

CollaBoard

Mixed Presence Groupware for Advanced Remote Collaboration



Figure 1: Shared whiteboard editing involving two geographically separated groups (photo composition).

Introduction

Complex business processes and globally distributed teams require new means to support remote collaboration. Here, virtual reality technologies offer new ways to a more intuitive and thus more effective and efficient remote collaboration.

Problem

In remote collaboration sessions, geographically separated partners create and review digital data (shared artifacts) using shared whiteboard software, and discuss with each other using standard audio- and video-conferencing software. Traditionally, the video received from the remote partner and the shared content are displayed separately (see Figure 2). However, this type of presentation separates what belongs together, and the remote partner's deictic gestures (pointing gestures to utterances like "this here") referring to certain shared artifacts are no longer meaningful.

Approach

In order to overcome the limitation of commercially available groupware (hardware and software for co-located and remote collaboration), a novel device named *CollaBoard* was designed. CollaBoard allows distant partner to work together on a shared electronic whiteboard as if they were standing side-by-side in front of it. Compared to other remote collaboration systems, the CollaBoard presents the live video streams situated within the shared workspace. A design study for the CollaBoard is shown in Figure 1.

Benefit

As an interactive electronic whiteboard, the CollaBoard allows users to interact on a vertical workspace and on share it with remote collaboration partners. In addition to standard electronic whiteboard functionality, a video from the scene in front of the interactive workspace is acquired. In stand-alone operation, the video allows to document the constitution process of the information on the electronic



Figure 2: Classic remote collaboration; remote live video is presented separate from the shared workspace. Deictic gestures referring to shared artifacts are not meaningful to the remote partner.

a whiteboard. If two CollaBoards are interconnected via a network, the remote live video stream situated within the shared workspace enhances communication among the involved users by a stronger support of workspace awareness information. If two or more partners work in a shared workspace, they know *who* they are working with, *what* they are doing, *where* they are working, *when* various events happen, and *how* those events occur. Since the shared workspace and the live video streams are acquired and transmitted separately between two connected CollaBoards, the shared content stays editable at both sites.

The logo for CollaBoard, featuring the word "colla" in orange and "board" in grey, with a stylized lowercase font.

Project

CollaBoard is not only the name of the envisioned prototype, but also the name of the corresponding European research project (EUREKA project No. Σ! 4066). The project is led by the ICVR, and runs from 01/2008 – 12/2009; the project's main focus is on designing, implementing, and testing a CollaBoard prototype. The T2i Lab (www.t2i.se) at Chalmers University of Technology is research partner in the CollaBoard project. In addition, several industry partners join the EUREKA project: AVS Systems AG (www.avs.ch) is a leading Swiss company for media technology; Novia AG (www.novia.ch) is a strong partner for collaborative workspaces; Qualisys AB (www.qualisys.com) is a leading provider of products and services based on optical motion capture; Volvo Information Technology (www.volvo.com/volvoit) provides IT solutions for a wide range of industrial processes, and will evaluate an optimized CollaBoard setup.

Status

In the first six months of the project, a very first CollaBoard prototype was implemented. Next, we evaluated hardware and software of this prototype. For the up-to-date project status please visit the CollaBoard project webpage: http://www.icvr.ethz.ch/research/projects/closed/collaboard/index_EN

Contact

For further information please contact the project manager:

PD Dr. habil. Andreas Kunz
ETH Zurich
Innovation Center Virtual Reality
CLA G9
Tannenstrasse 3
CH-8092 Zurich
Switzerland

Phone +41 44 632 57 71
Fax +41 44 632 11 25
E-Mail kunz@iwf.mavt.ethz.ch

June 2010