

복수운반형 자동창고

Multi-load Automated Storage/Retrieval Systems

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ABSTRACT

Automated Storage/Retrieval (AS/R) systems have been used mostly in manufacturing or distribution industry in order to store or retrieve palletized items automatically. Since the items are heavy or bulky, only one pallet at a time is moved by the stacker crane. In this study, however, we introduce the "multi-load" AS/R system in which the items to be stored are data storage devices of equal size such as video tape or compact disc. Since the items are small and light, multiple items can be stored and retrieved for each trip by using a magazine and a robot arm mounted on the crane.

Given the magazine capacity, and the locations of retrieval items and empty slots in the rack, the throughput of the multi-load AS/R system will depend on the selection of storage locations and the sequence of visits. We propose four heuristic algorithms for the multi-command. Computer simulation is used to evaluate the four algorithms in terms of throughput and number of back tracking of the crane.