

Multi-Video Streaming for Telemedical Applications

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Telemedical applications make medical expertise available and enhance medical education independent of the patient's or student's location. In order to achieve optimal performance quality of telemedical applications, the tools used in OP 2000 (operating room of the future) must be optimised, or even specifically designed for the user's requirements. However, up to now the transmission has been limited to one video signal at a time. Therefore, to combine the videos of two investigation methods switching between two different video signals is necessary.

WinVicos (Wavelet-based interactive Video communication system) is a high-end interactive video conference system that enables the simultaneous transmission of real-time video streams, still images and audio, combined with the use of remote pointers in all of these data windows. The video output (composite or S-video) of various medical instruments (room cameras, ultrasound, laparoscopes, endoscopes, microscopes, etc.) can be fed into the system directly and the video streams are transmitted with superior quality, especially in the range of moderate bandwidths (~ 768 kbit/s).

By using a specific video compression hardware (Quincunx by „Vidisys“) two video streams can be combined into one video signal and transmitted by the WinVicos system. Thus the transmission of stereoscopic or even two different video sources using the same bandwidth is possible. For example during telesonographic examinations the output of a laparoscope or an endoscope together with an ultrasound video stream can be transmitted simultaneously. This enables interactive working without losing reference points.

By using multi-video streaming teleconsultations, teleexpertise and telementoring can be made more interactive, flexible and user-friendly.