A Learning Approach to English Online Video Teaching System Design and Implementation

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Keywords: Streaming Media, English Teaching, Online Video Teaching, Flash Media Server

Abstract. How to make use of the existing computer technology and multimedia network technology, and integrated, construction satisfy certain teaching requirements, and feasible in technology and funds, multimedia network teaching system is a problem to be solved. To provide a virtual classroom to make the students listen to the teacher can through the network synchronization. The emergence and development of streaming media technology, to realize online audio and video transmission and development of providing a strong support. This paper studies the streaming media based English online video would system. The design and implementation of main studied for flash media server network topology structure of streaming media services, designed the English online video teaching system for flow media related modules. System has realized the teachers teaching scene and voice broadcast live, teachers and students, between students and students through the real-time interactive function in the form of text.

Introduction

With the advent of the 21st century, science and technology and information industry is developing rapidly, information has become the important resources for science and technology and social and economic development. Because the computer technology, communication technology, the rapid development of information technology, accelerate the knowledge update speed, and acceleration of the development trend of increasing [1-2]. The rapid development of high and new technology, leading to the growing emergence of new industries, the old industry change constantly, objectively requires that people are constantly learning and supplement the new knowledge and skills. Modern distance education network is with the computer network technology and multimedia digital technology development, especially the application and popularization of the Internet, it with learners as the main body, with computer technology, multimedia technology, communication technology and the Internet and other high and new technology as the main teaching methods and media, images, text, animation, audio and video with the combination of a new type of interactive network education mode [3]. This kind of interactive teaching mode through the computer network to realize the remote, fast speed, high quality of the teaching system, for the whole education structure has a significant and far-reaching influence, is a trend in the development of education in the future.

English as an international language of communication, is gradually penetrate into people's lives. Whether it is learning or work, at home or abroad, and gradually increase the frequency of people need to use English. Thus, a variety of English education institutions have emerged. More famous, including New Oriental Education & Technology Group, a new channel of international education group, Wall Street English, and so on. These institutions are generally divided into large or small classroom teaching methods of teaching, as well as one on one tutoring, provide professional English training for students [4]. But this kind of teaching methods, but also exposed the problems of students, often overcrowded classrooms, lack of relevance of teaching. The small classes and one on one counseling, expensive, and most students cannot afford a long period of time. Therefore, the gradual development of teaching methods through the Internet.

Teaching model compared to the past, online education has its unique advantages. First of all, online teaching and teaching locations in teaching time more flexible. Unwanted classroom,

students need only a computer device connected to the Internet, you can learn, you can save time and money round. Second, because the cost does not need to rent classroom space, reducing teaching, teaching educational institution and therefore have more autonomy. Third, because regardless of location, educational institutions can use more teacher resources. Many English teacher allows students in other countries in their own homes for online teaching. Therefore, the online English teaching has good prospects for development.

Theoretical analysis on streaming media technology

Streaming Media Streaming is the use of continuous time-based media streaming media technology is a continuous real-time transmission technique based on time, the successive images, voice compression process after placed on the server, while watching the viewer while downloading, without having to download the entire file and then look at the past, if people want to watch movies or listen to music from the Internet, you must first download audio and video files to the local computer store before we can play, not only a waste of download time, disk space, cannot meet easy to use and precise consumer needs when playing streaming media is not to download the entire file, only the beginning part of the contents read into the local computer memory in the computer to send data packets to the media caching and data output to correctly player streaming data streams transmitted at any time to play at any time, just at the beginning of some delay in the start delay after a few seconds or tens of seconds, users can take advantage of decompression device on the local computer on extracting compressed multimedia files to play and watch though the remaining part will continue to download multimedia files to the local computer memory in the back of the server [5-6].

Streaming system can be divided into various parts of the relationship between the structure and the four parts, the media encoder, media files are stored, the media server and media player system between the system shown in Figure 1. Media technology is an integrated technology, which includes the streaming system architecture, network protocols and quality control of the transmission range of technologies.

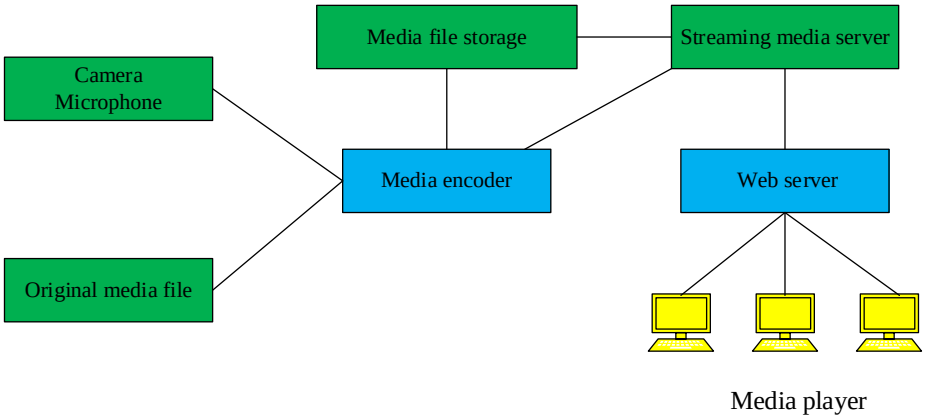

Figure 1. System architecture of streaming media

Body of the encoder. The original media file or camera acquisition in real-time data into suitable for network transmission media file formats, and streaming media files stored on the media server, or directly to the streaming media server.

The media file storage. Storage stream media file formats, generally USES the SCSI hard disk or disk array.

The media server. Response from a Web server to the user request, through the network transmission protocol will stream format of the file to the user's desktop.

The media player. Receive the network media data, and in the local broadcast.

Compared with the simple way to download, this kind of multimedia file download and play the streaming transmission mode is not only make the startup time delay greatly shortened, and on the

demand for system cache capacity is greatly reduced, greatly reducing the user use the waiting time for streaming media transmission, the power source and the data provider of streaming media Server on the Server, such as the Real Networks, Apple is streaming media transmission provides a powerful Server, but the most obvious feature of the streaming media is interactive, which is the Internet the most attractive place, at this point, the Flash media Server has its own advantage of streaming media technology is a comprehensive technology, it includes from streaming media system architecture, transmission quality control to the network protocol and a series of technology.

English online video teaching system requirements analysis

In system engineering and software engineering, the requirements analysis is the creation of a new or change an existing system or product, determine the purpose of the new system, scope, definitions, and function have to do all the work. Demand analysis is a key process in software engineering. In this process, the system analyst and software engineers to determine the needs of the customers. Only in determining the need before they can analyze and seek new system solutions. Requirements analysis includes three different levels: business requirements, user requirements and functional requirements. In addition, each system and all kinds of functional requirements [7-8].

The function model of English online video teaching system shown in figure 2.

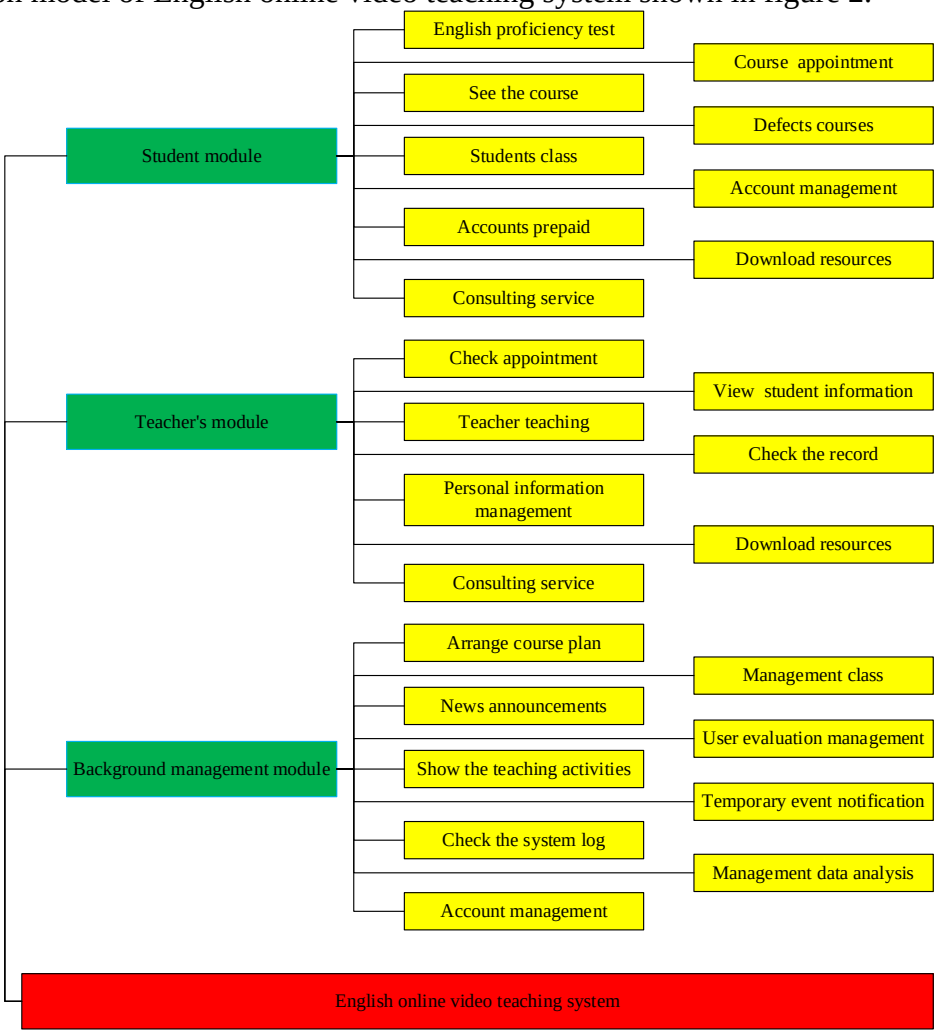

Figure 2. Function module of English online video teaching system

Requirements analysis. With the development of China's economy and the progressive realization of modernization, more and more people want to go abroad for further study, IELTS teaching institutions more and more, but many of the fixed-point teaching institutions due to its own limitations and cannot meet the demand of market. The emergence of the online video teaching

provides a solution to this problem, because the market almost no online video teaching platform for English, so English teaching has a good profit, there is a huge business opportunity.

User Requirements. In order to protect the intellectual property rights of streaming media courseware, and therefore can play courseware permissions to the limit. In addition to free courses, on-demand courseware before, you must first log into the system, otherwise the default is not entitled to play courseware. And find courseware requirements needed to play, no player will prompt permission. As on-demand streaming media courseware based exchange platform, in addition to containing streaming media courseware, basic information about the site, e-mail and other system resources, also has a forum, blog, guestbook, chat rooms and other communication tools. Without their effective management, and permissions divide inevitably lead to destruction of resources, other consequences chaos operated. Therefore, it is necessary to have access to the system on and operating rights division, the user system is classified as the right to use a different owner. In this system, the right to use the system is divided into system administrators, teachers, students and visitors four grades. Different categories of users on the functionality of the system, the efficiency, safety, etc. have different requirements, which are embodied in the user login module system.

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English online video teaching system design based on streaming media

The development of network multimedia course target is a very economical way, the most advanced technology and rich the form of a teaching provides a scientific, efficient, vivid aid. In order to achieve this goal, the network multimedia courses should have a certain practicality, convenience, security, expansibility and maintainability. And our network teaching goal is to make the teacher teaching way to get rid of before a blackboard with chalk, improve teaching efficiency; Through the computer network link different students and teachers in real time, provides an interactive virtual learning environment, let the student learning can break through the limitation of time and space, from passive learning into active learning.

In this paper, based on streaming media has carried on the design and implementation of online teaching system, designed the teachers teaching video, teachers courseware management and client decompression and the overall framework of repeat, etc. System design goal is to give full play to the advantages of Flash Media Server, streaming Media services, to support multiple data stream transmission at the same time, which can have multiple network classroom at the same time. Can also be done at the same time the corresponding management work, such as the network classroom and teacher, student registration, student queries of each network classroom teaching content, choice. This paper make full use of modern information technology, on the basis of the original remote education, can effectively play the advantage of the existing various education resources, can conform to the world education development trend, is under the condition of the shortage of education resources for education strategy, we should increase as the important infrastructure construction.

English Online video teaching system based streaming system was designed and implemented the design of teaching videos, teacher courseware management and client and decompression is the overall framework, shown in Figure 3. System design goal is to give full play to the advantages of Flash media streaming services to support multiple data streams at the same time, you can have more than one network classroom, but can also work simultaneously complete the appropriate management, such as the network of classrooms and teachers, students registration, student queries each network classroom content, selection, and so on.

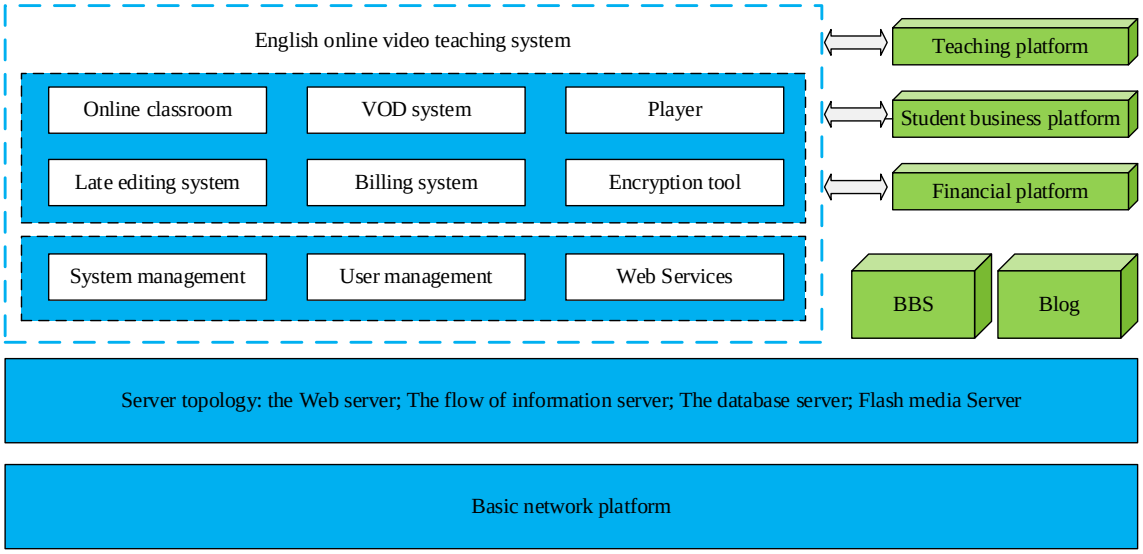

Figure 3. The stricture of English online video teaching system based on streaming media

Online video teaching system consists of online classes, functions VOD system, players, post-editing systems, billing systems, and encryption tools, each module is as follows:

Online classroom. Teacher computer recording streaming video and audio media files in the classroom, after providing on-demand playback or online. Online class is the core module of the system, including video chat room module, we will describe in detail the design and implementation of the program modules in the fourth chapter.

Video-on-demand systems. Providing on-demand feature, combined with the player module streaming video on demand streaming media server files, and other kinds of media files.

Player. Not only can receive real-time online classroom, you can also play online on-demand courseware on-demand server. Player is universal module design based on Flash, users do not need to install additional software.

Post-editing system. Provide offline editing, FLV files can be appropriately reduced to teaching a more complete record courseware application effect.

Billing system. Billing system designed to expand the system. Online classroom, courseware and teacher-related accounts, achieve fees, discounts and other additional features. And provide school finance system interface docking.

Encryption tool. Server and client-based encryption module, you can publish Web courseware server access control and client encryption package, effectively ensure copyright protection transmission network and CD-ROM media resources.

Conclusion

English online video teaching system combines multimedia technology and network technology a little. Educated according to their ability to accept, professionalism and ability to understand and make full use of network resources for learning, making education to break the traditional mode of education and space constraints, to achieve the student's individualized education. For the current English online video teaching system the problems, we use data from the multicast data stream synchronization buffer techniques for English online video teaching system research, focusing on online video teaching system features live video and video on demand capabilities were studied. Through live video capabilities, students can implement real-time interaction with teachers, teaching quality can provide network; via video-on-demand feature that allows students to access the network via the network anytime, anywhere, whether teaching system to learn, plus adds flexible teaching activities. Multimedia data compression, and multicasting multimedia data, to improve the transmission efficiency of multimedia data on the network, reduce the amount of data transmitted in the network, the client computer to reduce the teacher and student terminal computer information transmission time, can improve the real-time video teaching system, and user

experience of online video teaching system. Using buffer technology, multimedia data synchronization control, and synchronization control audio data and video data between clients achieve synchronized playback of audio information and video information, and effectively improve Internet data transmission delay caused by the unstable, jitter, and audio and video out of sync issues, effectively improve the user experience of online video teaching system. Through the system's functionality, performance testing, research proves that the video teaching system from a functional point of view, to meet the needs of teachers and students remote video teaching, but also has better performance, better able to get rid of online video teaching process delay in appearing, jitter .English research online video teaching system has achieved good results, with some theoretical research and practical application value.

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