Constructing Intelligent Computer Laboratory Based on Material Connection, Interconnection and Intelligence

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Abstract: With the development of Internet of Things and Internet technology, the construction level and quality of smart campus has been improved. Intelligent computer laboratory is an important part of smart campus in China, its construction is not only related to the construction level and quality of smart campus in China, but also an important basis for the all-round development of smart campus. Therefore, this paper will build a connected, interconnected and intelligent intelligent computer lab as the research content. By studying and expounding the present situation of intelligent computer laboratory, This paper discusses and analyzes the system design of intelligent computer lab from two aspects of material connection, interconnection and intelligence, which provides some reference suggestions for the research of intelligent computer lab and scientific and reasonable reference for promoting the establishment of intelligent computer lab.

1. Introduction

In recent years, the establishment of intelligent campus has become more and more popular, and the construction of intelligent computer laboratory not only contributes to the optimization of the use of campus computer laboratory, but also plays a positive role in promoting the development of intelligent campus. Therefore, this paper studies and analyzes the intelligent computer lab which is connected by building materials, interconnected and intelligent.

2. Current Situation of Intelligent Computer Laboratory

With the research and development of intelligent technology and the development of intelligent technology application field in China, intelligent technology is gradually applied in the field of education, and a large number of applications are carried out in the process of intelligent construction of laboratories. As an important link in the construction of smart campus, the construction of smart computer laboratory needs to apply computer technology, communication engineering technology, Internet of Things technology, intelligent control technology and cloud computing technology and other advanced technologies to lay a solid foundation for the construction of intelligent laboratory [1].

In the construction of intelligent computer laboratory characteristics of the detailed research process, this paper mainly from the following aspects of detailed research and analysis. First, the intelligent laboratory can display the temperature, humidity, illumination and other environmental conditions of the laboratory through the use of sensing technology, and can obtain the environmental conditions of the laboratory in an all-round way, and then adjust the unsuitable temperature and humidity to ensure that the environmental conditions of the laboratory are in a suitable state [2]. Second, Smart labs are able to correlate isolated data through the use of communications technology, And establish the communication channel between teachers and students, using the laboratory system teachers can manage students' history attendance records, students can hand in their experimental homework or experimental tasks, teachers can receive students uploaded electronic homework and directly use the system to score. In the third aspect, intelligent lab can upload the knowledge of cloud computing technology and course content to the cloud, share computing resources, and then play a positive role in promoting students' computer

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ability.

Design of Intelligent Computer Laboratory System Based on Material Connection, Interconnection and Intelligence

In the process of designing and researching the intelligent computer lab system which is connected by things, interconnected and intelligent, this paper mainly studies and analyzes the following three aspects in detail. First, the design of the teacher-side laboratory system; Second, the design of the student-side laboratory system; Third, the laboratory system design of communication.

2.1 Design of Teacher-Side Laboratory System

Teacher-side laboratory system design is an indispensable part of computer laboratory construction, which can ensure the intelligent development of laboratory software. This paper mainly from the following aspects of the teacher-side system for a detailed discussion and design analysis. In the first aspect, the teacher login registration module is established, through which the teacher registers the teacher account with their own work number, and sets up the teacher's system information. In the second aspect, the teacher system configuration module is established. Through this module, teachers' actual curriculum situation is shown, for example, teachers' curriculum on that day is shown in the form of table [3]. Third, establish the teacher-student information management module, through the module of students' actual curriculum management. In the fourth aspect, the teacher equipment management module is established to check and manage the teachers' own equipment. Fifth, the environmental data display module is established to check and manage the temperature, humidity, illumination and other environmental conditions of the teachers' laboratory.

2.2 Design of Student-Side Laboratory System

Because the laboratory system design of the student side is an essential part of the computer laboratory system construction, and the laboratory system of the teacher side is in the cooperative application situation, it can ensure the intelligent development of laboratory software. This paper mainly from the following aspects of the student-side system for a detailed discussion and design analysis. The first aspect, student login module, through the establishment of the module for student user login. Second, the student sign-in module. Through the establishment of the module to carry out students' course sign-in activities, and will be on the student sign-in time, sign-in times, sign-in situation and other data information to show and record. Third, the application module of students' experiment acceptance. Through the establishment of the module, students can recycle the experimental results, after the completion of the tasks assigned by the teachers, students submit applications, after a solid agreement, accept the task test, and record and statistics the results of the experiment. Fourth, students check out module. Through the establishment of the module to record the dismissal of the class in order to avoid students leaving early in the case of out-of-school. Fifth, the students submit the experiment report module. Through this module, students can submit the lab report according to the grouping in the course, and standardize the edition of the lab report according to the specific rules. Sixth, environmental data acquisition module. The temperature, humidity, illumination and other environmental conditions of the laboratory can be displayed through the module.

2.3 Laboratory System Design for Communications

The communication design of laboratory system is an important part in the construction of computer laboratory system, which plays an important role in the communication between teachers and students, and can ensure the application of laboratory system with good results. This paper discusses and analyzes the communication system in detail from the following aspects. In the first aspect, wireless sensor network communication. The second aspect is the communication design between student computer and RFID system. In this communication design, the students' data information is stored in ERC, which is used to communicate with RFID system. And third, communication between the student-side machine and the instructor-side machine. In this design, teachers and students use Socket communication to communicate with each other, so as to realize

the communication between teachers and students.

3. The Structure of Intelligent Computer Laboratory

In the process of researching the realization of the intelligent computer lab, this paper mainly from the following three aspects to carry on the detailed research and planning. The first aspect is the realization of intelligent computer lab in the aspect of material connection. The second aspect is the realization of intelligent computer lab in the aspect of interconnection. Third, intelligence aspects of intelligent computer lab implementation.

3.1 Intelligent Computer Laboratory Architecture for Internet of Things

As an important part in the construction of intelligent computer laboratory, the link layer plays an important role in the daily application of intelligent computer laboratory, not only promoting the convenient communication between teachers and students, but also actively building the link layer can manage and master the environmental situation in the laboratory. In the implementation of the intelligent computer laboratory of the Internet of things, it is divided into the construction of cloud platform and the construction of the Internet of things. Through the application of sensors and brakes to collect the students' laboratory environment, and the use of the Internet of Things to monitor the students' experimental situation.

3.2 Intelligent Computer Laboratory Architecture for Connectivity

In the construction of intelligent computer lab, the data collection and data identification modules are designed, and the mode, situation and content of homework submitted by students are judged by the data identification module, so as to promote the standardization of homework submitted by students. The establishment of data collection module is convenient for teachers to collect students' homework, and then promote the communication between the two, and promote the intelligent communication between the two.

3.3 Intelligent Computer Laboratory Architecture for Intelligence

Intelligent layer has the important function of data analysis and information visualization, and has become one of the important components in the construction of intelligent computer laboratory. This kind of component plays an important role in data analysis, environmental monitoring and other aspects in the construction of intelligent computer laboratory. Using remote monitoring of the laboratory environment, equipment for detailed testing. In order to ensure the standardized development of laboratory entry and exit records, personnel inspection is used to monitor the situation of personnel entering and leaving the laboratory, and the information of personnel entering and leaving the laboratory is recorded. The power detection is used to pay attention to and monitor the power condition of the laboratory, so as to avoid the instability of the voltage in the laboratory and ensure the normal operation of the power system in the laboratory. The intelligent laboratory architecture design will greatly promote the development of the laboratory to the direction of intelligence, and promote the formation and construction of smart campus.

4. Conclusion

Through the simple analysis and elaboration of the present situation of intelligent computer laboratory, and then from the design of the teacher-side laboratory system, Student-side laboratory system design, communication laboratory system design The intelligent computer laboratory system design is studied and analyzed in detail, and the intelligent computer laboratory system design is studied and considered from three aspects: material connection, interconnection, intelligent computer laboratory structure. The research results of intelligent computer laboratory construction show that there are still many problems in the field of intelligent computer laboratory construction. Therefore, in the future research life, we should carry on the detailed research and the discussion to the topic content domain, hoped this article can provide several feasible suggestions for the

intelligent computer laboratory research, and provides the positive promotion function for the intelligent computer laboratory establishment.

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