

Embedded Mobile GIS Natural Resource

Information Service System

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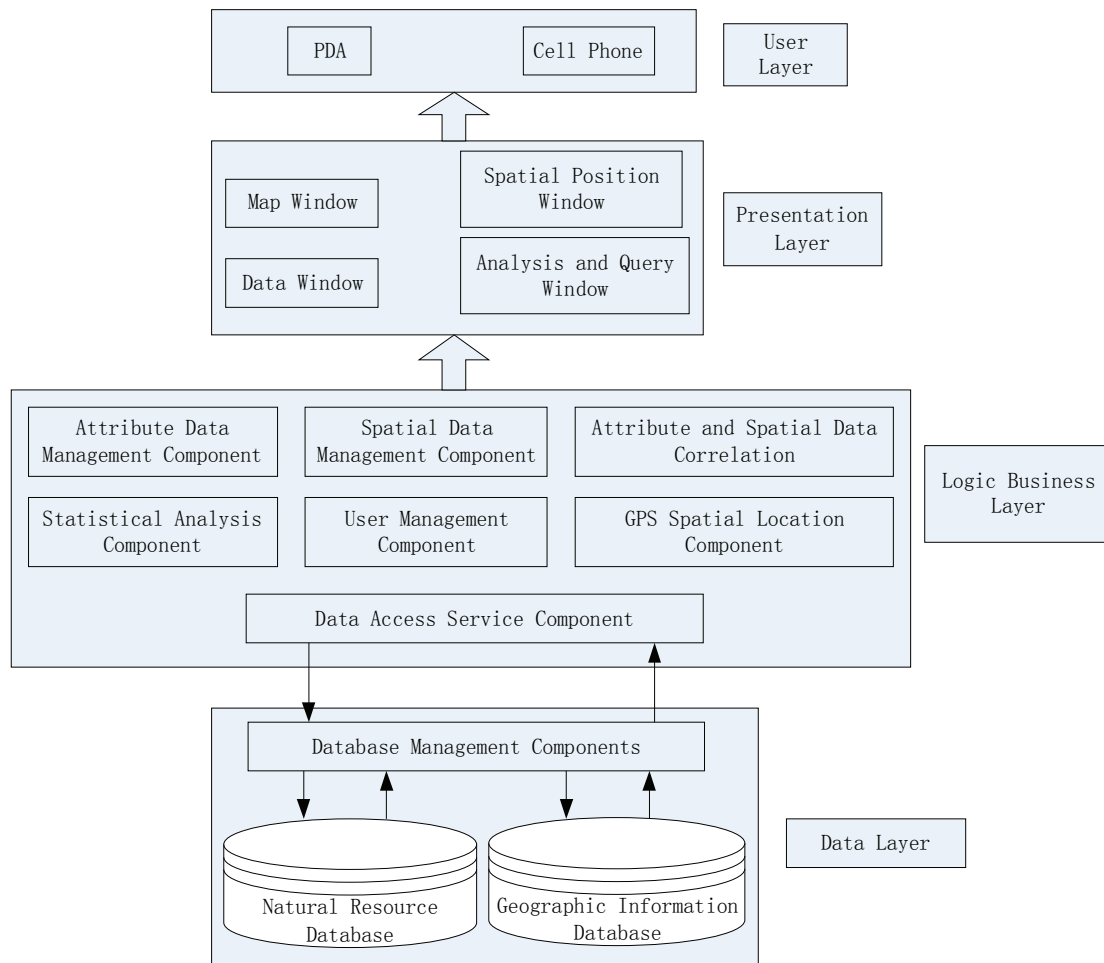
Traditional natural resource information services are limited to simple and static one-dimensional or two-dimensional data tables and graphs, from which the distribution characteristics of data is difficult to be dug out quickly, and development and change of a region is hard to be identified. Therefore, there is an urgent need for a mobile information system which can work at 4A (Anytime, Anywhere, Anybody and Anything) mode, that is, the system can be used at any time, anywhere, for any person, for anything.

The demand for geographic information is very huge especially for outdoor and mobile work. Embedded mobile information service equipments with embedded GIS technology enjoy a lot of favor because of its small size, light weight, powerful capability and other good characteristics. In order to enhance natural resource information service, this paper develops an embedded mobile GIS natural resource information service system based on global positioning systems(GPS), embedded GIS, satellite remote sensing technology and mobile communication technology platform.

As a service system, the embedded GIS system depicts a future blueprint of space-based information services and mobile location-based services, that is, the model dynamically provides various information services to various users at various times and various locations.

The system designed in this paper take full account of the needs of different natural resource user departments. It is a professional GIS software product for natural resource information service and application. The overall framework of the

system consists of four layers, that is, data layer, logic business layer, presentation layer, user layer, as shown in Figure 1.



1. Data layer includes and manages natural resource basic databases and national (at provincial and county level) space geographic information databases.

2. Logic business layer is the core of the entire system, which analyzes and processes natural resource information and space geographic information, correlates attribute data and spatial data, and reports spatial position.

3. The presentation layer visually output final results such as maps, data tables and geographical coordinates.

4. User layer is can be realized with different hardware devices and software systems according to various service demands.

The system has three main functions. 1. Information query: Natural resource and geography information can queried and displayed according different administration levels and regions. 2. Spatial positioning and dynamical information displaying: With a GPS receiver and data processor, an embedded terminal of the system can report current location and natural resource information of the current location. 3. Routing navigation: Provided start and end point, the system will show you a optimal path in electronic map or geography information map.

A screenshot of the user application interface will be showed as an example in the full paper.

Thanks a lot for reviewing!

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