

# Overview of the CollabVE Project

OECD Halden Reactor Project



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# Presentation Overview

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# Introduction

- *A collaborative virtual environment* is a networked virtual environment within which users can interact with each other and the virtual environment regardless of their actual geographical location
  - Shared experience
  - Shared sense of presence
  - Shared understanding of time and space

# CollabVE Project Mission

- To produce a software library that enables us to quickly and easily develop *collaborative virtual environments*
  - Primarily for use as a test-bed for studying concepts and implementation strategies that affect the usability of multi-user systems

# Project Scope

1. Develop a software library for developers of multi-user VR/AR applications that supports multiple collaboration strategies
2. Perform a usability study using a shared virtual control room environment
  - Focus of study will be on subjects' ability to collaborate effectively with each other
  - Subjects will be required to perform group problem-solving activities in the virtual environment with different group organisation restrictions and collaboration strategies

# Why make our own?

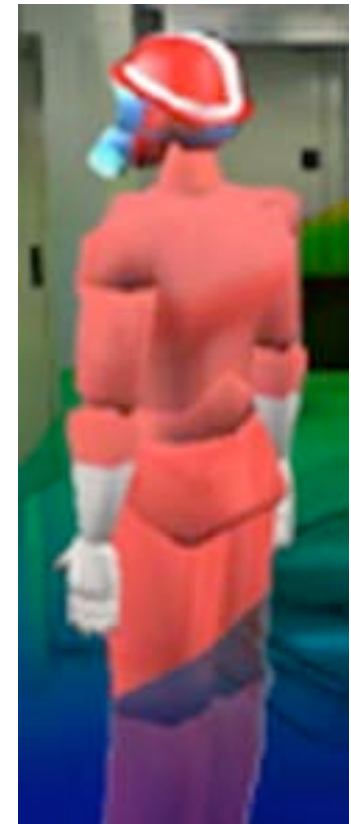
- We want a commercial quality system that can support research needs that focuses on collaboration and teamwork
  - But want to be able to distribute it freely to Halden Project members
- Examined many systems developed for research purposes or available commercially but did not find any that met our research requirements
  - Systems developed for CVE research tend to have too narrow a focus
  - Commercial systems tend to be too inflexible, with limited functionality for group collaboration

# General Capabilities

- Will enable users represented by avatars to work together in a shared virtual environment
- Will ensure that the common state of the virtual environment is synchronised between users
  - Will provide support for the distributed manipulation of objects
- Will enable users to form groups and to communicate with each other in a variety of ways
- Will enable developers to select between a variety of concurrency management and user interface strategies

# Avatars

- An avatar is a user's visual representation in a virtual environment
  - Each user will be represented by an avatar with a unique visual appearance and name
- Users will be able to see who has control over an object
  - if participating application supports manipulation
- The user's avatar will be able to make gestures to indicate intentions or to demonstrate actions
- The user will be able to see other users' focus of attention (location or selected item)
  - A pointing gesture to highlight interest



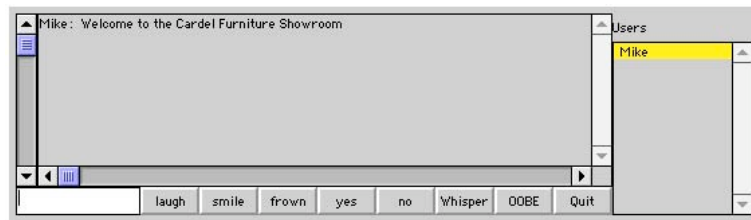


# Groups

- It will be possible for users to organise themselves in groups
- Each group will have its own collaboration strategy
  - Leader-follower, free-for-all, etc.
- Users will be able to freely join and leave groups to facilitate collaboration and communication
- Sub-groups can be created within groups and inherit the collaboration strategies of their parent group

# Communication

- Gestures
- Text and text-to-speech
- Audio
- Video
- File sharing
- Annotations/Notes



# Applications

- Halden Project Research activities related to collaborative work in virtual environments
  - Particularly interested in teamwork and collaboration between users within shared virtual environments
  - From an MTO perspective, We have the M and the T reasonably covered, and will now be able to increase our focus on the O
- Enhance existing Java 3D-based tools for design, planning, visualisation and training to support real-time shared environments for advanced collaboration
  - A significantly enhanced Halden Viewer with CollabVE functionality will be released to HRP members at the 2005 EHPG Meeting



# Project Status

- User Requirements analysis and documentation completed in January
- Currently working on the software design
- Design work to be completed by beginning of April
- Software development to be completed by the summer vacation 2005
- Usability test will be performed in August
- Reporting on software system and usability test in HWR by the end of 2005
- Intended to be used for experimental activities from 2006 and onwards

# Summary

- The goal of the CollabVE project is to produce a software library that enables us to quickly and easily develop *collaborative virtual environments* for research and development purposes
  - Focus on functionality that supports collaboration
- Halden Project member organisations will also be able to use the software to implement collaborative virtual environments