Real Time Communication using Embedded System beyond Videoconferencing and towards Telepresence

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Abstract

Telepresence is a service that enables realistic and immersive presence to the user. Though the service is no longer a new terminology, it has not been used widely due to the cost of implementation and mass manufacturing. This paper presents a telepresence system that focuses on building a robotic platform for telepresence. This system is built using open source hardware and software that makes the system affordable and cheap. This system is able to remotely operate over Internet and work in a scenario with audio-video conferencing capabilities. This paper describes a fast and affordable alternate conferencing solution using WebRTC open source project. The WebRTC project enables browser to browser real-time communication. Today several vendors provide telepresence devices, but at a cost that the general public cannot buy. This paper showcases an alternate implementation of telepresence system that comprises of a robotic platform and an audio-video conferencing solution. This system is built using off-the-shelf hardware systems and open source software stacks. However the implementation showcased is meant only for demonstration purpose, the same system with
some tweaks can be deployed in actual real-life scenario where the operator can reach the intended destination remotely.

References


Index Terms

Computer Science Embedded Systems

Keywords

WebRTC, audio, visual, Telerobotics, telepresence, eleoperation, video conferencing.