(24)"Dual" embodied interaction for creating a virtual co-existing space

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Abstract

A significance of engagement in face-to-face has been pointed out in computer mediated communication area. In order to create such a co-existing situation, mainly two approaches can be available; visual interaction and tangible interaction. However, each approach is insufficient to create a virtual co-existing space. Therefore we devise a complementary approach to integrate visual interaction and tangible interaction. This is not an approach just to combine two interactions. Our unique point is that a physical object, which we can interact with, is concurrently represented as a virtual physical object in a shared virtual space where we can interact by virtual avatar. Based on this concept, we implemented networked "Lazy Susan" communication system. We can rotate the disk with each other, the rotation of which is synchronized with remote disk, then the disk is represented as a virtual physical disk in a shared virtual space where we can interact with a remote participant by virtual avatar of our own and the remote participant. Then the preliminary results of communication experiments indicate that our "dual" interaction design is significant to enhance a sense of "being co-located".

In order to create a co-existing space in a physical place as well as in a shared virtual space based on this "dual" embodied interaction design, we integrated a video projection system into the networked "Lazy Susan". The video projection "Lazy Susan" can synthesize local and remote tabletop images, and can project the synthesized image onto a screen over the table at each site. This system is promising to enhance a co-exisiting space by means that a participant can view a common video image of self and a remote participant at each local physical place, and that their bodily interaction can be supported through a virtual coupled disk.

Projecting a synthesized video image of local and remote tabletop onto a screen over the table

Figure: Video projection "Lazy Susan"