

# Optimized design of a new artificial intelligence system based on visual communication

Guozhen Gao<sup>1</sup>, GERELMAA Dashnyam<sup>2</sup>

<sup>1</sup>School of Arts, CITI University, Ulaanbaatar, 999097- 15141, Mongolia

<sup>2</sup>School of Advanced Studies, CITI University, Ulaanbaatar, 999097- 15141, Mongolia

## Abstract

**With the continuous improvement of our country's science and technology level, the modern technology means of information technology is constantly being applied in various fields, and the new artificial intelligence system controlled by visual communication is currently being used more and more in various fields, and the system can use the voice function to input the consumer price when the consumer swipes the card, which is more convenient and fast in the process of use.**

## Keywords

**Visual communication; intelligent voice swipe card; control system; speech recognition.**

## 1. Introduction

The new artificial intelligence system with visual communication control device as the main part can better perform its voice recognition function. The system is to analyze and locate the voice through the internal special device, and finally finish the recognition work, and then transmit the recognized information to the central system, and send the command to the card swiping device through the central system to finally finish the voice card swiping task. This series of operation process should make use of computer programming, only after the software to the system for scientific and reasonable programming, visual communication device for rigorous data analysis and processing, can be the central control system to receive accurate information data, so as to ensure that the system can better complete the task of swipe card. At present, the application of new artificial intelligence system of visual communication has been very common in China, major shopping malls and even small and medium-sized private storefronts have introduced the system for store cashier work, the system has many advantages such as low production cost, simple operation, small and convenient to carry. Therefore, in order to better apply the system in various fields, we should grasp the internal structure and operation theory of the system more clearly, improve and perfect the system to make it better for us.

## 2. Current main applications of new artificial intelligence systems for visual communication control

The application of the visual communication control device in the new artificial intelligence system greatly reduces the space of the card swipe system. Among the various microcontroller control devices, visual communication is chosen mainly because of its own powerful voice processing function, which can accurately process and analyze the data of the input audio, and quickly and effectively identify whether the voice is correct and whether the next operation can be performed through the computer program inside the system, effectively ensuring the safety of the voice card swipe.

The system mainly has a strong voice recognition function and swipe card function, in the execution of the voice function can be suspended in the waist or wear in the mask part, the voice system internal structure includes a microphone and connection line, the system is mainly through the voice recognition device hanging in the waist for voice recognition and conversion, and then upload the information to the system internal, so as to intelligently control the swipe card machine to achieve the purpose of voice recognition, the system can be swiped successfully through the electronic screen to display the balance of the consumer's bank card and other information, through the promotion and application of this system greatly improve the efficiency and accuracy of the cashier work such as shopping malls and reduce the error. This article analyzes and discusses in detail the operation principle and structure of a new artificial intelligence system for visual communication control, in the hope that the system can be better promoted to various fields and its use value can be improved.

At present, visual communication is the most cost-effective voice swipe card system control device, it has a highly accurate internal 10-bit AC system core, the AC system new can better audio conversion, and the internal device of automatic circuit to real-time audio collection, and then the AC system core after receiving the voice playback, after the system of the internal computer program will be the income of the voice data calculation quickly complete voice recognition purposes, visual communication has a unique set of instructions program, can support the voice recognition in different environments, even in the external noisy environment can accurately extract the need to identify the voice, greatly ensure the security of the swipe card system, improve the efficiency of the system. At the same time, the visual communication device has a powerful function computing program inside, as long as the system can effectively income of the voice, and carry on the voice playback system function program inside will intelligently start computing function, quickly complete the voice recognition work. In addition visual communication also has advanced chip-to-chip interface, users can download the program through the chip interface, convenient and easy to operate.

The visually communicated internal speech recognition device consists mainly of internal audio signal receivers, digital signal processors, and computer program programming components. The system first receives the external audio signal with the internal audio signal receiver, then plays the audio through the internal processor, calculates the audio data with the internal programmed computer program, gets the data result, then transmits the data result to the central system quickly, and the central system uses the data result to judge whether the input voice can carry out the next swipe task. The current visual communication is one of the most widely used monoliths among digital speech recognition systems.

Visual communication is equipped with a micro-controller inside, which can effectively meet the needs of different users. The system fully takes into account the problem of less resources for users' needs, and through the setting of the micro-controller, independent debugging can be carried out when users increase their needs to meet the requirements of users' use. Visual communication has a faster processing speed of information and can better classify and process complex audio information. The data module structure inside visual communication can effectively cope with the problem of unsatisfactory speech acquisition results caused by various complex situations, and perform speech recognition functions better through powerful functional processing inside the module. When the user has different needs for voice recognition, first of all, it can connect the data program with the needs through the data port and then debug the data of the background operation system so that it can better adapt to the current use and play its voice recognition function to ensure the smooth and orderly implementation of the card swiping work.

### **3. The optimal design of new artificial intelligence system based on visual communication**

#### **3.1. Central control system chip**

The main components of the chip mainly include 32-bit micro controller, program memory card, etc. During the operation of the program, the external working environment can be maintained at minus 40 degrees to minus 80 degrees, the program can basically meet the operation of various working environments except for the extreme harsh environment, the working voltage only needs to be maintained at about 3v, which shows that the working environment requirements of the chip control system are low, and it also has the advantages of being simple, light and easy to carry while meeting the requirements of the program operation, which is a comprehensive voice swipe card system with strong practicality.

#### **3.2. Main components of the speech recognition device**

The main working principle of the system is to use specific devices and technology through the collection of voice, the internal system data operation so as to achieve the purpose of recognizing voice, only accurate and timely play voice recognition function can effectively support the further implementation of the swipe card work. The system can effectively capture the speech keywords included in the system, and can edit and calculate them dynamically to achieve a high accuracy rate of recognition. The core original that supports the operation of this part of the work is the voice voice control chip, which is an important guarantee to support the work of voice recognition.

#### **3.3. System level serial port setting**

The main purpose of this system is to connect the card swipe system with the microcontroller more conveniently and quickly. Only when the two are effectively connected can the whole operation process be completed smoothly, and the accurate information will be sent to the system after the voice recognition module completes the voice collection and recognition work, and then the system will give instructions, and only when the card swipe device receives the system instructions can it execute the card swipe task to ensure that the card swipe is more secure and reliable and the work process is smoother.

#### **3.4. Bluetooth module setup for the system**

The new artificial intelligence system of visual communication is set up with Bluetooth module, which can realize the information transmission through Bluetooth transmission function, and send the information to the system internal feedback accurately in real time, avoiding the inconvenience caused by using port transmission when conducting information transmission, the use and development of Bluetooth transmission function greatly improves the operability of the system, and facilitates the user to operate more easily when collecting information, and the Bluetooth module is set up to effectively improve the information transmission speed of the new artificial intelligence system of visual communication, making it more stable, fast and sensitive in the operation process.

### **4. Conclusion.**

Through the above analysis and summary, we can better understand the main operating principle and function of the new artificial intelligence system system under the control of visual communication. This system can input consumers' consumption amount by voice and achieve the purpose of card swiping through the system voice recognition, which greatly improves the work efficiency and simplifies the cashier process, and can effectively avoid the drawbacks of traditional charging methods, the amount of charge is more accurate and will not

cause charging errors due to human reasons. This shows that the new artificial intelligence system of speech under visual communication control is worthy of wide promotion and use.

## Acknowledgements

Both authors make equal contributions to the article.

## References

- [1] Li Z. Y. Overview of novel artificial intelligence systems [J] . China New Communication,2018, 20 (17) : 74-75.
- [2] Huang Junyuan. Exploring the application of voice technology development [J] . Electronic World,2018,(22) : 92-94.
- [3] Ma Ning. Design and implementation of RF IC card and its reader [D]. Huazhong University of Science and Technology, 2020.