Adaptive Information Distribution and Inter-screen Interaction

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Participant's Interest

The number of digital signage both indoor and outdoor is growing very quickly around the world. Along with its numeric growth, their functional capability is also expanding, enabling intelligent services as adaptive information services via web.

Currently, one of the most prominent information service provided through the digital signage is advertisement. The usefulness of its information (advertisement) depends not only on how well the advertisement is designed, but how well it targets customers. The targeting has been done manually by each advertiser, assigning each advertisement onto every designated digital signage. Both the academia and industry is looking forward to an efficient way of advertising to targeted customers through an intelligent system.

Digital signage in the form of an information kiosk is touchscreen capable and the user may manually select or searches information. The user can interact with the signage by direct touch on the screen, but more enriched interaction and services are possible by utilizing personal hand-held device. For example, signage "not within reach, but within sight" can be directly manipulated at a distance. Also single-display-multi-user interaction is possible without hindering the screen.

Our interest lies on the enabling technologies for such intelligent information services via both pre-deployed digital signage as well as personal portal I/O devices.

Point of View

Our point of view is that the digital signage is an on-going trend, and integration of web platform is considered to be one of the most promising ways to deploy and manage content across the signage. The information distributed to the signage should be able to meet the user(both service provider and customer)'s needs through adaptive content distributed at the

right location in the right time. Moreover, by providing a way of direct manipulation of the signage using a personal I/O device connected with the signage of interest.

Some of the user scenarios are as followings:

1. Web-based signage detects the context (e.g. demographics of the pedestrians nearby, location, time etc) around and displays the targeted content (advertisement) accordingly.

2. A pedestrian finds a piece of advertisement interesting and wants to take a more precise look into it. He makes a direct connection with the remote signage and receives the advertisement on his smartphone seamlessly (either by a hyperlink or by streaming protocol, similar to RDP). The signage and smartphone may exchange touchscreen input event messages in real-time for further interaction.

The requirements for supporting above scenarios are as follows:

- Semantic annotation of the advertisement which may selectively rendered according to the conditions

- Device APIs for signage browser to approach its hardware resources to detect context (e.g. number of people around, gender, movement speed etc)

- Device APIs for Click, drag, hovering message exchange between browsers on a separate device triggered by touchscreen events

Concluding Remark

This research is currently funded by the Korea Communications Commission under grant number 11912-03001 (Development of Inter-screen Collaboration Service using Dynamic Reconfiguration of Web Converged Contents). Web-based signage is one of our target domains for applying adaptive content distribution, seamless content migration and interaction upon inter-screen connection. We hope to participate and exchange idea among various vendors from the industry as well as academia and research institutes.