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Project Title:	VIRTHUALIS – Virtual Reality and Human Factors Application for Improving Safety
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Supervisor Name:	Professor Paul Chung
Start/End Date:	1 st May 2005 – 31 st October 2010
Funding Source:	European Union
Department:	Computer Science

Project Description:

The overall objective of the VIRTHUALIS project is to reduce hazards in production plants and storage sites by addressing end-users' practical safety issues through the development of an affordable and accessible technology and related tools.

The new technology will be achieved by merging Human Factors knowledge and Virtual Reality technologies, to produce applications in 4 main safety areas: Training, Risk Assessment, Accident Investigation and Safety Management & Audit.

The core of the new technology is the VIRTHUALIS Human Factors Laboratory (HF lab), designed to run human factors experiments, offering the opportunity to move from static, paper-based assessments to dynamic, virtual simulations.

Experiments can be designed for observation, performance measurements, accident reconstruction and hypothesis testing ("what-if" experiments) and involve real plant personnel. Crucially, users can perform experiments that cannot be performed in the real world, involving for example, gas leaks, chemical spills, fires, faulty plant, operator and procedural errors.

As well as contributing to the overall system concept, design and architecture, Loughborough's involvement has included the design and build of several system components: a generic interface between the virtual reality plant and commercially-available Process Simulation software; an interface to a Rule-based System (Expert System), that can quickly and flexibly modify the virtual plant's behaviour in real-time; a database system to store experiment configuration and results data; and a query system to provide answers to important safety questions using the stored data.