# Internet Telepresence by Real-Time View-Dependent Image Generation with Omnidirectional Video Camera

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We have developed a new telepresence system which works on internet. Our system transports omnidirectional video streams through the internet, besides the time delay from the change of user's viewing direction to the change of displayed image does not depend on the actual distance between both sites. Therefore, the present system is applicable to real-time telepresence in the situation where the real world to be seen is far from an observation site. Moreover, multiple users can look around from a single viewpoint in a visualized dynamic real world in different directions at the same time via internet.

Our system is realized by the following three steps: (1) video-rate omnidirectional image acquisition, (2) transportation of an omnidirectional video stream via internet, and (3) real-time view-dependent perspective image generation from the omnidirectional video stream. Our system is a peer to peer system, in which a computer that is placed in an omnidirectional video camera side is called the sender and a computer that is placed in an observation side is called the receiver.

**Refernces**

(1) Y.Onoe, K.Yamazawa, H.Takemura, and N.Yokoya: "Telepresence by real-time view-dependent image generation from omnidirectional video streams", Computer Vision and Image Understanding, Vol.71, No.2, pp.154-165, 1998.

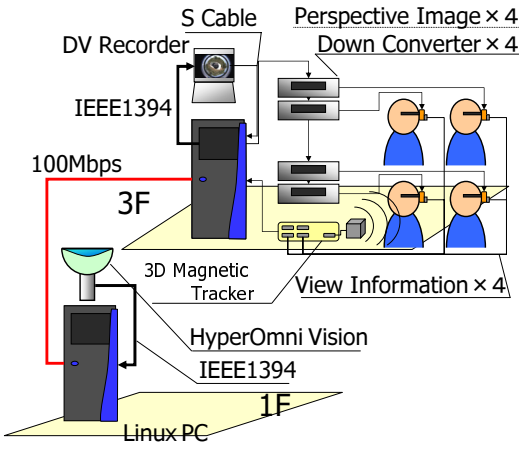


**Figure 1:** Hardware configuration of internet telepresence system.

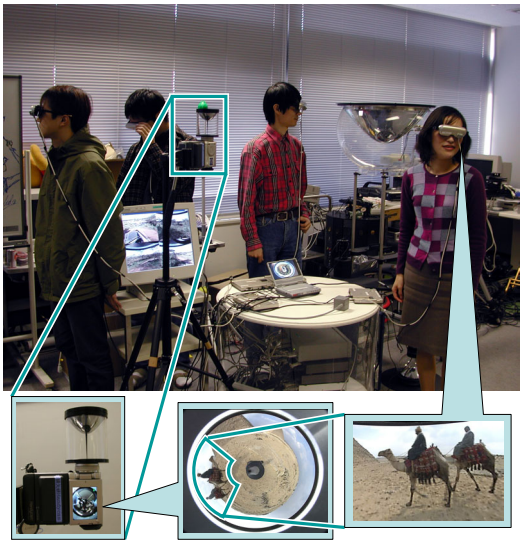

**Figure 2:** Appearance of four users.