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COMMERCIAL COMPLEX INTELLIGENCE AND PROGRAM RESEARCH

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ARTICLE DETAILS

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ABSTRACT

In view of the technical characteristics, design methods and mainstream application scenarios of the commercial complex, this paper points out the main design solutions of commercial complex intelligent deployment in commercial deployment, including the design ideas, overall architecture and system deployment of commercial deployment Program. At the same time, this article also based on the commercial complex architecture intelligent design and gives the design.

KEYWORDS

Commercial complex, Commercial deployment, Intelligent design.

1. INTRODUCTION

The commercial complex, a business model with a mature history of development abroad, has developed rapidly in China in recent years. China's commercial complex is in its infancy. For a long time, real estate development and business operations are in a fragmented state. Development and business activities are separate, supply and demand are out of balance, and industrial structure is in disorder and lack [1]. At the same time, in China's commercial complex construction, the one-sided approach to real estate development and the construction of space and light functions is common. Patching and overlapping and disorderly development can be found everywhere. The dominant position of merchants cannot be achieved. Some reflections. In the future, the commercial complex is the key to reversing this situation.

1.1 Urban Complex

The concept of a commercial complex is derived from the "Urban Complex". The urban complex is an urban economic aggregate that is based on architectural complexes and focuses on business, commerce, catering, housing, and entertainment [2]. In the process of continuous social and economic development in our country and the accelerating process of urbanization, the urban complex has become an unavoidable development trend, and it is sought after by many urban management planners and real estate developers. The "commercial complex" is a combination of three or more functions of urban living space in cities, such as commerce, office, residence, hotels, exhibitions, catering, conferences, recreation, etc., and establishes a kind of interdependence and mutuality among all parts [3]. The dynamic relationship between benefits and benefits creates a multi-functional, high-efficiency, complex, and unified complex.

1.2 Commercial complex

Commercial complex have both a popular and crystallization of high technology and intelligence. Its advanced facilities fully reflect the advancement of science and technology is an important factor in the construction of this form [4]. Commercial complex intelligence is a complex that enables information sharing and sharing of all subsystems within a large-scale integrated commercial building, and is also a mature, extensible and replicable template. The scale of commercial complex has gradually become larger, functions have become increasingly complex, and many new problems have been exposed. The research on the design and construction of commercial complex still needs continuous attention. Commercial complex is the most complex commercial buildings with the most complex functions [5]. The pace of development of commercial

complex has not stopped. With the development of new technologies, new urban landscape requirements, and new visual culture changes, Commercial complex is constantly developing in innovation.

2. COMMERCIAL COMPLEX DESIGN IDEAS

Adopting the world's most advanced wisdom integrated platform design concept, based on cloud computing, Internet of things technology, modular architecture, centralized management and control platform management [6]. The overall realization of the pooling of big data resources, statistical analysis of data services, interconnection and interoperability of lower-end operating platforms, and rational operation of smart complexes.

2.1 Value positioning

Commercial complex can achieve better storage and supervision of resource sharing, distribution, and use, such as the efficient use of data resources, video resources, and information resources in communities, businesses, companies, hotels, resorts, hospitals, schools, etc., with the help of smart cities. The body platform can acquire a large amount of data and use more comprehensive interconnection to enhance the transparency of cities, resources, residents, and industrial systems, so that residents and local industries can benefit from the space of the smart city complex and carry out self-adaptation and collaboration. Effective, personalized, safe, supportive and sustainable business activities.

2.2 Architecture

The deployment of commercial complex involves many issues such as smart pipelines, cloud service platforms, smart applications, and application portals, as shown below.

Figure 1: Business complex architecture diagram

2.3 Design concept

According to the characteristics of the project, around the needs of the management, operation, marketing, customer experience, and property management of commercial projects, investment in intelligent facilities will provide a good foundation for the operation of commercial complex. Project design goals include: (1) Improve operational efficiency and reduce management costs. Through the big data analysis, safety management, parking management, energy management and other systems to enhance the level of application of integrated intelligence, reduce management personnel and reduce energy consumption; (2) enhance customer experience and increase business efficiency. Through smart shopping malls related technology applications such as multimedia shopping guides, WiFi coverage throughout the block, passenger flow analysis, mobile marketing and other ways to allow customers to find the best shopping and leisure experience here; (3) improve the security index to protect the business environment. Through video, infrared alarm, intelligent access control, etc. System configuration to protect the business environment of the business.

3. SYSTEM SOLUTIONS

The construction of commercial complexes is of great significance to the rapid development of the city. At present, many intelligent technologies have been widely used in the construction of commercial complexes. In the near future, commercial complex intelligence will be realized. Energy Center centralized management, three-dimensional prevention, decentralized management, centralized monitoring in the aspect of security prevention, and digital services to build a smart city. The system plan of the commercial complex in this project is shown in Figure 2:

Figure 2: System of commercial complex system

3.1 Safety management

3.1.1 The intelligent access control system:

Include mobile phone opening, remote care for the elderly and children, rental housing management, express delivery, public WIFI and viewing public monitoring functions:

(1) Intelligent positioning: Viewing the position dynamics of the elderly and children at any time and anywhere, real-time control of their trajectory information, and preventing danger is the best care for the elderly and children.

(2) Intelligent monitoring: The housekeeping real-time alarm will give you safer 24-hour care.

(3) Smart door locks: Door lock password rights management, real-time viewing of door opening records, putting the keys into the phone. It can be unlocked in 4 ways: NFC, password, Bluetooth, key unlock, and can be accessed via mobile phone software, keyless door opening, remote door open, one-time temporary password, and periodic password setting (fixed-time nanny password).

3.1.2 High-definition video surveillance system:

Ensure that illegal behaviors and emergencies are discovered in a timely manner in public areas, and record relevant image data to achieve digital management:

(1) Outdoor areas: Outdoor areas include outdoor main roads, sunken squares, waterscape areas, and densely populated areas to provide congestion detection.

(2) Indoor public areas: Indoor areas include indoor walkways, fire exits, elevator cars, elevator lobbies, and escalators. It can automatically identify face systems and provide data for precision marketing.

(3) Shops (reserve places): For shops that sell valuables and don't have physical protection facilities such as rolling gates, the merchants can purchase the equipment and the signals are incorporated into the building's master control center.

High-definition video surveillance system can achieve all-weather, multi-faceted surveillance; real-time monitoring of video, you can call out records at any time; restrain the activities of the activities of the area personnel; convenient management personnel to grasp the situation, to understand the distribution of shopping malls, shops business.

3.1.3 Commercial alarm system:

Due to different types of shops and different operating hours, physical separation is not possible. Video analysis alarms are used. The main scenarios are:

(1) The business hours of cinemas and other formats are longer than those of other formats. For this type of commercial shop, if there is no physical separation, a floor alert area is set up, and the area is divided from other areas to prevent customers in the business area from entering other unauthorized areas.

(2) Set up alert areas for shops that sell valuables and do not have physical protection facilities to prevent internal workers (security officers, cleaners, etc.) from entering non-authorized areas and improve the protection level.

3.2 Shopping street

The aim is to improve information services in commercial streets, with secure wireless networks and indoor positioning, mainly through the following four aspects:

(1) Wireless WIFI coverage. With data encryption, secure access authentication, centralized data forwarding, illegal AP detection, user behavior audit, centralized management of equipment and other functions.

(2) Multimedia shopping guide release system. Through video face recognition, shopping information and event advertisements in the shopping guide system are accurately pushed to customers.

(3) Smart Advertising Push. According to different consumers, selectively publish business information to achieve accurate marketing.

(4) Passenger flow statistics based on WIFI. The WiFi positioning platform can locate the user's mobile phone through the WiFi electromagnetic wave and sense which area the terminal device enters. Once the customer's Internet access terminal accesses the WiFi, the system can analyze and count the information of all customers' visits, and can conduct multi-dimensional analysis of the customer's visit to the store, effectively helping the operator to make business decisions.

3.3 Parking lot

3.3.1 The parking guidance system:

Intelligent parking combined with video license plate recognition system and wifi indoor positioning system:

(1) Efficient management: real-time acquisition of vehicle in/out data and charging data for effective supervision and data analysis; high-definition video surveillance system to detect abnormal situations in time

(2) Automatic identification: The license plate recognition rate is high, the recognition speed is fast, and the card is not taken.

3.3.2 Parking payment method:

Can make empty inquiries, traffic lights show, empty navigation, reverse car search and mobile phone to pay parking fees:

(1) Convenient payment: Before picking up the car, scanning the parking card with two-digit code, self-service parking fees, convenient and fast, saving waiting time for waiting in line.

(2) Unattended: In combination with centralized control, license plate recognition, automatic payment, and IP communication technology, the parking lot is unattended.

3.4 Cloud compute

(1) Cloud automation network configuration. Through the cloud configuration design, system optimization, data planning, project construction, transmission link planning, transmission data configuration, system testing, eliminating most of the opening.

(2) Cloud centralized management. Chain operation, total-separation management, and easy deployment. Cross-layer three-network coverage allows operators to freely access any network. Access to the Internet can be linked to a cloud platform without geographical restrictions. The cloud platform is deployed in the headquarters computer room and provides one-stop control over terminal equipment throughout the country.

3.5 Internet of things

3.5.1 Intelligent lighting control system:

The system divides the control area into three parts: indoor, outdoor, and underground parking lots, combined with light source and power circuit settings to achieve dynamic energy management. Lighting is the main part of energy consumption for integrated projects. From the point of view of operating cost control, LED lighting, power supply multi-loop, time-division and ambient light sensing are used to achieve control:

(1) Indoors: According to different formats, business hours are not uniform and multi-loop lighting control is adopted. For example, a movie theater has a long operating time and can only provide illumination of the cinema area and toilet aisles during the period when other merchants are out of business.

(2) Outdoor: Outdoor public lighting is equipped with a light control element, which automatically switches according to the outdoor light conditions, and can also be controlled manually.

(3) Underground parking lot: The parking lot adopts multiple loops and multiple time periods. At the peak of the traffic flow, the lights are 100% illuminated; in the non-peak hours, the lighting status is changed to 50%; and the outage time is changed to 30% of the lighting status.

3.5.2 Smart cover:

Monitoring and monitoring, forecasting and early warning of daily operation and construction maintenance of well cover management units:

(1) Manhole cover management: Manage the basic information of manhole cover, including the cover number, latitude and longitude, and the road.

(2) Condition monitoring: The status of well cover is monitored in real time. The basic status of well cover includes: normal, abnormal, low power, and maintenance.

(3) SMS or APP reminder: If there is abnormality or low power in the manhole cover, you can send a short message or e-mail to inform the staff on duty.

(4) Maintenance settings: Set the maintenance time of the manhole cover.

(5) Map Display: Display the cover position, basic information, real-time status, etc. on the electronic map.

(6) Text display: The text of the cover position, basic information, real-time status, historical status records and other information are displayed.

3.5.3 Smart trash:

Intelligent waste bins use solar energy to generate electricity. Solar energy is used as a power source to reduce the volume of garbage to 1/8 of the original volume. Another feature of the bin is a fully-closed, two-door structure that prevents odor from spilling, and is beautiful and safe. Use mobile IoT to notify managers to recycle the overflowing waste.

4. CONCLUSION

The State Council issued the "13th Five-Year Plan for National Informatization Plan" and proposed to focus on meeting the general expectations of the broad masses of the people and the key needs of economic and social development, focusing on breakthroughs, and promoting information technology to better serve economic upgrading and improvement of people's livelihood; focus on deepening reforms and fully optimizing Information-based development environment provides a strong impetus for building a well-to-do society on schedule.

The commercial complex uses comprehensive data analysis tools to extract effective information, improve efficiency, interoperability, and in-depth smart insights more comprehensively. It also develops a commercial economic operating model for urban complexes. Its social value is in line with wisdom, low-carbon, and environmental protection. Development trend, practice corporate charity responsibility; its economic value through the housekeeper service, enhance the high quality of real estate, improve corporate charity responsibilities; its brand value to create noble real estate brand, enhance the influence of noble brand, establish a high-end real estate image; its service value through Advanced technology means improve management efficiency, improve service quality, and reduce property service costs. The intelligentization of commercial complexes gives full play to the advantages of operators and their partners in next-generation information technologies such as narrow-band Internet of Things, big data, and cloud computing, allowing new generations of information technologies to quickly integrate into the lives of ordinary people, and effectively enhance people's sense of acquisition. Tourists in the community are the first to enjoy more convenient services.

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