Application Analysis of One-stop Service Platform for Smart Campus of Mobile Terminal

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Keywords: Mobile Terminal; Smart Campus; One-Stop Service Platform; Application

Abstract: The innovation and application of mobile internet technology has driven the development of many emerging industries. The real-time and mobility standards for different types of information access on campus are becoming more stringent in the eyes of teachers and students. At this stage, digital campus services cannot meet this requirement. Based on this, most colleges and universities have successfully launched smart campuses and conducted explorations and researches on it. Under the background of mobile terminals, the application of the smart campus one-stop service platform is currently a key issue. Reasonably apply the one-stop service platform to further strengthen the level of informatization of universities, realize resource sharing, and improve the quality of education and service levels.

Introduction

Smart campuses usually choose new optical fiber networks and multimedia information technologies when organizing teaching software and hardware resources to create a highly efficient, practical and innovative educational information platform, which adds convenience to teaching management. Nowadays, the number of users in colleges and universities is on the rise, and the number of enrolled students is also increasing year by year. For the school's R&D information system, it is very difficult to install and operate or upgrade and maintain, and it is very easy to cause failures and damage accidents, restricting school teaching management effective implementation of work. In order to further strengthen the application efficiency and informatization results of smart campuses, promote a one-stop service platform and connect with mobile phones and computers to produce different teaching methods and learning methods, and accelerate the process of educational informatization.

1. Meaning and Characteristics of Smart Campus

The planning and implementation of the informatization construction of colleges and universities is done with the help of the overall and hierarchical concept of the smart campus, which demonstrates the standardization and safety of the campus informatization platform. Use digital information technology as a support; integrate computer and network technology to implement information management teaching work in colleges and universities, extensively collect, process, store, use management research and development, technical services, and logistics support information to achieve a comprehensive arrangement and improvement of teaching resources, thereby creating a virtual education management atmosphere. The theme of the smart campus is to use digital information collection, transmission, preservation, and processing technology to manage and control various issues in colleges and universities, such as teaching content, research and development, management, and technology supply. The creation of a smart campus facilitates the reorganization and induction of information resources, facilitates students' information exchange on the platform, provides convenient and efficient information services for teachers, and helps school management to make critical and systematic decisions [1].

The smart campus promotes the transition from the current informatization stage to the advanced stage of colleges and universities, and enhances the degree of integration of information technology and education and teaching. Therefore, a smart campus needs to have the following characteristics:

(1) Full coverage of the Internet is implemented. Today is the era of network informationization. Without the support of the network, it will be difficult to implement education informationization. The smart campus facilitates the communication between people and people, people and things, things and things, and provides broadband in various fields to achieve full coverage.

(2) Continuous promotion of smart terminals. Nowadays, smart terminals are frequently used in various areas and are favored by people from all walks of life. These are inseparable from the assistance of smart campuses. In the past, only perceptuality was used when discussing campus environment and activities, but now it can be analyzed with data to highlight the computational efficiency of computers and improve the processing level.

(3) Collective information symbiosis and prosperity. If a smart campus wants to implement personal information organization and management, so as to realize information sharing, it should also organize and improve team information in an orderly manner, create an atmosphere of collective information symbiosis and prosperity, and contribute to the continuous enhancement of collective wisdom.

(4) Fully penetrate business applications. Active push and intelligent referrals fully demonstrate the comprehensive effectiveness of smart campuses and realize intelligent integration, which can be widely used in various cities and regions to reflect personal participation and user strength.

(5) The integration of external wisdom runs through. A smart campus does not exist alone. It should keep in touch with the outside world at all times, integrate external information with internal information, and realize innovation and sustainable development is the core task of universities.

2. Analyze the Innovative Technology of Mobile Terminal Application System

Regarding the application of the smart campus one-stop service platform for mobile terminals, because the system used by the platform is Android when it is running, the core technologies selected in the system innovation link are: Android SDK and JavaBean.

2.1. Android SDK

The structure of the Android system is cumbersome and can be divided into several levels, from top to bottom in order of application, program frame structure, core class library layer and Linux kernel layer. In order to meet the functional requirements of applications, Android has introduced core class libraries with various functions, such as multimedia framework classes, user interface classes, Sqlite database classes, SSL, and Libc. As an important part of the Android system, the Android SDK directory involves folders developed from a variety of applications. For example, add-ons stores additional libraries Google Maps; Android SDK API related documents are stored in Docs, which can be quickly retrieved necessary AIP applications; application adjustment tools are stored in the Tools folder, ddms can start Android processes, such as folder manager, screen shots, Logcat[2].

2.2. JavaBean

The smart campus one-stop service platform needs to install powerful database processing components in the application process, and implement simple encapsulation of data and methods. Taking the Java programming language as an example, a JavaBean database access component is inserted in the system. After the effective association between the JavaBean component and the database is completed, the system can perform different types of operations on the database, such as data rectification, query, deletion, and insertion.

3. Application Analysis of Smart Campus One-Stop Service Platform

3.1. System Feasibility

① Economic feasibility. In recent years, the promotion of smart campuses has been strong. Universities have set up modern computer management computer rooms. The types of server resources are complicated and cover a wide range, such as Web application servers, system

integration servers, system database servers, and firewall servers. On the other hand, every corner of the campus is covered by a mobile terminal network.

②Technical feasibility. When exploring and researching a one-stop service platform for a smart campus, the most commonly used technologies are Android system, Android SDK, JavaBean, HTML5, etc. These technologies are very skilled in application and have certain feasibility.

③Social feasibility. Building a smart campus from the perspective of mobile terminals can maximize the speed and reliability of the smart campus. Students occupy a dominant position in society and are core members. They can promote the process of social information application, enhance the level of development, and highlight social significance.

3.2. System Function

Nowadays, mobile terminals are gradually coming into people's eyes, bringing great convenience to all aspects of human social life. Build a smart campus one-stop service platform based on mobile terminal equipment, refer to the demands of teachers and students, analyze and consider the deployment of smart terminals such as Galaxy and Huawei, so that teachers and students can quickly collect required information when using mobile terminals. The functions of the smart campus one-stop service platform can be considered and analyzed from the following points:

① News information management. Students log on to the platform to check, search, and read the school's hot news and information, so that they can know the school, scientific research, admissions and employment notices at the first time.

②The school calendar posted by the school is convenient for teachers and students to understand and master the teaching plan and content in the first time.

③User information exchange. Send the course management details and graduation design information to the user's mobile phone or mailbox, and you can arrange information sharing and comment content by yourself, mobilize the communication frequency between students and teachers, and enhance the relationship between teachers and students.

④ Scientific research information management. The school has established a scientific research team, whose members are responsible for collecting and reviewing scientific research project materials, strictly controlling scientific research results, and mastering the progress of scientific research and the use of expenses.

⑤ Personnel organization management. Push the personnel recruitment system and recruitment conditions to facilitate applicants to familiarize themselves with and understand relevant information, thereby introducing a large number of versatile talents.

⑥ Forum and library management. Log in to the forum network to read the information of popular post bars, and share the book management content with more people [3].

3.3. System Performance

The smart campus one-stop service platform under the view of mobile terminals has a large number of logins and many concurrent access processes. At this time, it is necessary to improve the processing skills of the storage system to be able to respond with the fastest speed. Therefore, in combination with smart terminal information, caching technology is selected to enhance the load level of smart campuses and better deal with server dilemmas.

On the one hand, the system response time is short. The core components of the intelligent application system are mobile terminals and 4G mobile communication technology, so system delays cannot occur. Database query statements have a great impact on the system's waiting time. The only way to do this is to reduce the push time of the detailed code to reduce the system response time. Under normal circumstances, the methods of choice are: unified SQL statement standard operation, implementation of stored procedures. Response time = client + server + network response time, the sum will not exceed 50 milliseconds.

On the other hand, do not put a large amount of information on the web page. The information reflected on the page is all sent from the server to the client, and it is sent at a time. The more

information is prompted, the more the server information is delivered big. In order to avoid network congestion, this information can be reflected in a paging format.

Finally, use the caching mechanism. If the database is accessed multiple times, it will inevitably reduce the performance of data access. Such data usually does not change much. You can use a caching mechanism to store this type of data in memory to cache, reducing the number of database accesses [4].

4. Design and Implementation of One-Stop Service Platform for Smart Campus

4.1. System Server Design

The smart campus one-stop service platform actually belongs to the distributed system management software, and its structure is relatively complete. Choose the B/S architecture. Based on this architecture, the network topology can be designed to facilitate the layout of the network software and hardware environment. When implementing the planning and layout of the system hardware and software platform architecture, the selected methods usually focus on static system layout and dynamic system layout, and carry out corresponding research on the needs of smart campus one-stop service platform.

4.2. System Architecture Design

When the smart campus one-stop service platform is in the stage of operation and management, a lot of customer resources and data information have been accumulated during the period. In order to fully demonstrate the interactive characteristics and processing frequency of the smart campus one-stop service platform, the article introduces an advanced distributed Management system architecture. The architecture involves three levels, which are data function processing layer, business function processing layer, and distributed presentation layer in sequence. The customer simply installs the plug-in in the browser, or logs in to the system on an easy-to-operate browser, and then applies to the management system to monitor logical business requirements, thereby meeting the Internet monitoring requirements. In order to clearly present the structure of the software modules, the article generally uses structured flowcharts in the design phase to discuss the system logic business processes from top to bottom.

4.3. System Function Design

Mobile terminal smart campus one-stop service platform generally chooses a three-tier B/S architecture, this type of architecture can divide the platform into several logical business levels, such as user terminal layer, logical business processing layer, data processing service layer, each level The connection is completed by calling the interface, and relatively rigorous firewall measures are used to restrict system access rights, and user access ports are developed in the autonomous defense system. The data processing service layer and the user logic business layer are separated by the implementation of the system to realize the independent control of the content of each level, maintain the back-end server, and set the personal learning desktop reasonably. The business steps of the smart campus one-stop service platform include: users connect to servers through different types of terminal devices, such as PCs, PDAs, and IPADs. User identities are verified by domain controllers, and infrastructure server clusters can be gathered together, access to the user terminal operation page and the resource data issued to the user, rely on the virtual desktop system to flow into the smart campus one-stop service platform [5]. When the user visits, the system uses tunnel encryption to guarantee the reliability and real-time performance of user information access and data transmission.

4.4. Fully Realize Smart Learning

When realizing the corresponding performance and efficiency of the overall system, we should start with points, lines, and surfaces in order to improve and adjust. The smart campus one-stop service performance of mobile terminals has achieved multiple development goals to the maximum. Penetrate in smart learning, and publish the students' current learning results and test scores to the

educational administration system fairly and fairly. In the system, students can browse the computer webpage and mobile app platform to view personal information, and finally realize the course information transmission.

4.5. Highlight the Convenience of Life and Learning

From the perspective of convenient development goal planning, students can use the system to fully pay for electricity and network fees in daily development links. At the same time, it also fully penetrates the fee payment reminder function. Once the fee reaches the standard amount, the student will be notified to complete the payment as soon as possible to prevent power outages. On the other hand, at this stage, fully synchronize with the implementation system of campus card management such as the missing campus card in the dormitory management, integrate statistical access control data, and ensure that the personal safety of students is not harmed.

4.6. Realize Comprehensive and Efficient Management

Combining the analysis of the current situation of university management, starting from the perspective of actual development, introducing a smart campus one-stop service management platform, strictly controlling the related personnel processes and financial scientific research steps, and realizing specific divisions. At the same time, it can also abandon the constraints of time and region and realize comprehensive and efficient management, which is convenient and fast.

4.7. Realize Mobile Office

Analyze from the perspective of mobile office, start with the actual development status, and rationally apply the one-stop service platform of the smart campus mobile terminal to realize mobile office. Specifically, using this system, both teachers and students can browse the required information inside the system to complete conference sign-in and courseware download. When logging in to the campus mailbox, you can view the relevant mail information without time and area restrictions, which has very good promotion significance for the effective dissemination of information [6].

5. Conclusion

All in all, the innovation and application of mobile internet technology has led to the development of many emerging industries. The smart campus one-stop service platform based on the perspective of mobile terminals breaks the connection method of the PC terminal digital campus platform and applies the recent mobile 4G wireless network. Associating smart phones and tablets with the platform further strengthens the resource utilization and real-time access of smart schools, breaks the constraints of space, deeply integrates the equipment environment, time and space environment, organizational environment, emotional environment, humanistic information environment to achieve resource sharing, and improve teaching procedures and improve teaching quality.

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