

A step-by-step dual cycle sequencing method for unit-load automated storage and retrieval systems

Auteur:Hachemi, Khalid; Sari, Zaki; Ghouali, Nouredine

Abstract/Résumé : The sequencing of requests in an automated storage and retrieval system was the subject of many studies in literature. However, these studies assumed that the locations of items to be stored and retrieved are known and the sequencing problem consisted in determining a route of minimal travel time between these locations. In reality, for a retrieval request, an item can be in multiple locations of the rack and so there is a set of locations associated with this item and not only one predetermined location in the rack. In this paper, we deal with the sequencing problem where a required product can be in several rack locations and there is a set of empty locations. Consequently, the retrieval and storage locations are not known a priori. We sequence by the minimum travel time of a double cycle (DC). An optimization method working step-by-step is developed to determine for each DC and according to storage and retrieval requests, the location of the item to be stored and the location of the item to be retrieved allowing the minimum DC time. The storage requests are processed in FCFS and retrieval requests retrievals requests are gathered by block according to wave sequencing. (C) 2012 Elsevier Ltd. All rights reserved.

Keywords/Mots clés :

Journal title / Revue :COMPUTERS & INDUSTRIAL ENGINEERING

DOI: 10.1016/j.cie.2012.06.009

"issue" 4

"volume" 63

"Bp" 980 "Ep"984"

PD : DEC 2012

SN :0360-8352

WOS:000311065400022