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Emergency City Guide: Application for Android Mobile

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Abstract - Mobile phone is now a necessary part of human life. There is a continuous rise in number of mobile applications, specifically on the people's daily lives. In such applications, the location dependent systems have been identified as an important application type. Such applications which presents the architecture and implementation of locations is commonly known as SoS. We propose architecture of emergency city guide for Android Mobile Phones that is able to provide help/information to the mobile phone users efficiently & conveniently. This proposed system makes use of light-weighted mashup technology. More than one sources of data are combined by mashup technology to create value -added services. Mashup technology thus, overcomes the limitations of mobile phone devices.
Keywords- API, mashup, Mobile phones, WML, WAP

I. INTRODUCTION

Nowadays, people's consumption structure & style is developing steadily. There has been a large increase in the number of people becoming independent, going to big cities for job education, and travelling out on tours, or because of globalization people travel from one places to another, very frequently and most of the times these places are unknown. Since no society is crime proof so often times people fall into troubled situations. This application is built in such a way, so as to provide the possible help as quickly as possible. User can search nearest Police Station, ATM booth or Hospitals. These three things are most needed in any troubled situation. Meanwhile, there is greatly enriched information available to people on the Internet. However, the problem is that this information is not organized and customized to provide help instantly in an emergency situation. Therefore, we intend to explore how to build an application for mobile phones that provides help in emergency situations. Though, it's named emergency city guide it works as good for the rural areas too. Emergency city guide application uses mashup technology to solve this problem [1].

The mobile services at present, are enhanced with location-aware features, and thus provides better user experience. A large number of cell phone applications are being developed recently and many of those are location-related. The services that use location and answer location-related queries, are major subset of context-aware applications. These kinds of location based applications that provide local information and are customized to some extent for user needs, will soon become a necessary part of human life. Here we will describe the architecture, design, implementation and deployment of a location based application that runs on an Android powered mobile phone device named Emergency City Guide. This Application Software allows a user to navigate around his/her current location and list all the Police Stations, ATMs or Hospitals (depending upon user's choice). The user only has to choose what he is looking for and then enter the radial distance till where he/she can travel as per his conveyance [2]. The most important feature of this application is that it picks the live data from Google Maps. So, the developer does not have to maintain database. The Google's data is most accurate and latest updated.

For location, related systems the user's current location is the most important information. Since a cell phone user always keeps moving so the phone periodically needs to update its location in very short intervals of time. To provide accurate location the phones need to report to their remote servers so that the needed information can be queried accurately and efficiently. The easiest way of finding a user's location is let the user him/herself tell the location. But an obvious disadvantage of this method is that user has to do some extra effort which nobody likes and that will be time consuming as well. The advantage of this method is that user does not need any extra equipment. Another, efficient and accurate method is to locate the user by any positioning system. The advantage of this method is that it is automatic, quick and accurate [3]. GPS is one such method which is most popular around the globe.

GPS is being extensively used in transportation systems around the world. It is scalable. It can provide accurate location information to any number of people at any place [4]. The receivers in mobile phones (or any other device) picks up the signals sent by GPS broadcast satellites. The receivers then are identified with three dimensional locations which are: Longitude, Latitude and Altitude.

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If the user device is equipped with a GPS (Global Positioning System) module, which is becoming increasingly common nowadays in current mobile devices, the user's location can be identified with great accuracy [5].

A. *Advantage & Disadvantage of Existing System*

People can look for all the public services like Hospitals, Police Stations, Banks & ATMs etc. over the internet. But the main problem is that in case of emergency the information is not readily available. The most important feature of a security app is how quickly it can deliver the requested information.

With the advancement in technology very sophisticated mobile phone devices has been developed. But despite such developments mobile phones suffer from a number of drawbacks such as small screen, smaller keyboard, limited memory, slow internet connection and low processing performance. Mobile phones are more intelligent than PCs but are less powerful [6]. A significant drawback of such applications is that these application on these works slow due to continues utilisation of the bandwidth. Thus, the mobile end-user's operation is quite difficult, and the contents to be display on the screen of the mobile device is limited [7].

B. *Basic Concept of the Application*

This Application aims at developing a fast and efficient application that provides instant result to the users. This application also takes into account the limited resource availability of mobile phone devices. It is designed and developed in such a way that it provides better performance even in limited hardware and network resources.

This application uses Google Maps APIs. The GPS system identifies the current location of the user and with the help of google maps, this application shows desirable results to the user [8]. The application uses calling system of mobile to make the call to the intended public station (if the number is available with the google database).

C. *Modules in the application*

1) Find Current Location
2) Locate in map
3) Search the query and list the results
4) Calculate distance between two places

II. RELATED WORK

The main goal of this paper is that when users are on the move, and are unfortunately stuck in a troubled situation it is able to provide rich and concise information timely and helps them access to the service, anytime, anywhere. The proposed system is based on request and response, so there is no continuous acquisition of the bandwidth [9].

Mashup technology is useful for this application. The main power of mashup technology is that it can integrate open source APIs to develop more robust program. As the based application are becoming more richer and the related technologies are becoming more mature this power of Mashup technology to integrate different technologies is helpful. A Mashup technology can combine two or more services to deliver new rich and enhanced services. Also, it is a lightweight software web application module.

Furthermore, no matter if the mobile client is a browser or not or on which kind of platform it is running on the results are accurate and well represented for each device. This is the advantage of using XML for data storage and transfer.

III. PROPOSED WORK

In this section, we are representing the architecture of the proposed system and then the details of its various modules and parts.

A. *System Architecture*

This system contains three layers: presentation layer, logical layer and Data Sources layer.

The presentation layer is responsible for the interaction between end-users and the system. The mobile users interact with mashup server via mobile Web browser. Since there are limitations of mobile device, the content displaying issue needs to be addressed in this layer.

The logical layer is the most important layer of the system. It uses data and services from the data sources layer and the mobile end-users. The transformation of XSL converts format of XML which is the data source layer into the format of Wireless Mark-up Language which is its ability to deliver the result to the mobile Web browser by the Wireless Application Protocol.

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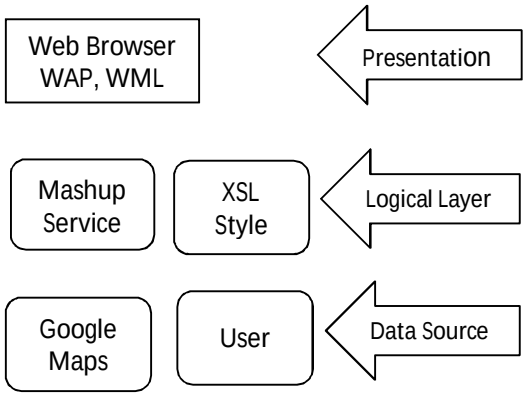


Fig.1: System Architecture [10]

Data source layer provides data, content and service to be mashed-up by the open web APIs and databases.

A. System Details

The System details include system architecture which describes the basic architecture of system, main components of Mashup Server, Communication protocols, working flow of the system.

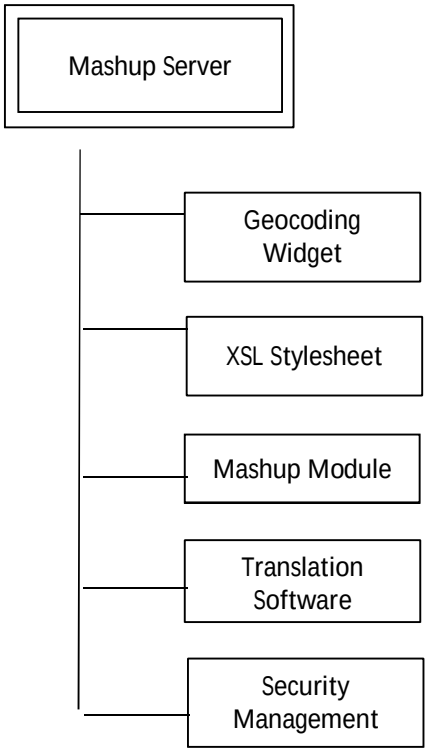


Fig. 2 Components of Mashup Server [11]

Geocoding Widget can convert user's information of location into latitude and longitude coordinates to which Google Maps can identify and mark in the maps.

Mashup module component is the most important part of the mashup server. It tells what kind of services will be provided to the end-users. Data sources transfer the data to the mashup server according to the receiving command. Since he size of mobile device screen is limited the received data or contents need to be simplified by the information extraction technology. The data or contents from different data source are mashed up into the maps, which are provided to the mobile end-user.

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A. The Working Flow of the system

Here we are presenting the working flow of the emergency city guide system. Fig.3 shows the working flow of the application in details.

The mobile end-user starts application on his/her mobile device and sends request to the mashup server. In response to the request, the mashup server returns desired data to the application running on the user's device. At the same time, the client application will trigger the GPS (Global Position System).

The geographical positioning information of the mobile user is delivered to the mashup server. Also, the end-user's information is also sent to the mashup server. The Geocoding Widget on the Mashup server first transforms the user's geographical positioning information into latitude and longitude values. Then the latitude and longitude values are delivered to the Google Maps Server by mashup server through REST protocol. Thus, Google Maps Server is able to Mark the location of the user on the map. The map pictures which are user-centric are fed back to mashup server with XML over HTTP.

XSLT Conversion converts XML documents into WML format by using the XSL profiles. Then, the WML documents are delivered to the Mashup module [12].

After receiving information from Google Maps, Users Information Database and GPS, mashup server should integrate this information based on map pictures.

B. Communication Protocols

The communication is a very important link of the system. It is to connect data or contents with each layer. Although WSDL (Web Services Description Language), SOAP, JSON (JavaScript Object Notation) and REST are the standard for delivering data or contents between mashup server and data

sources, REST is abstraction mode which is a more effective for the server mode. Compared to SOAP, it is more like structure style, not only a specification, so the complex protocols are not taken into account. Therefore, we choose REST to communicate among mashup server, Google Maps

[13]

IV. EXPERIMENT & DISCUSSION

The challenge address by mobile was ability to get exact location from the specified favourites, current location, map, distance between two cities, weather report, find the video.

Pointed out from the research that many applications have been developed, but some of the tourist information is mainly obtained through newspaper, magazines these applications do not provide exact information while user on move.

After studying many researches papers and also addressed many problems but the some mentioned above are the major issue so the proposed system will try to solve many problems related with current location, map, distance between two cities, weather report, find the video.

In order to help the user who is newer to the city at the traveling time and gets current location, map, distance between two cities, weather report, find the video.

V. CONCLUSION

In this paper, we presented the design and implementation of a mobile application called Emergency city guide, with which mobile users can get guidance information they need anytime and anywhere. By Emergency City Guide, users can get a public station's necessary information, including address and phone number. In particular, Emergency City Guide can provide users with location-based information, which can be browsed or queried through a map. User can search the nearby booths and stations after he or she configures the distance to which he or she can travel according to the conveyance.

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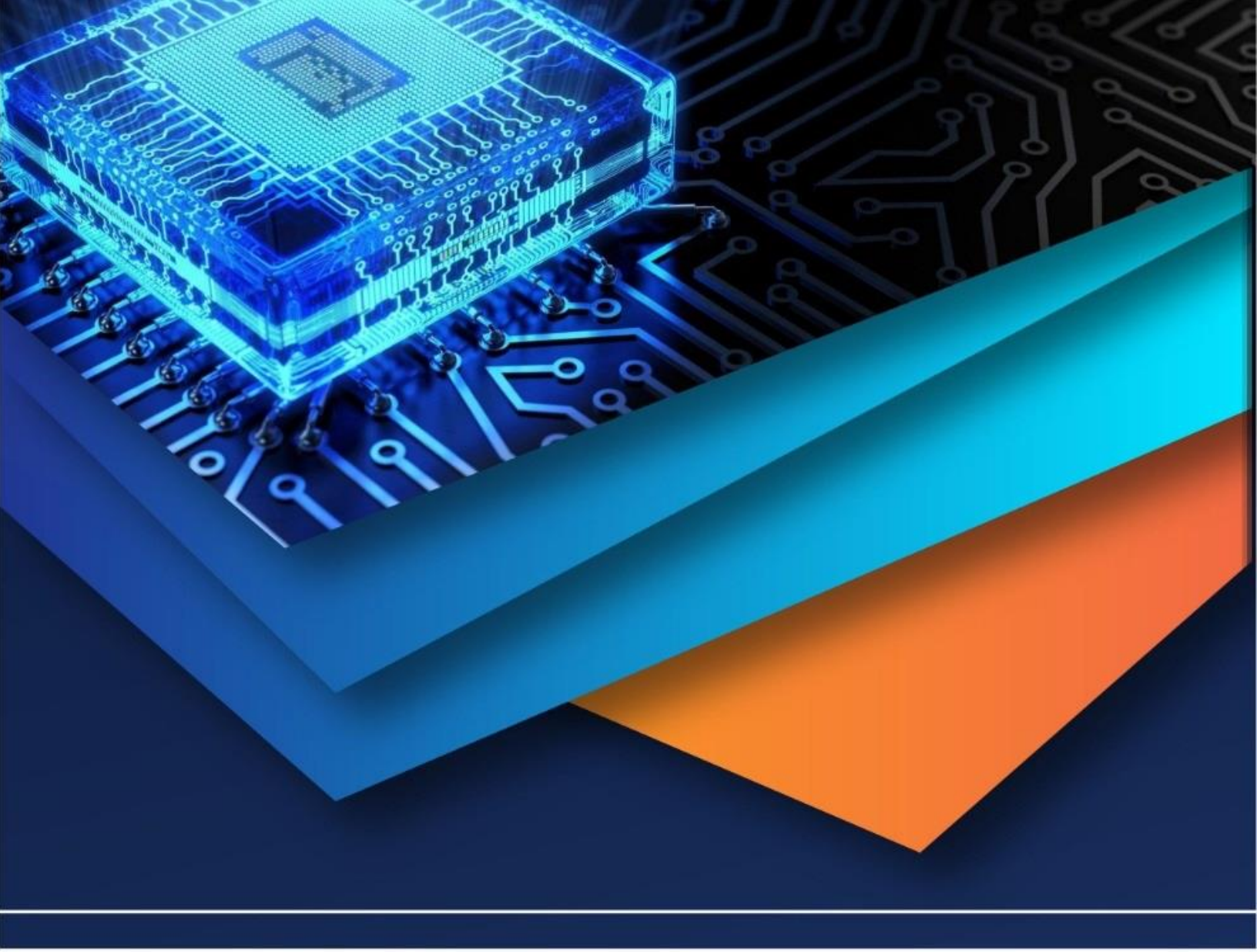
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