

A SPHERICAL HAPTIC INTERFACE WITH UNLIMITED WORKSPACE

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Abstract- Over the last two decades, various haptic interfaces have been developed. However, their workspace has been mechanically restricted. This limited workspace reduces operability, because operation should be suspended at the boundary. In this paper, to tackle this problem, a spherical haptic interface is developed, which utilizes a ball as an interface with the human. The ball is driven by three DC motors through omni wheels. Consequently, unlimited workspace is achieved for orientation. Furthermore, a novel artificial sensation is implemented by rolling the ball with the palm.

Index terms: Haptic interface, virtual reality, human interface, joystick, teleoperation,