Collaboration in Virtual Environments

Keywords: Tracking; User identification; Virtual Reality

Abstract

Within this thesis, a collaboration within the ReWaVE environment should be realized. While the users walk in different physical rooms, they are both represented as avatars in the common virtual environment.

Related Work

Current technology allows an unlimited walking in virtual environments that can be larger than the physical one. Thus, a user can explore unlimited virtual worlds by real walking and get a better understanding of distances and the spatial configuration of the environment. However, teamwork in such environments like e.g. a common walkthrough in a shopfloor is not possible yet.

Content of the Thesis

Within this thesis, a first prototype of an avatar-system should be realized. For this, the user’s pointing gestures should be tracked using a LEAP motion sensor. In addition, a animated avatar system has to be implemented that handles the avatar’s movements when the user’s hands are outside of the LEAP motion’s tracking space. After the realization of this prototype, it should be verified and evaluated by a user study.

Work Packages

- Initial literature study on collaboration in virtual environments
- Become acquainted with the Unity3D software and the sensor integration
- Learning the existing ReWaVE environment
- Integration of animated avatars in ReWaVE
- Intermediate presentation
- Integration of a LEAP sensor into the ReWaVE system
- Animating hand gestures of the avatar by integrating LEAP’s tracking signals
- Performing a user study with the finalized system
- Written report and final presentation

Informationen & Administration

Markus Zank, LEE L201 – zank@iwf.mavt.ethz.ch
Ali Alavi, LEE L201 – alavi@iwf.mavt.ethz.ch
Andreas Kunz, LEE L208 – kunz@iwf.mavt.ethz.ch