OPTIMIZATION OF WAREHOUSE PROCESSES BY IMPLEMENTING AUTOMATION SYSTEMS

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Effective warehouse optimization is the basis for the success of any company engaged in such activities as inventory processing and order acceptance. If the efficiency is low or insufficient, it can lead to low warehousing flow, inappropriate placement of goods, and improper storage conditions, which in turn leads to late delivery of the shipment to the consumer. To achieve competitiveness and customer satisfaction, the optimization of the warehouse should take place at all levels. Therefore, the purpose of the study is to consider the problems of how to obtain orders, the selection of technical equipment for easy loading and unloading of goods, and the appropriate placement of goods. Therefore, more and more companies are deciding to optimize these processes through automation and artificial intelligence techniques.

One of the first and most important processes in the warehouse is the acceptance of cargo. Warehouse workers must make sure that the goods arrive in the right quantity and quality and at the right time. Electric trucks and conveyors will be a suitable solution in this situation, as they provide an opportunity to quickly distribute goods and not create accumulation on the receiving docks. In addition, automated measuring instruments will help to process goods faster and more efficiently. It is equally important to note that for the proper functioning of the process of receiving cargo, it is also necessary to implement a system of work management and dock planning that will help distribute the staff of copper receivers depending on the quantity and weight of cargo [1].

The put-away is an integral part of the full work of the warehouse and often depends on how productive the work of the warehouse. This is due to the fact that the put-away process includes the process of initial placement of goods, which in turn has an impact on subsequent warehousing processes. If the put-away process is inadequate and not adapted to the conditions of the warehouse, it can pose a threat to the safety and integrity of the cargo. It is often ignored by managers, but in the future, it affects the productivity of warehousing operations. The most efficient way to collect and analyze data is in real-time with the help of an automated warehouse management system that includes 2 elements: complete data collection and analysis. As a result, it will help reduce overhead costs. There is also a gradual introduction of radio frequency identification (RFID) which makes it possible to make

records of goods automatically without human intervention [2].

Another process that causes difficulties in optimization is warehousing storage. If the storage process is not performed correctly, it becomes an obstacle to optimizing the available space and increasing efficiency. Improving this process can only happen with the appropriate software that will automatically calculate the free space in the warehouse and help calculate each aspect of storage. An automated warehouse storage system also provides the ability to create calculations according to the size and capacity of the warehouse and also chooses the appropriate method that corresponds to the range of goods [3].

Warehouses can be automated in different ways, starting with the barcode labels and ending with the automation of back-office processes. The most common types of warehouse automation can increase warehouse efficiency and, as a result, increase profit. Among them are the technologies of delivery of goods, which choose solutions for the goods and deliver them to the employee. This in turn reduces operating costs and costs for order fulfillment. As a result, efficiency indicators in warehouses with delivery technology are higher than in manual warehouses. There are automated storage and retrieval systems that manage processes and help warehouse workers process orders faster. As well as the most well-known in the field of warehouse automation mobile work, which is used to meet the needs of large volumes and to replace employees. Particularly automated mobile robots have been widely discussed since the beginning of the coronary virus pandemic. After all, the replacement of people with mobile robots not only accelerated the performance of heavy manual labor but also increased social distancing which was especially necessary at the peak of the covid.

Conclusion

Warehouse automation benefits include increased speed when counting the number of products and optimizing productivity when searching for products. It is important to note the maximization of storage space, which can best be achieved only by automated controlled vehicles that solve the problem of finding and storing goods and reduce the need for wide aisles that accommodate large pallets, pallet jacks, and employees. Automated warehousing systems can also guarantee accurate inventory counting, unlike workers who may make errors in calculations.

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