

Application of Two Dimensional Code in Postal Logistics System

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Abstract

Along with the popularization of the concept of Internet of things and the application, along with the formation of the concept of Internet of things, as well as the further application of two-dimensional code technology, is gradually accepted by the people. To meet the needs of the China Post's development, to meet the development needs of China's Internet of things technology and market. Is a must for the future development of the postal network technology, two-dimensional code bill business and logistics business, two-dimensional code in postal logistics will have great application.

Keywords

Two-dimensional code, Postal Internet of things, Image recognition, Photoelectric sensing data reduction.

1. Introduction

In recent years, the technology of two-dimensional code has become a focus, and more and more people have accepted it. It has a relatively wide range of adaptation. No matter it is catering, ticketing, advertising media, wholesale and retail, warehousing management, logistics and distribution, it has gradually used two-dimensional code to promote sales and management. In this process, a simple and effective management method is urgently needed to manage the collection, import and export, shipment, warehousing, transportation and other aspects of parcel letters. As a high-tech automatic identification technology, two-dimensional code has the characteristics of automatic carrying, automatic transmission, low cost, and reliable reading, prompting the technology to enter the logistics management market quickly.

2. Overview of two-dimensional code

Two dimensional code originated in Japan is a new technology of automatic identification and information carrier. The technology principle is based on the technical principle of converting all kinds of characters, numbers, codes, sounds, music and other information, and photos and images into binary data, then encrypts and compresses them, and then forms binary coded stream through error correction coding, and then 0 and 1 of the binary data stream. They are converted into dark and light, or light and dark color dot arrays in two-dimensional images. There must be characteristic image points that can be set up on the periphery of the image, or in the middle, or in the four corners. A two-dimensional code image is formed. Automatic information processing is realized through two dimensional code image input device or photoelectric scanning device. It has some common characteristics of bar code technology. Each code system has its own character set, and each character has a certain width. It has a certain calibration function. It also has the characteristics of automatic recognition of information and processing of rotation changes. It has the advantages of high density coding, large information capacity, wide coding range, fault-tolerant ability, error correction function, high reliability of decoding, introduction of encryption measures, low cost, easy production and durable.

3. The development of two-dimensional code in China

The domestic main two-dimensional code research and development enterprises are divided into three main categories. One is the two-dimensional code technology invention enterprise, the other is the two-dimensional code reader product development enterprise, and the third category is the domestic two-dimensional code technology application enterprise.

The most important inventions of domestic two-dimensional code technology are the following three enterprises, which invented different two-dimensional codes.

Shenzhen silicon Sensing Company: GM code and cm code.

Chinese product code Center: Hanxin code.

Thunis: excellent code

Two dimensional code equipment enterprises have the following major categories.

Foreign countries Europe and America: SYMBOL, Metrologic, HHP

Japan: Denso, TOHKEN, Japan.

Domestic: new world,

The above equipment providers provide all kinds of publicly available two-dimensional code recognition devices that can be applied in China.

The application of Mobile two-dimensional code is mainly provided by the following three enterprises.

The galaxy media (using DM code to form a system solution with a small capacity can only put a relatively small number of characters, mainly for mobile Internet access, or storage of business card information).

(QR) to create a system solution, with larger capacity to put characters and characters, mainly web sites or storage of business card information.

New world wing code pass (using DM two-dimensional code or QR two-dimensional code to provide two-dimensional code electronic ticket voucher business)

The two dimensional code system is a product of the high and new technology field. It is one of the most important components of the Internet of things industry recently proposed by Premier Wen Jiabao. The Internet of things will be a major direction of the development of the global IT industry in the next 20 years. The Internet driven industry will reach more than one trillion yuan. It is a new industry that the country strongly advocates and supports.

In the direction of macroeconomic development, we still have to carry out strict macroeconomic and political environment analysis and analyze the external factors that affect enterprises. Variables that can not be controlled include social and cultural factors, political and legal factors, scientific and technological factors, economic factors and competitive factors. Although our operation team can not prevent unexpected events in some time or circumstances, it is entirely possible to predict comprehensively the occurrence of certain events based on various information and factors. And formulate corresponding countermeasures to adapt to these changes. We should act in advance and take the initiative to attack, rather than react passively afterwards, and strive to be the initiator of some change, rather than the victims of the environment being out of control.

4. Application of two-dimensional code

4.1 Notes (tickets for scenic spots, train tickets, air tickets, music and movie tickets, and all kinds of coupons, and all kinds of instrument vouchers).

Integral exchange: after using the integral conversion method of two-dimensional code, users can apply for exchange application at any time and place, and exchange the gift to the nearest exchange point through the two-dimensional code reading equipment.

The electronic vip: instead of the traditional entity VIP card is based on the two-dimensional code VIP electronic card. The VIP customer can download the two-dimensional code to the mobile phone and print it to the paper, carry the mobile phone or the two-dimensional code paper ticket, and then enjoy the service after reading through the two-dimensional code reading equipment. At present, the global system of VIP easy boarding has been installed in 62 main airports except Hong Kong, Macao and Taiwan.

4.2 Logistics application and management of goods and materials, production management.

All items can be woven into two-dimensional code and printed on the external packaging of items to ensure automatic identification and validation of items.

4.3 Information management (documents, book publishing and preservation)

A large amount of paper information can be printed on the paper media by two-dimensional code, which can greatly reduce the number of paper stored in the media. It can save information in the original area by 1/50 yards to 1/300 or so according to different information content. It greatly reduces the number of paper documents saved, saves cost and storage space. It is very used in books and materials. Preservation and management of documents and archives.

4.4 Medical devices, medicines, and hospital records management.

The information can be printed directly on the outer bag of articles or medicines through two-dimensional code, and users can directly interpret the information content through the mobile phone or two-dimensional code reading equipment, ensure the correctness of the medicine and content. And the contents of the patient's medical record card can be saved and printed through the two-dimensional code to the patient's medical record card. Patients or doctors can read patient's medical record information through mobile phones or special reading equipment. Nowadays, the IC medical record card used in hospitals is stored in computers, which is not convenient for patients to read information, nor is it convenient for power outages to deal with patients in emergency situations.

4.5 The government, public security, military and secrecy.

The confidentiality of documents, the confidentiality of personal information, including information in documents, passports, and identity cards.

4.6 Ensure the safety of the elderly and children.

By printing special codes (such as watermark, etc.) in the special position of clothes for the elderly or children, these people have certain information marks, and the special two-dimensional code of special ink can only be decoded by special two-dimensional code decoder. Public security personnel and other special groups can use special two-dimensional code decoder to read and identify. In the same principle, this method can be used to identify and identify the fighters in the army.

Two dimensional code has a huge application market, which plays a very favorable role in the postal parcel delivery, the development of mail business, and the promotion of Philatelic business.

5. Postal application of two-dimensional code

5.1 Application of two-dimensional code in postal products

5.1.1 mail products

Using two-dimensional code information carrier technology, the two-dimensional code containing customer information for personalized mail products is printed on a postcard or envelope and sent to the recipient. After receipt, the recipient can not only get information from postcards and letters, but also use the mobile phone to scan the two-dimensional code to get the electronic information of customers. It is convenient for target customers to interact directly with customers' promotional information. In the process of sending letters, the two-dimensional code on the surface is also a two promotion link. The indefinite group of customers can scan and read customer information with two-dimensional code mobile phones, playing the advertising effect.



Figure 1 stamp bar code

5.1.2 philatelic products

The two-dimensional code is printed on philatelic products. The customer can scan the two-dimensional code to get product information, such as designers, circulation, price, historical background, collection value and so on.



Figure 2 Stamp QR code

5.2 Application of two-dimensional code in Postal Logistics Service

In the process of logistics management, the application of two-dimensional code technology is usually to print or paste the bar code on the outer packaging and goods of the goods. Through the application of two-dimensional code reader and computer network equipment, the whole process of logistics can be tracked, identified, authenticated, controlled, and feedback in real time, avoiding the repeated entry of data.

In the process of postal parcel delivery, we can divide it into two ways: warehousing distribution and through distribution. Through the application of two-dimensional code technology and computer network technology, the whole process of goods tracking and processing from picking, transportation and delivery can be realized. The two-dimensional code information can be directly pasted on the packaging of goods or printed on the waybill. In each link, a two-dimensional code reader is used to track and inquire, distribute goods, and distribute goods information and customer order information to the mobile terminal before delivery. After arriving at the distribution customer, the mobile terminal is opened, the corresponding order is sent out, and the goods are selected according to the order situation, and the bar code labels are verified. The mobile terminal automatically checks the distribution situation and makes corresponding prompts. In addition, customers can understand the location of the goods in real time through the network. The product tracking on the production line tracks the production process in the daily production. First, the business center sends the production task list and the task sheet flows with the corresponding products. Then each production link starts at [1]. Scan the bar code on the task list with the production line terminal to change the state of the product in the database. Finally, the product will print and paste the customer information bar code when the product is offline.

According to the characteristics of all links of these postal logistics, two dimensional code technology can establish corresponding warehouse management system, transportation management system,

postal delivery system, archives automatic management system, etc., so as to achieve real-time management and control of every logistics. Logistics information can be divided into: transportation information and goods information. These include transaction information (receipt number, packing list, transportation way, etc.), goods themselves information (packing box, item name, quantity, shelf life) and so on, so that data collection does not need on-line data base and reduce dependence on Network, which is especially important for transportation industry.

6. Two-dimensional code industry market

The application of two-dimensional code is still a new field. The market of 2D barcode equipment and application is just beginning. The two-dimensional code technology can be applied to the mobile domain, and it can also be applied to various industries. China Mobile, China Telecom and China Unicom have launched the application and recognition of the two-dimensional code of hand. In the Chinese market, the application of two-dimensional code is still in its infancy. The prospect is broad and the market potential is huge.

When Premier Wen Jiabao visited Wuxi in August last year, he put forward the importance of promoting the development of animal networking. He clearly indicated that the future of the sensor network (IOT) should be planned sooner or later, and the core technology must be broken down sooner or later. We must rely on science and technology and talents, and occupy the commanding heights of science and technology and economic development. To ensure China's sustainable development capability and sustainable competitiveness, the Internet driven industry will reach more than one trillion yuan.[3] as the development of the Internet of things. The most important information sensing elements RFID and barcode will play the most important positive role. The size of the Internet of things that can be driven by the two-dimensional code will reach more than trillion yuan. The two-dimensional code is an indispensable basic element in the development of the Internet of things. It will push the great development of the Internet of things industry.

7. Summary

This paper puts forward the application of two-dimensional code in physical transmission, which is feasible both in principle and in practice. Some of them have been tried and achieved certain results. With the maturity of technology, the application of two-dimensional code will be more extensive and practical. It will also bring new technological advances and will also be used more widely in physical transmission.

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