Engaging Web for better administration

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India has been witnessing tremendous growth, the like of which has not been observed since Independence. The rapid pace of development has impacted practically every aspect of environment and the common man.

It has, therefore, become imperative to put in place effective governance systems with major emphasis on efficiency, accessibility and transparency and at the same time being able to understand the problems and issues faced by the society. Whether it is delivery of proper health care to the citizens, access to safe drinking water, social infrastructure like schools and other quality of life (QoL) concerns of the residents, the knowledge and understanding of geography or 'location' plays an important role in making the right decisions by the respective agencies or departments of the government machinery.

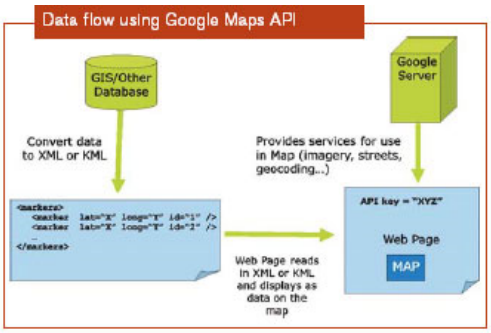
The governance systems, therefore, would require accurate and timely information and data, which is location specific in nature.

A WEB GIS FOR RAJAHMUNDRY

GIS is an indispensable tool to provide a spatial data infrastructure (SDI) for implementing e-governance. A GIS has been developed for the Rajahmundry Parliamentary Constituency, East Godavari district, Andhra Pradesh, which focuses on both the urban and rural regions, integrates data from multiple sources - remote sensing imagery, GPS surveys and field studies - and brings everything together on to an Open Source GIS platform for the development of a Spatial Decision Support System for civil and public administration from a desktop to Web enabled GIS. A Web GIS has been created both in English as well as in the local language, Telugu.

The work is unique in that multiple stakeholders were involved at various stages of development of the GIS. First, Member of Parliament V Aruna Kumar readily saw the possibilities and potential of developing such a system for the benefit of common man and funded the project through the MPLADS scheme.

The collector of East Godavari district, in turn, appreciated the merits of implementing such a project and facilitated its administration and implementation. The OSGeo India chapter endorsed the project and the Salim Ali Centre for Ornithology and Natural History executed the project. M.Sc students of Adi Kavi Nannaya University, Rajahmundry,



were trained to carry out the project work in part fulfillment of their course requirements.

A PIGGYBACK RIDE ON GOOGLE MAPS APIS

Google Maps provides a highly responsive, intuitive mapping interface with embedded, detailed street and aerial imagery data. Google Maps provides not only the map, satellite image or a hybrid of both but also a range of operations on the map including zooming, panning, information pop-ups and overlays. Google Maps API provides an interface into these operations through JavaScript objects. The GIS application for Rajahmundry parliamentary constituency has been developed using Google Maps API.

A spatial database was developed for it in PostgreSQL/ PostGIS database. The advan- GIS DEVELOPMENT 50 Open Source Engaging Web for better administration DECEMB E R 200 8 Data flow using Google Maps API tage of creating spatial database for Rajahmundry was having all the data in a central database including well defined privileges which makes it possible to extend the more standard SQL queries with spatial queries.

DATASETS USED FOR RAJAHMUNDRY PARLIAMENTARY CONSTITUENCY

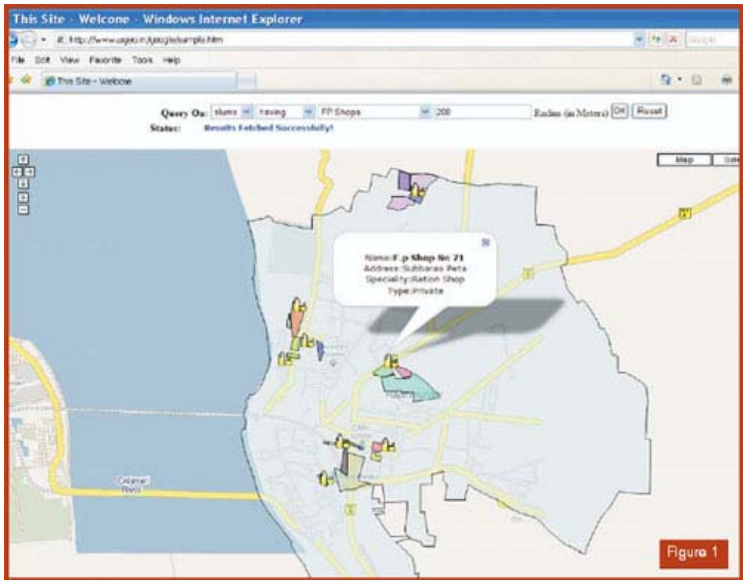
The following shape files were used while developing the spatial database for Rajahmundry Parliamentary Constituency.

Point data

Bank and ATM centres, cemeteries, bus stations, police stations, places of worship, cinema halls, clubs, commercial complexes, community centres, customer care centres, e-Seva centres, educational centres , electric sub-stations.

Polygon data

Rajahmundry parliamentary constituency



boundary, slums in Rajahmundry parliamentary constituency.

Steps involved in developing the Web-GIS application

The following are prerequisites that ensured the development of Web-GIS application for Rajahmundry parliamentary constituency.

• An Apache Web server running PHP and PostgreSQL/PostGIS
• Spatial data in PostGIS database for Rajahmundry.
• Populating the spatial data into Post- GIS database
• Outputting XML with PHP
• Generating HTML page for map visualisation

The URL for Rajahmundry parliamentary constituency Web-GIS application is http://www.osgeo.in/google /sample. htm. The interface which was developed for Rajahmundry Parliamentary Constituency Web-GIS application allows users to query against spatial data available in the PostgreSQL/Post- GIS database.

FEATURES

• Intuitive user interface for querying the spatial data

General public is familiar with Google Maps interface and its basic navigation. In this, we added a simple query tool. In Figure 1, the results have been showed by the query slums having fair price (FP) shops within the radius of 100 meters. A user can click on the FP shops marker icons which will pop up an info window to show the information about the particular FP shop. User can even

Advantages

• Free (except for developer time)
• Quick development time - depending on complexity of application
• End product is light weight application, client side scripting
• Intuitive user interface - general public already familiar with Google Maps interface and basic navigation
• Fast, good response time
• Google provides solid background services (satellite data, roads, traffic data, street view, geocoding)
• Effective for displaying selected GIS data - not every mapping application requires multiple, complex map layers
• Great on-line resources for learning, multitude of samples and tutorials
• Best for focussed applications
• Best for small municipalities, companies (not huge datasets)

Limitations

• Limited functionality compared to some commercial products
• Difficult to overlay more complex GIS data
• Difficult to overlay multiple GIS layers

• Cannot read directly from GIS database, must convert to other formats (XML, KML) (but parts of process can be automated with scripting)

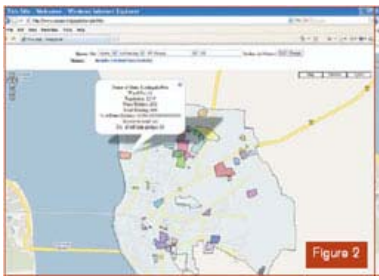


Figure 2

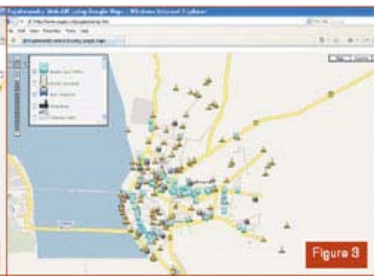


Figure 3

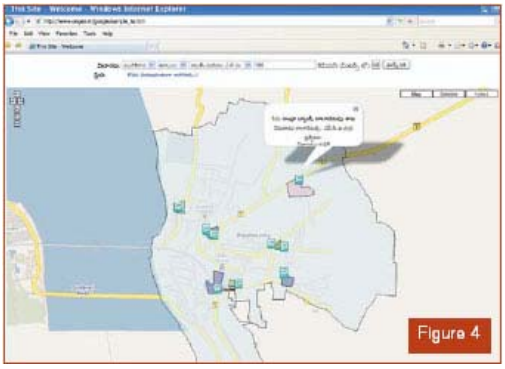


Figure 4

get the information about slums by clicking on slums polygon. The interface allows the user to query slums not having FP shops within the radius of 100 meters to know which slums don't have the FP shops nearby. Figure 2 shows the result for the query slums not having FP shops within the radius of 100 meters.

• Light weight Web-GIS application
This application gets loaded faster on the browser and even the querying time is less. Results too get displayed faster.

• Google provides background data such as satellite data, roads etc.

• This application is useful for common public, policy makers, decision makers, government officials etc.

A simple Web- GIS application showing point of interests in the Rajahmundry parliamentary constituency was developed to get the information about point of interests such as parks and gardens, Banks and ATM centres, Police stations etc (Figure 3). Following the URL for it http:// www.osgeo.in/google. overlay. htm. In this application, point of interests can be overlaid by checking the respective point of interest check boxes.

The Rajahmundry parliamentary constituency Web-GIS is also available in the regional language Telugu (Figure 4). Following the URL for Telugu version of Rajahmundry parliamentary constituency Web-GIS application http:// www.osgeo.in/google/sample_ te.htm http://www.osgeo.in/ google /overlay_te.htm.

The Indic IME for Telugu software from www.bhashaindia. com was used to type the data in Telugu. The PostgreSQL database was encoded to UTF-8 and then the data was loaded into PostgreSQL database.

THE WAY FORWARD

We increasingly see the use of Open Source tools by a large number of stakeholders in virtually all thematic areas of concern. Combined with the power of the use of Indic languages as a preferred medium, the Web GIS will emerge as one of the most potent tools for societal benefit.

ACKNOWLEDGEMENTS

It is a pleasure to thank Vundavalli Aruna Kumar, MP for making this small scale experiment a success, the Open Source geospatial and particularly Dr PS Roy, V Ravi Kumar, Dr Hanumantha Rao, Ramamurthy, Sinha, Aneel Kumar, Dr Sahu for their active involvement and help.