The Design of OA System Based on B/S Structure of Colleges and Universities

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Abstract

Office automation is based on the concept of work flow which uses the technology of pc and network. It can help the white collars to share the information to work cooperatively and quickly. It can make the office air better and make the work scientifically and automatically.

As the renovation of the universities the inner management of the universities and the efficiency of the work has been more and more important. To build a safe and efficient office system is not only the requirement of the time but also the need of development of education, university management and benefit of teaching. This article analyses the trend of the in-campus network and the beings of the office automation in China. According to the particularity of the office automation we can build an in-campus network by inletting work flow, by regulating the flow of office work, by making the working model to realize the computerization and to make university OA system soft and enlargeable and finally build an office automation system ideally. This system can manage, post information to support communication, education and management and this system will turn out to be a total scheme of the in-campus automation.

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1. Research significance

Office automation (refers to OA) refers to using of advanced science and technology, such as computer technology, communication technology, system science, management science and all so, and constantly making part of the office of business activities materialized on all kinds of modern office equipment except for someone. It can improve the maximum of efficiency, quality, environment and condition of the office,
the same time reduce the work cycle. In order to achieve office activities scientific and automation, scientific management methods, advanced technology, auxiliary decision-making are used to improve management and level of scientific decision\cite{1}. Office automation system combines advanced management ideas and network technology, which aim at business communication and processing between departments and individuals in real-time efficiency, security and stability and unlimited area. It can greatly expand office mean, realize the office efficiency and decision-making efficiency. With the development of Internet technology and the reform of the management system, the role of campus network in higher education assumes is more and more apparent. It has become indispensable supporting environment in university teaching, scientific research, office, and management. With the fast development of network, college management informational system has been matured gradually. Under the new situation the establishment of convenient and efficient office automation system in University is an important means of changing work functions, methods and style, and improving work quality and efficiency. It is also the new initiatives of scientific outlook on development of "building a resource-saving and environment-friendly society" which put forward by General Secretary Hu Jintao in the 17th CPC National Congress. Therefore, office automation is a necessary requirement for the construction, reform and development of the university itself. The implementation and promotion of office automation system is the inevitable trend of the college management information and networking. The networks of office automation must be the development trend of the modern university requirements.

2. Research objectives

The research goal of the system is to construct communications platform leveled of field and e-mail management; to establish of office automation system based on the core of information flow. Combination of public information management, personal management, and administrative affairs, will create an integrated work environment for school staff in various departments to provide multi-functional desktop office environment, which will address needs of different people for different services using different work environment issues and achieve resource sharing office. The system provides an integrated information work platform of processing and dissemination, builds a business process automation, fax transmission electronic, documents integrated office automation system. It will address the problems which exist in information gathering, processing and publishing process with segmentation in the past. Thus reduce the number of unnecessary to transfer part. By replacing transmission of information with traditional manual paper-based or magnetic media, the efficiency and reliability of information transmission will be improved\cite{6}. Ultimately school efficiency and management level were improved. In addition by means of Internet / Intranet technology, information about the school's internal and external will be real-time released.

3. Research content

The goal of office automation system is to design and develop an OA system fitted in office campus network characteristics in efficient, easy to use and maintain. One side the system architecture meets the hierarchy and modular design, and another system structure is clear, reasonable and flexible. Software can be expanded according to future needs. Therefore enhance the computer applications of office transaction processing in university. To provide information and increase productivity for the campus platform in knowledge management, all these will be achieved automation such as collaborative office capacity and document delivery based on computer network, information exchange and dissemination. The system consists of front users and back-office systems' management, specific division for the system includes administrator user, department administrator users and ordinary users. Back-office systems’ administrator is responsible for the system's normal operation and maintenance, the same time he manages the various users of the system. Second is the administrator of the department, they are mainly responsible for the
dissemination of information, document management and other functions, the third is general staff, who mainly complete the work related to using of office systems, and may conduct exchange and real-time communication.

Using ASP as a development platform the entire system mainly achieves functions of personal office, administration, information management, systems management, document management. Functional module showed in Figure 3-1.

![Figure 3-1 The functional block diagram of the system](image)

3.1 Personal office

This module achieves the management of individual's daily work and activities, and provides other ancillary functions. This module includes the work to be done, scheduling, personal diary, E-mail, communication recording etc. By using personal office subsystem you can easily handle some personal business transactions. Individual desktop displays the latest information about documents, tasks, e-mail and approval which are related to the current operator.

3.2 Administrative management

This module, which consists of department management, stamp signature, template management, signing management and meeting management, can provide the daily meeting management functions. Sign performs the management work, such as the file type is report, nuclear draft, issues, file to wait for internal request, application and report. The meeting management provides the function of conference room management for office workers, including not only preparation such as plan before the meeting, conference documents and the subject of the meeting, but also the ask for the conference room and the sent for an application of the meeting notice. After meeting it can do the records, summary and query of the meeting, and we will be filing meeting minutes.

3.3 Document management

Document management module mainly realizes the function of addressee management, file management and postings, which complete the transfer of official documents between and interior of the department, realize the functions of registration and filing articles. This module records the original file all postings and track the whole process of postings. According to the official documents predefined transaction process, it can realize all the necessary work of official documents. The offices in school are management
departments as unit for dispatch. The party committee office and President office are the official document management department, which offer the integrate management to the official documents. The office itself in each department is responsible for document management as official document management department.

Dispatch management can be divided into the official documents issued and departments issued. The main functions of which are sent the documents to the competent department, as shown in figure 3-2. After the examination by the school leader or departments of Confucian leadership, official document is namely into the stage of reexamination, check and printing. Management of receipt performs registration of receipt, handling, query, transfer, archiving and management. Business process is shown in Figure 3-3. The full work of reading and approving the document is operated on computer network. Thus it can be achieved of security classification distinction, urgency, management, and related operations of the document, the application's permissions and control of personnel. According to time, keywords, issued units, managers and other information, the query is done. The workflow can be defined by the user.

![Flowchart for colonel documents](image)

Figure 3-2 Flowchart for colonel documents

3.4 Information management

This module obtains an information warehouse for office managers, including integrated query, internal circulars and contacts, information exchange and other functions. It can add, modify and delete categories of information. The exchange of information includes announcement, e-mail, BBS, private messages and other sub-modules, which facilitate communication between employees directly. Notice is used for the school's internal management information circular which can also be released for a department of the information circular. According to the different targets, the staff in relevant functional departments can view information about their own, and also provides the search function of notice.
3.5 System Management

This module is used to completing the system management, achieving system maintenance, access permissions and maintaining the normal operation of office automation system. The authority and management of the system can ensure the level and range of user permitted, which can accurate to the extent of each drill and do read, delete, add, modify settings and other functions, so as to achieve the purposes of effective classification, classification management. System allows to creating multiple administrators accounts. Different administrators have different privileges and scope of operation. The system gives different operating authority to different people, who possess the function of operation log, record for database access, operation and other information, in addition who have function of database backup and system recovery, initialization and maintain data work flexible, simple and secure.

4. Properties Requirements

In order to ensure the stability of the system to be stable, reliable, efficient operation, the system should meet the performance requirements of security and stability.

4.1 Security

First, the security of the database, database uses SQL Server 2005 and takes effective encryption measures to ensure the security of data; second, the security of the system, the system uses the methods of roles distribution and permissions control. It sets permissions for different users to ensure the system functions and information security. The system utilizes three-tier security model module of user - role – module, which is divided into user level, role level and module level. Relationships are built between users and roles, roles and module permissions, but between user and the module it has no direct relationship.

In this design mode the permissions and users are separated from system module, which use the role as
an intermediate layer. The relationship between users and roles is many to many. Similarly to the role and
the module, at the same time the module can be set to the role of specific operating authority. When user
accesses module, permission was got through user’s role in accessing to the module. Through this
hierarchical management model it can achieve rights management effectively. Rights management security
model was shown in Figure 4-1.

So when users enter the module, the user's all operating authority must be determined, Based on the
user's permitted level (system administrators, department administrator, normal user), the system extracted
corresponding number of roles from the database table, based on the number of roles, the number
corresponded of function was extracted form the functional table, according to the function number system
display corresponding functions, without having operating authority, it does not appear on the system
interface, and users can not operate it, the appropriate function module is not run, thus the use of functional
permissions and security in different user’s roles are protected, and it can prevent system data files modified
by a malicious user.

![User rights and role management graph](image)

The design used of rights management is organic unity in the organizational structure and defined role
of network office realistic, and the realistic institutional permission settings are applied directly into the
rights management platform, the corresponding rights and relationships are built automatically. So that in
order to ensure the security and reliable operation effectively, the user’s every step of the system data access
operations are carried out to determine.

4.2 Stability

To ensure stability of office system I chose the asp mature technology platform. Taking full account of
improper operation during the process of user using the system, system manners with appropriate error
handling in a timely, gives the user a message, and ensures the system to run properly.

5 Technology route

The network office automation system is expected to complete the system design from the user
interface, functional modules and database functions, and has certain requirements in friendly interface of
the system, system stability and data security.

The entire system uses ASP and ADO technology for development, establishes a good user interface
and improves the functional system. Back-end systems uses SQL Server 2000 database to achieve the
required function of data table and provide the ability of data to support for the system. Finally, the function
of the system will be run and tested.
The design of system uses object Oriented programming (OOP), the Issues are broken into various objects, office automation system is planned in overall and divided in function. It establishes use case model of system, document management and information management and so on, so that systematic analysis class diagram is gained. Through the analysis of work processes, the roles involved in the system is identified; and through analysis of the system use case, use cases related to system are captured. On the basis of analysis of system’s role and interact, using the Unified Modeling Language, the system requirements analysis and database design are completed.

6 Feasibility Analysis

Colleges generally have perfect network technology and high-level team of computer applications, as the distribution center of knowledge and information, which has high-quality personnel, as well as new knowledge and things are accepted quickly. Multimedia technology is widely spread, which not only make the office automation in dealing with voice, graphics, images, etc. to enhance the functionality, but also to meet the business requirements, and improve value and range of applications in office information processing. With maturity digital campus software, its application covers in consumer systems, including collection, payment and all kinds of funds drawn, as well as information system, including authentication, attendance, books borrowing, computer room, query and statistical analysis of management information, which provide a superior environment for the implementation of office automation for the college.

References