Research of Construction of Port Information Service Platform

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ABSTRACT

Based on the port information service platform, the system intuitive reflects information of the ships in the port by means of graphic, real-time reflects information of each ship in the port. Through this platform, management personnel can get a ship’s basic information and check information easily. The system connects with video monitoring system seamless and they can switch to each other at any time. The system displays the dynamic information of ships, containers, wharf, storage yard and inspection area on the port map at the same time together with real-time video monitoring images, achieves the joint supervision function of "map + video + business information". With this platform, management department can get accurate information of ships and logistics of the port in time.

INTRODUCTION

The integration of Port Information Service Platform based on Data Exchange System of related companies. The port logistics companies and port of entry support the whole system. Its role is to connect port with logistics transportation enterprises,

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trade finance and port of entry as a bridge, play the role of information exchange and
data exchange, provide real-time data for port logistics enterprises, logistics
information system of related units, including ship route, transportation, operation,
production, wharf, geographical position, and so on[1].

STANDARDS AND SPECIFICATIONS

Systems Engineering Principles

This design strictly accordance with system engineering, adopts service
component oriented architecture, loose coupling and information drive between
modules. The scheme give full consideration to overall situation, relevance,
optimality, comprehensive and practical of the whole system. The system can be
integrate or extend conveniently.

Openness Principle

The system has the ability to adapt to the external environment changes. When
the external environment changes, the system can run under the new situation
without any change or just make small changes.

The design fully consider the effect of external factors on the system and each
subsystem modular, try to reduce to minimum the influence of external changes on
the system, and can quickly and efficiently integrate each subsystem.

Scalability

With the expansion of the platform application software as well as the types of
business increasing, the load of system operation platform will be increasingly
difficult and complicated. This requires the system platform has good expansibility.
It can be extended or upgraded smoothly, continue to provide users with excellent
and efficient service.

Other standards and specifications including: the principles of reliability,
security, advanced and practical.
OVERALL DESIGN OF SYSTEM

This system builds upon J2EE standard architecture, object-oriented design, can adapt to different operating system, can be switched between different platforms like Windows, Linux. Meanwhile, it also gives full consideration to the user's selection of the middleware. This system adopts the Springside (Struts2 + Spring2.5 + Hibernate3) system architecture.

GIS components: Mapgis - IMS industry version for Oracle (deployment in the web server). The system database table (will provide oracle data in the form of dmp). Geographic information database file (can be import to Mapgis local library with MapgisStudio tools).

SYSTEM FUNCTION MODULES

Electronic Map Module

The user can zoom in, zoom out, move the map with navigate bar, or move map with left mouse button, zoom in or zoom out map with right mouse button. Users can also make map displayed with multiple layers, or small window in order to show more maps on the screen, that is multiple layers display and eagle eye.

Ship Query Module

Users can query any ship in port. Click ship icon, the ship’s basic information will be shown. The ship’s information can be queried including: ship’s detailed information, ship’s declaration information, ship’s dynamic information. Input the name of ship in search box, the ship’s position will be shown and pop up the basic information of the ship. When a ship was selected, the selected ship will be highlighted.

Berth Query Module

Users can query any berth in port. Click berth icon, the berth’s basic information will be shown. Input the berth number in search box, the berth’s position will be shown and pop up the basic information of the berth. When a berth was selected, the selected berth will be highlighted.
Storage Yard Module

Users can query any storage yard in port. Click storage yard icon, the storage yard’s basic information will be shown. Input the storage yard number in search box, the storage yard’s position will be shown and pop up the basic information of the storage yard. When a storage yard was selected, the selected storage yard will be highlighted.

Video Monitoring Module

Users can view any video point information of the port, these video point location will be marked on the map. Videos can be displayed with small window. The user can control the focal length of the surveillance camera zoom in or zoom out the certain area, can also control the video shot turn up, down, left or right.

KEY TECHNOLOGIES

Establish Port Map Database

We draw the port electronic map and identify the port, wharf and berth on it. We collect port basic surveying and mapping data and spatial geographic information and make the necessary processing and integration, establish a multi-scale, multi-type spatial fundamental geographic information database. We regularly update and maintenance it to provide basic geographic information service for planning, construction, production and management of the port.

Query Ship’s Dynamic Information on the Electronic Map

Display Ship’s dynamic information on the specific location of the map. Meanwhile, the database relevance with ship's archive and declaration information of Ship Unified Declaration System of Shipping Logistics Service Platform.

External Interface

The table Ship_Information stores basic information of a ship. The table is updated by the relevant department in order to the program to read it. While input sql script that query ship’s information will output basic information data of a ship.

The table AIS_Position stores dynamic information of a ship and it is updated by the relevant department. A program can get latitude and longitude information by
read this table. While input sql script that query ship’s dynamic information will output dynamic information data of a ship.

CONCLUSIONS

The Port Information Service Platform promotes the standardization, systematization of port management, improve management efficiency, reduce management costs through business process reengineering and change management model[2]. It is a systematic project. If the management of work to do better, not only the infrastructure standardization need to be promoted, but also the professional technical exchanges, learning and training of system maintenance personnel should be strengthened[3]. We should focus on cultivating some comprehensive talents that both proficient in port management and able to perform computer management.

REFERENCES

