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# SmoothCurtain: privacy controlling video communication device

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**Abstract**

We have proposed a new interface called SmoothCurtain that is suitable for constant use of a remote video communication system in a living environment. To enable switching between conscious and ambient modes of communication smoothly and intuitively, we have adopted a metaphor of a curtain. During communication, SmoothCurtain enables users to control privacy and flexibly change the communication style by opening/closing the curtain.

**Keywords**

Remote Video Communication, Curtain Metaphor

**ACM Classification Keywords**

H.5.3 [Information interfaces and presentation]: Group and Organization Interfaces---Synchronous interaction.

**Introduction**

The two main modes of remote communication are conscious communication and ambient communication. Although conscious communication strategies such as phone calls and conventional video conferences provide a lot of detailed audio-visual information, they cannot be used for establishing communication 24/7 because of privacy issues. On the other hand, ambient communication systems such as SyncDecor [1] are suitable for constant use in living environments, because these devices exchange only the awareness of

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people such as a motion, a presence and brightness. Although users can feel connectedness by using ambient communication systems, they cannot see and talk to each other.

### SmoothCurtain

To switch between the two different modes of communication smoothly and intuitively, we have adopted a metaphor of a curtain and have developed a prototype called SmoothCurtain. It is a video conferencing system through which people can remotely see and talk to each other. Figure 1 shows a paired terminal. Videos from web-cameras that are placed at each terminal are transmitted to each user via Adobe Flash Media Server. Small curtains are attached in front of the monitor of each terminal. The curtains are attached to the top of the monitor by using Phidgets slider sensors instead of a curtain rail, and data from the sensors are also transmitted via the server.

When curtains on both sides are opened completely, users can see and talk to each other clearly. When one user closes the curtains, his/her image becomes blurred and voice volume is reduced on the other side, depending on the gap between the curtains. In this manner, users can continuously control their privacy by using the curtains. Similar sensor-driven blurring has been introduced in a previous study [2]. Our device is unique in that it can be operated intuitively and has an easy-to-understand structure since it is a metaphor of a curtain.

Even when one user closes the curtains completely, each user can roughly know the state of the other by seeing through the curtains and looking at the strongly

blurred screen. Sometimes this stimulates them to start a new conversation by opening the curtains.



**figure 1.** SmoothCurtain video communication system. Small curtains hung in front of the monitor control privacy.

### Evaluation

We have installed SmoothCurtain in two rooms of different buildings of our university. More than 10 students have been using the system for two weeks, and the trial is still in progress. During evaluation, they have given considerable positive feedback on usability and improved communication. On the other hand, some of them have reported difficulty in starting a conversation when the curtains on the other side are closed.

### References

- [1] Tsujita, H., Tsukada, K., Siio, I. SyncDecor: Communication Appliances for Couples Separated by Distance, In Proceedings of Ubicomp 2008, IEEE, pp.279–286, 2008.
- [2] Neustaedter, C., Greenberg, S., BoyleNeustaedter, M. The design of a context-aware home media space for balancing privacy and awareness. In Proceedings of Ubicomp 2003, Springer-Verlag, pp.297–314, 2003.



# SMOOTHCURTAIN

## PRIVACY CONTROLLING VIDEO COMMUNICATION DEVICE

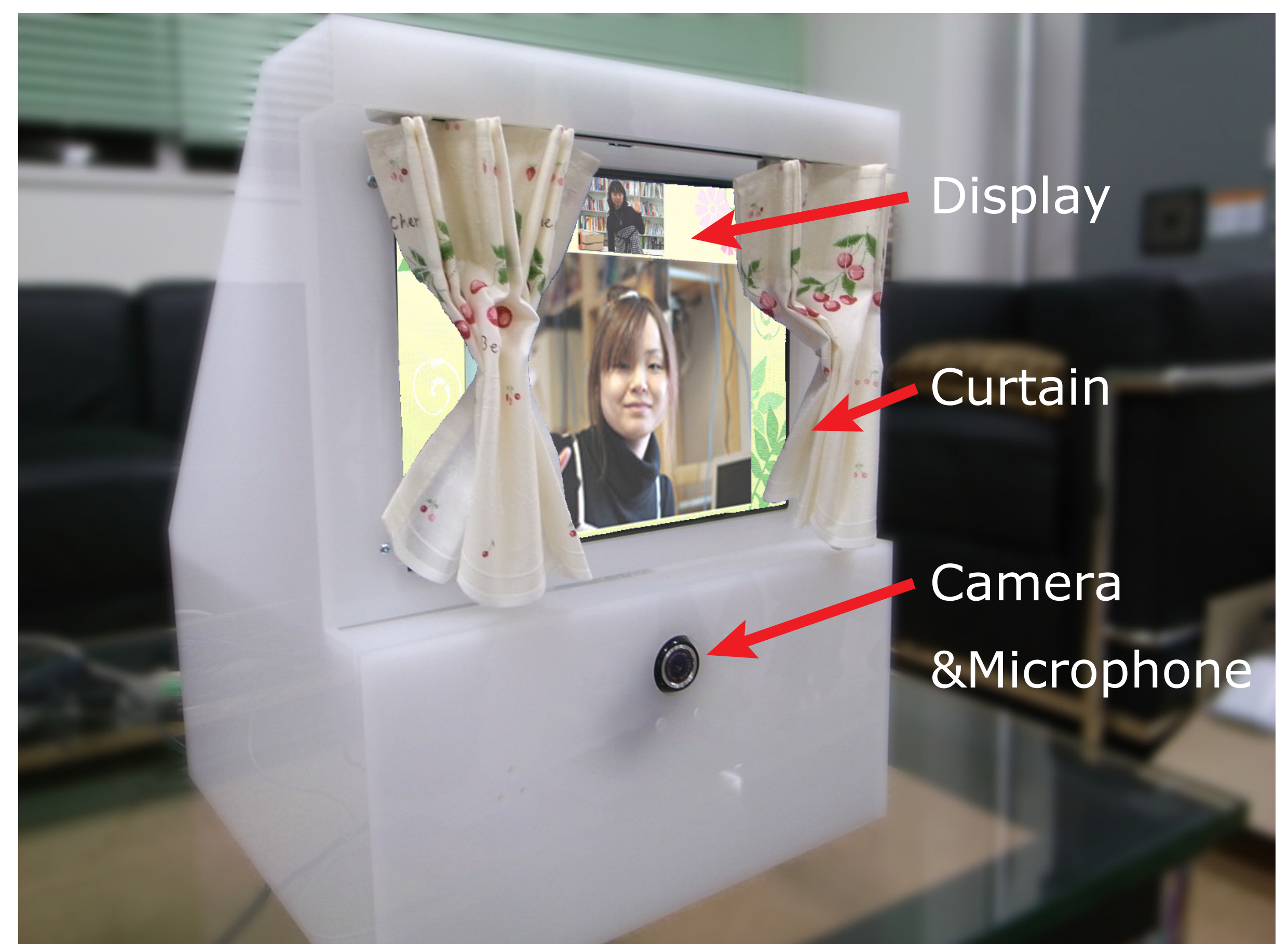
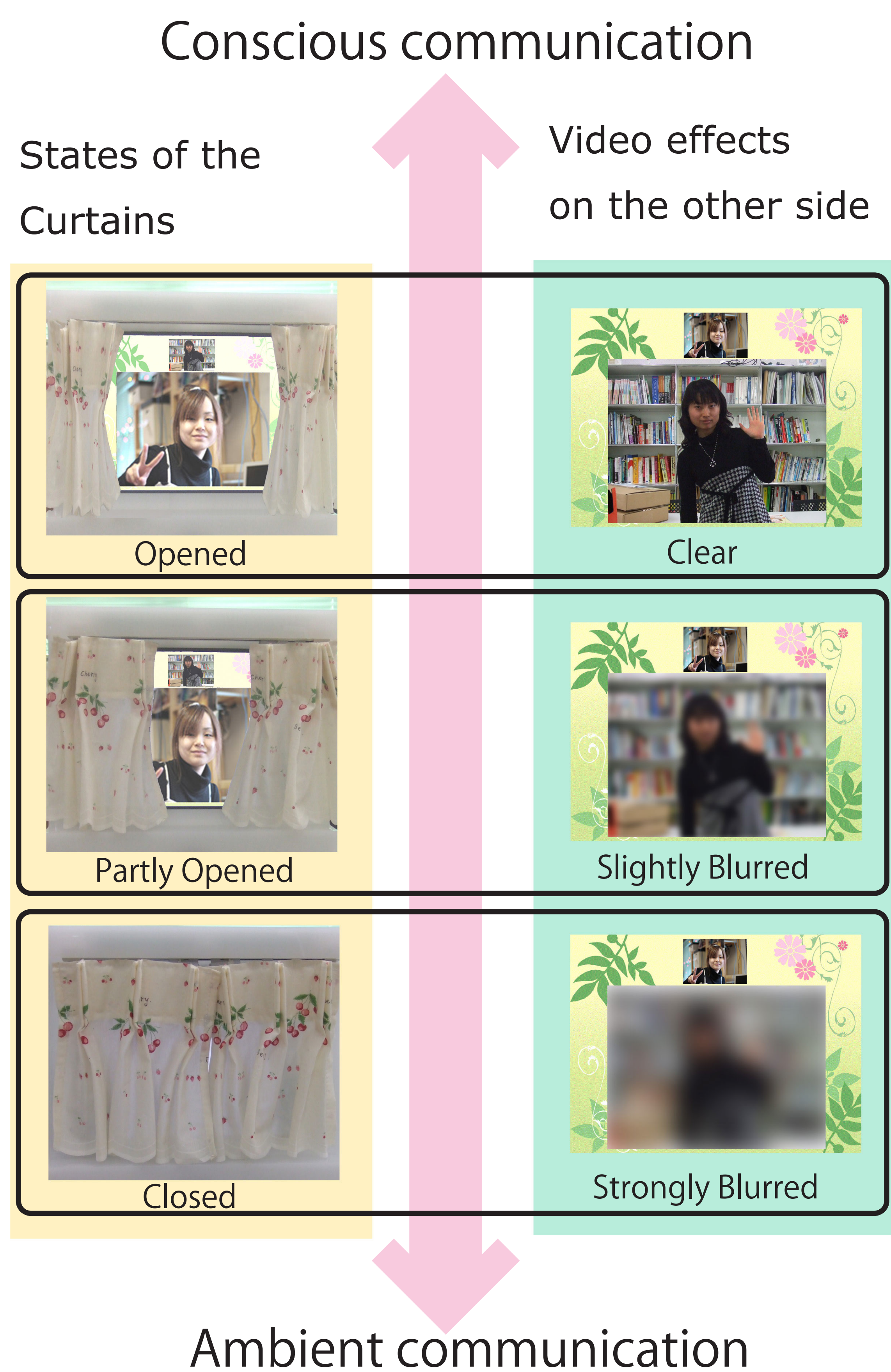
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### Abstract

SmoothCurtain is suitable for constant use of a remote video communication system in a living environment. To enable switching between conscious and ambient modes of communication smoothly and intuitively, we have adopted a metaphor of a curtain.



SmoothCurtain is a video communication system. Small curtains hung in front of the monitor control privacy.



We have installed SmoothCurtain at two rooms in our university. More than 10 students have been using the system for two weeks, and the trial is still in progress. We will describe the result of this test here and talk at Ubicomp.

