Graduate School of Science and Technology Master's Thesis Abstract

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Thesis title	A Palm-Based See-Through Interface for Controlling IoT Devices		

Abstract

With the development of the Internet-of-Things, smart appliances are more and more popular in our daily life. However, managing and retrieving device-specific control apps on the smartphone requires an unsustainable level of user attention as the number of devices grows. Our goal is to provide an intuitive user interface to control smart devices by using an Augmented Reality Head-Mounted Display. We proposed a palm-based see-through interface to realize this goal. At the same time, it provides haptic feedback by using bare hands. We run a user study (n=12), where participants experienced an simulation environment to manipulate smart appliances under the proposed method and two raycasting baselines. We conducted objective and subjective measurements, and collected four questionnaires and operation time from participants for analysis. The results suggest that the see-through interface is more intuitive because the user is already familiar with the operations on the smartphone, and brings users haptic confidence while no more add workload. This showed us how smart devices can greatly benefit from an AR implementation, motivating us to further explore this approach for more user scenarios.