Information Marketplace: Supporting Experience Sharing in Proximity Using Mobile Technology

Chao-Lung Lee[1], Yun-Maw Cheng[2],
Ching-Long Yeh[4], Li-Chieh Chen[5]
Dept. of Computer Science and
Engineering, Tatung University
Taipei, Taiwan
g9606018@ms.ttu.edu.tw, {kevin,
chingyeh, lcchen}@ttu.edu.tw

Wai Yu[3]
Thales Air Defence Ltd
Alanbrooke Rd.,
Castlereagh, Belfast, UK
Wai.Yu@uk.thalesgroup.com

Kuan-Ta Chen[6]
Institute of Information Science
Academia Sinica
Taipei, Taiwan
cychen@iis.sinica.edu.tw

ABSTRACT

Social Proximity Applications (SPAs) have prompted a promising opportunity for mobile services that utilize the changes in daily life in the proximity of mobile users. This paper describes our research-in-progress about designing and developing a mobile SPA, which facilitates social interaction among visitors in a night market crowd. This application allows night market visitors to share their experiences in photos with nearby others via their Bluetooth-enabled mobile phones. The design was based on a two-week field observation in an attempt to investigate the motivations and attitudes towards applications of this type. After a three-night extensive trial we found the value of the application - playful, and enjoyable, yields high consistency with results from field observation. The ultimate goal is to identify potential engaging design extensions to the current prototype.

Categories and Subject Descriptors

H.5.3 [**Group and Organization Interfaces**]: Collaborative Computing

General Terms

Design, Human Factors

Keywords

Sociable experience sharing, collaborative communication support, proximity-based sharing, wireless ad-hoc networking.

1.INTRODUCTION

Everyday lives can be portrayed by the encounters that are fugacious. Even though that we may have common experiences with encounters. Can we take advantage of the information surrounds us? If we had the potentiality to exploit information that people around possess and the possibility of using the mobile phone to share information with these encounters, what are the barriers that prevent users from doing so?

In this paper, we carry out a field study in the context which is full of life experience information. We then present an application to help sharing life experiences between encounters. The designed application was informed by the study of user requirements regarding the willingness of experience sharing in the observed field.

2.RELATED WORK

Some projects have considered social collaborative sharing on the mobile device such as MobiTip[1] [1], Hocman[2] [2] and PhotoChat[3] [4]. Based on these researches, we found that people have requirements in social collaborative sharing with the common activity. People can promote personal knowledge, value of the activity, and experience via sharing. Our interest lies in using general-purpose mobile device for sharing his/her life experience with in-situ people who engage the same activity without temporal and spatial restrictions.

3.USER RESEARCH

We performed a field observation in an attempt to identify the target user groups and their motivations and attitudes towards mobile SPAs in this setting.

3.1Target group

We performed the study in the Shilin Night Market. Shilin Night Market is one of the largest night markets in Taipei, and all levels of schools stand in great numbers nearby this market. To be obvious, students are the main visitor group and we believe that they have great enthusiasm in experience sharing.

Figure 1. Shilin Night Market in Taipei.

---

[1] MobiTip gives the users the possibility to express their estimation concerning anything of interest in the environment.

[2] Hocman performs a mobile social application which people can enrich biking leisure activity with social connotation.

[3] PhotoChat employs photos as a communication ground.

3.2 Method

The field study into the behaviour and potential requirement in the Shilin Night Market took place two phases. We spent three hours each day hanging around the night market, and we aimed at understanding which way people capture and share information in the night market. Most observations were made concerning people on the move and look around in the crowded field. As a consequence, all observations were short, covering part of the activity of the person being observed. After the observation, we chose a semi-structured interview with five volunteers were randomly selected from the night market that starts with preplanned questions, summarize from the previous observation findings, and then probes the interviewee to expose more relevant information. In the session of interview, we enhance and complement our observation findings.

3.3 Initial findings

Here we present what we regard to be the most interesting themes that have concluded from the observation and the interview:

- *Act of communicating* - Communications hold prime importance in activities in a night market setting. That implies the willingness and requirement in sharing experience.

- *Interaction with mobile devices* - people rarely pay attention to the display screens of their mobile devices when hanging around in the night market. Only when stationary, they would look at the screen.

- *Capture and share personal life stories* - People would use fast, effective approaches for capturing special moment in the night market and obviously photographing is a common method.

4. DESIGN CONCEPTS

From our initial study, the literature review and the field study, we have derived the following design principles:

- *In-situ sharing* - People would be interested in the context of proximity. They may talk about the in-situ experience or collaborate with each other. We can choose short-range communication technology that support people share their in-situ information.

- *Fast and simple interface* - People are unlikely to be able to give their full attention to interacting with their mobile phones while walking. Photographing allows user to spend less time on capturing experience.

- *Free-of-charge* - People are concerned about the costs of sharing content such as access fees [3]. Bluetooth-enabled mobile phones without additional equipments and service charge can encourage the use of the service.

5. IMPLEMENTATION & EVALUATION

The prototype was implemented using J2ME interfacing the Symbian OS on Nokia N82. The device is Bluetooth-enabled and equipped with a built-in camera. Figure 2 shows our system architecture of the prototype based on the requirements, on the ground of the empirical field observation, and the interface of the prototype.
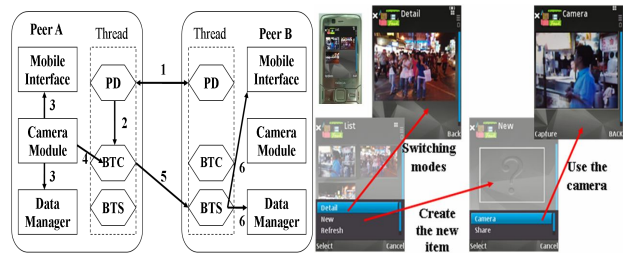

Figure 2. System architecture (left). Interface of the system prototype (right).

Bluetooth based peer-to-peer communication is used in our service, as well as photo capturing. When there are other users within the boundary of communication, peer discovery (PD) will log these users and inform the Bluetooth Client (BTC) to get new users regularly (step 1, 2). Then users can preview a form of thumbnail photos that are contributed by other users in the List mode. Assuming that peer A takes a picture, the images will show on the screen and be stored via data manager (step 3). This photo is then transformed into a stream and broadcasts itself via the Bluetooth client (step 4, 5). Bluetooth Server (BTS) will automatically download the contents from another device. Each peer regularly searches new contents through their neighbours (step 5). After that, peers as recipients store these files by data management and display on the mobile screen (step 6).

After a three-night trial with six participants, most participants reported that they were unlikely to pay full attention to interacting with the mobile phones. Captured experiences store and shared in the form of photos were accepted by most of them. Free-of-charge Bluetooth communication enabled and encouraged social interaction between the participants.

6. CONCLUSION & FUTURE WORK

We have obtained conclusions of improvements of the current prototype from in-situ field study. The potential engaging essentials of mobile SPAs are discovered. In the future, we will present a prototype with variety of methods such as texting, voice, and video recording for users to capture their life experiences and more detailed evaluation of this system will perform in the night market again.

7. ACKNOWLEDGMENTS

8. REFERENCES

1. Åsa Rudström, Martin Svensson, Rickard Cöster and Kristina Höök. MobiTip: Using Bluetooth as a Mediator of Social Context. *Adjunct Proc. Ubicomp 2004*.

2. Esbjörnsson, M., Juhlin, O., and Östergren, M. The Hocman Prototype - Fast Motor Bikers and Ad Hoc Networking. *Proc. MUM 2002*, 91-98.

3. Matuszewski, M., Beijar, N., Lehtinen, J., Hyyrylainen, T. Understanding Attitudes Towards Mobile Peer-to-Peer Content Sharing Services. *PORTABLE 2007*, IEEE Press (2007), 1-5.

4. Sumi, Y., Ito, J., and Nishida, T Photochat: communication support system based on sharing photos and notes. *Ext. Abstracts CHI 2008*. ACM Press (2008), 3237-3242.