SUMMARY OF Ph.D. DISSERTATION

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Title

A Study on Supporting Realspace Collaboration based on Inferring Context Awareness

Abstract

The object of this research is to encourage CSCW (Computer-Supported Cooperative Work) activities under the ubiquitous computing environment. Toward this end, three topics are taken and the systems are designed according to the concept, inferring context awareness at the realspace.

In recent years, many types of equipment in our life environment are capable of information processing. Various information technology devices are used in cooperative working scenes. In this kind of situation, many researches which aim at supporting cooperation working are conducted. However, most of the discussions on ubiquitous computing focus on cooperation of devices or resource discovery. We consider and design the CSCW environment under the ubiquitous computing.

The first topic focuses on the entrance of a workspace, where two or more rooms are connected. In order to encourage group interaction, we propose a system which conveys change of the state inside the workspace to the members who approach the entrance. This system gathers and stores awareness information from various sensors, and displays the information on the screen. The system expresses change of the state inside the workspace using colors and animation, and enables members to perform effective works and to facilitate communication.

As the second topic, we propose a way, which enables smooth cooperative work by recognizing not just proximity but the distance between the users and the objects that are existent in cooperation working scenes. We propose a prototype system, which enables smooth operation between the users in a cooperative working scene where information technology devices are used. Each of users can use the system to show their own data which is stored in the computers.

The object of the third topic is to enable participants of a discussion to be able to improve the level of understanding, ideas, and shared consensus in a discussion. Toward this end, software which allows editing by multiple users at once was introduced during face-to-face discussion, creating an environment where participants of the discussion can also participate in the editing of the discussion minutes. As a result it became apparent to be a heavy load that assigning discussing and editing minutes to users at once. Furthermore, awareness functions required to encourage discussion contribution are investigated.

Several services and applications are implemented for each system, and from the experiments total significance of each system on the group interaction is shown.