Research on Embedded Innovation and Entrepreneurship Sharing Platform for College Students Under the Internet of Things

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Abstract. The innovative entrepreneurship project for college students is to strengthen the training of students' innovative entrepreneurship, enhance their awareness of innovative entrepreneurship, and cultivate innovative entrepreneurship.In order to better realize information sharing, this paper proposes an embedded innovation and entrepreneurship sharing platform for college students under the Internet of Things. With embedded system as the development environment, the design of innovation and entrepreneurship sharing platform is realized through front-end UI interface module, sharing platform module and database module. The experiment shows that the embedded innovation and entrepreneurship sharing platform designed for college students is not only higher than the traditional sharing platform in the amount of information, but also about 20% higher in accuracy than the traditional platform.

Keywords: Internet of Things · Embedded · Sharing platform · Entrepreneurial innovation

1 Introduction

In the process of informationization, the rapid development of network technology and products makes the Internet of Things come into being. The Internet of Things is an important part of the new generation of information technology, and also an The core and foundation of the Internet of Things is still the Internet, which is an extension and expansion of the network on the basis of the Internet. Important stage of development in the information age. Secondly, the client extends and extends to any goods and objects, and carries out information exchange and communication, that is, things are interrelated [1]. Internet of Things (IOT) is an extension of Internet application, business and application. Therefore, application innovation is the core of the development of the Internet of Things. Innovation 2.0, with user experience as the core, is the soul of the development of the Internet of Things. Under this innovation form of the Internet of Things, it provides more choices for Chinese College students. In recent years, the contradiction between the number of college graduates and the market demand has made the employment market competition increasingly fierce, encouraging

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college students to start their own businesses. “Promoting employment through entrepreneurship” has gradually become an important way to alleviate employment pressure, and more college students choose to embark on the road of entrepreneurship. Through investigation and research, it is found that the level and level of College Students’ entrepreneurship are rising, from the initial blind entrepreneurship to the scientific entrepreneurship and rational entrepreneurship, and the entrepreneurship theory is also developing and maturing in practice. In order to provide sufficient resources for college students’ innovative entrepreneurship and help them realize their dream of entrepreneurship smoothly, we need to use some platforms to transmit and share some information. At this stage, college students’ innovative entrepreneurship training plan includes innovative training projects, entrepreneurship training projects and entrepreneurship practice projects. Three types of projects gradually cultivate and exercise students’ innovative ability. However, at this stage, the management of innovation and entrepreneurship information and resource acquisition are based on traditional Excel spreadsheet, which is inefficient, difficult to view project application materials, and insufficient sharing of project results. Therefore, we need to solve the problems of College Students’ entrepreneurship at this stage, in order to achieve the ultimate goal of University Students’ innovation and entrepreneurship information sharing.

2 Design of Embedded Innovation and Entrepreneurship Sharing Platform

This paper designs an embedded innovation and entrepreneurship sharing platform for college students. The platform chooses embedded operating system as the development environment. Embedded system is a special computer system designed for specific applications, which is completely embedded in controlled devices. The system has the advantages of small core, strong specificity, fast running speed and high reliability [2]. Providing shared information for college students can also ensure the security and reliability of shared information. On this basis, C# language is chosen as the programming language for platform development. C# is an object-oriented programming language derived from C language and C++. It has good security, stability and simplicity. It not only eliminates the complexity of C and C++, but also inherits its powerful functions [3] C# inherits the high performance of C++ and the simple visual operation of VB. Because of its powerful operation, innovative grammar style and convenient design, it is the best choice. In such a development environment for platform design and development, embedded innovation and entrepreneurship sharing platform specific development process is shown in Fig. 1.

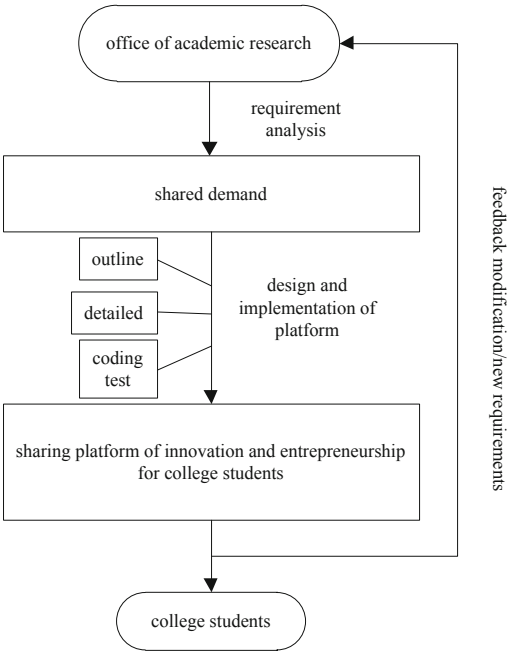

Fig. 1. Development flow chart of innovation and entrepreneurship sharing platform

From the development process in the diagram, we can see that the platform organizes, publishes and stores the innovation and entrepreneurship information of university students in the server for the visitors to share and use. It eliminates the need of users for some information, but it is difficult to find effective information accurately. The spam information mixed in the platform greatly affects the efficiency and speed of users'sharing and accessing knowledge information, and consumes it. It took precious time and energy [4]. The development of the platform is divided into two ports: the client and the server, and either end can exist as the user. At the same time, the function of the server can be realized. That is to say, when the user transmits information, the user's port is the server, and when the user inquires and gets information, it is the client. However, no matter which port type, it is necessary to realize the conversion of the relationship between the front module, the back module and the database module, as well as the transmission of information. The open information is displayed in the foreground, and the information is managed in the background. The information data operated by the user in the foreground sends requests to the background. The background extracts the data from the database and returns the data to the foreground.

2.1 Front-End UI Interface Module

The application of the front-end browsing UI module in the project management system is mainly for displaying the relevant notification, declaration workflow display, login system background and so on in the project management of College Students'

innovation and entrepreneurship. In general, the front desk can also display the function of excellent projects, highlight the characteristics of College Students' innovative entrepreneurship projects, and improve the project exhibition. The main interface is not only a platform to connect ordinary users to access and query information, but also a window and interface for entrepreneurship system managers and backstage maintainers to log in. It also plays the role of realizing the transmission and connection of backstage data and information of each sub-function module [5]. The front-end UI interface is also the front-end part of the overall platform. The front-end consists of eight modules: home page, recruitment information, enterprise information, enterprise recommendation, website news, system introduction, message board and about us. The front page of the front desk is the platform interface. The platform interface is designed to be beautiful, generous and more comfortable for the user experience. It has the following several page display modes:

Classification function. The left side of the page is classified according to project level, type, instructor, etc. Users can judge and select the documents they need to download.

Page arrangement. Users can choose the arrangement of project information according to their preferences, including table arrangement and natural arrangement. Click the "Switch Arrangement" button at the top of the page.

Sort function. The platform provides three sorting methods: correlation, time descending and time ascending. By default, the system is sorted by correlation. Users can choose the sorting method independently according to their needs.

College students generally do not have the financial strength to recruit employees in the early stage of entrepreneurship, so the recruitment information released in the recruitment information section of the entrepreneurship platform is generally the kind of unpaid. The enterprise information part is to share the relevant information of every college student entrepreneurship enterprise, so that large enterprises and interested students can join in. The other modules can basically be released and invoked by college students themselves.

2.2 Function Module of Shared Platform

The function modules of the platform play a backstage role in the overall structure. Through this module, we can realize the various possibilities needed by the platform and achieve the effect of the platform's entrepreneurial information resources sharing [6]. The platform is oriented to users and servers for students, instructors, administrators and other users. It has four roles: user management, information management, information retrieval, online statistics, message management, etc. User management is mainly for teachers and students in the college, user login and registration information management. Project information management is mainly for college administrators to complete the functions of adding, deleting, modifying and checking project information. Information retrieval is mainly for platform visitors to complete the retrieval of project information and to retrieve again in the result set. Online statistics mainly completes the download statistics of visitors and project information of the platform. Message management mainly focuses on the management and reply of visitor's message. The function distribution of the embedded innovation and entrepreneurship information sharing platform for college students is shown in Fig. 2.

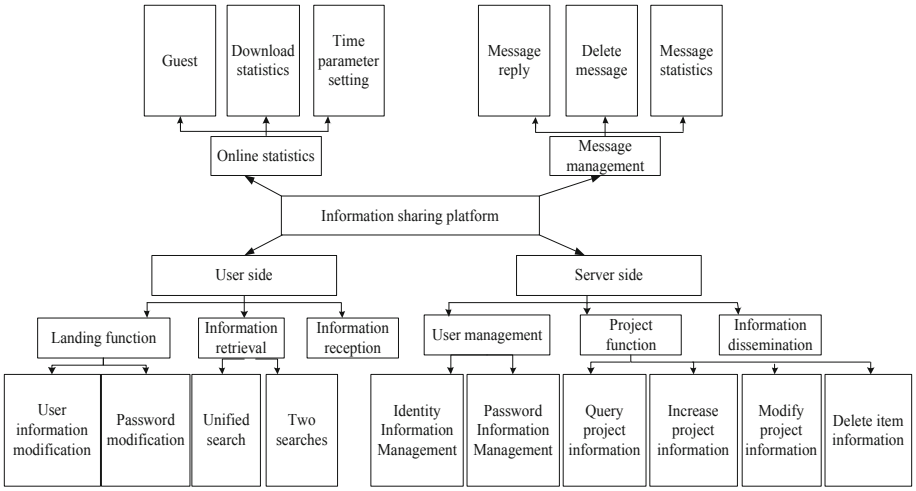

Fig. 2. Function module diagram of information sharing platform

From the platform function module in the figure, we can see that the whole platform divides the sharing function into four functions to realize, four function modules are respectively: User function module, server function module, online statistics function module and message management function module [7]. The client side mainly inquires, calls and retrieves the existing information in the platform. Users log on to the platform with their own user names to obtain the innovation and entrepreneurship information they need. The function of the server is to upload and publish the resource information that may be needed in the innovation and entrepreneurship platform, and the most important one is to share the data and information related to the entrepreneurship project. In addition, online statistics and message management function modules play an auxiliary role. While the platform can provide the required information to be shared, it maintains the normal operation of the platform, making the efficiency of resource sharing higher.

2.2.1 User Function

The client plays the main role of sharing resources acquisition in the sharing platform. The process of sharing resources acquisition is divided into four steps: retrieval, query, acquisition and invocation [8]. The retrieval can be divided into unified retrieval and secondary retrieval. Unified retrieval is to output different types of data according to storage. For example, when querying and retrieving the entrepreneurial data of a college student, the unified retrieval will retrieve the information about the entrepreneurial data, but it will not be specific to a college student. If further precise information is needed, it will be needed. The shared resources are retrieved twice. When retrieving and querying the required resource information, requests for permission are made to the server. Generally, the shared platform system defaults to passing permission immediately, but for some pertinent and patented information and data, the server needs to pass the permission request manually. The information receiving function is provided in the

form of wer service, and the information service terminal provides users with the information they need by calling the service. When the server gives feedback, it completes the information acquisition function of the shared platform, and can call the resources in other work.

2.2.2 Server Function

The server needs to check the information of the landing personnel to ensure that the information released to the sharing platform is real and effective. The administrator in the server can understand the latest information of University Students' innovation and entrepreneurship projects in the project management system, which is a special identity and assumes the responsibility of administrators who manage other identities. Among the function modules of the server, the most important is the submission, sharing and management of innovative entrepreneurship projects, which is also the most important function for students to realize on the server [9]. It integrates all the information related to entrepreneurship projects on the service side to realize the project function module. Then the important supplementary part of the University Students' entrepreneurship sharing platform is the project progress record module. The module fills in project progress record information and sub-project log [10]. It prompts students to grasp the project process timely and accurately, and paves the way for the follow-up promotion. When the project is completed, the project submission and two sub-functional modules are divided into report and audit report. Because there are many modules. Attract only audit report module. In the shared platform of college students' entrepreneurship, the page management options of corresponding pages can be entered by choosing one of the two submenus of report and audit report in the left evaluation module. When making project report review, select submenu audit report and select restriction conditions, such as project specification number and query condition, to search the result through web page. If the project report needs to be reviewed, it can be obtained by clicking on the audit and submitting it. If the selection is wrong, you can cancel and return to the home page. The core function of University Students' entrepreneurship sharing platform is the release function of the project, which plays a vital role in the subsequent launch and implementation of the project.

2.2.3 Message Management Function

The message management module in the embedded innovation and entrepreneurship sharing platform for college students is connected with the message board in the UI interface of the front desk. Both the client and the server can leave messages in it. Users can ask questions about the data of innovation and entrepreneurship projects to the server. Users who share information can answer the questions in it, and the interactive function of the platform can be more realized. For some erroneous information, users can also be reminded of the release of information through message function to facilitate timely modification, to ensure the authenticity and real-time of the data in the platform. Some messages that have been resolved or do not need to be saved can also be deleted through the message management function. Through the implementation of message management function module, the sharing of the platform is more complete.

2.3 Database Module

The database mainly plays the role of data storage in the embedded innovation and entrepreneurship sharing platform for college students. Through the construction of the shared database, the huge shared data information can be effectively stored in the cloud. In the process of calling shared information, users can also save a lot of retrieval time. The working logic of the database module is shown in Fig. 3.

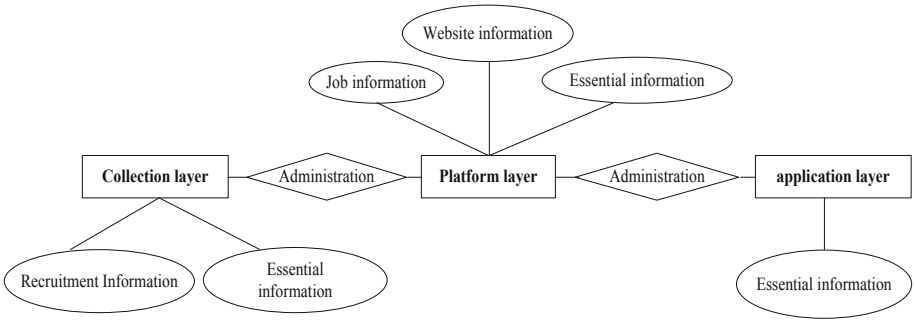

Fig. 3. The working logic diagram of the database

According to the working logic diagram of the database in the figure, the database of the embedded innovation and entrepreneurship sharing platform for college students mainly includes collection layer, platform layer and application layer. The acquisition layer collects real-time information through Internet of Things technology, which covers all data and records. The main purpose of building the Internet of Things architecture is to build reliable links between data and objects. Physical objects are used as information sources to transmit information independently and input data into the database according to the standard transformation to form data and physical correspondence. At the same time, database access rights are set to improve data security. Platform layer is the key part of database information sharing. It establishes information sharing platform to provide users with access query, information feedback and security monitoring functions. The core of platform layer is database information remote sharing method. The application layer is mostly oriented to all nodes. Users can get the required information through the corresponding devices, so as to meet the information needs of different users.

3 Experimental Analysis

The ultimate goal of the embedded innovation and entrepreneurship sharing platform for college students under the Internet of Things is to enable entrepreneurs to upload entrepreneurship data and past innovation and entrepreneurship information. In order to

verify that the designed sharing platform can achieve the desired results, an experimental analysis is carried out. In order to reflect the sharing effect of the platform, the traditional sharing platform is selected as the experimental comparison. The comparison results are shown in Table 1.

Table 1. Table of experimental comparison results

	Traditional entrepreneurship sharing platform	Embedded innovation and entrepreneurship sharing platform
Upload data volume of startup projects	1.30 GB	5.80 GB
Number of uploads of entrepreneurship projects	3758	19573
Upload data volume of entrepreneurship information	3.25 GB	10.55 GB
Project download data volume	0.25 GB	3.88 GB
Number of project references	0.13 GB	3.30 GB
Accuracy of entrepreneurship information	65%	88%

From the results in the table, we can see that the data volume of entrepreneurship projects and entrepreneurship information in the embedded innovation and entrepreneurship sharing platform for college students designed in this paper is much higher than that of the traditional entrepreneurship sharing platform. The uploaded number of entrepreneurship projects in this design platform is 19573, and the downloaded data volume of projects is 3.88 GB, which shows that the entrepreneurship information in Compared with the traditional sharing platform, the designed sharing platform is 23% higher, the parameters of the designed platform are better than those of the traditional platform, which shows that there are not only a large number of entrepreneurial data information in the platform, but also a high reliability of information, which has a strong authenticity and reliability of data information.

4 Conclusion

To sum up, the design and implementation of the embedded innovation and entrepreneurship sharing platform for university students under the Internet of Things is mainly based on the actual needs of the development and management of University Students' innovation and entrepreneurship projects, with the help of the platform to achieve overall management, thus ensuring that teachers and students can participate in

the various project processes, reducing the workload of management, improving the comprehensive effect of management, and providing universities with entrepreneurial needs. Students can provide more weighted data and information, provide corresponding guarantee for the effective implementation of innovative entrepreneurship projects for college students, truly play an important role in sharing platform of innovative entrepreneurship for college students, and promote the overall improvement of the quality of personnel training.

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