

The Research on Open Sharing of Higher Education Park Based on Intelligent Security System

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Abstract

The intelligent security system is a series of systems that use modern information technology means such as artificial intelligence, cloud computing, big data, face recognition to carry out comprehensive monitoring, early warning, prevention and control, disposal, etc, for security protection. It is the development trend of security system in the future, and it is also the basis for open sharing between higher education parks and universities. By using content analysis, unstructured interviews and other research methods, this paper deeply studies the feasibility and basic ideas of the construction of intelligent security system in Shahe Higher Education Park, and forms basic experience and typical practices through the project construction, which further promotes the more intelligent, standardized and scientific safety management in colleges and universities. It really provides an important theoretical basis and practical guidance for the opening and sharing between higher education parks and universities.

Keywords

Intelligent Security System, Higher Education Park, Open Sharing

1. Introduction

In recent years, with the development of information technology and the improvement of teachers' and students' demand for security, although the security system at this stage has realized the integration, networking and IPization of functions, this is still a major defect of the lack of data processing ability, that a large number of manual intervention is needed to realize the real-time and initiative of security monitoring [1]. The intelligent security system integrates modern information technology means such as artificial intelligence, cloud compu-

ting, big data, face recognition, etc, and can carry out all-round monitoring, early warning, prevention, control and disposal of security. It is the development trend of security system in the future, and also the basis for open sharing between higher education parks and colleges.

Shahe Higher Education Park is one of the two university parks determined by the Beijing Municipal Party committee and the Beijing municipal government. At present, it has been settled in six universities under the Ministry, including the Central University of Finance and Economics, Beijing University of Aeronautics and Astronautics, Beijing Normal University, Beijing University of Posts and Telecommunications, China Foreign Affairs University, and China University of Mining and Technology-Beijing. The Beijing Urban Master Plan (2016-2035) clearly stated that Liangxiang Higher Education Park and Shahe Higher Education Park should be built into world-class higher education parks, to enhance the comprehensive strength and international competitiveness of higher education [2]. Therefore, in the process of building a world-class Higher Education Park, how to realize the open sharing of park resources on the basis of building a intelligent security system to ensure sufficient security, it has extremely important practical significance.

2. The Feasibility Analysis on the Construction of Intelligent Security System in Shahe Higher Education Park

At present, the management of personnel in and out of colleges and universities in Shahe Higher Education Park is mainly carried out through the inspection of certificates by security personnel or building management personnel at each entrance and exit. There are security risks such as individual vendors entering the campus to sell illegal goods, social personnel entering the campus to disrupt the teaching order, and criminals entering the school to commit illegal and criminal acts.

Build an intelligent security system, which can identify suspicious personnel through video surveillance cameras and alarm in time; Blacklist comparison can also be conducted to find out the access records of suspicious personnel. The suspect database is established for the fugitives and repeated perpetrators in Shahe Higher Education Park, the suspects of brother colleges and universities in the park, and the wanted personnel of the Public Security Department, so as to realize data sharing and intercommunication. Once the suspects enter the control range of each university, they can quickly call the police and assist the public security organ to check and arrest, greatly improving the security protection ability of campus, and the comprehensive prevention ability of Shahe Higher Education Park. At the same time, it can establish a personnel management system integrating management, prevention, control and sharing, which is "efficient personnel management and timely emergency disposal", so as to realize the visualization, efficiency and intelligence of personnel management, and realize the base database sharing, data sharing and unified management among mul-

tiple universities in Shahe Higher Education Park. On the basis of ensuring safety, universities in Shahe Higher Education Park can effectively promote resource sharing and integrated development in disciplines co construction, elective courses, mutual recognition of credits, interlibrary borrowing and other aspects.

3. The Basic Idea of Building Intelligent Security System in Shahe Higher Education Park

The basic idea of building intelligent security system (phase I) in Shahe Higher Education Park, that is to deploy face recognition temperature control monitoring equipment in key public areas, densely populated places and key prevention and control parts of the campus by using the Internet + AI intelligent device face recognition temperature measurement terminal as the data collection source, and build a cloud platform for the safe access management of personnel managed by Shahe Higher Education Park, that through a multi-functional management system. Firstly, it can enable relevant personnel to access open and shared schools and open and shared spaces. Secondly, it is to effectively ensure the authenticity and reliability of data and prepare for the construction of large data screens in the future. Thirdly, it can implement personnel authentication and take into account temperature measurement, which can ensure the safety and controllability of open shared space under normal management. Fourthly, it can conveniently and systematically check the relevant personnel and vehicles in and out. Fifthly, realize the temperature monitoring in key areas of the campus and the tracking of action tracks in the campus [3]. After the completion of the project, it can be used for the entry and exit safety management of colleges and universities in Shahe Higher Education Park in the near future. The next step, combined with the shared resource reservation management platform, the open sharing of resources among colleges and universities in Shahe Higher Education Park can be realized.

4. The Practical Experience of Building Intelligent Security System in Shahe Higher Education Park

4.1. The Overall Practice of Building Intelligent Security System in Shahe Higher Education Park

Shahe Higher Education Park intelligent security system (phase I) has built five systems, including Shahe Higher Education Park unified identity center, face recognition center, unified data center, service platform applet, and appointment management platform. The unified identity center of Shahe Higher Education Park can integrate and summarize the identities of all teachers, students, staff and related personnel of six universities to form the identity database of the unified identity center of Shahe Higher Education Park. The face recognition center can be linked with the identity center to collect the face information of teachers and students who need to use the services of the higher education park in six colleges and universities, and establish the overall face recognition center of

Shahe Higher Education Park, which can be used for mutual visits between teachers and students in Colleges and universities. The unified data center can reserve data for data collection, data processing, data storage, data display and data sharing in Shahe Higher Education Park. The service platform applet can complete the service for colleges and universities through it. The appointment management platform allows the personnel who have been authenticated by the unified identity center of Shahe Higher Education Park to make an appointment for the entrance and exit of each university gate, so as to realize open sharing.

Central University of Finance and Economics and other Colleges and universities in the park have built eight systems, including unified identity center docking, face recognition center docking, unified data center docking, library management system docking, check-in, access control, track tracking management platform, platform mobile terminal, campus management PC terminal, school gate access management platform, reservation back to school application system and WeChat applet. The unified identity center docking can summarize and integrate the identity information of all teachers, students, staff, family members and related personnel of the school. The face recognition center can synchronize the data of each face recognition device and connect with the existing face recognition center. The unified data center docking can ensure the complete preservation of the original data collected by the current AI intelligent temperature measurement equipment and mobile terminal, and can also make relevant reserves for data acquisition, data storage, data processing and so on. The sign in, access control and track tracking management platform can carry out equipment management, data display, report statistics, abnormal temperature alarm, etc. The mobile terminal of the platform can report the safety and health data, view the school notice, query the access records, scan the code to confirm the identity of the personnel, and manually register the access personnel. The campus management PC can query the data of the current day's entry and exit personnel and view the abnormal personnel log; Generate data report. The school gate access management platform can authorize the school gate access management and count the access personnel data. The reservation back to school application system and WeChat applet can carry out students' pre application for admission, students' filling in information, uploading information related to students' admission, teachers' pre-approval, students' admission application, teachers' approval of students' admission, etc.

4.2. The Experience and Enlightenment from the Construction of Intelligent Security System in the Central University of Finance and Economics

As one of the representative universities in Shahe Higher Education Park, the Central University of Finance and Economics has completed the construction of the intelligent security system (phase I) project. The hardware facilities are equipped with fifty-six face recognition and temperature measurement integrated machines, nineteen face recognition and access integrated machines, four

face recognition and ID card comparison integrated machines, four multi person recognition and temperature measurement integrated machines, ten dual photothermal imaging spectrometers, eleven turnstiles, seven tents, seven ID card readers, thirty-six switches seventy-two ten Gigabit modules and so on. Software development includes one of the above-mentioned unified identity center docking, face recognition center docking, unified data center docking, library management system docking, check-in, access control, track tracking management platform, platform mobile terminal, campus management PC terminal, school gate access management platform, reservation back to school application system and WeChat applet. The hardware installation locations are located at the South Gate of the Eastern District, the southwest gate of the Eastern District, the west gate of the Eastern District, the east gate of the Eastern District, the east gate of the Western District, and the entrances and exits of the bishop school building, the college building, the canteen, the library, the university student activity center, the student dormitory and other buildings in the eastern district.

By implementing the construction of the intelligent security system (phase I), the Central University of Finance and Economics has realized the access of face recognition, provided technical support for the opening and sharing of university resources in Shahe Higher Education Park, and played an important role in the process of epidemic prevention and control. In just one year, it assisted in checking 14,000 off campus visitors, 100,000 on campus faculty and 310,000 students, which provided important support for the school epidemic prevention and control at that time. In the future, the Central University of Finance and Economics will continue to promote the construction of intelligent security system (phase II) project, and further promote the construction of intelligent security system at the gate of the campus, main roads, the trajectory tracking system is installed at the entrance of main buildings and the open and shared public space inside the campus, and the face recognition database is established, Fully realize the functions of face recognition, blacklist ratio alarm and face retrieval. Promote the overall upgrading and transformation of intelligent campus information infrastructure, to create an efficient, safe and convenient information transmission and computing platform for the personnel management and control sharing system, Effectively improve the service supply capacity of digital education resources, to effectively promote the enrollment of colleges and universities, teachers and students, and effectively provide strong support and basic guarantee for colleges and universities, teachers and students in Shahe higher education park to carry out education, teaching and scientific research cooperation and resource sharing.

5. Conclusion

The opening and sharing of Higher Education Park needs a safe and harmonious environment, and the premise and foundation is the construction of intelligent security system. A systematic project is the construction of intelligent security

system, which needs long-term efforts and continuous promotion, and also requires the active implementation and concerted efforts of all colleges and universities in the park. Only when the intelligent security system in the park is sound, effective and interconnected, can we truly ensure the open sharing on the basis of security.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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