Research on Long Term Preservation Strategy of University Library's Books and Materials Based on Internet of Things Data

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Abstract. With the development of Internet of things (hereinafter referred to as IOT) technology, IBM smart earth strategic plan has gradually become the goal of human development, which has gradually realized the global resource sharing and co construction. Therefore, the IOT system based on computer has become the future development direction, which also promotes the realization of digitization, intelligence and networking in many fields, including university library. In order to improve the service of the library, colleges need to constantly transform and upgrade the service pattern of the library, which provides important intelligent services for readers. Through the global positioning system, radio frequency identification, sensor equipment, etc., the IOT system realizes the interconnection between readers and books, which provides users with a full range of reader services. The IOT can provide intelligent management, reader behavior analysis, intelligent self-borrowing and returning books and materials long-term preservation and other conveniences for the smart library, which provides important help for the intelligent management of the library. Through the IOT technology, the library can improve the service efficiency and collection resource utilization rate, which will improve the state of intelligent management and service. First of all, this paper puts forward the main problems of long-term preservation of digital book resources in library. Then, this paper constructs the hierarchical structure of Smart Library. Finally, some suggestions are put forward.

Keywords: Internet of Things, Library, Books and Materials, Long-term Preservation

1. Introduction
With the development of IOT technology, smart library has been able to achieve a variety of functions, such as intelligent management, reader behavior analysis, intelligent self-lending, long-term preservation of books and materials [1]. IOT (IOT) is a kind of network that connects all objects to the Internet through information sensing devices such as RFID, infrared sensors, global positioning system, laser scanner, etc. Through information exchange and communication, we can realize intelligent identification, positioning, tracking, monitoring and management [2]. The IOT has spread all over the social fields, such as intelligent transportation, safe home, public safety, intelligent fire protection, industrial monitoring, personal health, etc., which has intelligently connected various independent things in nature. Through the IOT, we can closely contact various intelligent devices, which will form a super smart system [3]. The three main features of IOT
are comprehensive perception and reliable application. Through a variety of network systems, we can acquire and transmit information in real time and accurately, which is the basis of realizing comprehensive perception. Through cloud computing, fuzzy recognition and other intelligent technologies, the library can effectively combine the intelligent application of sensors, which can analyze, process and process meaningful information [4].

2. Long term preservation of digital book resources in Library
In the digital era, the long-term preservation of digital book resources in library is no longer a simple resource transformation, which has been transformed into a state of longer preservation than paper resources. Under the premise of the continuous updating of information technology, there must be a transition period and buffer period between the old and the new technologies, which requires us to preserve the library book resources for a long time[5]. In the process of long-term preservation, university library not only guarantees the extension of time span, but also preserves and utilizes the objects, subjects and objectives. Among them, all elements of books and materials should be complete, which requires preservation activities as needed. Through the change of digital book resources over time, we can really carry out the long-term preservation of library digital book resources. At the same time, the library digital book resources should be restricted by the law of value, which no longer needs to be preserved for a long time. Therefore, the long-term preservation of library digital book resources is a cycle [6].

3. The main problems of long term preservation of books and materials
3.1. Lack of relevant policies
At present, China's library construction mainly focuses on information, networking and intelligence, which lacks the main consideration of later management. With the massive growth of book information resources, University Library has gradually realized the lack of protection of book resources in daily management, which is lack of necessary supporting policies. Therefore, colleges have failed to establish a sound long-term preservation system of books and materials under the support of the local government. First of all, the long-term preservation of university library materials has its own problems, which has not yet formed a unified standard for long-term preservation of books and materials. Secondly, it is difficult to exchange books and materials, which has not yet formed a joint force for the preservation of books and materials. The internal coordination of university libraries is insufficient, which can not effectively integrate library resources. Therefore, the lack of policy affects the long-term and effectiveness of the preservation of books and materials [7].

3.2. Lack of necessary system
The long-term preservation of books and materials is a scientific work, which needs to form a strong system operation mechanism. At present, China has not yet issued normative guidance and suggestions for the long-term preservation of books and materials. At present, the level of information environment construction in China needs to be improved. In the information environment, we still lack the necessary long-term preservation system of university library books and materials, which will lead to the failure of timely, scientific and systematic preservation of books and materials in the network environment. For example, there is still a lack of effective library information filtering mechanism in the digital environment, which will lead to the long-term retention of some illegal books and materials. Secondly, the subject, object, mode and period of preservation should be further clarified in the current preservation of books and materials in university libraries, which requires colleges to establish the necessary operation mechanism of books and materials preservation. At present, the lack of special preservation organization of books and materials in university libraries has affected the operation of long-term preservation mode of books and materials. Therefore, colleges can not solve the problem of the retention efficiency of books and materials by legal means.
3.3. Lack of effective mechanism

The long-term preservation of books and materials needs to form a perfect operation mechanism. At present, the university library has not yet established an effective mechanism for the preservation of books and materials. In the network environment, it is difficult for colleges to achieve the overall coordination of the preservation of books and materials, which often needs to rely on their own strength to carry out the preservation of books and materials. Therefore, the lack of effective mechanism results in the contradiction between the preservation and sharing of digital resources and the benefits of development and application. First of all, the University Library lacks a clear division of responsibility system and normative operation system, which needs to determine the preservation, rights and obligations. Secondly, the long-term preservation of books and materials needs more equipment and capital investment, which not only needs to develop the application system of high-quality book resources, but also establishes the characteristic database of books and materials.

3.4. Design of Library hierarchical architecture based on IOT

In his paper, Hadoop technology is used to build the big data platform of Smart Library, which includes library data, integrated teaching data, consumption data and so on. Through the big data platform, the library can carry out data storage, analysis and application display, which will meet the different needs and characteristics of business. Through the big data platform, we can better long-term preservation of university library books and materials. The platform architecture design is divided into four layers: data acquisition layer, data storage layer, data service layer and data application layer, as shown in Figure 1.

**Figure 1.** Based on the IOT library hierarchical architecture design.
4. Long term preservation strategy of books and materials in University Library

4.1. Changing values
The library is a place with feelings and missions. We should strengthen the communication and cooperation with the outside world, obtain the maximum financial resources, improve the status in the society, and make the library become important. This is inseparable from the mode reconstruction of the library. The mission and value of libraries should be emphasized in the era of IOT. In this era, libraries rely on the Internet and can exist everywhere. Therefore, there should be an effective and good cooperation and communication between libraries. Therefore, our librarians and libraries should strengthen our professional quality, strengthen the construction of Internet capacity, and enhance the ability to obtain knowledge and information. At present, some libraries have begun to provide charging services, and libraries and bookstores have been merged.

4.2. Construction of intelligent Librarian Team
The development of librarians is always the most important issue in the library field. The library needs a large number of qualified and experienced librarians. In 2015, the Ministry of education revised the general library regulations. The new "Regulations" put forward that university library professionals must be more than half, which needs to be directly reflected in the service of the library. Therefore, librarians should continuously improve their professional quality and knowledge structure. By constantly improving themselves, librarians can not be eliminated by the times. Therefore, colleges should pay attention to the construction of intelligent librarians, which can be carried out through the following aspects. First, change the existing recruitment model. Most of the public institutions enter the library through the unified examination, which requires a high level of personal starting point, but the judgment of professionalism is relatively inefficient. The library can put forward a threshold of access, which requires each practitioner to obtain a unified librarian certificate. On the one hand, we can improve the quality of the corresponding groups; on the other hand, we can make the recruitment of librarians more efficient. Second, revitalize the stock of human resources. We need to classify the existing librarians, which can allocate different types of talents to different jobs. If it is a new era of intelligent librarians, we should give vigorous training. At the same time, colleges should encourage librarians to constantly improve their ability and innovation ability, which can focus on building corresponding intelligent service ability. Third, to cultivate learning librarians. We should cultivate the awareness of lifelong learning, which will better set up learning activities, learning and reading exchanges. Through mutual communication, we can achieve common progress.

4.3. Co construction and sharing of resources
The fundamental of library operation is intellectualization, which mainly includes resource quantification and memory accuracy. A variety of book resources should be widely set up in Smart Library, such as open network data, paper books, digital book resources, etc. In the process of Library intellectualization, intelligent modules should be added to the objects in the library, which can store specific information. As a result, the individual will become a unique goal. In the network of the library, the library should rely on the big data framework to jointly build and share various resources in the library, which can improve the book collection of each library. At the same time, we can provide opportunities for cooperation between libraries. By creating selected collections and local resources, we can understand the specific service process of each library. Through the establishment of personalized service process, we finally complete the optimal service for users. In today's information age, every library should strive to build digital book resources, which will integrate the collection of multiple libraries. Through the establishment of library cooperation alliance, we can realize the resource sharing of university library, which is the general trend in the construction of Library wisdom.

5. Conclusion
At present, information technology has been a huge development, the IOT technology has been applied to all walks of life. Therefore, colleges should also apply the IOT technology in various management, which will
improve the intelligent management of colleges. The books and materials in the library are huge resources, which need to be preserved for a long time. Through the construction of the IOT, we can better carry out information transparency and improve the knowledge network. Therefore, the digital books and materials in the library should be preserved for a long time in many aspects.

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