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Designing and Implementing a Tourist-Guide Web Service Based on Volunteer Geographic Information Using Open-Source Technologies

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Abstract : The advent of web 2.0 gives a possibility to scale down the costs of data collection and mapping, specifically if the process is done by volunteers. Every volunteer can be thought of as a free and ubiquitous sensor to collect spatial, descriptive as well as multimedia data for tourist services. The lack of large-scale information, such as real-time climate and weather conditions, population density, and other related data, can be considered one of the important challenges in developing countries for tourists to make the best decision in terms of time and place of travel. The current research aims to design and implement a spatiotemporal web map service using volunteer-submitted data. The service acts as a tourist-guide service in which tourists can search interested places based on their requested time for travel. To design the service, three tiers of architecture, including data, logical processing, and presentation tiers, have been utilized. For implementing the service, open-source software programs, client and server-side programming languages (such as OpenLayers2, AJAX, and PHP), Geoserver as a map server, and Web Feature Service (WFS) standards have been used. The result is two distinct browser-based services, one for sending spatial, descriptive, and multimedia volunteer data and another one for tourists and local officials. Local official confirms the veracity of the volunteer-submitted information. In the tourist interface, a spatiotemporal search engine has been designed to enable tourists to find a tourist place based on province, city, and location at a specific time of interest. Implementing the tourist-guide service by this methodology causes the following: the current tourists participate in a free data collection and sharing process for future tourists, a real-time data sharing and accessing for all, avoiding a blind selection of travel destination and significantly, decreases the cost of providing such services.

Keywords : VGI, tourism, spatiotemporal, browser-based, web mapping
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