



European Commission

i-VISION

Immersive Semantics-based Virtual Environments for the Design and Validation of Human-centred Aircraft Cockpits

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1. Pilot Interacts with Virtual Cockpit

Virtual Environment Physical Environment Virtual Environment

3. Semantic Virtual Cockpit Module

2. Virtual Cockpit Design Environment

Virtual Cockpit Design Environment

4. Human Cockpit Operations Analysis

Human Cockpit Operations Analysis



i-VISION Scientific & Technological Objectives

- Human-Cockpit Operations Analysis
- Semantic Virtual Cockpit
- Virtual Cockpit Design Environment.

How the i-VISION system works

- Users interact physically with the Virtual Cockpit.
 - OPTIS HIM, the Virtual Cockpit Design Environment renders the virtual 3D cockpit and track users' physical actions.
 - Data from the engineers, the designer and the interactions with the user are stored in the semantics databases.
 - A set of analysis methods from a set of methods proposed from subject matter experts were adjusted to give the i-VISION tool human analysis capabilities.
- The interface "Human Cockpit Operations Analysis" presents the capability of the i-VISION tool for Hierarchical Task Analysis.
 - The pilot is performing a procedure; the tool automatically detects it and generates the hierarchy.
 - The communication between modules is handled through a ROS network or HTTP with RESTFULL characteristics.
 - Semantic database store hierarchical and parent – child relationships between simple geometries and their physical properties in RDF format.



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