

AN INTELLIGENT MOBILE ADVERTISEMENT SYSTEM

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ABSTRACT- Advertisements or vouchers are commonly used today to attract the attention and the purchase of consumers by providing discount or detailed description to customers. Typically, vendors use text to describe characteristic introductions and images to express appealing looks. In order to allow consumers to retrieve more information such as location of vendors, an advertisement publishing system should be improved to meet the consumers' requirements. This work proposes a location-based mobile advertisement publishing system, a framework for vendor editing, and location-based service.

The system is able to provide vendors not only the ability to edit advertisements, but also the means to publish advertisements to consumers. For vendors, the proposed system provides a low cost and effective way to implement digital advertisement publishing mechanisms. Location-based advertising (lba) is a new form of advertising that integrates mobile advertising with location based services. The technology is used to pinpoint consumers location and provide location-specific advertisements on their mobile devices

I.INTRODUCTION

Advertisements or vouchers are commonly used today to attract the attention and the purchase of consumers by providing discount or detailed description to customers. Many stores have issued various vouchers, coupons or advertisements to customers for the purpose of improving advertising values. With multimedia on mobile devices to ally Individual vendors and to help advertisement marketing, it is possible to provide better discount, service, and information to consumers. There are several ways mobile advertisements (AD)/coupons could be acquired: (1) Keying in the advertising Uniform Resource Locator (URL) through Wireless Application Protocols (WAP) or 3G phone;(2) keying in the code which is obtained from Websites, then receive advertisements in Short Message Service (SMS) way;(3) using interactive SMS; (4) calling Interactive Voice Response(IVR);(5) using the built-in advertising program. All of them are text information or images describing detailed contents of Advertisements. Typically, vendors can use text to describe Product contents and images to express appealing looks However, consumers would like to retrieve more information Such as location of vendors or how to locate them. That is why vendors would like to combine multiple types of information via an advertisement editor. Thus, an advertisement publishing system should meet the vendors' requirements. Furthermore, when consumers receive advertisement with URL, they are usually unwilling to type in URL. This situation happens frequently while browsing information located on Websites.

Consumers prefer to see the information without keying in or putting in other efforts. Such inconvenience not only decreases consumers' willingness to access the extended information, but also hinders their desire to purchase .Due to the aforementioned problems, this work proposes allocation-based mobile advertisement publishing system, a client-server framework for vendor editing and location-based service. The system provides a publishing interface that combines text, image, and location-based information. For store vendors, the proposed system provides a low cost and effective way to implement digital advertisement publishing mechanisms. In addition, the advertisement data desired by consumers can be viewed when a QR code is presented to be scanned, thus providing more Data and services for consumers to access.

II.LITERATURE SURVEY

With 3G and WiMAX gaining popularity in recent years, interests in mobile marketing have been growing as well. To make the best purchase, it is desirable for consumers to have the related vendor information in the hand such as prices, menus/catalogs, navigation, locations, reviews, and vouchers.

The mobile phone has become a means of communication, and in many instances, a place where applications of mobile marketing are deployed. However, despite its convenience and relatively low cost, many drawbacks have also been identified concerning mobile advertising, including spamming indifference to user preference, and intrusiveness.

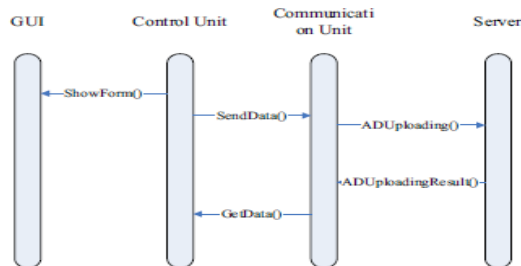
Mobile advertising systems usually broadcast the same advertisement to mobile users no matter. Recently, advertisements with location information have been discussed. For example, there is a customized advertisement system based on the local-geographical information which is a widely used form of offline advertisement and it can promote cross media convergence advertisement platform.

The term QR is derived from Quick Response, as the creator intended the code to allow its contents to be decoded at high speed. There is the development of a system that combines mobile Internet technology with a new viewpoint for the QR code usage in education. To such, mobile marketing methods used digital watermarking technology as a method to conquer these problems.

III. IMPLEMENTATION CONSTRAINTS

The advertisement editor is an android mobile application and is implemented by several tools, including Microsoft Visual C# 2008 and Microsoft Windows Mobile 6.1. In this section, the advertisement editor and advertisement manager will be introduced.

Fig.1. Advertisement message flow



In Fig.1, the message flow of a published advertisement is illustrated. The first step is to show advertisement editing form and then transfers advertisement data to the control unit. Secondly, the communication unit sends advertisement information to the server for publishing advertisements. Finally, the server replies the result to the communication unit to identify if publishing is successful. Show Form () function is responsible for generating a form for the vendor to describe advertisement data.

This function belongs to module GUI and will return AD Information in the string form. Send Data () function transfers AD Information to the communication unit for connecting to the server. The communication unit sends or receives from the server. Get Data () will send the result of uploading the advertisement to the control unit for verification of transfer. The Get Data function will return ADId for indicating different advertisements and results for identifying the completion of an advertisement.

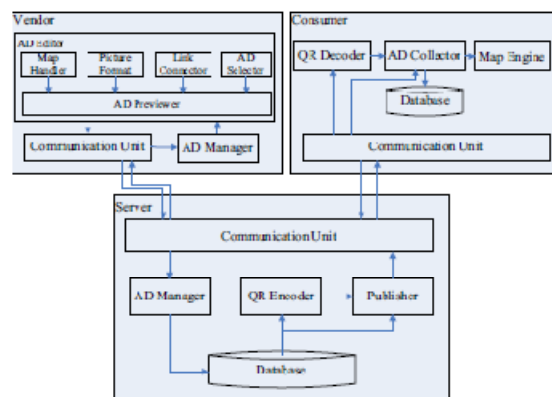
IV. WORKING

In this section the proposed system architecture is described, including system architecture, consumer component, vendor component, advertisement editor, editing process, uploading process, capturing process, and coupon usage.

System Architecture

The system architecture consists of the server, vendor, and consumer components. The consumer can receive advertisements from the server. The vendor can use advertisement editing interface and upload edited coupons or advertisements to the server. The server can store edited coupons or advertisements and publish them via socket or encoding them to form as a QR code. The server will publish advertisements to the consumer.

Fig.2. Architecture



As shown in Fig.2, the server consists of Communication Unit, AD Manager, Encoder and Publisher. The Communication Unit is in charge of the data communication among vendors, servers and consumers. The AD Manager could store the advertisement information selected or chosen by a consumer or vendor. The Encoder is responsible for encoding the advertisement information created by the vendor.

The Publisher is used to publish advertisements to consumers. In the consumer part, the QR Decoder is to decode scanned QR code which contained text, image and location information or URL links to the advertisement Website. The AD Collector stores the advertisement information received by the consumer. The Map Engine transfers the vendor location information into map form and displays it. Finally, the Communication Unit is in charge of transferring between the server and the consumer.

The server publishes advertisements through the Communication Unit when there is a new advertisement updated by the vendor. In the vendor part, the AD Editor contains Picture Format, Map Handler, AD Selector, Link Connector and AD Previewer. The AD Editor provides the vendor an interface to edit the advertisement that will be published. An advertisement contains text, image and

location information. The AD Editor combines text, image from the Picture Format and location information from the Map Handler. The vendor could preview an advertisement after editing it through the AD Previewer.

The Communication Unit is in charge of the server and the vendor's data communication. The vendor transfers data to the server through the Communication Unit when the vendor finishes editing an advertisement. The Map Handler is used to add the vendor's location information into an advertisement. The Picture Format resizes images to a proper size after the vendor has transferred the coupon or picture into an advertisement.

The AD Selector allows the vendor to choose the advertisement to upload. The Link Connector is responsible for the connection between the advertisement and consumer.

The AD Manager is responsible for storing the server advertisement information and updating information.

V. MATHEMATICAL MODULE

To use mathematical modeling for

- To identify Actors
- To identify Input and Output and related validations
- To define success and failure and necessary exception handling
- To identify necessary data structures
- To derive functionality
- To reduce condition statements and loops by identifying behavioral properties like overloading, morphs etc., exploit opportunities of concurrent execution
- To identify functional and data dependency
- To draw state diagram and flow dependency graphs
- Software Engineering Document using above Project Design including GUI

Sequential algorithm: The sequential algorithm will execute the function N times to get the required result. The function may contain LBS commands or relevant algorithms as per efficiency issues.

Finding Advertise alert by following function.

$$A = \min_{i=0}^{i=n} \text{dist}(ST_i, UL)$$

Finding Advertise alert by following function.

$$A = \min_{i=0}^{i=n} \text{dist}(RT_i, UL)$$

Dist () function as following

$$\begin{aligned} (\text{Lat}_1, \text{Long}_1) &= ST_i \text{ | } RT_i \\ (\text{Lat}_2, \text{Long}_2) &= UL \end{aligned}$$

```
d=acos
(sin(lat1).sin(lat2)+cos(lat1).cos(lat2).cos(long2-long1)
).R
Var R = 6371; // km
Var dLat = (lat2-lat1).toRad ();
Var dLon = (lon2-lon1).toRad ();
Var lat1 = lat1.toRad ();
Var lat2 = lat2.toRad ();
Var a=Math.sin(dLat/2)*Math.sin(dLat/2)+
Math.sin(dLon/2)*Math.sin(dLon/2)*Math.cos(lat1)*
Math.cos(lat2);
Var c = 2 * Math.atan2 (Math.sqrt (a), Math.sqrt(1-
a));
Var d
Now,
if (d >, □ d) then its Advertise alert
= R * c;
```

VI. ANALYSIS

Location-based advertising (LBA) is a new form of advertising that integrates mobile advertising with Location Based Services. The technology is used to pinpoint consumer's location and provide location-specific advertisements on their mobile devices.

This work proposes a location-based mobile advertisement publishing system, a framework editing, and location-based service. The system is able to provide not only the ability to edit advertisements, but also the means to publish advertisements to consumers. For, the proposed system provides a low cost and effective way to implement digital advertisement publishing mechanisms. For realizing opinions of mobile advertisement publishing interface, visiting and interviewing with them are necessary. After interviewing with, most have positive responses and would like to consider the adaption of mobile advertisements if the cost is not higher than that of their current advertising methods.

There were plenty of mobile advertisement systems implemented, such as an easy to use, platform-independent mobile application [5] that enables a user to see image and video-based advertisements. Another example is a solution for disseminating instant advertisements to users within the area of interest through a Mobile Peer-to-Peer Network [4]. There is a system aiming to provide an efficient hybrid adaptive location-aided gateway advertisement [1]. Another system introduces a method to recommend services to the right users in right time using high-level knowledge [14], and a new intelligent system for content flow personalization over mobile television environments [15]. Another system introduces a method to recommend services to the right users in right time using high-level knowledge [14], and a new intelligent system for content flow personalization over mobile television environments [15].

This system provides the customer with automatic notification of vendors, in a particular area. The customer gets information in the form of text, audio, video. The customer can also get detailed information about a particular entity as per his requirements, eg. The customer can get knowledge about the offers in the mall through text, QR code etc. The system is based on client server architecture and not dependent on GPRS. The vendor has to be registered in the database for the customer to know about his deals.

The system mainly aims at providing maximum profit for vendors and providing facilities to customers at lower cost.

VII. TEST CASES

The following test cases were carried on vendor, customer and server side.

Test cases for User login:

User login means the customer login through his android phone.

The user runs the application on his phone, and following test cases are taken.

1. When the login page is open.
2. Enter username and password.
3. The username and password is authenticated and if it is valid the user is logged in.
4. If username and password is not valid, the user is not logged in.

Test cases for Vender login:

The vendor login through the server side.

When the server is running, the following test cases are taken.

1. When the vendor login page is open.
2. Enter username and password that is entered while creating the account.
3. The username and password is authenticated, if it is valid the vendor is logged in.
4. If the username and password is not valid, the vendor is not logged in.

VIII. CONCLUSION

This work presents a location-based mobile advertisement publishing system. The proposed system is able to provide vendors a convenient way for editing and a low cost and effective way to implement digital advertisement publishing mechanisms. In addition, advertisement data desired by the consumers can be viewed when a QR code is scanned, thus providing information for the consumer to access.

It is after interviewing with the vendors, most vendors have positive responses and they would consider the adaption of mobile advertisement if the cost is lower than that of their current advertising methods. As for future work the mobile advertisement publishing system can still be improved, using colorful background with logo and

music but does not interfere with the visual presentation of the advertisements.

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