

The Optimum Design of a Warehouse System on Order Picking Efficiency

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Abstract

From literature review and deep understanding on the practical industry, it is understood that the proper use of storage assignment policies can use minimum storage space to reach the purpose of minimum total traveling distance, and this has a direct impact on enhancing the order picking performance. At the same time, proper routing planning can minimize overall order picking cost, and finally reach the goal of picking performance enhancement in unit time. Therefore, this paper considers the effects on the order picking system performance for factors such as quantity and layout type of cross aisles in a warehouse system, storage assignment policy, picking route, average picking density inside an aisle, and order combination type, etc. A software, eM-plant, will be used as a simulation and analysis tool, a warehouse design database will be developed, which is based on the minimum overall traveling distance as the optimum performance index, the cross aisle quantity, warehouse layout, storage assignment, picking route planning, picking density and order combination type will be optimally integrated and planned in the warehouse system. Finally, we provide this database to the industry as a reference in the warehouse planning or warehouse design improvement in the future.

Keyword : Averaged picking density inside an aisle · Cross aisle · Order picking performance · Picking route · Storage assignment policy