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## DEVELOPMENT OF A SUPPORTING SYSTEM FOR A DISTANT LECTURE USING A PROJECTOR

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### ABSTRACT

The growth of a communication network technology enables us to take part in a distant lecture. We developed a supporting system for a distant lecture named CABLE (Cursory Animation generator for Broadcasting a LECTure using a projector), which is an application of the image processing CABLE recognizes a part of a projected material which a teacher is explaining on a screen, and draw a line or a circle in the image projected onto the screen in a remote classroom. This system helps students to estimate the point explained by the teacher.

### KEYWORDS

Distant lecture, Lecture using a screen, Image processing, Supporting tool

### OVERVIEW

We are developing the supporting system for the distant lecture. A teacher can give a distant lecture without changing the usual style. As the first step, we have developed ACE (Automatic Camera control system for Education) [Suganuma, 2002], which supports the lecture using only a blackboard. In this research, we have designed and developed CABLE because of the increase of the lecture style using a projector and a screen.

CABLE can transmit the display image of the teacher's personal computer as the sequence of still images to a remote classroom. The advantage of this method is that we decrease quantity of sending data compared with the case transmitting a video data, and that the images are higher quality than the captured image with a video camera. Also, CABLE can recognize a point which the teacher is pointing with either a physical pointer or a laser pointer.

The image received in the remote classroom is projected onto a screen. The process of CABLE running on the PC in the remote classroom is to draw a line or a circle in the point that the teacher is pointing. Students in the remote classroom feel as if they are seeing a picture-card show. Figure 1 shows the overview of CABLE.

### REFERENCES

- Suganuma A. and Nishigori S., 2002, Automatic Camera Control System for a Distant Lecture with Videoing a Normal Classroom. *Proceedings of World Conference on Educational Multimedia, Hypermedia & Telecommunications*. Denver, USA, pp.1892-1897.

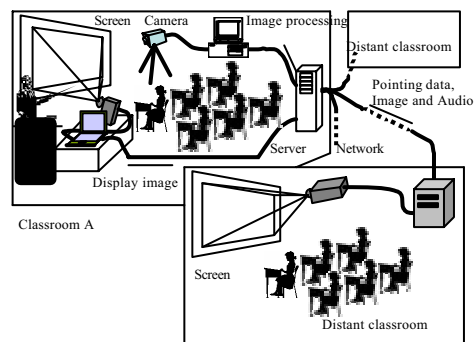


Figure 1. System Overview