

Advanced in Control Engineering and Information Science

## Study of Management Information System of Railway Permanent Way Safety Risks and Comprehensive Evaluation

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### Abstract

The safety of railway permanent way is what the railway department highly concern about, railway permanent way department is one of the most important departments, it manages all railway infrastructure, railway infrastructure's good condition and normal operation is the foundation of railway transport safety. In this paper, management information system of railway permanent way safety risks and comprehensive evaluation is built through the integration of existing resources of the railway permanent way department, to achieve scientific and standardized management. It provides the effective solution for innovation of railway permanent way management and the mode of administration. This system is operational in February, 2008 in the Kunming railway bureau.

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*Key words:* Railway; Railway Permanent way; Management Information System; Informationization

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### 1. Introduction

China has launched its sixth railway speed upgrade on April 18, 2007. Compared with the previous five railway speed upgrade, the range of the speed, content and technology have a qualitative change, but there are still many of the key technologies needed to be studied, running safety of train have become a more highlighted problem. Railway infrastructure keep in good condition is the most important safeguard to ensure running safety of train, and establish an effective, accurate and reflect the problems of decision support for management and evaluation system. Many scholars have done a lot of research work [1,2,3,4].

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This is the goal that management information system of railway permanent way safety risks and comprehensive evaluation to achieve.

## 2. Key technology

Management information system of railway permanent way safety risks and comprehensive evaluation based on daily inspection data, equipment information data, basic geographic information data, data standards and regulations. Its goal is to achieve the collection, storage and management of dynamic inspection data, static inspection data, railway lines, bridges, large and medium repair data, bridges and tunnels maintenance data, bridge and tunnel failure data, and data collection, storage and management of railway lines, bridges and tunnels equipment, combined with the permanent way departments daily operations and management processes, to achieve the informationization of railway permanent way management.

B/S is a popular online information services technology in WWW, it exchange and delivery information between the Web browser and Web server based on standard http protocol. It is different from the traditional C/S mode, B/S system is installed on the client without special client software, and just standard browser software such as Microsoft IE can handle a variety of information based on http. Because there are many glitches in the traditional C/S mode, each user is required to install special client software, so that upgrades, maintenance and other work is difficult, therefore, it is not appropriate. Large database (Oracle) technologies meet the requirements for mass data storage, retrieval and extraction. WEB-GIS technology can enhance the management of railway permanent way spatial data, it can do the management and distribution of GIS data, geology, hydrology, weather, railway line design drawings, construction drawings and photos of key equipment, also provides an intuitive management platform.

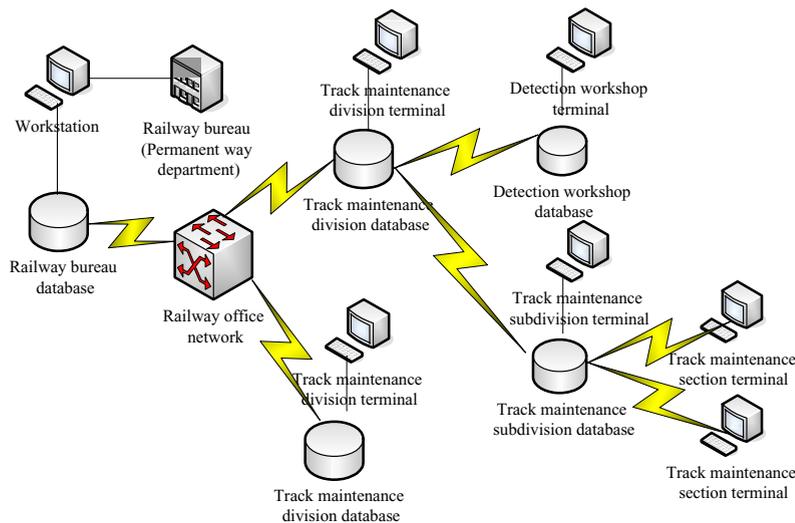


Fig.1 Hardware structure of system

## 3. System design

### 3.1 Track Composite Irregularity Analysis

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