

Participatory Ergonomics Using VR Integrated with Analysis Tools

ABSTRACT: This paper presents our work on the integrated use of simulation tools in real time for participatory occupational ergonomic studies. The focus of this paper is a synergistic system that consists of an interactive immersive simulation tool that has been developed in-house and integrated with a commercial human modeling simulation system, JackTM. The impetus of the real-time integration is to allow the complementary use of two powerful simulation tools by allowing the user to perform the task naturally in an immersive environment, while the body posture information is continuously and automatically passed to the human modeling system for a continuous (and not discrete) analysis of the participatory ergonomic issues under consideration. This facilitates integration of ergonomic issues early in the design and planning phases of workplace layouts, even where the physical facility does not exist. The proposed integration is demonstrated using a manufacturing example.