Product Feature Modelling for Integrating Product Design and Assembly Process Planning

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Abstract : This paper describes a part of the integrating work between assembly design and assembly process planning domains (APP). The work is based, in its first stage, on modelling assembly features to support APP. A multi-layer architecture, based on feature-based modelling, is proposed to establish a dynamic and adaptable link between product design using CAD tools and APP. The proposed approach is based on deriving “specific function” features from the “generic” assembly and form features extracted from the CAD tools. A hierarchal structure from “generic” to “specific” and from “high level geometrical entities” to “low level geometrical entities” is proposed in order to integrate geometrical and assembly data extracted from geometrical and assembly modelers to the required processes and resources in APP. The feature concept, feature-based modelling, and feature recognition techniques are reviewed.
Keywords : assembly feature, assembly process planning, feature, feature-based modelling, form feature, ontology