

소형 가전제품의 파지 자세 측정을 위한 손 추적 기술 문헌 조사

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A Systematic Literature Review of Hand Tracking Techniques for Analysis of Grip Posture for Portable Product Design

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ABSTRACT

Objective: The aim of this study is to investigate useful hand tracking techniques for grip posture analysis which can be used for portable product interface design. **Background:** The interface design of a portable product requires ergonomic consideration since portable devices are often operated with one hand, and it causes usability problems such as discomfort, slip, and unintended operations. Although these usability issues can be overcome by considering grip posture in the design process, analysis of grip posture requires much effort to measure and classify. Therefore, an efficient method for grip posture analysis is needed. **Method:** The present study reviewed 46 studies to understand various hand tracking techniques which utilize video camera, depth camera, or infrared camera. **Results:** The hand tracking techniques from most of the studies were developed for hand gesture recognition, but some were for product design. The techniques could be categorized into image-based and model-based in terms of whether the hand data is based on the hand shape or link model. **Conclusion:** Available hand tracking techniques are mostly focused on bare hand gesture recognition rather than grip posture which occlusion by a product usually happens, so a new method needs to be developed to overcome the limitations of the available hand tracking techniques. **Application:** This research can provide a brief understanding of numerous hand tracking techniques for researchers who are developing hand gesture interactions.

Keywords: portable product design, hand tracking, grip posture

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