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Investigation of Suitable Body Parts for Wearable Vibration Feedback in Walking Navigation

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Abstract

Many studies have demonstrated the benefits of wearable vibration devices for walking navigation (Tsukada and Yasumura, 2004). Despite the potential benefits, suitable body parts for wearable vibration devices have not been defined or evaluated until now. We conducted three experiments to identify suitable body parts in terms of perceivability, wearability and user body location preferences for vibration devices. We tested vibration feedback on 9 body parts (the ear, neck, chest, waist, wrist, hand, finger, ankle and foot). Experiment 1 and Experiment 2 were conducted in the lab and in real-world walking settings in order to find suitable body parts. Our results indicate that the finger, wrist, ear, neck and feet had the highest perceivability and user preferences. Experiment 3 was conducted to understand the practical usability of those vibration positions in walking navigation. Our study results suggested that the feet are not suitable locations for vibration feedback in walking navigation. Based on the study results, we present design

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