Retraction

Retraction: Research on the Design of New Logistics Control Chain Based on Artificial Intelligence Technology (J. Phys.: Conf. Ser. 1915 022058)

Published 9 September 2022

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The authors of the article have been given opportunity to present evidence that they were the original and genuine creators of the work, however at the time of publication of this notice, IOP Publishing has not received any response. IOP Publishing has analysed the article and agrees there are enough indicators to cause serious doubts over the legitimacy of the work and agree this article should be retracted. The authors are encouraged to contact IOP Publishing Limited if they have any comments on this retraction.

Retraction published: 9 September 2022
Research on the Design of New Logistics Control Chain Based on Artificial Intelligence Technology

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Abstract. The vigorous development of logistics industry has intensified the competition among enterprises. How to use innovative technology to promote their business to jump out of the Red Sea is a problem that many logistics enterprises are thinking about. The digital transformation of logistics control is also advancing from "Internet +" to "AI+", and "AI+ industry" is becoming a transformative force that cannot be ignored. Based on this, this paper discusses the design of a new logistics control chain based on artificial intelligence technology.

Keywords: Artificial Intelligence, Logistics Control, Design

1. Introduction

Many people think of AI as a set of off-the-shelf tools that can be packaged directly to provide solutions; Instead, we think of AI more as a methodology that needs to be tailored to a specific problem before it becomes a usable technology tool [1]: Each industry faces different pain points and features of each application scenario. Therefore, in order for AI to be truly implemented, it needs to make in-depth customization based on the domain knowledge of the industry. The design of the new logistics control chain is no exception.

2. Summary of intelligent logistics management technology

2.1. Overview of traditional logistics management technologies

The traditional logistics management technology, taking express transportation as an example, mostly uses manual express identification, sorting, packing, unpacking, transportation and delivery, which is more than enough to deal with the small amount of logistics. However, there are many disadvantages of manual operation, such as personnel sorting errors leading to express transportation errors; personnel identification inaccuracies leading to express classification errors; personnel transportation may be emotional, violent sorting, sprinkling, throwing, causing express mail damage, resulting in a higher rate...
of complaints; personnel in the delivery of express delivery and delivery of express delivery, often have to carry out more traffic behavior, and many couriers in order to "pull fast delivery", electric vehicles overload, do not abide by traffic rules phenomenon, resulting in traffic accidents and tragedies; In the whole express delivery process, the manual each link time-consuming, causes in certain network shopping climax period causes the goods" to burst the warehouse "and the delivery, the dispatch is not in time. It can be seen that in the traditional logistics overall management, there is room for improvement in the process of express identification, transportation, delivery and so on.

2.2. Summary of intelligent logistics management technology

Intelligent logistics management, using advanced artificial intelligence technology as the technical support, centralized control, centralized management, centralized classification, centralized transportation in all aspects of logistics activities, take a company's intelligent logistics factory as an example, The intelligent logistics factory takes one or more computers as the "brain" and "nerve center" of the intelligent logistics system to monitor and control the overall logistics activities; take the integrated assembly line and warehouse of multiple machines and electricity as the "skeleton" in the intelligent factory; take the multi-machine AGV( intelligent guide car) as the "carrier" of sorting and transportation in the intelligent logistics factory; The intelligent unmanned express transport vehicle is used as the "dispatcher" and "courier" outside the intelligent logistics factory to realize the delivery and delivery of goods [2]. The operation of the whole intelligent logistics factory is based on the core computer software, and all the equipment inside and outside the factory is controlled by the core computer in the form of Internet. Apart from the daily maintenance personnel of the equipment, there are few personnel involved in express sorting, transportation, handling and delivery in the whole factory, which not only reduces the cost of personnel, but also improves the speed of logistics delivery and sorting through 24h of uninterrupted operation. Almost completely avoid error rate, avoid malicious sorting fall. In the link of door-to-door delivery and door-to-door delivery, intelligent unmanned express delivery vehicle instead of traditional manual delivery, can run in the streets that meet the driving conditions in the city, abide by traffic rules and deliver goods to the door. Inform the recipient of express delivery information in the form of Internet.

3. Intelligent logistics management technology based on artificial intelligence

3.1. Overview of artificial intelligence technology

Artificial intelligence is one of the important technologies of the new generation of information technology and the product of high information technology in the world. The meaning of artificial intelligence is to connect things with things in real time through centralized management, in the form of Internet, satellite and other communication forms, so that there is information exchange and communication between things. The general structure of artificial intelligence technology includes intelligent perception technology, recognition technology, intelligent control technology and so on. Artificial intelligence and big data technology have become an important strategy for the development of our country in the new era, and also an important technology to improve the living standard and convenience of the people [3]. Artificial intelligence refers to a huge network formed by combining with the Internet through various information sensing devices to collect all kinds of information needed for monitoring, connecting, interactive objects or processes in real time.
3.2. Design of intelligent logistics management system based on artificial intelligence

The establishment of intelligent logistics management system includes the main control computer, the RFID radio frequency identification end, the control end of the internal logistics transportation equipment in the factory and the execution end, the object delivery car (AGV), the dispatch field car, the mobile phone or computer of the consumer (including the logistics initiator and the logistics receiver), which constitute the classical "five-tier system" of artificial intelligence, as shown in figure 1 below.

![Diagram](image.png)

**Figure 1.** 5 Schematic

The support layer is the "bottom layer" and the basic layer of the whole logistics management system based on artificial intelligence. The function of the support layer is to make the rules of object sorting, the application of key technology, the coordination relationship and principle between various objects, the communication protocol and so on in the intelligent logistics management system. It is the core layer and the "brain" layer that support the whole system. The main executor of the support layer is computer software.

Perception layer is based on artificial intelligence logistics management system "sensory ", but also recognition layer. And the role of the perception layer is to use visual means, radio frequency means (RFID) to realize the identification and judgment of all objects in the whole artificial intelligence. Through the identification of all electronic labels such as QR code and bar code by RFID RF recognizer, the reading and classification of object attributes are realized, which lays the foundation for subsequent sorting and transportation, and the perceptual means are reused in many equipments and links, such as sorting identification, AGV transportation identification, dispatch vehicle identification and delivery identification [4]. For example, camera and GPS are used as intelligent unmanned vehicle road identification, traffic rules are observed, and objects are delivered safely, accurately and timely to users. Sensing layer mainly includes GPS, RFID radio frequency recognizer, camera sensor and so on.

Transport layer is based on artificial intelligence logistics management system "nerve ", but also communication layer. The role of the transport layer is to ensure communication and connection between all objects in the overall environment of artificial intelligence. The transmission layer is indispensable in the communication of everything and things, for example, in the core control area of intelligent logistics, all control instructions are conveyed to each module and link to achieve the purpose...
of master control [5]. For example, real-time contact between delivery vehicle and factory headquarters (including location information and delivery information) and communication exercises with customers also need to be implemented by transport layer. The transport layer mainly includes communication equipment, Internet and so on.

The platform layer is based on the artificial intelligence logistics management system "display". The query, setting and feedback of all artificial intelligence information are completed in the application platform layer. For example, technical workers in the factory, in the process of equipment maintenance and equipment operation supervision, through the platform layer display, LCD screen and so on to view the operation of intelligent logistics, timely feedback and processing of problems found; For example, factory technicians modify, maintain, detect and read and download the whole intelligent logistics management system. The platform layer mainly includes various management software and management display input and output equipment, man-machine interface and so on [6,7].

Application layer is the level of users and consumers' demand for logistics, which generally includes user logistics APP, and the application channel of communication and contact with business platform. Application layer is the most direct and transparent level for users to enjoy artificial intelligence technology platform.

4. Design of Al new logistics control chain: intelligent matching between supply and demand

The most fundamental problem to be solved in logistics industry is the matching of supply and demand. Whether it's express delivery like Shunfeng or sea transportation like OOCL shipping, it's solving the problem of matching supply and demand, that is, sending things to the people in need. If we abstract the business scenarios of the whole logistics industry, we can get the following basic application scenarios:

![Application scenarios](image)

**Figure 2.** Application scenarios

Scenario one, supply and demand prediction. Logistics enterprises do not start business after the business order comes, but will estimate the number of site orders before the customer orders, and plan...
the means of transport or predict the number of goods shipped per port, empty boxes, etc [8]. Therefore, it is necessary to use time series data, combine historical experience, consider holidays and other factors to predict, and when accidents occur, such as road congestion, ships encounter storms, etc., it is also possible to dynamically adjust according to specific conditions.

Scenario two, supply and demand evaluation. Most of the logistics demand is bona fide, but there is still a risk of malicious demand, such as deliberate insurance fraud. Therefore, how to achieve abnormal detection, early warning, also become one of the urgent problems of logistics enterprises.

Scenario 3, path optimization. This is the core application scene of logistics industry. When you know where supply and demand are, you have to decide where to send vehicles, ships, routes, how to transport goods with the highest efficiency, the lowest cost, whether you need to set up transit stations, distribution centers, or build your own storage, and so on. These are the problems that path planning needs to consider. At the same time, once encountered a sudden situation, but also to be able to adjust in time, quickly optimize the route. In addition, if there is a malicious risk in the supply and demand relationship corresponding to a certain path, it is necessary to add some mechanism of review or verification to the path to realize the necessary risk control [9,10].

5. New logistics control chain design process

The business flow diagram (transaction flow diagram, TED) is to use some specified symbols and connections to represent a specific business process. In the analysis of the organizational structure and function of the system, it is necessary to string the information about the business process in the system survey from the perspective of a practical business process for further analysis. The processing flow of logistics control system based on artificial intelligence is as follows: receiving order-recording-call arrangement-logistics is sufficient-restocking registration- restocking; whether the goods are sufficient sub-process is: delivery-tracking-arrival destination-confirm receipt

The logistics control system based on artificial intelligence is mainly a control of the process of commodity circulation [11]. Using the data flow chart, we can clearly see the direction of the system data flow, which is also the direction of the corresponding data flow in the process of commodity circulation.

A data dictionary (Data dictionary) is a directory in which users can access record database and application source data. The core data dictionary of the system is as follows:

First table name: vehicle information table; description: record vehicle information; definition: vehicle information table: license plate driver name driver mobile number vehicle

Location information vehicle signal usage years vehicle status; location: database table.

Second table name: order information table; description: record customer order information; definition: order information table = order number customer name customer address customer telephone order content; location: database table.
Third table name: origin information table; description: record original product information; definition: original product information table = original product number original product demand quantity origin purchase contact information; location: database table.

Fourth table name: distribution business information table; description: record distribution business information; definition: distribution business information table = order number goods in the refrigerated car number goods in the location of the environment temperature; location: database table.

Fifth table name: inventory information table; description: record inventory information; definition: inventory information table = commodity number goods in the cold storage location number goods in the environmental temperature commodity quantity; location: database table [12,13].

The sixth table name: replenishment information table; description: record replenishment information; definition: replenishment information table: commodity number commodity name commodity origin required commodity quantity; location: database table.

7th table name: warehouse information table; description: record warehouse information; definition: warehouse information table = warehouse number warehouse latch commodity type inventory size current commodity category, quantity current temperature and humidity status; location: database table.

6. Conclusion

If you don't advance, you will fall back. It is particularly important to keep up with the pace of AI development. Only by embracing AI deeply and comprehensively can logistics companies stay 10 or even 20 years ahead of their peers in the future. The digital transformation of the logistics industry plays a significant role in reducing costs and increasing efficiency of the logistics industry, and it is also of great significance to the design of new logistics management chain.

Acknowledgments

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