An Operating Method for a Bipedal Walking Robot for Entertainment

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Tele-existence applications for robotic systems are becoming popular and widespread. They enable users to control a remote machine while experiencing a sense of being in the remote location. Initially, tele-existence was used for remote de-mining and mission-critical tasks in space, to avoid risking human life. Recently it has been applied in many entertainment and gaming applications, to enable a community to play together in one virtual environment and share the experience. But existing tele-existence systems require a large-scale interface, a lot of processing power, and a large space for proper operation.

With this new bipedal walking robot, users can experience tele-existence in a small space, with a minimum number of modules attached to the body and a simple, easy-to-understand controlling interface. The system configuration mainly focuses on detecting specific human actions such as foot, arm, and finger movement, and recreates synchronous motions in the bipedal robot. For example, in one scenario, each user stands in front of a visual display and remotely controls players in a small-scale soccer pitch. Physical movement of the robots is reflected in the virtual environment, and users can experience the sensations of the live game and a large audience via a head-mounted display.

This project realizes a tele-existence system not only for entertainment robotics, but also for synchronous motion in many other applications. Bipedal walking robots provide a common ground for remote users to carry out collaborative physical tasks while creating a multiple tele-existence working environment.