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TRANSFORMING COMMUNITIES: THE IMPACT OF INTELLIGENT TECHNOLOGY

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Article Info

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Abstract

The development of intelligent products has led to a growing demand for smart construction in communities. Smart construction can improve the efficiency, convenience, and comfort of community environments, and it can also pander to the diverse needs of community residents and foster good community relationships. This article focuses on designing intelligent devices within communities through the lens of environmental design. The goal is to create a smart environment that improves the happiness index of residents and promotes the level of modern high-quality living.

1. Introduction

AT persent, socialism with Chinese characteristics has ented a new era,and the main social contradictions have been transformed into the contradiction between the people's growing needs for a better life and the unbalanced development[1].The market is witnessing a surge in the number of intelligent products, thanks to the development of technologies such as the Internet of things and artificial intelligence. Urban residents are increasingly demanding better quality of lives, and intelligent products which are meeting those demands directly. The convenience, safety, and comfort that these products bring to people's lives are making them constantly popular. Communities, as the fundamental unit where urban and rural residents coexist, bears a significant responsibility in creating a convenient, comfortable, and safe way of life. To meet the demands of urban residents for an improved way of living, community environments must adapt to the digital age and adopt modern technology to effectively cater to the diverse living needs of different urban residents. The adoption of smart construction promotes urbanization and enhances the quality of life in cities. It panders to the diverse needs of community residents and fosters good community relationships[2]. As a symbol of efficiency, convenience, and comfort in community environments, smart construction is actually being adopted by communities nowadays. Consequently, the construction of smart environments within communities has become a necessary means to improve the management of urban communities and enhance the happiness of urban residents. This article focuses on designing intelligent devices within communities through the lens of environmental design. The goal is to create a smart environment that improves the happiness index of residents and promotes the level of modern high-quality living.

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2. Basic theoretical concepts

2.1. Intelligent community

The Intelligent Community is a concept that integrates information technology with community services, which focuses on community participation and co-construction. It plays an important role in environmental governance and ecological protection, and strives to optimize service processes while enhancing service quality to meet the expectations of residents for intelligent, efficient, and convenient services. This promotes the sustainable development of the community.

2.2. Environmental design

Environmental design involves intentionally shaping and modifying the physical environment to meet the standards of human needs and expectations. This interdisciplinary field incorporates factors such as human perception, cognition, emotion, behavior, building structures, and functionality, while also prioritizing the impact on the natural environment and implementing sustainable design strategies. The goal of creating a comfortable, healthy, safe, and aesthetically pleasing physical environment is to enhance people's quality of life and happiness.

3. The current status and user demands of intelligent technologies in communities

3.1. Development status

In recent years, the integration of intelligent technology and community construction has given rise to a new community model called smart community. The development of smart communities aims to improve communities' management efficiency, optimize residential environments, and enhance the quality of life for residents. This trend is of great importance in global scale, and smart devices such as intelligent access control and security systems have been widely implemented in many communities. However, many devices still rely on traditional designs and fail to satisfy the demands of intelligent living, resulting in a subpar user experience.

3.2. User needs

3.2.1. Information dissemination.

The reliance on traditional written methods to convey important information is still prevalent in many communities due to the lack of effective smart communication devices. However, this method can be limited by factors such as poor communication and information .This practice not only detracts from the community's appearance, but also hinders the presentation of information in a user-friendly manner. This is particularly problematic for elderly individuals with visual impairments who struggle to read important information, as well as for younger individuals who work long hours (such as 996) and may have difficulty in receiving timely updates. In order to ensure that information is accessible to all, it is important to adopt inclusive and accessible design. This is particularly important for the elderly who may have visual impairments. Additionally, modern technology can be utilized to create a more convenient living environment for the younger generation. By prioritizing inclusive design, we can create a more equitable society for all individuals.

3.2.2. Interactive communication

The current problem with smart devices in communities is the poor experience for user. Quantities of people find it challenging to use the smart devices due to unfriendly interfaces, limited interaction methods, and inability to meet diverse user's needs, resulting in low usage rates. To solve this issue, we must adopt a user-centered design approach and connect to the Internet to set up a high-quality community environment.

4. Application of Smart Technology in Community Environment Design

4.1. Intelligent Public Guidance Screen

An intelligent public guidance screen is a device that utilizes various technologies, such as artificial intelligence, big data analysis, interactive design, and so on, to deliver information from services to users. According to the needs of management services, design the framework of information management service platform [3].This can be achieved by touch screen, voice recognition, face recognition, scanning, and other

methods. The purpose of intelligent public guidance screens is to digitize traditional forms of public information and provide a real-time information to users through clear and intuitive screen displays. This improves information dissemination efficiency and enhances user experience. The content displayed on these screens includes community announcements, public services, property management, and other relevant information. The implementation of intelligent public guidance screens can enhance the quality of service for community residents and visitors. It can also improve the accuracy and speed of information dissemination, increase the efficiency and level of community management, and contribute to the development of a smart city.

4.1.1. Information dissemination

The intelligent public guidance screen can be connected to the Internet, providing real-time updates of community information. This allows residents to stay informed and ensures the accuracy and timely dissemination of important announcements. Furthermore, the screen can display information in an enlarged format and has artificial intelligence voice-reading function buttons, making it more accessible for elderly individuals with visual impairments and hoist the efficiency of information dissemination, providing better services and experiences for community residents.

By connecting to the public safety platform and utilizing data processing and connection technologies, the intelligent public guidance screen is capable of sharing and transmitting data with the public safety platform. This allows for timely alerts, evacuation routes, and prevention measures to be issued to residents in the event of sudden incidents, thereby improving their safety awareness and prevention capabilities. Ultimately, this system is effective in preventing and reducing the occurrence of safety incidents. The intelligent public guidance screen not only provides safety information and real-time announcements, but also serves as a resource for information on public services in the community, including medical care, education, and community activities. This helps residents better understand the available services in their community and facilitates accessed to necessary resources. Additionally, the screen can provide information on community events and activities, making it a more convenient resource for residents to stay informed and engaged in their community. By showcasing cultural, sports, and social events, along with local merchant discounts and promotions on the guidance screen, residents can effortlessly obtain information about community happenings and schedules, engage in community activities, foster communication and integration within the community, and enhance the cultural richness and quality of life for all residents.

4.1.2. Interactive communication

When designing interactive interfaces, it is essential to keep the design simple and clear. It requires the characteristics of easy-learning and easy-remembering, so that users are able to recall and master how to operate the equipments as soon as possible[4].This means highlighting the main theme and minimizing any unnecessary distraction. Intuitive and concise design elements, Adopting a quantity of slider modes in the interactive interface to assist the operation, which is much more convenient for the elderly to use. In the case of a limited interface, the slider of 5 mm is a more appropriate size and has good operation performance[5], can be used to help users quickly understand the interface. It is also crucial to prioritize usability and user-friendliness to avoid difficult operations, improve the overall users' experience, save their time and energy, and ultimately increase satisfaction of them.

By implementing AI voice functions, intelligent public guidance screens can establish a dialogue between users and devices through voice recognition and natural language processing technologies. This allows users to perform queries, operations, and other functions without physically interacting with the screen, thus improving users' convenience and efficiency. This technology is particularly beneficial for elderly and young users.AI voice functions have the ability to recognize various voices, accents, and speech rates, which improves their accuracy and applicability. This allows individuals from different regions and language

backgrounds to easily and efficiently comprehend the content of announcements. What's more, the intelligent public guidance screen includes a built-in feedback module that allows for optimization and adjustment based on the needs and feedback of residents. This leads to a better user experience and increased user engagement. In the community environment design, the application of intelligent technology will further meet the needs and expectations of community residents, enhance community interaction and integration, and contribute to the sustainable development and progress of the community.

5. Summary

The intelligent public guidance screen plays an important role in improving the overall image and service level of the community in the context of a smart community, providing convenient and fast information services for residents, promoting the digital and intelligent services of the community, improving the living environment of residents, and enhancing the community's sustainable development capabilities.

As China's comprehensive strength continues to improve, the standards of living and housing requirements of its people are also increasing, thus creating a greater requirement for communities. The emergence of smart communities provides a new way of thinking and solutions to meet these needs. Smart community is the core part of smart city, and it is an indispensable application scenario of "new infrastructure"[6]. Continuously improving the level of community information construction and the application of Internet technology, exploring more innovative community service models and formats. Using intelligent technology to focus on environmental protection, energy conservation, and effective use of resources to achieve sustainable development. In the future, the smart community will not only be a high-tech and efficient space, but also a comfortable, safe, and beautiful living environment. Through smart community construction, people will enjoy more intelligent, high-quality, and diverse community services, improving the quality of living and overall happiness.

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