

SOFTWARE SUPPORT FOR AUTOMATION OF GOODS DELIVERY AND WAREHOUSE MANAGEMENT PROCESS

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Abstracts

The paper shows the benefits of using automation of goods delivery and warehouse management. These are the main trends in the supply of goods. The processes of introduction of automated warehouse management are meaningfully described. The main tasks of software support of process automation by delivery of goods and warehouses are defined. Described purpose, subject, and object of software development are to create a computer-automated system for the delivery of goods.

Keywords: software development, automated system, automation of goods delivery processes, warehouse management.

Анотація

В роботі показані переваги від використання автоматизації процесів поставки товарів та управління складськими приміщеннями. Зазначені основні тенденції що відбуваються в галузі постави товарів. Змістовно описані процеси впровадження автоматизованого управління складськими приміщеннями. Визначені основні задачі програмної підтримки автоматизації процесів поставкою товарів та складськими приміщеннями. Описані мета, предмет та об'єкт розробки програмного забезпечення є створення комп'ютерної автоматизованої системи для поставки товарів.

Ключові слова: програмна розробка, автоматизована система, автоматизація процесів поставки товарів, управління складськими приміщеннями.

Modern information technologies are actively developing e-commerce. Based on this, the delivery of goods becomes a good income for entrepreneurs. In the total sales of goods in shops, cafes, and restaurants, the number of orders is growing. The current trend in the distribution of goods is that in the future, the main profit for a chain or regular store, cafe, or restaurant will be brought by online sales.

Such online sales of goods are quite relevant. It is now that most people who have a dynamic rhythm of life have a family, a lot of work, and various hobbies. Accordingly, there is less and less time for cooking and shopping. Therefore, time is considered the most expensive resource that a successful person has. Also, there is a growing demand for the delivery of goods where many establishments can order any goods or food at home or in the office.

Thus, for many stores, delivery of goods is an additional profit. It is difficult to say how many stores currently make money from online or offline sales. But, in a way, some costs are in stores or restaurants, regardless of whether delivery works or not. These include rent, utilities, and other expenses.

It isn't easy to estimate, but in general, to start a business to open delivery. Therefore, many companies started with "basement delivery" of goods and have now grown to an international level. There is also the benefit of opening a restaurant delivery service, as food delivery is a good source of income. Demand for food delivery services is increasing every year. The delivery service has its own separate audience, which in some cases visits restaurants. Some people may have a lot of orders, but they may never visit the establishment. Thus, the delivery of goods is an additional communication, raising funds and a large profit.

Thus, the creation of warehousing automation systems is an urgent issue to support the effective distribution of goods. Therefore, it is known that no modern institution for the distribution of goods can function effectively without the automation of warehouses.

Of course, modern business needs are difficult to meet if warehouse logistics automation is not performed. Certain equipment and software are not used to automate the identification and labeling of storage units.

Moreover, if you do not consider the problem of managing the storage of goods, then this part of the process of delivery of goods will be a "bottleneck" that will inhibit profit. Therefore, one of the main means of automating the storage and distribution of goods is the Warehouse management system (WMS) [1-3].

Such a WMS management system will also be appropriate for automating the composition of manufacturers and distributors (from large distribution centers and logistics centers to small warehouses) and in warehouses of another type.

The problem, which is to develop software for automation of goods delivery and warehouse management processes, are as follows (Fig. 1):

- perform an analysis of the subject area to determine the storage and supply of goods to customers;
- perform a comparative analysis of automated systems that perform storage and delivery of goods to customers;
- to determine the requirements and criteria for automated systems compared to the storage and delivery of goods to customers.

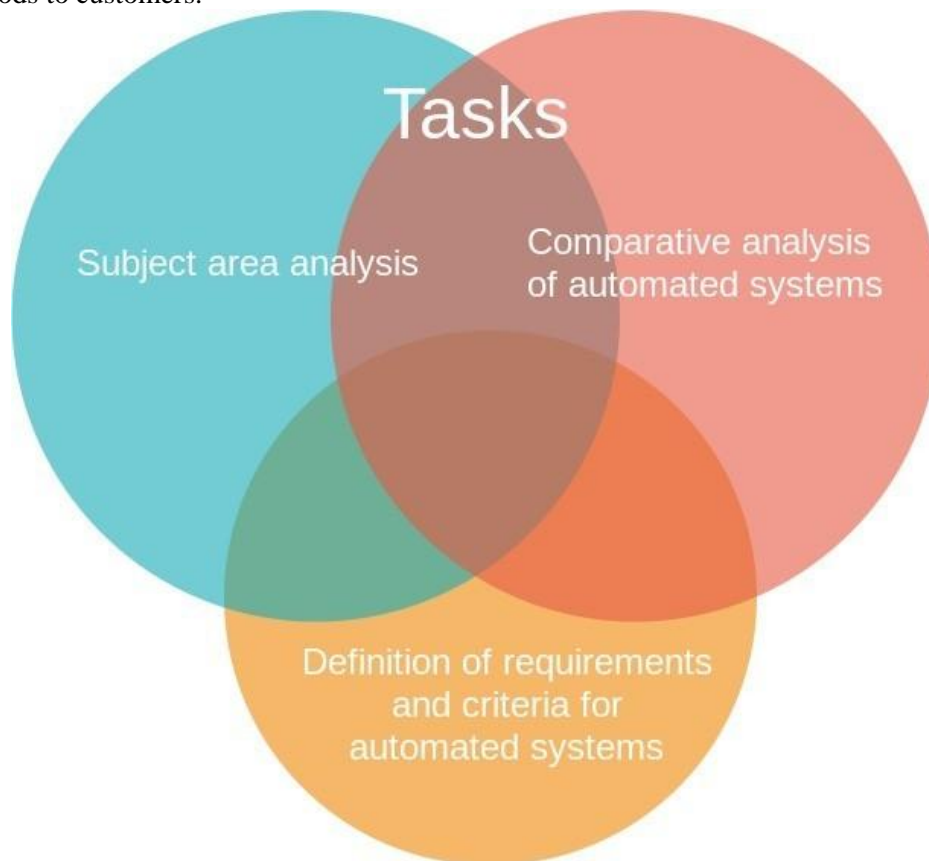


Figure 1. Tasks of automation of processes of delivery of goods and management of warehouses

The scope of WMS warehouse management systems is quite diverse. This WMS system automates the management of accounting, placement, reception, shipment, storage, and selection of any storage units in the area of centers and warehouses of retail stores.

The benefits of implementing WMS systems can vary. First of all, WMS's implementation allows you to automate and streamline many processes related to the receipt, address storage, assembly, and shipment of goods.

There are also several benefits to implementing WMS. These include increasing the capacity of the warehouse. In this case, the warehouse will be able to do more operations and perform them faster with the same resources.

When using the WMS system, there is an improvement in storage utilization. As a result, warehouse capacity is increased by 10-30%, as the WMS system uses compression algorithms and intelligent placement control.

Effective use of the WMS system avoids many errors in identifying erroneous and redundant logistics processes. Therefore, the proportion of logical errors is also reduced to a minimum. The WMS system also significantly reduces the number of errors when calculating to destinations. This eliminates the cost of returning and reclaiming the goods.

The use of the WMS system reduces dependence on staff. This system is quite common, which allows you to hire employees with experience in the WMS system.

The manageability of business processes in organizations where the WMS system is used is of great importance. Thus, the logistics department director can get the ability to track and manage all processes online and see the protocols of all operations.

When using the WMS system, there is a direct benefit of saving any institution's personnel management costs. Therefore, despite the need for an initial investment in the WMS system, this investment pays off quickly.

In this paper, software development aims to create a computer-automated system for the delivery of goods. The object of the study of implementing an automated system is software operation processes in computer systems to deliver goods to grocery stores. The study's subject is methods and software applications that ensure the supply of goods to grocery stores. The developed modules' practical significance was developing and testing software for a computer-automated system of delivery of goods to grocery stores.

Following the goal, performed the following tasks:

- design of a software system for an automated system of delivery of goods to customers within the city;
- development of algorithms and program code of the system to determine the basic modules of the automated system of delivery of goods to customers in the high-level Java language;
- performed-testing of the graphic part of the automated system;
- performed-testing according to the program code of the automated system.

Literature

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