

## Design and Application of Semiconductor Light Professional Shared Resource Database

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**Abstract:** (Objective) To raise the information utilizing rate and the service levels, the professional shared resource has been set up based on the overall data planning and organization. (Methods)The data platform is gradually established through the unified processing to multi-interface data of each data entry department. The PBAM model of the integration system on the foundation CBD and the parameter components technique is important to carries out the shared information system under Internet+ application environments, also to solve to instant update problems. (Results)The professional shared information system implements data center business through connecting the distributing database to assort with each action. The curriculum resource design follows the basic law of vocational skills training, takes the goal of adapting to the post demand, and do the work process as the guidance. (Conclusion)Based on the unit task, application of database is more systematical to deal with the relationship between knowledge, ability and quality.

### 1. Introduction

Under the situation of integrating industry and education, running schools in different places, demonstration construction and sharing network resources, the specialty of semiconductor light technology and application only needs to issue resource catalogue to multiple sharing parties, and the sharing party can provide the latest interactive application timely according to its own specialty. There are many technical solutions for the construction and utilization of the shared resource database. This paper adopts the modular and componentized integrated architecture to quickly realize the integrated system with strain and multiple interfaces. The shared system based on component reuse also supports the intelligent analysis of data, decision feedback and other large data calculation.

### 2. Component and Software Reuse

Software reuse technology has attracted extensive attention in the computer field, and more and more people are engaged in the research of this technology. For example, researchers in object-oriented technology try to define the concept of "design patterns" that apply reusable strategies to different problem domains. In general, design pattern refers to a design structure or solution that appears many times. Systematic classification of them can form the basis for mutual visits between different designs [1].In the component-oriented pattern, components are the basic units for software development, reuse and assembly. They are the parts with interfaces in the application system and used to construct other software, including encapsulated object classes, functional modules and software frameworks, as well as documents and design models. Component-based business functions can also be reused and assembled into more granular business function components.

It can be said that object-oriented technology makes component technology widely used, and component technology provides an improved method for software development. Reusable

components require clear structure of system design and implementation, and software design pattern is a necessary element of component development system. The application software is realized under a certain application framework through the process driven components through visual assembly and reuse. When the business requirements of the semiconductor lighting technology and application specialty change, it is possible to meet the new requirements of the network business without changing the code, but by making adjustments in the existing process-driven components.

### **3. Application Model PBAM System Design**

With the gradual deepening of the construction of semiconductor lighting technology and application professional shared resource database system, an important problem is information integration. On the other hand, when building a new system or a larger loose system, we also hope to reuse the services provided by the existing system. In order to realize these requirements, the key is the design of the frame model. PBAM design has a good structure, which can well meet the requirements of application integration through the combination of componentization and component service. The model is divided into client, middle layer and data base layer.

With the increasing popularity of web technology and the development of distributed computing technology, software architecture and computing mode are also gradually evolved. PowerBuilder supports distributed transaction processing. It combines PowerBuilder, component technology, EA Server's Jaguar CTS and PowerDynamo to make the PowerBuilder application, then to become the customer of Jaguar CTS server. It uses PowerDynamo to build the website and realize the multi-layer application of the external network. Jaguar loads the PowerBuilder virtual machine inside its CTS server. Jaguar server contains users of the PowerBuilder custom class running as the middle layer component, so Jaguar and PowerBuilder, non-visual user object, can communicate directly. In this way, the network PB component establishes the connection with the backstage database through Jaguar CTS, and conveniently realizes the development of multi-layer architecture.

PB has always been a database system development tool, which is used in many industries and software systems, and development of semiconductor lighting technology and application of automation system and the traditional tools of various types of database cross-platform implementation, have excellent performance in code execution efficiency. PB is a 4GL development tools, which can be directly nested SQL statements, the return value assigned to the statements of variable, support the statement level cursor, stored procedures, and database functions. PB can be realized to API calls, can also support JAVA and WEB applications.

Jaguar component that developed in PB can make full use of the advantages of the same company's programming language and rich PowerBuilder system objects. Jaguar component developed by PB is a special PB non-visual object (NVO) with some special events and properties. In order to integrate PowerBuilder with Jaguar CTS, the interface file with EA Server should be configured first. Jaguar CTS developed in PB is divided into three steps: establishing Jaguar component, establishing server-side application and Jaguar client application [3].

If you upgrade an existing PB object to a component, you need to add events and create a deployment project. A deployed PowerBuilder component has many elements, and compiled PB code resides in one or more PBD. The path of these component libraries must be specified in the operating system so that the PBDS of PowerBuilder can be accessed by the PowerBuilder runtime library engine in Jaguar[4]. The composition of the Shared resource base information system mainly includes independent application system, general functional component, PB basic component and business domain component.

The development of theoretical research and practice shows that modular is effective measures to improve the development efficiency [5], PB Application Mode (PBAM) in the component based development (BCD), based on the theory of PB development environment. PB based component (Application, form, menu, controls, custom objects, etc.) use to select parameters of the component technology, by constructing a data access, service calls, interface matching, personalization

component such as extensible component library, by setting different parameters quickly build a flexible, strong ability to scale the Application of the system model.

Based on these models, the system is updated and reused. Based on PBAM, a personalized component model is developed. Different parameters are customized through parameter modification to reflect new requirements. The content of meta-components combines with parameters representing practical applications to generate personalized and user-used components and realize the secondary processing of components.

#### **4. Professional Enjoy the Application of the Database System**

The college is an early vocational college to set up the professional direction related to the application of photoelectric technology. In 2012, the "semiconductor lighting technology and application" applied for the major outside the catalogue of the ministry of education was approved. File according to the ministry of education in 2016 professional photoelectric technology application, according to the ministry of education about certain vocational education professional teaching resource database project 2015 construction projects and incentive programs to inform, vocational education and the ministry of education professional semiconductor lighting technology and application protocol teaching resource database construction, has carried out numerous enterprise services, resource construction and other scientific research projects at the national level. Formed a relatively perfect teachers, meet the needs of teaching and make full use of the existing training rooms for a line of material collection, has LED testing training rooms, switch power supply and LED driver design training room, LED encapsulation training room provides a physical platform, is enrolled by cutting taped, makes every effort to meet the requirements of talents training.

The resource database should pay attention to the characteristics of applying modern educational technology in combination with classroom teaching, and cultivate students' ability through small project simulation and fragmented network resources. In the course interaction, emphasis should be laid on the control of teaching process, the evaluation of students' learning effect and group test, and the evaluation of students' learning ability, knowledge application ability and practical operation ability.

Our school has carried out the construction, application and promotion of resources related to the course "LED drive and control technology", and the course "LED drive and control technology" is a major course for the semiconductor lighting technology and application. To see figure 1, course is based on the study of typical LED power supply and controller products, LED drive topology, LED drive unit circuit, common components selection, LED electronic technology, single-chip microcomputer application technology, and lighting control system, so as to cultivate students' ability to analyze circuits, analyze products and design various types of LED drive power supply and controller.

The task points and skill points of the course resource base are set according to the requirements of the work tasks of the major of semiconductor lighting technology and application and the program design work items in the professional ability analysis table. The design idea breaks the traditional subject curriculum pattern, changes to take the task or the project as the center, organizes the curriculum teaching content, through the combination of speaking and practicing, causes the student to learn the knowledge application in the process which completes the work task or the concrete project, constructs the related theory knowledge, the development profession ability.



Figure 1. Web page of course

Sharing resources creates a convenient and auxiliary teaching environment for students. In the teaching process, database and multimedia modern teaching means are used to enhance students' perceptual knowledge of knowledge and cultivate their ability to analyze and solve problems. Each task has a learning guide. First, the theoretical knowledge involved in the task is explained. FLASH, pictures, micro classes, video and other course resources can be used to strengthen the teaching effect of key technical points and help students form complete task requirements and preview.

## 5. Conclusions

The basis of professional Shared resource database is to make overall planning and organization of data. Through the unified processing of multi-interface data of each data entry department, the data platform is gradually established to ensure timely release, sharing and interoperability. The various Shared business model, data warehouse, OLTP, object-oriented and component technology, information engineering combining information system, will provide the professional semiconductor lighting technology and application of knowledge management to lay a foundation, the repository system can also third-party released reusable components, as other integration system module, such as expanding professional database for the digital photoelectric technology application.

It is in line with the goal of this major to train applied technical talents who are engaged in LED lighting product design, debugging and maintenance, power supply, controller manufacturing and production management, etc., and lays a foundation for future work such as technical transformation, technology research and development, technology innovation or entrepreneurship.

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