Development of a Shop-floor Scheduling and Control Software Based on Bidding Algorithm

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ABSTRACT

This research is concerned with the development of a distributed control scheme for the effective operation of a Flexible Manufacturing System(FMS). As a result of surveying several control acrhitectures in literatures, we found that the distributed one has many desirable features compared with the hierarchical one and the centralized one.

We devised an AGV dispatching algorithm and a part launching policy with look-ahead features which can increase the systems throughputs. While maintaining the autonomy of each controller, we can improve the reliability of system and the efficiency of system.

Finally, we conducted simulation experiments to compare the performance of our scheme with others. We had implemented our scheme in a real FMS which is installed in the Automation and Systems Research Institute located within Seoul National University.

Key Words : FMS Control, Distributed Control, Bidding, AGV Dispatching Rule