Computer Supported Collaborative Social Environment for Education, Training and Work

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ABSTRACT

The increasing employment of collaborative environments indicates that this kind of solution meets new demands in education and work. Collaboration is working together towards a common goal at different times (time flexibility), in different locations (spatial flexibility), at different companies and educational/training venues (inter company/institutions relationship) in different functions (multi disciplinary work). Principles are: support collaboration within the entire team: sharing ideas, minimizing collocation, making jobs easier; and helping knowledge building. Web-based 3D virtual reality platforms (e.g. OpenSim) support social activities in a very intuitive way. A innovative Mixed Reality environment that bases on a 3D virtual reality platform linked with a real learning/working space is envisioned by the authors and currently under research for future development.

Keywords: Computer Supported Collaborative Learning and Work, Mixed Reality, Virtual Social Environments.

COMPUTER SUPPORTED SOCIAL COLLABORATIVE ENVIRONMENTS

The new trend of collaboration between distant and physically dispersed personal employs network infrastructure of computers as a common medium. This medium is mostly called Computer Supported Collaborative Environment (CSCE). Virtual environments are designed to offer tools for different types of interactions between users and dedicated to education, training and work situations. Social environments are developed to strengthen social relations between its users and participants. Despite this specific goal, social relations are a generic broad term that is present in all types of interactions between people. A social environment is mostly employed in education and work for recreative scope, despite the "serious game" interface or non-entertainment purposes of education and work. The increasing popularity of *game* or *socialware* implementations, like *Active Worlds* [1] or *Second Life* [2] point out to a more *game-like solution* applied to virtual education with more interactive contents.

PROJECT GOALS

This project proposes the design of a Computer Supported Collaborative *Social* Environment (CSCSE) that comprises the following desired characteristics:

- ✓ *distribution;*
  distributed, modular interactions using the Internet.

- ✓ *social "game-like" interface*;

- ✓ *3D virtual world representation*;

- ✓ *LMS capabilities;*
  displaying and managing educational contents.

- ✓ *teleoperation or remote handling;*
  use of hyper-bonds and similar technologies.

- ✓ *autonomous tutoring;*
  employment of awareness and monitoring agents.

- ✓ *interoperability;*
  among services and tools of similar CSCE implementations.

ONGOING RESULTS

The current work is at an early stage of development. Selection of standards and technologies are being studied.

- ✓ *Tutoring Agents;*
  JADE framework [3] for developing agents was selected due to its portability (Java) and adaptability.

- ✓ *3D World "Social" Interface*;
  OpenSim [4] similar SLOODLE [5] implementations are envisioned (see Fig 1).

Figure 1. SLOODLE Project [5].

- ✓*Remote Handling (Haptics);*

  The appliance of mixed reality techniques to collaborative work environments is a way of merging real and virtual spaces (see Fig. 2).
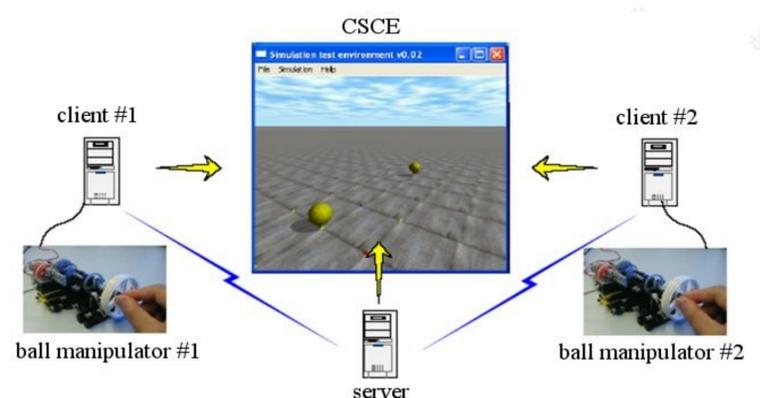

Figure 2. CSCE with mixed reality and haptics [6].

REMARKS

The project is part of a PhD Thesis and an international cooperation effort.

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