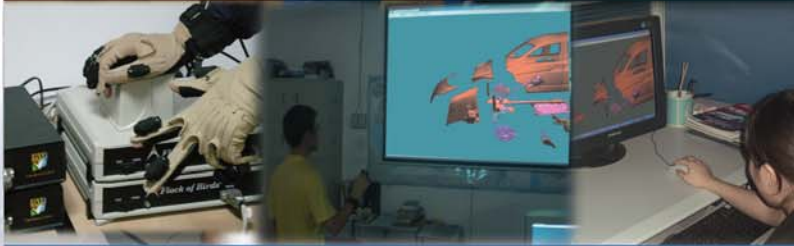


分布式协同虚拟装配系统 Distributed Collaborative Virtual Assembly Environment(DCVAE)



Usually, complex product is developed by different department and/or different suppliers. In order to find out the potential mistake that components might not be assembled together during the product development stage, a multi-users distributed collaborative virtual assembly environment (DCVAE) software system is developed so as to support the assembly evaluation.

DCVAE is developed based on Integrated Virtual Assembly Environment (IVAE) and Parallel Virtual Reality Development Platform (PVRDP). DCVAE adopts a distributed architecture based on network; different users at different location operate different components in the same product and do real-time assembly simulation in the same virtual environment under the control of a host user. Each user can get parallel computing support from his Local Area Net (LAN) during the assembly simulation. Each user can have his independent viewport and use one or two virtual hands to manipulate the component during the assemble process. DCVAE provides many interactive manipulation modes (5DT data glove/FOB, Cyber-Touch data glove/FOB, mouse/Key board). DCVAE not only has functions the same as IVAE, but also has the functions of text message communication, generation of assembly evaluation report and assembly process video.

DCVAE is a very useful tool for collaborative assembly design and product math model evaluation among different design departments or different component suppliers, especially useful for complex product design such as automotive, airplane, ship and mechanical machine industry.

复杂产品常由不同设计部门和/或不同产品供应商进行零部件开发, 为及早发现复杂产品开发过程中潜在的装配不匹配问题, 自主开发了能支持多用户实时协同虚拟装配仿真评审的软件系统DCVAE。

DCVAE是基于集成虚拟装配环境软件 (IVAE) 和并行虚拟现实开发平台 (PVRDP) 进行开发的系统, 采用基于网络的分布式体系, 处于异地的多个用户能够在同一虚拟环境中对同一产品的不同零部件进行协同装配仿真, 每个用户端均可基于自己局域网实现并行计算支持, 协同装配时每个用户具有自己的视点。DCVAE系统提供有多种交互操作方式 (如5DT数据手套/FOB位姿跟踪器; 触觉反馈手套CyberTouch/ FOB位姿跟踪器; 鼠标/键盘)。

DCVAE系统具有除IVAE所具有的功能外, 还具有文本信息交流、装配序列与路径规划、装配评审报告生成与过程视频录像等功能。

DCVAE可以用于汽车、飞机、船舶、机械制造业等复杂产品的不同设计部门之间或开发商与供应商之间的协同装配设计及数模验证。