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Interactive user interface design for multimedia data exchange for SUR40 multi-touch panel

Designed interface is a proposed solution for the FP7 CARRE project. The project focuses on the development of medical experts supporting technologies. The most important part of this paper is the evolution of the developed interface, which allows to present and exchange multimedia data to the external devices. The design has been developed to ensure the convenience of usage for both, medical expert and the patient.

Device

Samsung SUR40 large touch screen (Surface) is a surface computing platform from Microsoft PixelSense technology that requires no mouse and no keyboard. Direct interaction allows to "grab" digital multimedia objects with hands and move them around freely on the Surface. The multi-touch functionality recognizes up to 52 points of contacts on the screen at the same time which enable up to four users to interact on the same application at the same time. Moreover object recognition will use physical objects and will interact with them on the Surface's screen such as pictures on a camera, phones or sensor devices.
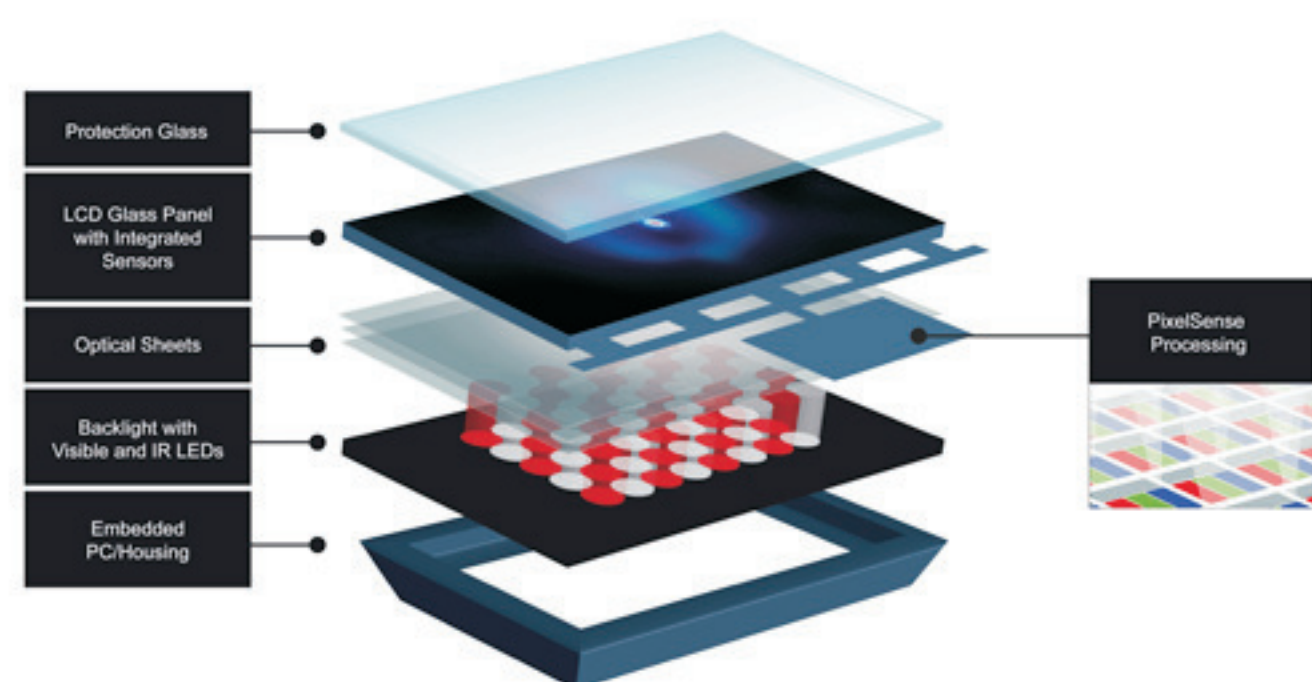

Fig. 2. Possible configuration of SUR40 device

Fig. 1. Main component of SUR40 device

Use case - Doctor's Consultation Interface

Patient and her physician sit down and review all types of medical records together using an interactive touch screen (Surface) computer. They examine digitized paper forms, MRI scans, and interactive models, pulling both from the hospitals' records and the patient's records. They can sit side-by-side or across from each other viewing the same information using hand gestures to scroll through, open, zoom, rotate in 3D, push across the table, and drag and drop records from one storage repository to the other. They can record the whole session and attach audio and written notes to the computer files.

Designed interface

The interface was designed for FP7 CARRE project purposes and its goal is to improve the communication between patient and internist (or medical expert). The interface was equipped with set of visual elements, which enable the future end user to acquire the medical domain knowledge in more useful as well as user-friendly way. The designed interface can assist patients and doctors by providing advices, recommendations and diagnosis of problems in aging and growing population with chronic diseases, by means of interactive visualization interface, variables and recommendation to intuitive and user-friendly visualization in patient application.

The interface has scalable architecture, which enable further development. The interface has been created using rules and guidelines established by Microsoft. It is possible to present multimedia data and to send it to an external device using Bluetooth protocol. Information about contents are accessible through QR codes generated by application.

Fig. 3. Graphical interface on SUR40 device

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