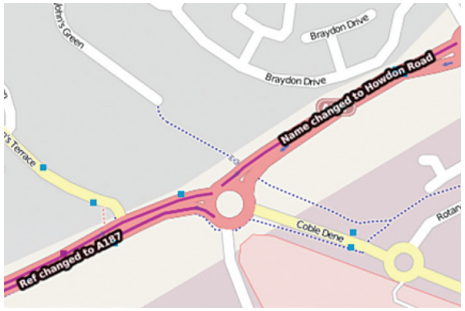

Figure 2: A sample of quality checks in comparing OSM with national maps.

provides an alternative to national mapping for many uses but combining the two in an open source.

The ISSUE solution

Initiated at The University of Nottingham Geospatial Institute (NGI), the OSM-GB project (Figure 1) is a collaborative research programme with 1Spatial and KnowWhere. The research goals are to develop the automated methods needed to quality check, edit and redeliver the improved map data back to the OSM database. The OSM-GB objectives are to enable the OSM maps delivered in different thematic layers, open standard formats and national reference systems to be usable by citizen and professional alike and on a free and open source basis. With the exponential growth of crowd-sourced data such as OSM, local authorities and transport planners can have access to a new data source for a wealth of future citizen-focussed requirements. OSM-GB Project outputs include the development of Web Services based on the internationally agreed Open Geospatial Consortium Standards. The data can be in many different formats and reference systems including British National Grid. A key element in achieving this is the development of a rules-based catalogue for checking and improving the geometry and attribution consistency of the data as input by the volunteers (Figure 2). The project also aims to promote the use and uptake of OSM mapping and to supply data and comments regarding data quality back to the OSM community.

Summary

The availability of free and open source map data and geographic information systems (GIS) software has made it increasingly possible for government and volunteer organizations and even individuals to make use of GIS tools for both professional and leisure purposes. The OSM-GB project has been mostly built using Open Source GIS components including database administration, cartography tools, web services and web interfaces. It brings together Open data, Open Source Software and Open standards facilitating intelligent transportation and many other services of tomorrows Smart City.

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