Design and Implementation of Information Providing Method with Force Feedback for Information-KIOSK

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March 2004

Keywords: Information-KIOSK, Museum, Haptic feedback, Force feedback, User interface

In this paper, we propose a new information providing method for Information-KIOSK using the force feedback system.

Developments in information technologies have enabled making it widely for users to use computers. In public spaces like museum, public hall and community center, there is some Information-KIOSK that users can receive some information in there. However it remains problems that the most of Information-KIOSK is based on PC-desktop using a mouse, a keyboard and GUI (Graphical User Interface). Hence it is not handy system for people who are not used to using the PC. Recently Information-KIOSK is widely used touch panels therefore user interfaces of Information-KIOSK are more useful than ones of the conventional PC-desktop environments.

Moreover, for making it easily for users to use it, user interfaces with touch panels are now widely installed in public systems. Considering the important social role of public services, it is especially important that user interfaces have more accessibility for all the people. Direct input methods like user interfaces with touch panels have strong merits; complicated services can be executed with a sample operation. However, such interfaces also have demerits; for example, it is difficult to build touch panels that provide the user with tactile sensations that indicate the intended user-action has been performed. To overcome these demerits and thereby make public services easier to use, we installed haptic feedback in Information-KIOSK in this research.

Nowadays there are many force and haptic feedback systems like PHANToM, SPIDAR and Proactive Desk etc. However they have their own characters: power, response time, the degree of freedom etc. Considering both characters of Information-KIOSK and these characters of devices, we adopt Proactive Desk for information-KIOSK in this research.

That reason as follows,

- Degrees of the restriction on user interfaces with information-KIOSK are low level.
- Enable more than one user to watch the display together at the same time.
- It is possible to provide a user force feedbacks that enable the user's arm to control any directions.
- Entertainments.

We developed implementations to put into practice our designs using Proactive Desk. In this research, designs as follows Fig. 1

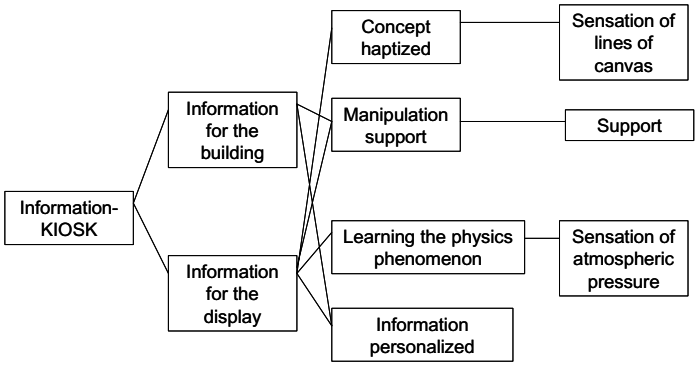

Fig.1 The map of the design

In this system, we placed these implementations as prototype systems with force feedbacks for the information-KIOSK. For example firstly, users felt the invisible subjects, secondly they imagined what it is, and thirdly they restructured what they imagined. Hence,

It is concluded that our information providing method with force feedbacks have one of the direction of next information-KIOSK.