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# United States Patent [19]

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Hafemann et al.

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[54] **SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR UTILIZING EXTERNAL MODELS FOR ENTERPRISE WIDE CONTROL**

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## [57] ABSTRACT

[21] Appl. No.: **09/075,122**

A system software solution for controlling an enterprise which defines and illustrates the electrical, pneumatic, hydraulic, logic, diagnostics, external behavior, controlled resources and safety elements of an enterprise control system. The elements of the control system are encapsulated in objects of an object-oriented framework within a control assembly. The control assembly is the fundamental building block for providing object-oriented control of the enterprise. A control assembly component is a deployable control subsystem that provides an interface using a common object model that is configurable. The enterprise control system includes facilities for retrieving external models utilizing a predefined interface. The retrieved model includes support for external resources such as an external resource tree in which the leaf nodes correspond to resources to be controlled, resource and process information and a computer aided design model. The retrieved model is transformed from a flowchart representation into a timing diagram.

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[51] **Int. Cl.**<sup>7</sup> ..... **G06F 19/00**

[52] **U.S. Cl.** ..... **700/86; 700/17; 700/18; 700/80; 700/87; 710/62; 709/217; 707/10**

[58] **Field of Search** ..... **700/86, 87, 17, 700/18, 80; 710/62-64; 709/217, 223; 707/10**

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**2 Claims, 72 Drawing Sheets**

