A New APSO Batching Heuristic for Enhancing the Efficiency of Order Picking Systems

謝玲芬,范嘉芸
Transportation Technology and Logistics Management
Management
lfhsieh@chu.edu.tw

Abstract

To quickly adjust to the needs of customer and adapt to the changes, enterprises must utilize their distribution centre to integrate and connect all the partners on the supply chain, allowing the products to be delivered to the customer even faster. These changes require efficient and effective order picking systems in warehouses for companies to improve competitiveness and the quality of service. The major purpose of this paper is to develop a new order batching strategy, called Adaptive Particle Swarm Optimization Batching (APSOB), to cluster the orders with high relativity into a batch to reduce the average traveling distance. The main issue in this paper is to adjust the inertia weight dynamically in APOSB to reduce the CPU running time for orders batching process. A simulation experiment is executed to verify that the APSOB heuristic can reduce the order picking distances, and increasing the utilization of picking vehicle.

Keyword：order batching, adaptive particle swarm optimization, order picking system