

Keywords

Haptic; haptic interface; distributed haptic; rehabilitation; robotic teleoperation; vibration motors.

Abstract

The haptic technology is increasingly present in society in diverse areas such as health, robotics and recreation. In the present work, a haptic device with the objective of being used in robotic teleoperation and rehabilitation was developed. The developed device allows the user, through the use of a graphical interface, to control a network of mini vibration motors, either individually or using predefined stimuli. Therefore, the user can define which motor, or which group of motors, to turn on and its intensity.

In the development of the system the platform ROS and platform Qt were used in the implementation of the communication system and the graphical interface, and the platform Arduino was used to do the command of the vibration motors. To the functionality of the device, a glove/sleeve composed by sixteen vibration motors displayed in strategical points according the human being dermatomes was developed.

The entire system was tested and evaluated by clinicians and by a sample of volunteers with different backgrounds.

An analysis to the collected data showed that the proposed method was successful.