A Design Study for Multimedia Communication at Work

As well as for the classical task of data processing personal computers are increasingly used as endsystems for multimedia communication. One of the most frequent applications is that of desktop videoconferencing between distant workplaces during which the users can jointly edit shared documents or programmes. The new possibilities for working can however be only partly exploited with the currently available endsystems.

Today's PC-based video workplaces consist, besides the monitor, of a separate personal camera, microphone and loudspeakers. A natural conversation during the videoconference is only partly supported by this configuration. Using this kind of equipment the user has to take a rather static position in front of the camera and the PC monitor. Direct eye-contact with the discussion partner, which is essential for each personal conversation, is not always possible since the user looks either into the personal camera or on the PC monitor. Both discussion partners have the impression that they look past each other in the latter case.

Mediatel - Flexibility and Ergonomics for Multimedia Workplaces

The Mediatel, developed in the context of a design study, is based on a modern display architecture which overcomes the above mentioned disadvantages. It is more comfortable, more ergonomic and more flexible than conventional systems and can be connected to personal computers from different manufacturers (e.g. IBM-compatible PCs, Apple Macintosh or workstations).

Using a swinging arm the flat display (LCD) can be brought to a position which is most suitable for each user. Valuable desk space is not blocked by the monitor and the other equipment. Loudspeakers, personal and document camera are integrated within the Mediatel. The microphone is located near to the lips of the user. Thus, high quality voice transmission is achieved at low technical effort. For transmission, documents or objects are placed on the desk under the Mediatel or the swinging arm with the integrated document camera is moved above these objects.

An optical system in front of the display ensures direct, parallax-free eye-contact during the videoconference. The image of the person sitting at the Mediatel is projected by a semi-permeable mirror, in front of the display, into a small mirror at the ring and finally into the camera. To avoid overlapping of the personal image and display image the polarized light of the LCD is faded out by a special filter in front of the camera. The patent for this optical system is pending.

In addition to the presentation of moving images taken by the personal and document cameras the Mediatel can also be used for presenting the user interface of the personal computer. Apart from the relatively small screen diagonal of 14" it can thus be used as an alternative to a conventional personal computer monitor. Positive side-effect: Using an LCD there is no exposure to the radiation caused by cathode ray tubes.

The design and the first functioning prototypes of the Mediatel were developed in cooperation with Art + COM e.V., Berlin. Meanwhile, TRION GmbH has optimized and further developed the Mediatel on behalf of DeT eBerkom, a subsidiary of Deutsche Telekom, for a possible product introduction. In April 1995 these prototypes were used successfully for the first time for the visitor information system during the International Switching Symposium (ISS) in Berlin.

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