Manual Work Support Throughout System Lifecycle by Exploiting Virtual and Augmented Reality (ManuVAR)

Resumen:

ManuVAR will apply this existing technology to improve communications between people and systems, therefore improving ergonomics, safety, work assistance and training in the manufacturing and service industries. The use of this technology will also enable the two-way flow of knowledge, its accumulation, reuse and sharing. This will be achieved throughout the entire product lifecycle and across subsequent system generations. ManuVAR will engage with various people from designers to factory workers, operators, maintenance personnel, and end-users.

Objetivos:

ManuVAR will apply this existing technology to improve communications between people and systems, therefore improving ergonomics, safety, work assistance and training in the manufacturing and service industries. The use of this technology will also enable the two-way flow of knowledge, its accumulation, reuse and sharing. This will be achieved throughout the entire product lifecycle and across subsequent system generations. ManuVAR will engage with various people from designers to factory workers, operators, maintenance personnel, and end-users.

Objectivos contribución:

The research group will be involved in the design of tools and industrial cases. Work under the WP5, which is lead by UMA, is considered as a very delicate and critical topic, since it's necessary to achieve a trade-off between technical specifications of tools, methods and industrial cases in order to ensure that all platform elements are generic, i.e. flexible, scalable and suitable for future implementation of a set of industrial applications. Thus, the objective is to harmonize the design of methods and tools within the platform and the requirements of the specific industrial cases. The realization in the form of technical specifications will be the basis for further actions in the project, e.g. implementation of tools and cases and their testing in industrial environments.

Entregables:

The main aims of the project are the following: Increase productivity and quality and reduce cost of high value manual work in the whole lifecycle; Facilitate adaptation to product customization and changes; Support efficient knowledge and skill management through the lifecycle; Help companies to improve their business models and competitiveness and to move up the value chain by exploiting the strengths of high value, high knowledge manual work. Technically, this general objective will be accomplished by means of: Prototyping manual work in virtual reality to allow the designer to perceive the manual work process and the product as if they existed in the real world; Capturing feedback from experienced factory workers, maintenance personnel, operators using VR (on a to-be-designed system) and/or AR (on a real system) and making use of this feedback at the design stage, throughout the entire lifecycle, and across subsequent system generations; Accumulating, transforming, updating, and reusing the created models and gathered information at all stages of the system lifecycle in the PLM/PDM framework.

Impacto:

Increase productivity and quality and reduce cost of manual work in the whole lifecycle (increase productivity through improved product lifecycle management and improved manufacturability, quality, usability, reliability); Facilitate adaptation to product customization and changes (change strategic and product focus quickly Increased responsiveness); Support efficient knowledge and skill management through the lifecycle (develop distinct core competencies, increase the added value).

18 Participantes

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- Nederlandse Organisatie voor Toegepast-Wetenschappelijk Onderzoek
- FUNDACION FATRONIK
- Institute of Communication and Computer Systems - ICCS
- Trinity College Dublin
- The University of Nottingham
- Tampere University of Technology
- Thales Alenia Space Italia
- IPA PROJECTS & SERVICES B.V.
- Unigraphics Solutions (Siemens PLM Software)
- Metso Minerals
- NEM Solutions - Nuevas Estrategias de Mantenimiento
- TECNATOM, S.A.
- CARR Communications
- Hermia Business Development
- Association for Advancement of Radical Behavior Analysis
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