

# Research on the Construction of Community Library Intelligent Service System from the Perspective of Smart City

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**Keywords:** Community library, Intelligent service, Internet +, Internet of Things (IoT).

**Abstract.** With the development demand of community cultural construction and the expanding cultural demand of urban residents, the construction of community library intelligent service system has become a hot issue in the construction of smart city. Based on the in-depth analysis of the necessity of intelligent service system construction, the design scheme of community library intelligent service system is proposed mainly from the wisdom for the construction of the library, the basic function of community library intelligence service system, the overall architecture of the community library intelligence service system. Besides, 4 suggestions are put forward for the construction of community library intelligent service system.

## Introduction

At present, smart city has become a hotspot in the field of urban construction and urban management. With the acceleration of urbanization process in our country, residential areas are developing continuously, and the construction and improvement of community service and community culture have aroused people's great attention and concern. City library, generally built in the city center, and has a fixed service time, which seriously restricts the function of the library. In this way, how to use community libraries to meet people's spiritual needs has become an urgent problem to be solved in the context of the expanding development needs of community cultural and the cultural needs of urban residents [1].

### The Necessity of Intelligent Service System Construction

Community library is a cultural and educational institution and community information exchange center established in the community, where community residents select, collect, process and organize documents and other sources of information according to their needs. Community library is the central link of community cultural construction. It should be open to all residents in the community together with other cultural facilities in the community to provide convenient information services for residents [2].

With the acceleration of urbanization, China has made some achievements in community library construction, but it is also facing greater challenges. In the complex social situation of increase of elderly population, enhance cultural level of the young and middle-aged people, acceleration of pace of life, the life pressure, diversification of information demand, the community library is bound to do more practice and exploration to meet the needs of The Times and social development through in-depth understanding of readers' situation, accurate grasp of readers' needs, flexible provision of a variety of services.

At present, most of the community libraries are built with one-time funding by the relevant government departments or by the community itself. There are many problems in community libraries, which are mainly manifested in the following aspects. First, the collection quantity with little scale is small and the quality is poor. Second, it's the lack of managers and poor service ability. Third, the service form is single and the service efficiency is low. Fourth, the book resources update and maintenance is lacked in the later stage.

With the rapid development of science and technology, we can build more intelligent community libraries by IoT and online community library intelligent service system by the "Internet +" strategic thinking, which has become an inevitable measure to meet the needs of community readers and adapt to the continuous development of the economic era [3]. Therefore, we should make full use of the opportunities of The Times, make use of new technologies, and innovate the community library service system in time according to the needs of community readers, and improve the service quality of libraries to contribute to the development of national libraries.

### **The Design Scheme of Community Library Intelligent Service System**

The construction of community library intelligent service system is essentially the construction of "Internet +" community library intelligent service system, which is a new type of development based on the construction of traditional community library service system. It mainly reflects the knowledge service innovation of library service industry in the information age. Supported by various comprehensive new information technologies (IoT, mobile terminal technology, intelligence technology, communication technology, artificial intelligence, cloud computing, etc.), digital library, cloud library, mobile library and physical library are integrated deeply and connected intelligently in the "Internet + community library", so that the community can get resources, intelligent services and mobile services at any time[4].

#### ***Construction of Wisdom Building.***

We will build green, energy-saving and environment-friendly smart library buildings, create open and free smart space, and adopt green, energy-saving smart equipment and facilities to achieve the goal of energy-saving and low-carbon<sup>[5]</sup>. For example, indoor temperature, humidity and brightness of the library are adjusted through intelligent temperature control system and intelligent lighting system to provide comfortable and green reading environment for readers. Besides, automatic detection equipment, monitoring video, access control system, alarm system and other auxiliary equipment, which belong to the "micro library", are also provided. Readers can select, read, borrow and return books through the access control system. In addition, replacing the library shelves with smart shelves can facilitate the shelf management and loan and return management.

#### ***The Basic Function of Community Library Intelligent Service System.***

(1) Book processing. Users classify books through the online community library application platform, which provides the description of basic information of books including name, publisher and cover photo, and allows users to add free semantic labels for books. When the compilation is completed, the unique qr code identification of the book is generated. Users can choose to print the qr code or choose the printing qr code service of smart bookshelf. After obtaining the qr code, paste it on the cover of the book.

(2) Books on/off shelves. The book information pasted with qr code is only saved in the system server at this time and does not belong to the smart library. Users need to select the operation "on shelves" of the smart bookshelf, scan the qr code of the book and place it on the bookshelf, so that the book can become a book in the smart library. In addition, the return operation in the system is essentially to place books on the shelves, but it is different from "Books on shelves", it is called "Books on shelves".

(3) Book reservation. As the collection resources of smart library, books on the shelves can be borrowed by readers. You just need to click "make an appointment" when you need make an appointment. After the appointment, the system will automatically generate a reservation number, which can be used as offline service certificate and users can apply to the smart bookshelf to get books for reading.

(4) Book access. After obtaining the book reservation number, it will be input to the smart bookshelf and inquired form system server. If the reservation exists, the user is allowed to get the book and the book information will be deleted from the smart bookshelf.

(5) Book removes. The removal of books is done by the librarian, and the management module and the user function module are separate and used by the librarian alone. First of all, the administrator

selects the books to be removed online and applies for the remove operation. An operation number is generated in the system and the administrator enters this number into the smart bookshelf to apply for the removal of books. After inquiring system, the administrator is allowed to take the books and delete the book information from the intelligent bookshelf, and then make a request to the server to delete the book information in the system. The condition of remove operation is: if there is no borrowing record of the book within a month, remind the administrator to remove the book. After the removal, the administrator first asks whether the original provider claims back the book in the WeChat group. If the original provider waives, a complimentary notice will be issued. If no one needs it, it will be treated as waste products [6].

(6) User management. Maintain information for users in the community.

(7) Reader activity. Publish reader activities in online and offline forms to attract community residents to participate in them.

### **Overall Framework of Community Library Intelligent Service System**

The overall framework of community library intelligent service system can be divided into the following four layers.

(1) User interaction layer: the main user groups of the system are readers and book managers. Operational interfaces for various users in the system are provided in the user interaction layer.

(2) Business layer: an environment for each module in the system is provided in the business layer to ensure the normal operation of each module.

(3) Data access layer: different permissions for users in the system are provided in the data access layer. For example, it's completely different for the permissions of readers and book managers. Besides the permissions of readers, the management of book information in the library, reader information in the library and loan and return information of books are also included.

(4) Data layer: a data storage window for the system is provided in the data layer to record all kinds of data of the system, such as book information and reader information.

### **Other Suggestions**

The following suggestions are put forward for the construction of community library intelligent service system.

(1) In addition to the construction of community libraries funded by the government, social forces should be encouraged to participate in the construction of community libraries. For example, we can cooperate with important enterprises and institutions in the district to select scientific and reasonable sites or create new service space. We can also cooperate with public institutions in the community to provide readers with reading services, information consulting services, recreational activities, etc., and jointly maintain the operation and management of the community library, so as to make the community libraries open community public platform that connects, aggregates, allocates various community resources.

(2) The key of community library service system is operation and maintenance. With the continuous development of The Times, it is necessary to renew and expand the book resources, and update the technical means of using community library in time.

(3) At the initial construction stage, questionnaire can be designed to investigate the residents of the community, mainly investigating the needs of the masses for books and library functions. We will conduct intensive research every year. In this way, we can timely understand the demands of the masses.

(4) Attach importance to the training of management and service personnel. On the one hand, the cultural accomplishment, knowledge organization ability and information management ability of librarians play a key role in the intelligent service of library. Therefore, one of the focuses of the development of smart library is to cultivate smart librarians and improve their service level. On the other hand, with the emergence of new technologies, librarians with a higher level are urgently needed. So only by constantly improving the knowledge level and updating the knowledge structure can librarians adapt to the new working environment and working mode changes brought by the development of new technology.

## Summary

The rapid popularization of IoT and "Internet +" emerging technologies provides a new technical platform and development direction for the development of community libraries. We can make use of these new technologies in libraries to realize the wisdom of architecture, resources, management and service, so as to provide first-class services to the community. Although the development of intelligent community library is at the initial stage at present, with the continuous development of technology and the unremitting efforts of library staff, the function of smart service system of community library will become more and more perfect with the deepening of city intelligence.

## Acknowledgement

Fund project: 2018 university-level scientific research project of Shandong Xiehe University, project no. : XHXY201832, project name: research on the construction of online and offline community library intelligent service system.

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