Web GIS based polling booths information system

Humaira Sanam[1], Shailesh Chaure[2], Ajay Auddy[1], Biplab Biswas[1*]

1 Department of Geospatial Science, The University of Burdwan, Golapbag, Burdwan, 713104, West Bengal, India

2 Department of Geology, Govt. Holkar Science College, Indore, 452017, Madhya Pradesh, India

*Corresponding Author: biswas.biplab@gmail.com

Abstract

In this era, World Wide Web has changed every aspect of our life from our daily activities to professional activities. Among these changes, Geographic Information system (GIS) has been influenced by this technology and a new technology has emerged out, which is called WebGIS. The WebGIS is a GIS that uses Web technology. Global reach, cross platform capabilities and easy to use nature of Web GIS stimulates public participation. Therefore, the Web GIS has many advantages over traditional desktop GIS. WebGIS can help a country like India in conduction of peaceful elections. There are nearly 940,469 polling stations in the country. In a big democratic country like India smooth conduction of elections is a big challenge to the government and administration. A careful and diligent management is must for a successful election and that can only be achieved through the proper knowledge about the location and exact condition of the polling stations. In this work a web based Polling Booth Information System has been developed using open source software. Nadia district of West Bengal, India is chosen for this work, because it has a previous history of sensitivity and disturbances during elections. In such areas the GIS can be effectively used to conduct peaceful and smooth elections. The Polling Booth Information System deals with the geospatial and attribute information of polling stations and assembly constituencies. The geospatial data for the Nadia district was collected from the district administration and a Postgres database was created using QGIS, a free and open source software. GeoServer, OpenLayers, JavaScript, HTML5 and CSS3 were used to develop the web application. The Polling Booth Information System displays information related to the assembly constituencies over Google layers. The name of the assembly constituency along with its details such as number of voters, population, area, number of polling booths, their physical conditions, number of sensitive booths and other such details are interactively displayed on mouse hover. Similarly the information of individual polling booths including name, location and other details is also displayed. It also provides facility to find pooling booths within a certain distance from the point of interest, which may be election control room/police station etc. The information of polling premises falling within a selected buffer zone is also displayed in tabular form. There is also an option to query based on attributes like number of booths, sensitive booths, and number of polling stations in a single premise etc. The future scope of the work includes adding a route plan that can help the voters as well as the election officers to know the shortest and easiest way to reach a particular polling station. Web based GIS can help in instant monitoring and uploading of live data using GPS and application programming. People can then know the number of persons standing in the queue sitting back at their home and avoid standing in long queues. The officers can monitor the voting procedure and upload the current situation of their respective polling booths for the higher authorities to analyze the situation and work or plan accordingly. WebGIS based mapping can help in conduction of more peaceful and smooth elections and fulfillment of the dream of achievement of a true democracy.

Keywords: WebGIS, PostGIS, GeoServer, OpenLayers, JavaScript, Polling Booths Information System

References

Alesheikh, A., Helali, H. and Behroz, H. (2002). Web GIS: technologies and its applications. In Symposium on geospatial theory, processing and applications.

Manual_on_Polling_Station_27052016

Harish Chandra Karnatak, Sameer Saran and P. S. Roy, 2005 " Spatial services, a click away" article in Geospatial Today Volume 3 Issue 5 pp-42-46 January-February 2005.

Pinde Fu and Jiulin Sun.(2010). Web GIS –Principles and Applications. Esri Press.

Plewe, B. (1997). GIS online: Information retrieval, mapping, and the Internet. OnWord Press.