

Invisible User Interface in Living Space Using Pinhole Array Material
ピンホールアレイ素材を用いた生活空間のための
見えないユーザインタフェース

Student No.: 201921628

氏名：片岡 駿之介

Name: Kataoka Shunnosuke

This thesis proposes an invisible user interface that is integrated into our daily lives. I proposed the design of a display interface that loses its presence when not in use, and the design of a sensing interface that does not make people aware that they are being sensed. In this thesis, I have created a pinhole array material that consists of a grid of tiny holes drilled into a wood veneer, a material that is widely used in our daily lives. By combining the pinhole array material with displays or sensors, we investigated invisible user interfaces in living spaces.

In the design of the display interface, I realized a display with higher resolution than the conventional method by using a material with high density and large diameter holes. The high resolution enables us to present text and detailed icons to the user even with a small device size, improving the flexibility of the information that can be displayed.

In the design of the sensing interface, the user's operation is sensed through the pinhole array material. By sensing through the pinhole array material, I can create an interface that does not make the user aware that he or she is being sensed. In addition, by enabling sensing with a camera, it is now possible to increase the variation of user interaction, which was previously limited to touch.

Main Academic Advisor: Yoichi OCHIAI
Secondary Academic Advisor: KIM Sangtae