Research on Shaanxi Province Community Intelligent Aged Care Service System Design Based on Internet of Things

Jing Zhao

Xi'an Fanyi University, Shaanxi, Xi'an, 710105, China

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Abstract: As the country with the largest population in the world, China has entered an aging society as the population ages, and it has become the country with the largest number of elderly people in the world. Resolving the problem of population aging that is growing year by year is an important task that needs to be resolved to maintain social stability and promote national economic development. As an emerging science and technology, Internet of Things technology has been applied to the field of old-age services in many countries, aiming to create a new way of intelligent retirement. The use of Internet of Things technology to scientifically integrate existing pension resources, and provide comprehensive and seamless service for the elderly according to the needs of the elderly of different ages, can not only resolve various problems existing in the current supply of aged care services, but also satisfy the needs of the elderly at different levels of the elderly, to achieve the goal of stabilizing society and promoting economic development.

1. Introduction

With the rapid development of the national economy and science and technology, the development of society and the advancement of medicine, China's per capita life expectancy is getting longer and longer. However, due to the widespread implementation of family planning in the 1990s in China, the “421”-based single-child family has already To become China's current main family structure, children will inevitably take care of the four elderly people. In addition to the traditional concept of raising children in China, most of China's old-age care is based on family pension, supplemented by institutional pension and community pension. With the increasingly aging and the improvement of the national pension system, the role of family pensions has been weakened, institutional pensions have not formed scale, and China's pension system tends to be home-based for the elderly. The model of community home care for the elderly not only has the advantages of family pension and institutional pension, but also avoids the defects of both. The main purpose of this paper is to think about how to make better use of the Internet of Things to carry out community home care services in the social environment with rapid development of network information technology, integrate social resources, and better meet the diversified needs of the elderly. Guarantee the quality of life of the elderly while reducing the pressure on the children's pension [1].

2. Research on the Application of Internet of Things Technology to Smart Retirement

This part of the research is still relatively rare, and it has not produced systematic research results. There are only scattered related discussions, and more is the discussion of the application of the Internet of Things in social life, and the lack of the Internet of Things and the smart old-age industry. Related research. Representatives such as Zeng Qingyong (2012) believe that the combination of the Internet of Things and community medical services has far-reaching practical significance. It can effectively improve the community medical service capacity and improve the community medical level and service quality. In particular, Internet of Things technology can drive areas with poor medical conditions to help them solve the problem of medical capacity and insufficient resources. It can be applied to medical monitoring, patient identification, health and safety alert, etc.,

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and can realize platform sharing of medical information. Yu Lei et al. (2012) proposed that the Internet of Things can be effectively applied to family care, mainly through remote monitoring, remote tracking and recording of the daily life and physical health of the elderly, and can respond to some emergencies in time, such as It is used for remote monitoring of patients with Alzheimer's disease, home monitoring of postoperative patients, etc., and extends the service of aged care, especially medical services. Zheng Shibao (2014) looks at the status quo of China's aging, faces the challenges brought about by aging, and turns his eyes to foreign countries. Through the research on the development of Internet of Things technology and the development of smart pension industry in western developed countries, China's Internet of Things technology is applied. The development vision and practice path of the smart old-age industry have certain guiding significance. In particular, it is proposed that these technical equipments for the elderly also need to be designed according to the habits and usage patterns of the elderly, and they can replace human beings to do some difficult services, and provide for the dilemma of “not getting rich first” and “no one to care for the elderly”. Solve the direction and method [2].

3. The Definition of Intelligent Pension

The term “smart pension” first appeared in a report provided by the British Life Trust Fund, which is referred to as the “all-intelligence old-age pension system”. It can be understood that the elderly are not limited by time and space in daily life, and can enjoy high quality of life at home, so they are also called “smart home pension.” This old-age approach is based on advanced science and technology. Older people can enjoy the old-age services brought by the Internet of Things and the Internet at home. The focus of this vision is on advanced information management and application technology, and the elderly and communities, hospitals. , the elderly service agencies and other organic links. IBM elaborated on the concept of “Smart Earth” at the International Relations Board meeting in 2008. Two years later, IBM introduced the concept of “smart city” based on “Smart Earth” and hoped to promote the healthy development of the city through these two ideas. Therefore, the “smart city” concept is covered in the “smart city” services. The predecessor of “smart pension” is “smart pension”. In terms of terminology, “intelligence” tends to be technical, while “wisdom” is based on human beings. On the basis of enjoying the convenience brought by technological innovation, the integration of human wisdom is realized. Scientific pension, healthy retirement, and happy retirement.

From the above, the definition of “smart pension” is based on information technology, to facilitate the elderly's daily living, health care, recreation, security, etc., through the intelligent monitoring of the elderly information Intelligent early warning and correct response to achieve information exchange with the elderly. Through “Smart Wisdom”, not only can the quality of life of the elderly be greatly improved, but also the elderly can use their residual heat to continuously improve the level of “intelligence and care for the elderly” through their own wisdom, so that the perfect combination of technology and wisdom can also make the elderly's later life happier. . The application of “smart pension” is mainly the information sharing and monitoring of the elderly, community service agencies and nursing homes, providing convenient, low-cost, efficient and perfect old-age services for the elderly. With the advancement of science and technology, smart pensions are gradually becoming popular. For example, some TVs and mobile phones designed for the elderly have a positive effect on improving the quality of life of the elderly. This concept has great significance for solving the problems faced by Chinese pensioners [3].

4. The Definition of the Internet of Things

The emergence of the Internet has revolutionized the field of computer science in the twentieth century and our daily lives. However, the current Internet has been far from satisfying the needs of people to perceive the real world. Under such a background, new IoT technology has emerged. The Internet of Things (the biggest difference with the Internet is that the Internet of Things extends users into items and objects, making it possible to exchange information between “things” and

“things.” The concept of the Internet of Things is the year, MIT Ashton The professor first proposed. The accurate definition of the Internet of Things is not unified internationally, but it is generally accepted that the International Telecommunications Union (referred to as the Internet of Things refers to the global positioning system through radio frequency identification technology, Sensing devices such as laser scanners and infrared sensing machines connect products (commodities) with the Internet according to certain protocols, relying on information exchange and communication, and finally realize intelligent identification, accurate positioning, tracking, monitoring and management at any time. A network.

5. The Design of the Aged Care Service Based System Based on the Internet of Things Technology

The application of Internet of Things technology can make aged care services faster, more convenient and more intelligent. In the specific application, the Internet of Things is used to build a “smart” comprehensive service platform between the elderly and service providers. On the one hand, it integrates long-term care products for the elderly through the Internet of Things, and expands service projects; Provide real-time service delivery, improve service efficiency, and maximize service utility [4]. In the design concept, in order to meet the needs of the elderly, the member's real-name system certification is adopted at the entrance. With the core capabilities of the Internet of Things, such as comprehensive perception, reliable transmission, and intelligent processing, the information inquiry, information consultation and communication required by the elderly are implanted. Service request acceptance and other functions to achieve intelligent decision-making and control, to help the elderly to provide life support, rehabilitation care, spiritual comfort and social support services.

To this end, the integrated service platform needs to establish a sensing layer, a network layer and an application layer system. Specifically, tools such as sensory layer installation, QR code, camera, sensor, and sensor network can sense, capture, and measure the physical condition and living environment of the elderly at any time and place; through the various communication networks and the Internet at the network layer. Integration, the elderly and the region to access the information network, reliable information exchange and sharing anytime and anywhere; use the intelligent computing technology such as big data, cloud computing, fuzzy recognition in the application layer to analyze and process the data and feature information in time, and establish A complete health management system to understand the condition and safety of the elderly and provide all necessary assistance and remediation services in a timely manner. What the user ultimately sees is the installation of the sensing device at home and the various services provided by the IoT application layer. Among them, the modules satisfying the demand side include functions such as information inquiry and online consultation, reservation service acceptance, social interaction, information inquiry, video uploading and broadcasting, etc., and the functions of the supplier include the requirements investigation and analysis, new product release and promotion, etc. The intermediary service module includes the acceptance and processing of complaint suggestions, service tracking management, fund guarantee and settlement.

In this way, the “smart” integrated service platform can provide real and virtual services actively or passively in terms of combining service projects and service content. Among them, active service refers to the service provided by the platform after intelligent monitoring and statistical decision-making; passive service refers to the platform accepting and processing the service request of the elderly and their families. Real service refers to a service that must be characterized by on-site service or physical contact; virtual service refers to a service that can be completed by means of telephone, internet, etc. in a virtual environment. In the specific application, the “smart” comprehensive service platform actually provides the real service, through the online reservation platform, and then through the online acceptance service request, the generation service dispatch work order, the tracking management service quality, and the fund clearing process. service. It should be pointed out that the entire service process should give the elderly sufficient autonomy to choose. Before the dispatch of the work order, the service requester can choose to use the service

party that has already purchased or the service provider who joins the cooperation to provide the service. Virtual services are services that can be directly completed through virtual environments such as online consulting systems and online communication platforms. For those projects that can be completed through both real-life services and virtual services, the elderly can choose themselves.

The application of Internet of Things technology in the family life and medical care of the elderly has broken the time and space constraints and brought revolutionary changes to the aged care service. The following describes the application of Internet of Things technology in the aged care service from several specific aspects [5].

The elderly in the community hospital can wear long-distance sensing RF cards. When the elderly wear this card to enter the community hospital, the identity information of the elderly will be automatically identified. The RF card can store a large amount of information, such as the identity information of the elderly, basic Electronic health records such as contact information, home address and past medical history, allergies, etc., can also store medical insurance files for the elderly.

Smart Medicine Box: The smart medicine box is equipped with wireless sensors and readers. After the elderly are in the hospital, the doctor gives each drug a label, which records the name and usage of the drug. When the old man returns home, he puts the medicine into the smart medicine box. Whenever the time required by the doctor is reached, the medicine box will automatically emit a prompt tone, and the name and dosage of the medicine to be taken can also be displayed on the screen.

Remote monitoring system: Establish a remote monitoring system using wireless sensors and alarm systems. The remote monitoring system allows children and community workers to learn about the current situation of the elderly by logging in to the client after they have been authenticated. When the elderly have a safety incident such as a gas leak, fire or loss, the alarm system can automatically alarm and notify the family and staff.

Spiritual comfort system: As the pace of modern society continues to accelerate, more and more young people are investing more time in their work, ignoring the care and concern for the elderly. The formation of the family structure, the two children have to support the elderly, such pressure can be imagined. As a child, the focus of care is often on the life and health of the elderly, ignoring the spiritual world of the elderly. Many old people have different degrees of loneliness and loneliness. Through the Internet of Things technology, the elderly can stay at home without using their mobile phones or computers to book a staff member to accompany a lonely old man to chat or travel. They can also chat online with other seniors to ease the feeling of loneliness of the elderly.

6. Conclusion

At present, China's pension model is mainly based on family pension and supplemented by institutional pension. Family pensions put the children of the “421” family structure with heavy economic burden and pension pressure. The social mission of social work includes alleviating social pressure. Improve social interpersonal flexibility. From the perspective of making up for the lack of care for family members and meeting the needs of the elderly in the empty nest family, and alleviating the loneliness and loss of the elderly, and reducing the burden of children's pension, it is urgent to enter science and technology into the social work of the elderly. Moreover, the modern social information construction has been relatively complete, and the intelligent equipment required by the old-age service system has been able to provide complete solutions. Therefore, it is very necessary to consider the design of community intelligent service platform from improving the benefits of old-age care and reducing the cost and pressure of society.

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