The Design and Implementation of the Badminton Distance Teaching Platform based on B/S Architecture

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***Abstract* — As the increasingly popularization of badminton, traditional badminton teaching mode cannot keep pace with increasingly fast-paced urban life today. In this paper we introduce a newly developed badminton learning platform. It is convenient for effective learning and communication since the limitation of the objective factors, such as time and place, is solved in our badminton teaching platform. This system consists of user registration, user module and administrator module, which provides a good man-machine interface, and complete basic functions of badminton teaching. The system is based on B/S architecture, combined with the current fashion E-learning teaching mode, using HTML, CSS, JavaScript, and JQuery languages. The platform has been successfully applied in teaching practice, and achieved significantly consequence.**

Keywords-E-learning; B/S architecture; badminton; C#

I. INTRODUCTION

The fast pace of life requires a strong body, especially after SARS, bird flu and the H1N1 flu widely spread the global. An increasing number of people are aware of this fact. Among them, the badminton training is popular with people for its flexible, appropriate, high safety, obvious effect and so on. A survey from General Administration of Sport about national sports status shows that the largest number of people is fond of participating badminton sport in China. The entire population of badminton is as high as 250 million, growing up at the speed of countless every year [1].

Badminton sport is so well-know that present facilities are tough to satisfy our needs such as lack of venues, coach. Besides, improper badminton sport easily injured. Traditional badminton teaching is not easy to realize popularization for high cost. So in order to give badminton population to create a good study and training environment, and to avoid the traditional training disadvantages such as high cost and low efficiency, it is necessary to develop s platform that members can choose appropriate course for themselves needs, meanwhile, high efficiency and low cost.

Based on the requirements above, this thesis take advantage of E-Learning that a scheme put forward in the 2000 annual "white paper" education technology, combining with B/S architecture, integrating principle of three-tier architecture. Then we developed the badminton distance teaching platform.

II. ARCHITECTURE OF SYSTEM

The distance teaching platform is used to satisfy badminton's online learning and training related knowledge, and students make more friends through the discussion zone module of this system, conveniently organizing activities and discussing professional knowledge. According to the requirements of the system development, the platform adopts B/S structure, using the three layer architecture design pattern, combined with E-Learning [2] to implement.

A. The Introduction of B/S Architecture

B/S, namely the Browser/Server mode, is one of the network structure modes after the rise of WEB, and WEB Browser is one of the main client application software [3]. This model unifies the client, and focuses the core of the system function realization on server; meanwhile simplify the development, maintenance and use of the system. The client just installs a browser such as Internet explorer, Firefox, while the server installs Oracle and SQL Server database, and browser exchanges information with database through Web Server. This greatly simplifies the client computer load, reducing the workload of system maintenance and upgrade costs. Consequently, it helps users reduce the overall cost.

The badminton network teaching platform makes use of IE browser on the client side, moreover, using SQL Server database on the server side. The process of the browser interacts with the database by the web server as shown in Figure 1.

B. The Introduction of E-Learning

Since the end of last century, the development of information technology are changing the way of production and life, bringing about the new space for human. Among them, John Chambers, once IT industry giant Cisco CEO, predict the "third wave" of the Internet application of e - learning, not only is becoming a reality, but also will cause a revolution in the study.

There are many kinds of explanation about E-learning. In this paper, Clark and Meyer putting forward at ASTD in 2001 are more suitable. "E" stands for the ways and methods of learning or acquisition of knowledge, browsing the Web by electronic means. It represents what is the content of the learning and how to learn [2, 4].

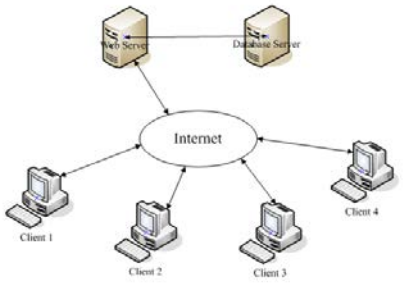

FIGURE I. B/S ARCHITECTURE OF BADMINTON DISTANCE TEACHING PLATFORM.

C. *The System Architecture of based on Three-layer Structure*

In order to satisfy the software architecture in the design of the requirements of low coupling and high cohesion, and reduce dependencies between layer and layer, the system adopts three layer architecture design pattern.

In three layer architecture design pattern, the business application is divided into the User Interface (UI), business logic layer (BLL) and data access layer (DAL). UI is the man-machine interface. The user see interface when using this system. DAL access the database directly, which is including add, delete, modify and search. As the connection UI and the BLL layer, the BLL handles logically the data. Specific data flow can be described in Figure 2.

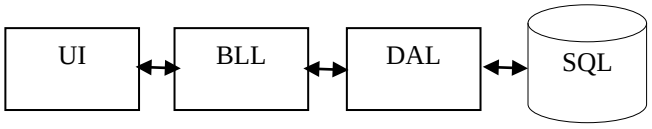

FIGURE II. THE SYSTEM OF THREE-LAYER STRUCTURE.

Integrated three kinds of technology above, it is concluded that the whole software framework of the badminton distance teaching platform, as shown in Figure 3.

This system is divided into ordinary user module and administrator module. User module is made up of home, excellent courses, teaching video, discussion section and user information. And administrator module is composed of student management, administrator management, and forum management.

III. IMPLEMENTATION

The System makes use of Internet resources for teaching, which is regarded as transmission media. Autonomous learning can be achieved through the badminton teaching platform after user logging. The administrator can log in to understand the status of the user learning, so as to guide.

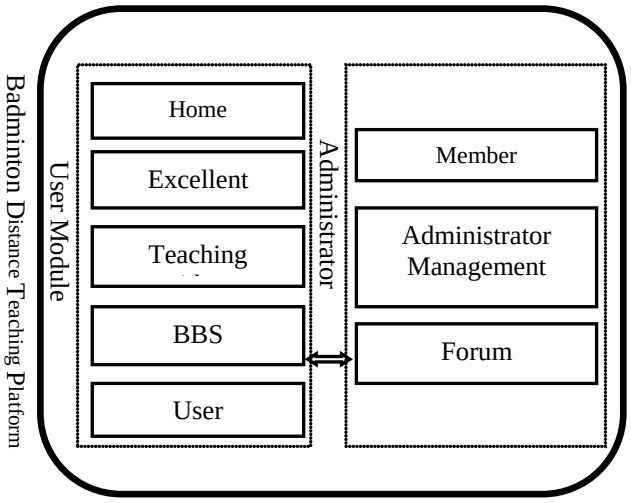

FIGURE III. THE SOFTWARE FRAME.

A. *The System Flowchart*

According to the software frame diagram shown in Figure 3, we get the main system flowchart shown in Figure 4 through further implementation.

This system provides a user registration and logging module at first. Registration characters can be either ordinary users or administrators, ordinary users refers to members.

After logging as the role of administrator, administrator process three operations, such as member management, administrator management, forum management. Besides, the administrator can view each student's study time.

There are home, excellent courses and teaching video, discussion section, user information items for users choosing after they login as role of ordinary users. Among them, excellent courses is the basic skill in badminton; teaching video provide deeper teaching contents for all members to learn; each member can communicate with other members about the curriculum at discussion section; and user information includes the user the information of login and learning.

B. *The Interaction of System*

Users register is needed when they make use of this system for the first time. If there is no fill in the required fields, there will be corresponding tips.

1) The user module: After registration, users are required to login according to clew. In this module, users enter badminton distance teaching platform as a role of member. Every member choose curriculum according to their hobbies and interests, either excellent courses or teaching video. Members exchange their own result and experience at discussion section, and make friends with other members. In addition to this, the users can also view and modify own information.

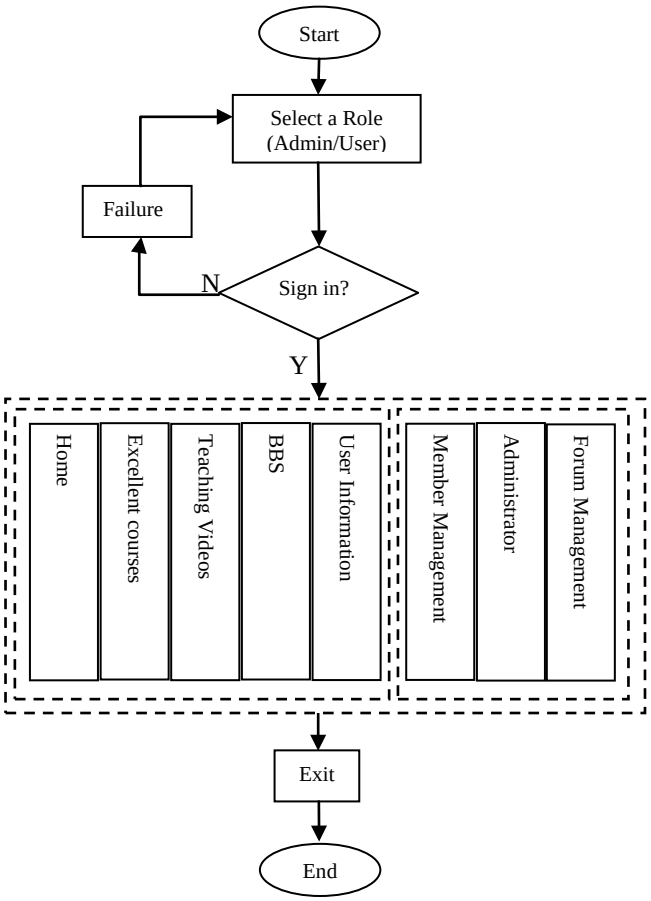

FIGURE IV. THE SYSTEM FLOWCHART.

2) The administrator module: Administrator manages the members' information from modifying to deleting student information after login, as well as administrator. At the same time, the administrator can manage members' comments in the discussion section.

3) The main interface of system: Based on the analysis above, we designed the corresponding badminton distance teaching platform, the operation of the main interface as shown in Figure 5. In this ordinary users interface diagram, it is the menu bar composed by home, excellent courses, teaching video, discussion section and user information. We can get the corresponding resources if click on the corresponding menu bar.

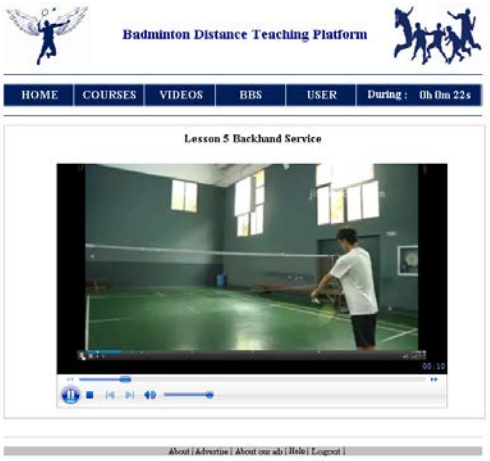

FIGURE V. MAIN INTERFACE OF THE SYSTEM OPERATION.

The badminton distance teaching platform has been put into use in the laboratory.

In this platform, we use SQL SERVER 2008 database management system. Under the condition of the network, users only need to open a browser, such as IE. With the corresponding user name and password to log in, you can use the platform.

The badminton distance teaching platform promotes everyone's passion for sport, and its professional teaching resources are widely recognized.

IV. CONCLUSION

This paper briefly introduces the development and implementation of distance teaching platform in badminton, and provides the reliable development process, finally realizes the remote teaching badminton. The development of this system on B/S mode, combined with the current fashion e-learning education mode, using HTML, CSS, JavaScript and JQuery language to implement. Users can use the platform only to open a browser, with the corresponding user name and password to log in. The system reaches the expected design goal and meets the demand of the corresponding professional.

This platform will be further improved according to the results of experiment and members feedback shortage.

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