

Industry Case Studies in the Use of Immersive Virtual Assembly

ABSTRACT: In this paper we report on two engineering case studies that have been conducted as part of a Virtual Assembly Technology Consortium. The objectives of the case studies were to determine if immersive virtual assembly capabilities allow industry assembly situations to be modeled and studied realistically, and to demonstrate the downstream value of the virtual assembly capabilities in areas such as ergonomics, assembly installation, process planning, installation, and serviceability. What is of special significance is that instead of modelling simplified problems or perceived representative situations, the case studies were constructed from actual assembly floor projects and situations encountered at industry member sites and with considerable participation from industry engineers and manufacturing shop floor personnel. Based on the success of the case studies, the consortium members inferred that virtual assembly methods are poised to move out of the realm of special projects and test scenarios to deployment in the actual design and manufacturing cycle. However, in order to be truly accepted in industry, there are still issues to be addressed in terms of ease of use, portability of the applications, and preparation of the models for the evaluations. Thus, the case studies added a new dimension to the exploration and understanding of how this new technology could be of practical value in industry.