Design of Campus Voting System Based on Android System

Guan-nan WEI¹, Jing XU¹*, Han-yue ZHANG¹ and Kun-fang ZHANG²

¹The College of Information and Electric Engineering, Shenyang Agricultural University, Shenyang 110866, China
²Central South University, Changsha, China
*Corresponding author

Keywords: Campus network, voting system, Android.

Abstract. With the development of the digital process, smart phones become an indispensable tool in people's lives. And applied to the intelligent mobile phone software programming technique is to make smart phones more humanization. At the same time, Android operating system with its full openness and good portability of the system has quickly became one of the mainstream platform for smart phones. At this stage, in the face of a large number of voting needs, in order to improve efficiency and save resources. Universities should abandon the traditional way which waste a lot of manpower and material resources, using Android operating system to design a simple and convenient mobile phone voting software to replace, so that the voting is more convenient, simple and economical.

Introduction

The birth of the Internet, Mobile terminal is no longer exists in some professional fields, to the civilian population, in a subtle way a affect our daily life. Mobile applications demand continues to increase, the user base continues to expand, making the development of information technology. Communication and network engineering in a smart phone with a fast transmission efficiency, convenient operation interface. Various advantages make it not only as a communication tool, but also as a mobile multimedia platform that can provide users with information and communication services at anytime and anywhere.

To some extent, the widespread use of smart phones has benefited from the installation of an operating system that is similar to a personal computer. Android as a specially designed for mobile software development platform, open source mobile platform based on Linux, provided by the underlying operating system to the top of the user interface all relevant software, developers can modify and expand according to their own needs. In addition to the application run dependently the virtual machine, all software is equal, which means that developers can be on the basis of their own develop program to replace the original system. It is these different from the advantages of other operating systems, so that Android become the mainstream of smart phone operating system.

According to these characteristics, the developers gradually ascending trend in mobile phone function, use the popularization of mobile terminal to make all kinds of mobile business and the development of information service system, greatly satisfy the users in every level of daily needs. As an open and standardized operating platform, to provide users with a more intuitive and interesting visual experience, to improve the security of the system, from the wave of information technology in today's society, Android will have a more broad prospects for development. Then, based on the Android technology development system will have more strong and long lasting vitality.

In the daily life of colleges and universities, we always enjoy the convenience brought by the internet. The popularity and development of mobile applications technology allows us to get away from the computer, the use of the network anytime, anywhere to complete the same work, so that our daily lives become more convenient. In recent years, with the popularization of the Internet in China, the use of Internet voting way in China has a rapidly rising trend. According to the CNNIC report, the
The overall number of mainland Chinese Internet users in the first half of last year has more than 100 million users, the intensity of social information is increasing. At the same time, many universities in the campus there are such problems, the beginning of school will have a general election campaign, the end of the semester will have a large number of outstanding students, outstanding monitors need to produce after election, the election and voting channel one fit design needs of colleges and universities in the face of such a huge demand imperative. With the user habit of traditional paper ballot, the system need to coordinate relevant personnel to vote at the same time the same place, is irreplaceable in time and space flexibility. The system combines the advantages of mobile applications, will greatly improve the efficiency of the vote, the design of a teacher and students to provide a good interface, easy to operate online voting system.

The Design and Implementation of the Voting System

All accounts can access student number and other basic information from the relevant departments of colleges and universities through the web crawler technology, import internal database. At the same time, the school's internal database can be connected directly to use the campus network account to log in, log in to your account compared with background database, to ensure the legitimacy of voters, to guarantee fairness in the voting process.

Administrators can log on to the system to launch a vote, set up the participation of personnel rights, voting time, is responsible for uploading the candidate's basic information, the relevant audio and video files. Control of the number of votes, the number of candidates, candidates qualified to identify and control the polls close time, etc. Statistics on the number of students who did not participate in the voting, while the results of the vote display page. After the user log in their account, they can vote, after voting they can view whole result, voting results page display the number of person who has completed vote and the outcome of the vote, including effective voter turnout and voter turnout waiver number, the outcome of the vote including candidates income, and descending order according to the vote. Users can also choose anonymous voting to ensure that the user's personal privacy. This voting system opens a special teaching research poll for the teacher, where the teacher can initiate a vote to better understand the student during the teaching process, such as which teaching methods the student is more likely to receive, and the results are at a glance, to better achieve the communication and exchange between teachers and students.

Using Ajax asynchronous transmission technology, so that users can do without refreshing the entire page will be able to access the latest news and notifications in real time to ensure the timeliness of the message and the efficiency of communication. At the same time, as the mobile phone application software, take the advantage of flexible and extension of mobile phone. To everyone can use, everyone will use, everyone loves to use.

Realization

Application Development Based on Android Technology

Implementation of real-time information exchange between client and server platform is shown in Figure 1.

![Figure 1. Real-time information exchange process](image)

From the above we can see that the voting system consists of two parts: client and server, both in data interaction includes two aspects, first, the client needs to obtain the background data, you will
need to go through the URL using Get or Post to send the request. Http connection is established through a series of too after the operation, then the data exchange with the server. The server for judgement and verification operation at first, after receipt of the request, in order to ensure the legitimate premise to the client request issued by the form of XML response signal. The server then analyzes the data returned from the server segment and display on the client. Similarly, the client can upload photos, videos and other files to the background server, stored on the server and other operations.

**System General Architecture**

The system's physical architecture is divided into three parts: Android mobile client, a wireless network and Ethernet transmission lines and back-office servers, as shown in Figure 2:

![Figure 2. The overall system architecture.](image)

Users in the use of this system, such as the need to upload data to the user side and the server to establish a HTTP connection, upload data to save. For data manipulation and query, click the Android mobile client-related button, generate a request, the use of wireless networks and Ethernet interoperability between the back-end server to send Get or Post type of request. After the server gets the request, it reads the data and generates a dynamic XML data format that is passed back as a response to the client. There is a client to parse the XML in the database or in pictures, text in the form of display in the user interface. When the data can be uploaded to the server and the user side to connect with HTTP, upload data to save.

**System Related Optimization**

Shennong Le Tou not only to achieve the above functions, at the same time to meet certain requirements in performance, interface, rich user experience. So that users can easily use the system at the same time experience the beautiful interface and fast response.

**Efficient Optimization.** First of all, as a mobile terminal device, compared to PC-side smart phones in the processing speed and memory slightly less, which requires us to focus on mobile phone software code optimization to save memory space. Android procedures for the development of the use of Java language programming, while programming at the same time to minimize the creation of objects, to avoid the interface reference examples.

The extraction from the original data string when upload, use method returns a substring instead of creating a copy, this could save by citing the need to spend more than two times the interface time statement Final constant, the direct writing class file in the initial static attribute, a virtual machine to initialize. At the same time, as far as possible the use of language itself with the method, some of the methods used to achieve C++ or C in order to simplify the language.

**Reduce the storage space occupied.** Large storage space is also a need to avoid and pay attention to a major problem. Although the current storage capacity of mobile devices has been greatly improved, but still relatively limited. In addition, the application of Android can only be installed in its own memory, which greatly limits the expansion of storage space. Therefore, the size of the program a reasonable use of memory, the effective allocation of resources has become a major
problem to be solved. A lot of data to use, share, interactive use of Android database and content providers to make. Thus relatively reduce the memory space occupied, timely clean up useless cache.

**Interface programming and debugging.** The wave of smart phones led to the development of mobile phone software, modern social mobile phone software interface design is also regarded as a kind of competitiveness. Friendly interface is intuitive and convenient. Design interface to reduce the use of the control becomes more necessary. The clarity of the section allows users to find their own needs at a glance in the attempt and layout to strive for simplicity. In order to prevent the heap overflow and other abnormal phenomena, maintain the robustness of the program, the system simplifies the view tree, weakening the depth of the view tree to speed up the user interface response speed.

In addition, the debugging mechanism is also the system should focus on optimization of the part. Procedures in the client network connection and so on if there is a problem, should immediately pop-up related tips, and shielding errors give tips.

**Conclusions**

This system mainly realizes the voting function which is commonly used on the Internet, and provides a convenient and easy online platform for the investigation, collection and feedback.

In the future, there will be hope to promote the universities and even the community, to provide more and more accurate information for the majority of users in the community. Although there are loopholes and flaws, but the overall outlook is good. If you follow the “checklist” your paper will conform to the requirements of the publisher and facilitate a problem-free publication process.

**References**


