

Research on University Smart Office Management System based on Machine Learning

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Abstract

Intelligent office management has the characteristics of business information, and office technology beyond the limitation of time and space, which helps office to achieve real-time. The development of intelligent office is insufficient in colleges and universities, especially in higher vocational colleges. Although it is also expanding online business, there is still a certain gap between smart office. Smart office system has taken an important step in realizing modern office management.

keywords: *university; intelligent office management; system; machine learning*

1. Introduction

The new generation of information technology is changing the way people work and live. Artificial intelligence, machine learning, blockchain and other technologies are in full swing. In addition to intelligent traffic, intelligent public security and other fields, new technologies are also constantly expanding to the field of intelligent office, such as intelligent office unmanned front desk, which can do face recognition, self-help guidance, voice calls, intelligent device connection control. The new generation of information technology, provides new tools for office management, provides a better environment, is not limited by time and space, provides a more scientific perspective, all-round, all-weather, full coverage. In short, intelligent office can achieve fine management, humanized service, office efficiency.

Although the intelligent office system has penetrated into the daily work of the organization, there are also some disadvantages. For example, one-sided pursuit of large and comprehensive, increasing the module content as much as possible in the design, some infrequently used functions are also designed and developed, and finally failed due to the high execution cost, and with the development of technology, many temporarily unavailable functions It will not be enabled in the future either. Therefore, this paper designs and develops a smart office system based on six functions commonly used in university offices to improve office efficiency.

2. Six Practical Fields of Smart Office

Office management is systematic. Although colleges and universities are also gradually promoting system construction, such as student affairs Office, teaching affairs Office and other systems, only the establishment of the framework of the system can give full play to the advantages of intelligent office, otherwise a single system is equal to online office, unable to reflect the intelligence.

2.1. Intelligent voice control

Intelligent voice can free the hands of staff and control intelligent devices connected to the Internet. Intelligent voice-assisted learning can help improve office efficiency, especially for repetitive tasks. Intelligent voice system module, the first is the input of the client, through the voice recognition server to recognize the voice and text data, through the data storage server for retrieval, trigger intelligent device feedback to the application end. Using natural language processing technology (NLP) can improve the man-machine interaction.

2.2. Visual holographic projection

Intelligent office is the visualization of the office process, and can automatically carry out the next process, such as the application for the seal of the college, after the end of the automatic seal application, and the system

can automatically carry out the next operation. In the Post epidemic era, online meetings are very common, but there are problems of poor authenticity and interactivity. Offices can use holographic projection technology for meetings to increase the interactivity and authenticity of meetings.

2.3. Smart seal management

One of the important business of the office is the management of official seals, especially the seals used in winter and summer holidays or non-working hours in colleges and universities. If the intelligent system is used, the seals can be used all day long. After the application is approved in the system, the seals can be printed remotely.

For example, during the COVID-19 epidemic, the application materials are submitted and the official seal is urgently needed. Due to the home office, the official seal cannot be carried with you. At this time, it is very useful to implement remote seal management. Users can scan the QR code of the official seal to apply. You can get an electronic official seal to solve the problem of printing during the epidemic.

2.4. RPA

Robotic Process Automation (RPA) software robot that can be programmed in low code to reduce repetitive tasks such as financial reconciliation, document scanning, etc. In the design of intelligent office system, we embed PRA as a part of the system.

In the process of online training, in order to make the trainees know that they are listening to the class, the trainers should move the mouse every few seconds. If they don't want to click the mouse next to the computer, they can use the plug-in of clicking the mouse, which is a kind of PRA. Many office workers have experienced

the pain of Ctrl + C and Ctrl + V. users only need to set steps in advance, and RPA system can automatically copy and paste, and sort out the information on forms and invoices directly.

2.5. Smart documents

Intelligent documents include automatic generation and automatic filing of documents. Office services generate a lot of paper and electronic documents every day, which need to be systematically archived. Intelligent document saving is to automatically merge documents with similar items through machine learning. The intelligent system can automatically archive to save labor. At the same time, in the process of document drafting, such as meeting notices can be input template, in this way, documents are automatically generated when needed.

2.6. Distributed work

In the post epidemic era, the traditional office model has changed, and distributed office has become a daily routine. Online documentation is an example of a simple distributed office, in order to achieve a goal, the staff at the same time to edit a file, and edit content is open to all people. When everyone has finish their task, the final tasks complete.

During the COVID-19 epidemic, frequent statistical information and data are required. Online forms can quickly and accurately collect the required data. At the same time, the permission function of online forms can set editing permissions and avoid the privacy leakage of traditional forms.

In addition to the above six scenarios, the smart office system also includes intelligent security, intelligent light control, etc. the following figure is the model diagram of the smart office system.

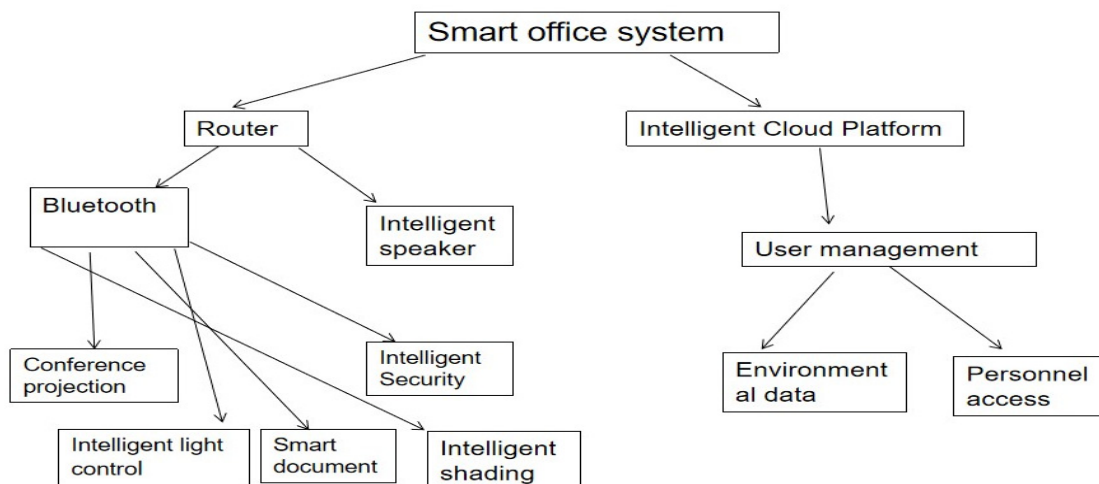


Figure 1 Smart office system architecture model diagram

3. Structure of Smart Office System

To realize smart office, there are three steps: standardization, digitization and smart. As shown in the figure below, speech recognition and noise elimination technologies are standardized. NS, AEC, AGC and other technologies are used here. Next, the instructions and tasks are digitized by digital signal processing (DSP) technology. Finally, through the smart office system software embedded with RPA and machine learning, staff can visually manage office environment data, meeting data, personnel data, security data, etc. After analysis, the system sends instructions to intelligent devices, which are connected through Bluetooth.

In order to improve the use of school office applications, an intelligent office assistant application system with machine learning is developed. The application system integrates the voice recognition module, and accesses the school office management related processes and data, implements the function of processing business processes through voice intelligence query data. This system uses the machine learning framework to improve the interactive experience of the office, optimize the results of the identification query, enhance the intelligent level of higher vocational office applications, and improve management efficiency.

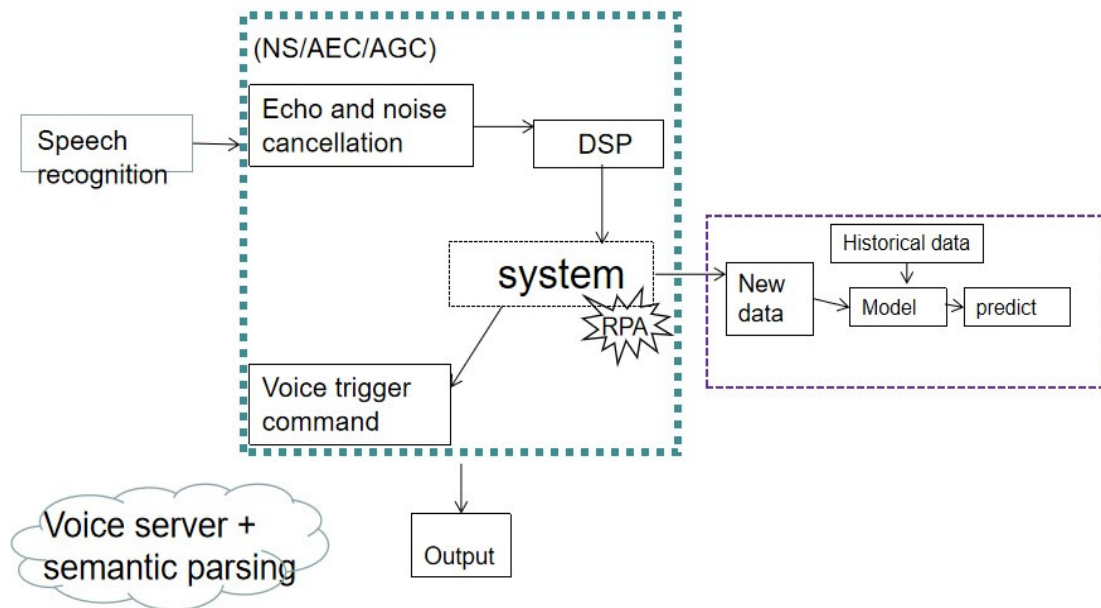


Figure 2 Smart office system architecture diagram

4. Conclusion

(1) Technology is a means. Whether the intelligent office system can be realized depends largely on the system. The relationship between technology and system has always been controversial. Some people believe that technology determines the system and promotes system reform. Some people believe that the system determines the technology, and only the technology in line with the organizational system can be really used. In fact, the two complement each other. Only the reform of the system is more conducive to the promotion of technology, and the

continuous development of technology also promotes the reform of the system.

(2) Although the intelligent office system in Colleges and universities can use new information technology to improve the efficiency of repetitive work, make the office process transparent and visual, save manpower, shorten the distance between powers and reduce the range of superior and subordinate management, in essence, the intelligent office system does not solve key problems, and complex problems still need to be solved manually. The office processing process has not changed, such as approval, and the key links still need manual approval.

(3) The smart office management system uses big data technology to make office informatization, office beyond time and space constraints, and office real-time. However, there are also some problems. Although the intelligent office system can establish a database to store information, it cannot break the information island. Information outside the system is unlikely to be shared with the smart office system, because for security and privacy reasons, many information is not open to the public.

(4) The development of intelligent office system requires more investment, and the school is more willing to invest the limited funds in large equipment or intelligent equipment that can be seen and felt. But the soft system such as office system can reflect the governance level and modernization level of university more actually.

(5) Under the normalization of epidemic prevention and control, the traditional office structure needs to be changed urgently. In the future, blockchain technology will be used to establish a new university governance system. The blockchain can achieve decentralization, so that everyone's value on the blockchain can be quantified. For example, in different jobs, according to the work information records of each employee, user portraits can be generated, and each person's contribution and trust degree can be evaluated, and the work reality and data identity can be connected. In this way, everyone will pay more attention to their digital identity, and personnel can arrange different jobs for each person with reference to each person's credit situation. In this way, the problem of low office efficiency is reduced. Individuals can publish their own blockchain points records. The information cannot be tampered with, and can be traced back and checked at any time.

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