XML based Product Structure Management System of Virtual Enterprise

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Abstract

Product structure is quite important data for a company. It provides lots of reference for business activities such as engineer assembly, material list, demand planning, and cost analysis. However, in virtual enterprise environment, complex product structures are used in different members. This makes the information sharing and searching in a virtual enterprise become very difficult. Specifically, several problems have been identified in product structure searching. First, data exchange and data structure are different. Second, similarity between structure components and similarity among structure configurations are hard to define.

To solve the problems, this research develops an XML based product structure management system to help members of a virtual enterprise to search similar product structure in an efficient way. XML technology provides an easy way to define a complete structure since its data definition and form presentation is separated. Because of the neutrality, XML doesn't limit itself by different system and platform, so it is suitable for data exchanging between virtual enterprises. Meanwhile, a searching module for product structure is developed in this research. The searching module could be divided into two sub-modules. In structure matching sub-module, an algorithm that can calculate the structure similarity between a query and the database is developed.   In component similarity sub-module, the element similarity of product component is calculated. Our experiment shows that the system supply complete, correct, and efficient searching result.

Keyword :   XML, Virtual Enterprise, Product Structure