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## Application of computer technology in construction engineering overall management

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### ABSTRACT

The valid application of computer technology is the key measure to construction engineering overall management, which focus on the warehouse management and also one of the important evaluation factors to evaluate whether the application of engineering materials meets the scientific standards and an important element to guarantee engineering quality. In this paper it mainly studies the warehouse management of construction engineering by exploring the scientific establishment of computer management system to ensure that the computer technology can be effectively used into construction engineering overall management and its value can get concrete reward. The study can be researched as follows: firstly, studying the necessary hardware equipment and the systematic structure warehouse management system related through its design to define its constitutional components; secondly, exploring the components of data flow to make a further guarantee for the data analysis process in the construction of this system; finally, making a elaborate description for the application of this system based on its detailed design and realization to ensure that this system exerts positive roles in construction engineering overall management, which are the main steps this study applied and also reveal the concrete thought and purpose of this study.

### KEYWORDS

Computer technology; Construction engineering; Overall management; Warehouse management; System's application.



## INTRODUCTION

From the management perspective, the computer technology provides many positive effects for construction engineering overall management with the warehouse management as its key element, which reflects the design and application of warehouse technology can successfully evaluate whether the computer technology can be effectively applied into the overall management. In this paper it makes a detailed study about the design of warehouse management system, data flow, the detailed design and realization of system to fully express the theoretical nature and value of this study and provides basic theoretical and applied foundation for the further study.

### DESIGN OF WAREHOUSE MANAGEMENT SYSTEM (WMS)

In the process to determine the software this system used, the usage of software should be defined clearly to build the basic model according to the logic requirements. And its usage should be changed effectively and defined to exhibit the physical properties of applied model that needed to make valid studies for the specific requirements of software model.

#### Hardware configuration requirements in warehouse management system design

In the construction of warehouse management system, the server it used includes application server and database server, which can act on the same server and affect the installation systems as the following description.

#### Application server operational system

In the installation of application server system it should make effective installation for the operational system and related security patch and ensure that the space of each partition of the hard disk is not less than 30 G.

#### Database and database management system (DBMS)

In the installation of DBMS, Structured Query Language System (SQL) should be installed effectively, mainly including enterprise manager and related server. But in the construction of construction engineering warehouse management system, the language query analysis system may not need to be installed and developed due to the database can provide valid resources for enterprise's warehouse management. To the display function of server, its resolution should be kept above 780 pixels at least and its operation system should be equipped with network software to meet the internal requirements for the operation of SQL system.

#### Requirements about server's hardware configuration

In the installation of operation system and database of server, the requirements for the hardware should be fully reached to realize the configuration it needed.

The types of server focus on the architecture microprocessor or another processor, which can not satisfy the need of data processing. At this time the system configuration check will effectively prevent the installation of system's program and ensure its security.

The speed of processor should be kept on the level of 600 MHz. But when choosing the processor of system, it will apply the processor with a speed of 1G Hz to ensure the stability and high-efficiency. If the speed can not meet the requirement of system construction, the oversight to computer control system can not prevent the installation of programs but send some warns for system that will not influence the processor system.

The requirement for read-write memory is always maintained 512 M even 1 G as the ideal number but the largest memory of operation system can not be restricted. When the capacity of read-write memory can not satisfy the detailed requirements, the oversight computer control system will send warns and the process will not be stopped, which only refers to the version of serving operating system but the requirements for this operating system can not be reached based on the availability of memory.

#### The overall design of system's structure

Using the business function to analyze the structure of system and the detailed structure can be seen in Figure 1.

In the operating of this system, the business management program can be described clearly in Figure 2.

#### Warehouse management

##### (1) In-storage management

When entered into the management interface to operate, warehouse manager should fill the in-storage process of engineering materials in an valid way for application and make a further check on the basic in-storage information after saving these information. The check and verification process can help to update the information promptly and the detailed process can be seen in Figure 3.

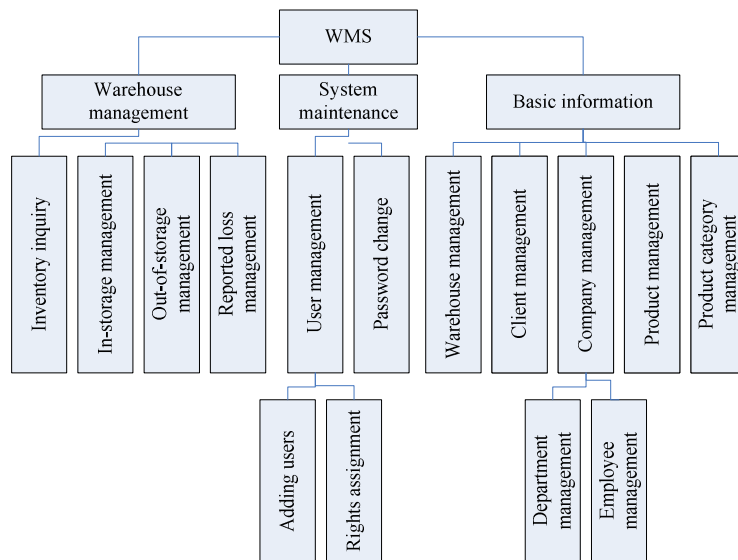


Figure 1 : Structure of system

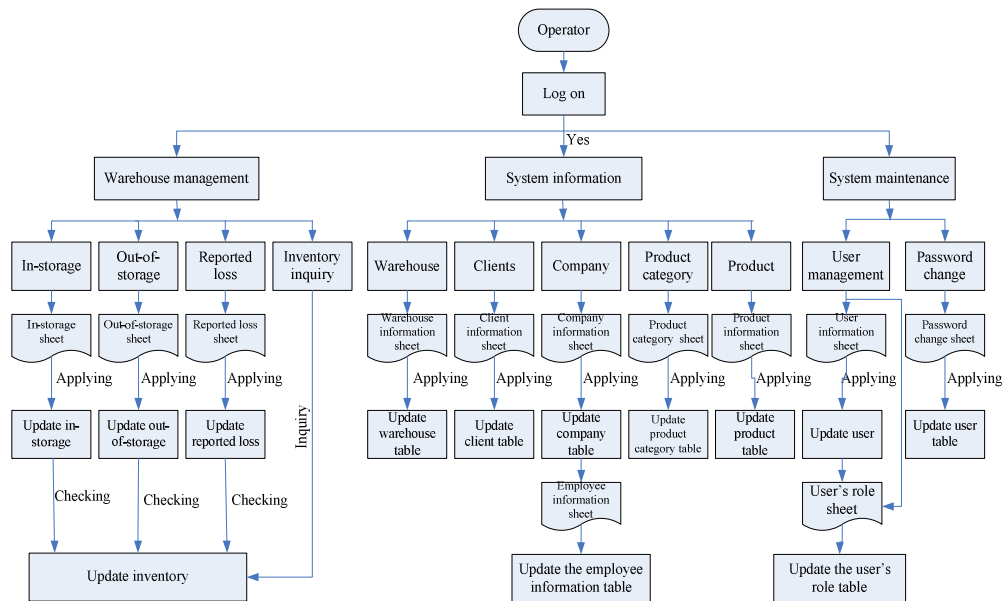


Figure 2 : Business flow figure

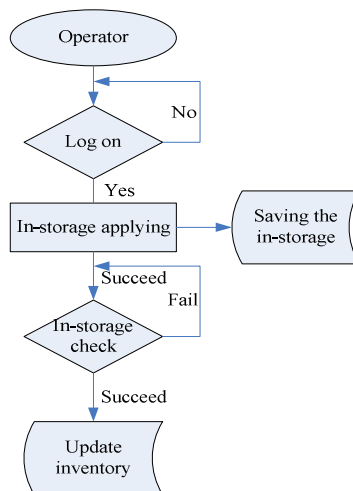
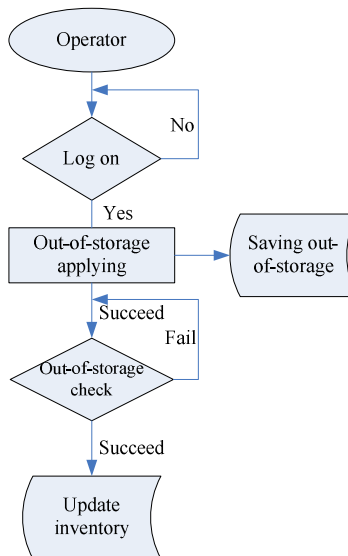


Figure 3 : In-storage business program

**(2) Out-of-storage management**

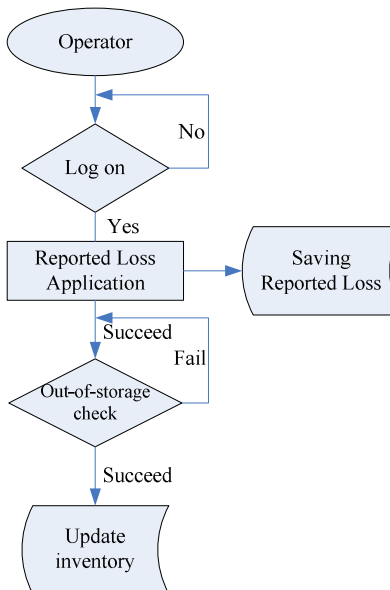
When entered into the main interface of system, the warehouse manager will operate validly for the inventory management module and make application for the engineering materials out-of-storage and fill the application sheet to have the information checked. The check can help update the information in database promptly, which can be seen in Figure 4.



**Figure 4 : Out-of-storage business program**

**(3) Reported loss management**

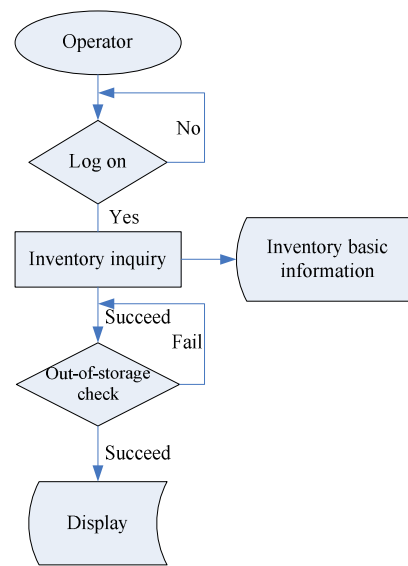
When entered into the main interface of system operation, warehouse manager do a valid operation for the inventory management module and make related operation and application for the reported loss of engineering materials to fill the application sheet and make a further check for the information after saving them. The check process can help update the information promptly, which can be seen in Figure 5.



**Figure 5 : Reported loss business program**

**Inventory inquiry**

When entered into the main interface of system, inventory manager makes valid inquiry for the engineering material by the operation of inventory management module. By making inquiries for the concrete number, product name and the warehouse name stored, the basic in-storage and out-of-storage condition of engineering material can be fully reflected, as described in Figure 6.



**Figure 6 : Inventory business program**

## Basic information management

### (1)Inventory management

When entered into the operation of this system, inventory manager will apply the information management module to manage inventory and fill and save these valid information of the warehouse information to provide valid information for the operation of system.

### (2)Client management

When operated the system, inventory manager will implement valid management for the client's information after considering the previous basic information, including the basic information and confidential information of clients. The valid saving of these information can provide powerful information resource for the operation of system.

### (3)Company management

When operated the system, inventory manager can operate the module of company information by applying the basic information of engineering information and validly fill and save the basic information of different engineering companies and the specific information of different departments.

### (4)Material category management

When entered into the system, the inventory manager will implement management for the engineering materials in accordance with categories, during which the basic information of engineering material can be validly recorded and saved as valid information resource for system management.

### (5)Product management

When entered into the main interface of inventory management, inventory manager will make valid examination for the information in accordance with the inventory management module, during which the basic information that material owned can be recorded and saved validly.

## System maintenance

### (1)User Management

When entered into the system, the inventory manager can use maintenance module to manage users, during which the basic user's information can be recorded validly and saved permanently as the assigned rights of users. The important procedure is to make valid assignment for users and save related rights information. The specific process can be seen in Figure 7.

### (2>Password change

When operated the system, the inventory manager will make password change through the maintenance module to ensure that the password will be modified validly as the user logging on the system and the security of system will be safeguarded.

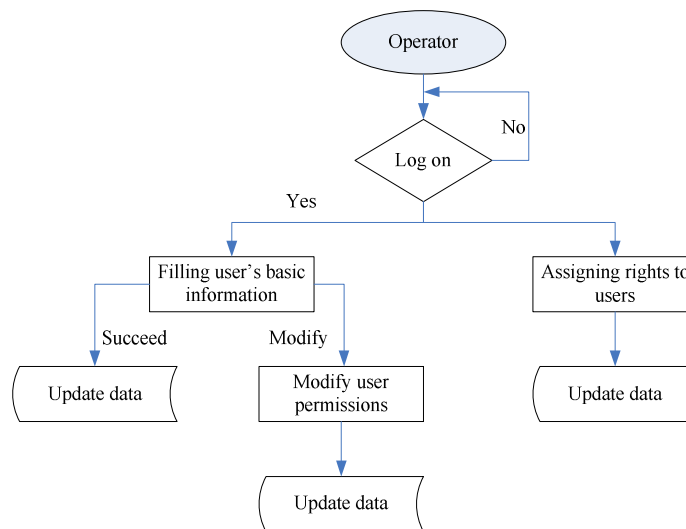


Figure 7 : User management business flow chart

**DATA FLOW**

**In-storage management data flow**

Based on the correctness of system operational process, the inventory manager will fill the in-storage information of engineering material to make a valid record and saving for the applied table so that the applied process can reach the scientific and concrete requirements. And inventory manager can modify or delete the valid and valued information to ensure the correctness of user's information and provide a useful guarantee for the further check and valid updating about these information (The detailed flow can be seen in Figure 8).

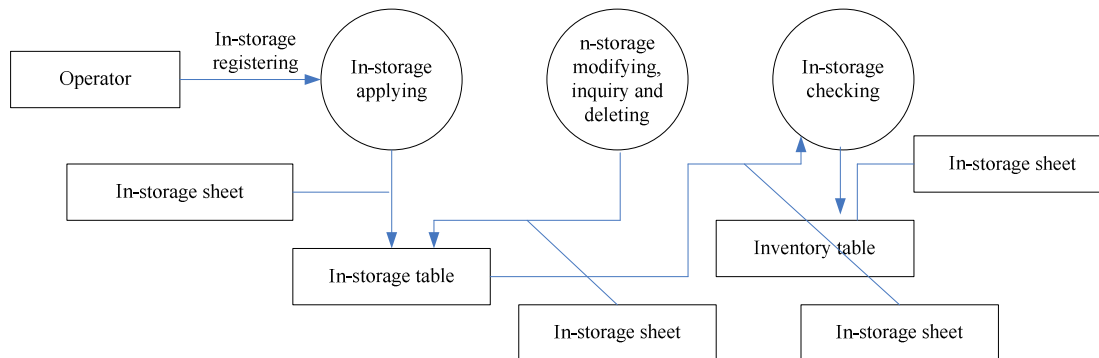


Figure 8 : In-storage management data flow

**Out-of-storage management data flow**

In the operating of system, the inventory manager should make strict requirements for the accuracy of operation process and related records that include the detailed information about the in-storage and out-of-storage of engineering materials to ensure that these information can be saved validly and when comes out of the storage, these materials will go through appropriate applied process. During the process the valued information can be validly modified and deleted to safeguard the accuracy, checking and the updating of user's information in a valid way.

**THE DETAILED DESIGN AND REALIZATION OF SYSTEM**

In the design process of WMS, the system can obtain valid data and make its processing and analysis in accordance with the characteristic of these data. The efforts above can help develop the basic process of the operation of WMS and the design process of the system involves so many contents and fields that the main structure can be fully realized. The non-required analyzed process puts forward concrete requirements for every operational interface and the equipment and configuration, the results of which will actively promote the design of program the programming of program language.

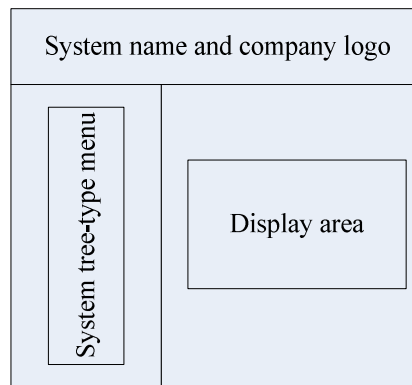
**MVC system development strategy**

The paper makes analysis about what strategy the system development should use as follows:

First is to process the management of WMS, during which once users put forward related requirements, the server system positioned will make valid process for user's requirement and send back the result to this user after valid processing. The result is based on the result in browser, so the valid and different setting and implementation for different codes in the real operation is crucial for the display of result. But apart from the displayed result, the tables and buttons and other data in browser also can help to receive and send the required command from users, which gives full rein to the communication between the system and users and realizes the exchange between the user's requirement and the demand of system. Second is to make a valid research for the main idea that R&D process applied in the design of WMS. Finally the required information the user provided will be analyzed in detail.

### The strategy to design the interface of system

The entire design of system refers to the rule that the design of every interface obeyed and it should keep the conformity among different interfaces, such as, the layout and color of page, the position of button and the style of menu or navigation bar. If the entire design reaches conformity, the system and interface can bring clear, coordinated and integrated feeling to people (See in Figure 9).



**Figure 9 : Business flow**

### CONCLUSION

All above is the study and exploration about the application of computer technology in the construction engineering overall management, mainly taking the design of WMS and the data flow as the key study point to give full rein to the role of WMS in the management of construction engineering and provide stead foundation for the implementation of it.

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