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Mobile Travel Guide-A Smart Way to Travel

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***Abstract* – The combination of the smart phone and the Internet service is the trend of the future information development and software applications. Mobile phones are the most commonly used communication tools. Using mobile phones to obtain information is not only quick, but also more convenient short cut to improve people's lives. In the paper, we propose the software development architecture based on Web services. This framework introduces the three-layer architecture of Web development into mobile phone software development. Based on the three-layer architecture, the android based city tour guide system is developed. The android based city guide system can realize to query information for hotel, restaurant, and traffic and so on. The android based city guide system has more practical significance.**

Keywords – GPS, GPRS.

I. INTRODUCTION

In current tourism system, whenever a tourist visits famous spots, to know more about the place he hires a guide. The hired guide then narrates history of the place. The proposed system doesn't require a physical guide. The Mobile application installed on the mobile of tourist can act as a guide. Additionally, the application would help user to find out the weather forecast of the place .It is commonly acknowledged that portable user devices are rapidly becoming tantamount to a communication hub, sporting arrays of GPS navigators, multiple wireless inter-faces and web based applications. As the mobile phones have become more powerful and ubiquitous in our daily life, the applications running on the mobile phone are paid more attention by the people. Most of the applications which depend on the Internet are developed the mobile phone version to proliferate the convenience. The conception of the Android platform is attracting more and more programmers in mobile computing fields. Android is a package of software for mobile devices, including an operating system, middleware and core applications. The Android SDK provides powerful tools and APIs necessary to develop applications on the Android platform using the Java programming language. Android platform is open system architecture, with versatile development and debugging environment, but also supports a variety of scalable user experience, which has optimized graphics systems, rich media support and a very powerful browser. We design and implement Android based city guide system which can provide user with the information of hotel, attractions, restaurant etc in city. Suppose you are travelling in a famous city which you are not familiar, it is difficult to find a hotel, traffic or featured restaurant for a stranger .At this scenario; you can resort to your smart phone which you bring in your pocket.

II. RELATED WORK

We have done the literature survey of other technologies available to cater the same concept. We found some limitations in these technologies; we are trying to overcome those disadvantages & limitations in our system.

A. WAP

WAP is a free, open specification that lets wireless devices easily interact with service and each other. WAP 2.0 adopts existing web standards and lets developers create applications that feature animation, streaming media, and music download. In WAP 2.0, developers write content in XHTML using the XHTML basic profile. WAP 2.0 is backward compatible with the previous standard, WAP 1.x, which uses Wireless Markup Language (WML) rather than XHTML for document formatting [2].

B. J2ME

J2ME is a popular mobile development platform now. J2ME is from Sun Microsystems and targets on consumer electronics, portables and embedded devices. The architecture of J2ME consists of three layers: Java Virtual Machine, Configurations, and Profiles. There is the Figure 2-9 from [Helal 2002] describing the architecture of J2ME. We can see there are two columns in the diagram. They represent two sub architectures of J2ME respectively. Left is considered for devices that are always connected but relatively resource poor such as set-top boxes (e.g. satellite TV receiver). Right is for the devices such as mobile phones. The kilobyte Virtual Machine at the bottom of right is smaller runtime environment for resource-constrained devices. It is in the range of 40-80 Kbytes. On KVM, Connected and Limited Device Configuration (CLDC) defines a standard Java platform for small, resource-constrained, connected device and enables the dynamic delivery of Java application and content to those devices. The top one is MIDP, which is set of Java APIs related to interface, persistence storage, networking, and application model. J2ME application starts in MIDlet, which contains the constructor method as well as the methods startApp (), pauseApp (), and destroyApp ().It calls the first method when application starts or restarts. It calls the pauseApp () when the phone's idle or paused mode and calls destroyApp() right before it is unloaded. J2ME is best used for complicated or interactive applications, or when WAP and i-mode is not available and not suitable [2].

III. PROPOSED SYSTEM

We can overcome the disadvantages& limitations of the above mentioned systems by using following techniques.

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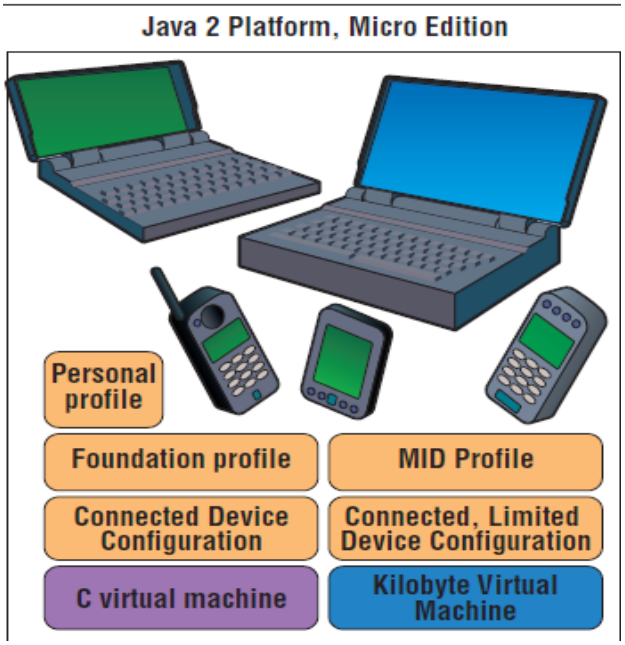

Fig.1. J2ME Architecture

A. ANDROID

Android is Mobile Platform developed by Google. Developers create applications in Java on the platform. It includes some important features like 3D graphics, Media support for common audio, video, and still image formats (MPEG4, H.264, MP3, AAC, AMR, JPG, PNG, GIF), GSM Telephony, Bluetooth, 3G, Wi-Fi, GPS depending on hardware capability of mobile devices[2].

B. Introduction to android

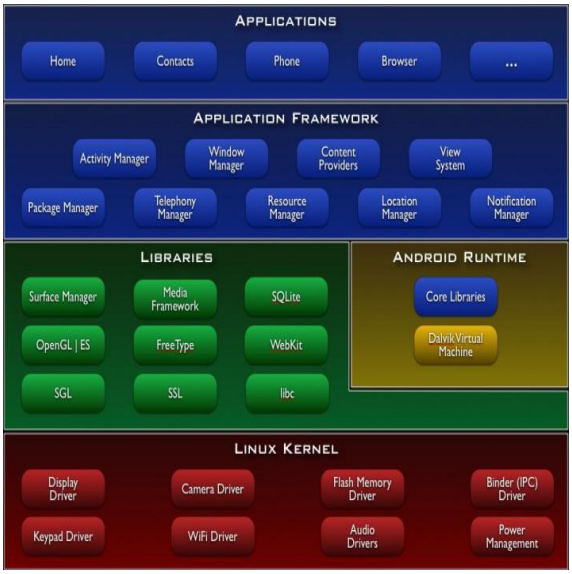

Fig.2. Android Architecture

There is a figure of the architecture of Android platform showed above. For the layer Applications at the top, Android ship with some core applications including Email, SMS, Calendar, Map, Browser, Contacts and others. Applications are developed in Java. Different from other mobile platforms like J2ME, Application Framework below Applications enables reuse or replacement of components. For example, there is the component of displaying image in one application; other applications can make use of the component if needed. Of course, there is permit protocol between them. Libraries include a set of C/C++ libraries used by various components of Android system. These are exposed to developers through the application framework. The core libraries includes browser engine library, 2D and 3D graphics libraries, media libraries, SQLite that is a powerful and lightweight relational database engine available to all applications and so on. For Android Runtime, [Android 2010] says "Android includes a set of core libraries that provides most of the functionality available in the core libraries of the Java programming language." Each Android application runs on its own process, with its own instance of Dalvik Virtual Machine. [Android 2010] says "The Dalvik VM relies on the Linux kernel for underlying functionality such as threading and low-level memory management." For Linux Kernel, [Android 2010] says "Android relies on Linux version 2.6 for core system services such as security, memory management, process management, network stack, and driver model [7] [2]. The kernel also acts as an abstraction layer between the hardware and the rest of the software stack [2]."

C. Application of proposed system

Location finder: This module is responsible to retrieve user's current latitude and longitude using GPS. This will convert the coordinates into street address using geocoding technology [9].

Video Search: This module is responsible to do video search using Google's search engine. The result of the search is list of videos related to the user's current location.

Video player: This module is responsible to play the video which user selects.

Weather Forecast: This module is responsible to retrieve the weather information from Google and display it to user[6].

Settings: This module allows user to set some settings for the applications.

D. System Architecture

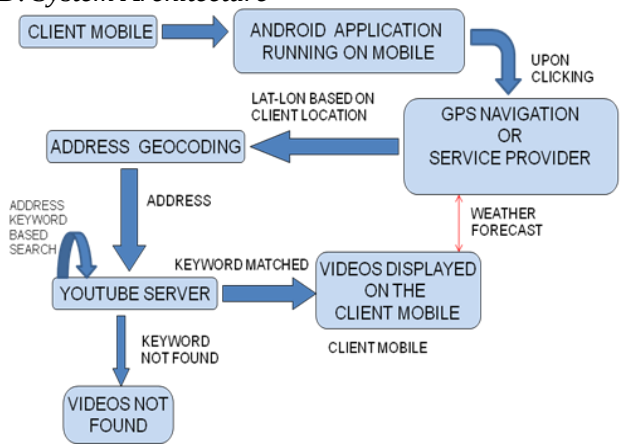

Fig.3. System Architecture

E. Working of the modules

1. The Global Positioning System (GPS) is a space-based global navigation satellitesystem (GNSS) that

provides reliable location and time information in all weather[4] and at all times and anywhere on or near the Earth when and where there is an unobstructed line of sight to four or more GPS satellites [1][3]. It is maintained by the United States government and is freely accessible by anyone with a GPS receiver[3].

2. YouTube is a video-sharing website on which users can upload, share, and view videos, created by three former PayPal employees.

3. Android mobile- needs android1.5 or higher and Google map1.5 or higher[8].

4. Geocoding is process of finding associated geographic coordinates (often expressed as latitude and longitude) from other geographic data[4][5], such as street addresses or zip codes (postal codes). With geographic coordinates the features can be mapped and entered into Geographic Information Systems, or the coordinates can be embedded into media such as digital photographs via geotagging [5][9].

F. Algorithm for location finder and wheather forecast

***Step1*: START**

***Step2*:** application is started on the user's mobile phone

***Step3*: if** *network provider* is available

-current location (latitude, longitude) of user is obtained

-geocoding is done

Else if GPS *is available*

-current location (latitude, longitude) of user is obtained

-geocoding is done

Else display TOAST (*error message)*

***Step5*:** On the list of homepage, display address as first item

***Step6*: If** user clicks on Get Weather button?

-Get weather information for the city obtained from location of user.

-Connect to Google server to get weather information via HTTP

***Step7*:** Once Google server returns weather information about that city

-parse the XML response and display in TABs

Step8: the user is given a choice of 5 days of weather Forecast to be chosen

***Step9:* STOP**

IV. Conclusion

We present the design and implementation of the Android based city tour guide system. The system is based on Web Service technology and adapts three-layer architecture. Lucene is used to create index for the usually used data in order to implement efficient query. The system provide information query of the hotel, scenery, restaurant, traffic and so on. The system is a combination of smart phone and Internet services and will facilitate tour and life for user.

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