Review of the Kiosk Related Research Results

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Abstract. Kiosks are widely used in order to provide "localized real-time information," "interactive touch-control services," and "value-added integrated marketing service". We review recently introduced kiosk related research results. Then, we propose our design of a kiosk system for local area tourism. The screen of the system consists of a video view, two image views and an online shopping mall.

Keywords: Kiosk, Digital Signage, Video, Online Shopping

1   Introduction

As the electronic display devices and computing techniques are advanced, kiosks are widely used to provide "localized real-time information," "interactive touch-control services," and "value-added integrated marketing service" [1].

This paper reviews the techniques recently published in the fields of kiosks. Development of information architecture for user-centered hospital kiosk, towards trustworthy kiosk computing, and other topics will be discussed. A kiosk is a kind of digital signage. Audience measurement procedures for digital signage service will also be discussed.

Then, we introduce our design of a user interface of the kiosk system for local area tourism will be introduced. The user interface consists of a video view, two image views and an online shopping mall.

2   Related Works

Exercising the Markov models and enhanced K-mean clustering methods, the authors of [1] analyzed bunch of log data recorded in 8 kiosks that provide interactive services to users in order to understand the self-seeking behavior of users such as self-seeking use cycle, time, function numbers, and the depth and extent of services.

After conducting usability test and in-depth interview with each group of users, the authors of [2] suggested a proper information architecture for the integrated user centered hospital kiosk. The suggested architecture is described in Figure 1. The system provides the following functions: Routes from where they are, Parking fee

payment, Making appointment with a doctor by clicking the name, helps users to choose the right clinical program or doctor, medical bill payment, issuance of documents, input and search, full screen menu, and so on. The system provides information of: location of amenities and transportation, parking guidance, clinical programs, general medical procedures, and so on.
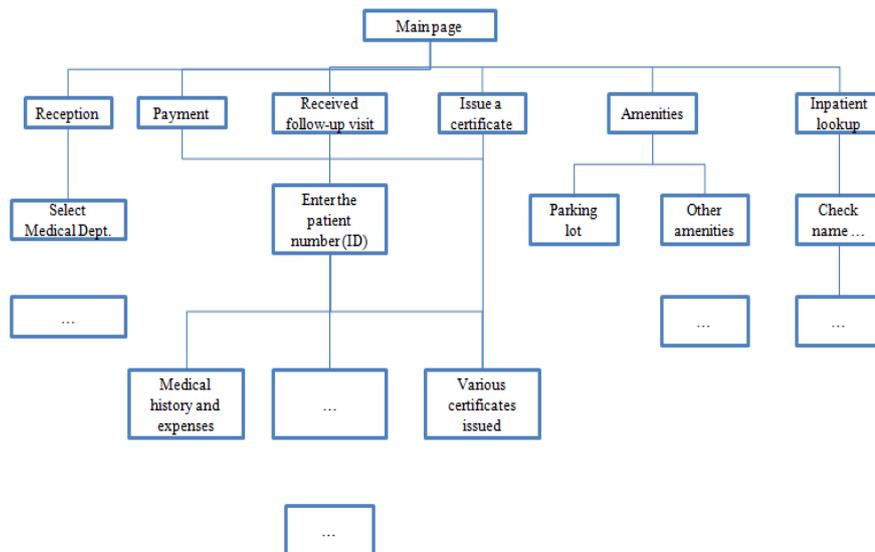

Fig. 1. The architecture of the user interface of the hospital kiosk system

A kiosk must performs what the user asks to do and must not do anything else. For example, a kiosk must not record user's ID and password when the user asks to transfer money from one bank account to another. A kiosk is said to be trustworthy if it does what the user tells to do only. The authors of [3] presented a trust establishment protocol between mobile device and kiosk.

The authors of [4] proposed the kiosk based employment generation system as shown in Figure 2. Producers or service providers register their product or service at the kiosk using their telephones or accessing the internet. Consumers also register their needs at the kiosk in the same manner. The administrator of the kiosk makes matches between producers and consumers.

Digital signage is electronic displays placed in public or commercial areas. Multimedia contents consisting of texts, audio, and video are displayed on digital signage. Digital signage systems receive the multimedia content stream from the server and display the stream as soon as it arrives. Users of digital signage systems can interact with the systems, i.e. users can select a menu on the screen in order to tell the system to perform the instruction represented by the menu [5].

A digital signage system can be equipped with various sensor devices such as camera, microphone, thermometer, etc. A digital signage system may also support various short-range communication such as RFID, NFC, Bluetooth, and infrared-ray. The authors of [5] described interfaces that audience measurement will occur.
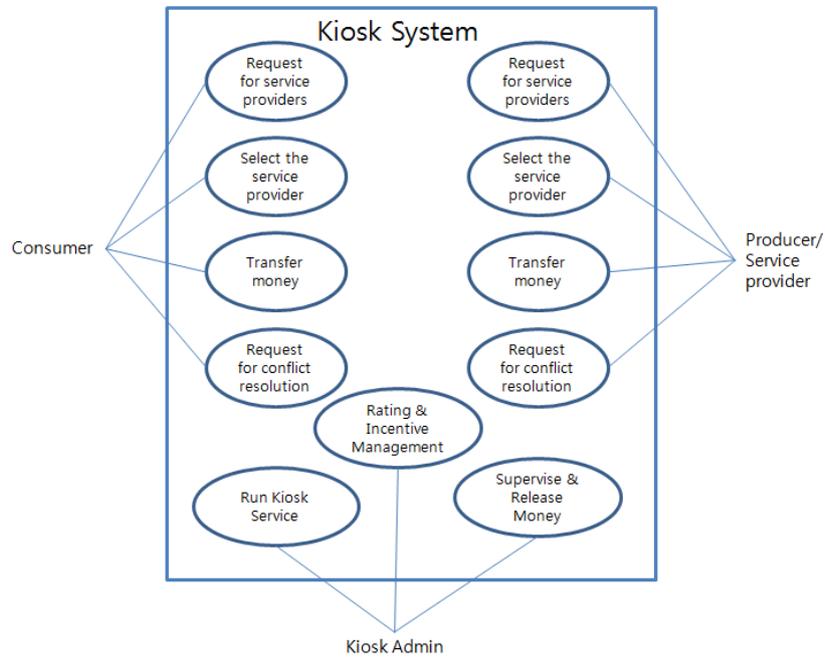
Fig. 2. A description of the kiosk based employment generation system [5].

Fig. 3. Our design of the user interface of the kiosk

3 Design of our LBS System

Considering the kiosk related research results, we propose a kiosk system that is integrated with live broadcast and online shopping as shown in Figure 3. The system is connected to the streaming server through the Internet and it simultaneously receives and displays contents from the server. Received contents is displayed on the video view. The interface has two image views, one for commercial advertisement banners and the other for advertisement of local events. The interface has a web view for the online shopping mall. The first page of the mall displays images representing coupons, general merchandise, restaurants, hotels, tourist attractions, tour courses, virtual tour, and tour guides.

4 Conclusion

This paper introduced our design of a kiosk system for local area tourism. This system is integrated with the live broadcast and online shopping. We are planning to implement the system.

References

1. Hung, Y., Chen, K., Yang, C., Deng, G., Yeh, Y., Wu, N.: Data mining for Analyzing kiosk usage behavior patterns, IEEE International Conference on Automation Science and Engineering, pp. 1115-1120, (2014)
2. Park, M., Song, D., Kim, H. Shin, S.: Development of information architecture for user-centered hospital KIOSK, 3rd International Conference on Data Mining and Intelligent Information Technology Applications, pp. 201-203, (2011)
3. Garriss, S., Sailer, R., Berger, S., Sailer, R., L. van Doorn, Zhang, X.: Towards Trustworthy Kiosk Computing. Eighth IEEE Workshop on Mobile Computing Systems and Applications, pp.41-45. (2007)
4. Dipin, K., Bose, J., Vivek, V.: A kiosk based model for employment generation in rural areas. IEEE Global Humanitarian Technology Conference - South Asia Satellite pp. 195-200, (2014)
5. Hyun, W., Huh, M., Kim, S. and Kang, S.: Considerations on Audience Measurement Procedures for Digital Signage Service, IJCA Vol. 5, No. 2, pp.123-130. (2012)