An Object-Based Run-Time Executive
for the Control of Flexible Manufacturing Systems

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ABSTRACT

We present the design specification of a run-time executive for the control of flexible manufacturing systems(FMSs), building on object-based techniques. Classes required to control FMS activities are defined and implemented based on the strategy which separates the control and information objects from the FMS physical objects. Several control objects which could be served as reusable software elements in implementing case-specific FMSs are identified and defined.

The primary objective of our system is to achieve a capability for dynamic reconfiguraion to the changes of FMS configuration, scheduling and control logic, and communication platform, for the control of FMS. Using a message protocol designed to easily find the exact causes of unexpected events, our system can cope with undesirable events more easily in robust manners.

We implemented the proposed scheme in an FMS which is installed in Seoul National University. We have used C++ as a base language under UNIX environment for implementing this object-based run-time executive.

Key Words : FMS Control, Object-based, Robust, Run-Time Executive