Urban Treasure: New Approach for Collaborative Local Recommendation Engine

Takayuki Miyauchi, Ami Yao, Takahiro Nemoto
Masahiko Inami, Masahiko Inakage, Naohito Okude, Adrian Cheok, Maki Sugimoto
Keio University Graduate School of Media Design
4-1-1 Hiyoshi Kohoku-Ku, Yokohama-City, Kanagawa, Japan 223-8526
{ miyauchi, amiou, t.nemo10, inami, inakage, okude, adriancheok, sugimoto }@kmd.keio.ac.jp

1. INTRODUCTION

With human's infinite creativity, technology innovations are born in this world at an unprecedented rate. The rapid technology development has resulted in a fast-paced and complex life. Moreover, a dilemma is posed as people tend to fall into confusion when they are suddenly withdrawn from their occupied daily routine: our knowledge about our own community, besides our working environment, is limited due to our lack of both motivation and time for local exploration. How to increase and enhance people's appreciation for their daily surroundings then becomes the fundamental vision of Urban Treasure: a collaborative local recommendation engine which allows users to discover new local information that match their personal preferences.

Categories and Subject Descriptors

H.5.2 [Information Interfaces and Presentation]: User Interface - Interaction styles

General Terms

Design, Experimentation

Keywords

location, mobile entertainment, recommendation technology, social networks, user interface

2. RELATED WORKS

The original idea of utilizing the augmented reality (AR) and accelerometer to create the physical-interactive search engine came from the "Nage-mail(Tossing-mail)" project conducted by Japan's cellular carrier NTT Docomo. [1]. The accelerometer measures the force imposed by the user and the AR system polls the phone's GPS (Global Positioning System) sensor to find its location and grabs data from a digital compass in the phone to determine in which direction the user is facing. With the collected information, the server will then offer specific location information that match the user's present physical location.

3. SYSTEM DESIGN AND IMPLMENTATIONS

The capability of providing different recommendations based on the user's physical location and user preferences is achieved by the collaborative use of GPS, accelerometer, and direction sensor. In addition, as shown in [Figure 1], a database is required for storing the data collected by Urban Treasure.

Since Urban Treasure focuses on providing the relevant information according to users' preferences, the completion of user profile is required prior to the data acquisition process. Once the user profile has been registered, the user then can access the local recommendation engine anytime and anywhere.

The first step in the data acquisition process is to select the category of interest, and the screen will switch to the display of a fishing rod once the location category is selected. The user will then swing the mobile phone toward the direction of interest. The accelerometer built inside the mobile phone will measure the swing force and convert the measured force into a physical distance from the user's current location. The GPS will detect the user's current position, while the direction sensor locates the physical direction where the user swings the device towards. Based on the collected data, the server will the recommend one location file that matches the measured distance, requested category and direction, and most importantly, the user preferences stored in the database.

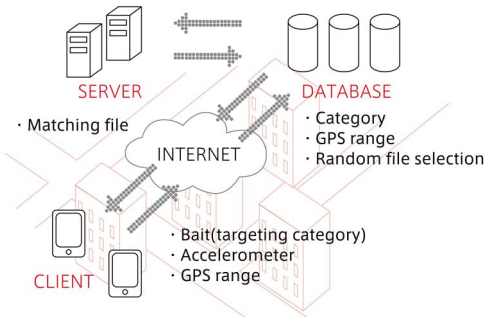

Figure 1. System Design.

4. CONCLUSION

We have decided to design an entertainment technology that will help the public to refocus on their living environment and enjoy it more rather than simply on their working space. Technology innovation will lead to a better life, only when all of us begin to appreciate our life–and the first step is to appreciate our living environment. Urban Treasure encourages users to explore the unknown local treasures as well as to become distributed intelligent actuators by sharing their appreciation for their local discoveries with others.

5. ACKNOWLEDGMENT

This project is granted by CREST, JST.

6. REFERENCES

[1] Minnano DOCOMO Kenkyu-Shitsu http://trial.nttdocomo.co.jp/technology/ar/index.html.

Ace 2009, Oct 29-Oct 31, 2009, Athens, Greece
© ACM 2009 ISBN: 978-1-60558-864-3/09/10...$10.00