Abstract

Robotic Telepresence systems focus majorly on the concept of telecommunication and remote presence with independent mobility. Recently a number of Telepresence robots have been introduced in the market, each with some unique feature and show-off factor. While these systems promise good user experience, they are too expensive for the general public to use them. This paper proposes an innovative approach to build a commercial robotic Telepresence system called OATS. OATS stands for “Open Access Telepresence Systems”, which is an architecture primarily based on open source platforms like, WebRTC and MQTT. The uniqueness of the architecture is that, the Telepresence robot can use any mobile smartphone running an OATS client application, as the brain of the robot, reducing the need of expensive, onboard electronics and processing power. The smartphone connects to a robotic platform that enables the robot to move. Using this robot, a person can remotely interact using any smartphone or laptop. This OATS client connects to a server which provides services required for peer to peer videoconferencing and machine communication between the clients. A user can login to one of this Telepresence robot and pilot it in a remote area, from any part of the world.
This architecture not only reduces the cost of the Telepresence robot, but the use of smartphone platform also opens up whole new possibilities for development of next generation of telepresence robots. In this paper, we briefly discuss the OATS architecture, its deployment strategies and its advantages over existing systems.

References


Index Terms

Computer Science Applied Sciences

Keywords
Telepresence, WebRTC, MQTT, audio, visual, Telerobotics, Teleoperations.