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Android application for text based location services

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Abstract - *Android operating system is very popular for mobile applications. Today's generation uses smartphones for different purpose for example chatting, image sharing, file sharing, location sharing etc. There are different types of android applications available which finds the location of the users. Android application for text based location services provides same location details of users but it shows location below text messages. Thus, other person can easily identify from which location texts has been arrived. Thus, if any case there is emergency, it will automatically track the location of users.*

In this paper we use Android studio to develop the Mobile application and server to stores messages as well as location details of users. Even if messages are deleted from mobile device, we can easily retrieve it from server. We perform the design of application through version of 4.2.2 onwards.

***Key Words*: Android operating system, Smartphone, Server.**

1. INTRODUCTION

The world is ever changing due to the advancement in the realm of science and technology. These days it seems shard to escape the presence of technology. Most people will praise the many technological gadgets that they use in their everyday lives. Many of us depend on it to get us through the day, to do our job, to get around, and to find certain things. Technology is evolving at a very fast rate, and what most people did not even think could be real a few years ago, is now becoming a reality. The need to ensure security of children, friends and family is increasing day by day because of the increasing crime in our country. Parents are always worried about the where about of their child. This application will solve security related issues as it keeps providing the current location of friends and family.

The first phase the project is to first develop the texting feature which will be done by setting up a server which is responsible for sending and receiving messages. The second phase of the project is to provide the location details (longitude and latitude and displays location on maps below messages) to the people in the contacts who have the same application on their phones. The advantage of the project is keeping track of loved ones becomes easier. It also contributes towards the security of Children and women. The increasing security issues of the women and children in the society have become a very big Concern for everyone.

The proposed project works towards improving it by providing the location details of friends and family, which will help in case of any kind of emergency.

2. LITERATURE REVIEW

Location-based services are often considered as a special subset of context-aware services. In general, context-aware services are considered as a type of services that can adapt the behavior to reflect the context of the target. The context can be broadly categorized into personal, technical, spatial, social, and physical. Location-awareness is one of the key features of ubiquitous intelligence. Location systems have shifted from traditional dedicated infrastructure-based systems to the systems based on existing infrastructure/opportunistic sensing systems. Today, we are surrounded by a variety of mobile devices (such as smart-phones, tablets and other similar mobile devices) enriched with sensing, computing and communication capabilities. These devices are seamlessly integrated in our daily lives. Location-awareness anywhere anytime is no longer a fiction, but a reality. A plethora of location-based applications are ranging from emergency responses to social networking and gaming.

The attractive part of location-based services is that their participants do not have to enter location information manually. Therefore, the key technology is positioning, for

which various methods exists differ in quality and other circumstances. Once the location information is gathered, it requires further processing and transformation in providing location-based services. It is highly required to identify the problem well before thinking of solution. Jacksons' problem frame approach helps to describe the problems rather than solutions. The emphasis on problem description can help to identify the problem class within a specific domain.

Location is a crucial component of the context. In order to use a location-based service five basic components are requested. The first element is a mobile device which a tool for the user to receive the needed information and interact with application. The next component is communication which transfers data between a user and a service provider. In other word, the communication network is responsible for interactions among them. The third one is positioning component and it is needed for the processing the user geographical location [5]. The widespread deployment of sensing technologies is making location-aware applications the part of everyday life. Location awareness is defined as the visibility of the physical position of users/devices. After a location-aware device determines its location, it can take action or update contents based on that information. A range of applications—from friend finders to surveillance systems—can track the location of individuals with location-aware devices. However, this raises important privacy issues as well [8].

To simplify the problem domain, it is important to identify the possible problem classes or patterns that can be reused to identify the location of the target user. Development of location-based services is a complex task involves various domains and concerns. It is important to identify the related domains and concerns for these kinds of services.

3. PROPOSED METHOD

3.1 There are two main functional modules in the system:

3.1.1 Text based Chatting

Open server which is based on the WAMP protocol will be running on server. The android application act as client connects to server, the server connects to clients. Once the connection is established the messages will be exchanged between the clients and server.

3.1.2 Tracking Location

To track the location of a particular user we need to make use of the APIs (Application programming interfaces) that are available in the android SDK.. The user's device for which we are tracking the location needs to have an internet connection through WIFI or through the network available like 2G, 3G, and 4G. The location services option (GPS) needs to be switched on for that particular device for accessing location.

3.2 The system uses the following techniques:

3.2.1 GPS (Global Positioning System)

The Global Positioning System is an satellite system which navigates direction that provides location information and time information in all three weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites. GPS firstly available for military application but now government made system available for civilian use. To use GPS there is no charges are applied.

3.2.2 Google Maps

Google map is location service that provides information about geographical regions and sites around world. Google Map in Android provides a number of objects to handle maps in Location based system like Map View which displays the map. To handle this function a Map Activity class is there. Even it provides canvas by which one can easily create and display multiple layers. Moreover, sufficient options are there to zoom the map, localize the map by means of Map Controller.

Following lines of code shows the Map Handling in Android:

```
Textview.Google.android.maps. Longitude = location.
Latitude;

Latitude = location. Longitude;

GlobalValues.location= Latitude+","+Longitude;

Print("location details" +Longitude + Latitude,);

HttpClient httpClient = new DefaultHttpClient ();

HttpGet("http://maps.google.com/maps/api/geocode/jso
n?latlng="+GlobalValues.location+"&sensor=false%C2%A
Eion=IND");

System.out.println("links "+GlobalValues.location.toString
());
```

Algorithm

1. Initialize the application.

2. Send message

3. Provide permissions in manifest file for receiving location update.

4. Create Location Manager instance as reference to the location service

5. Request location from Location Manager

6. Receive location update from Location Listener on change of location.

7. Receives message and displays location below messages.

4. RESULTS

4.1. The system will provide text based chatting.

4.2. The system will provide current location and previous location of users.

Fig. 1 Depicts location of the user from which he has sent the messages or texts.

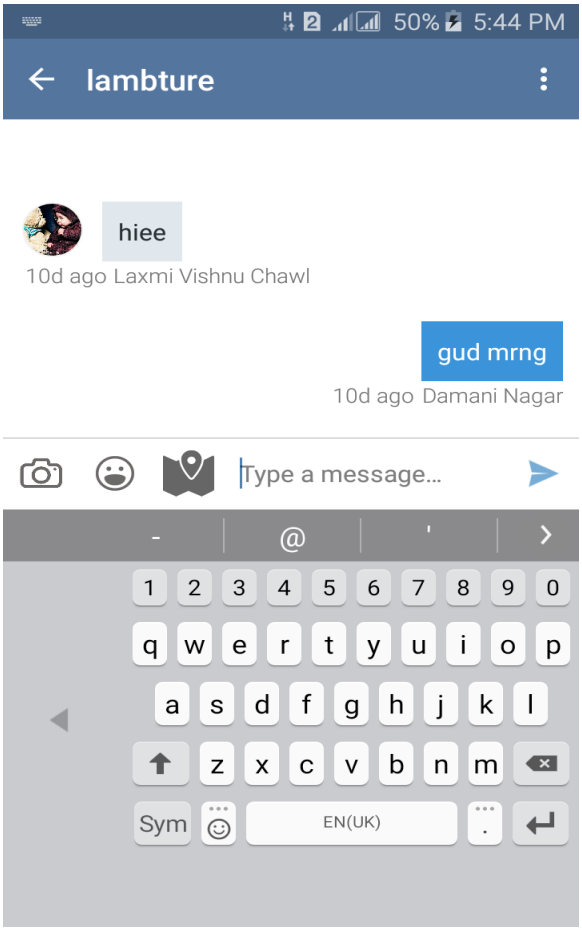

Fig. 1 Display location below texts

Following Fig. 2 Depicts detailed information about location of user that is current and previous location of users. When user zooms map,he will automatically redirects to perticular location.

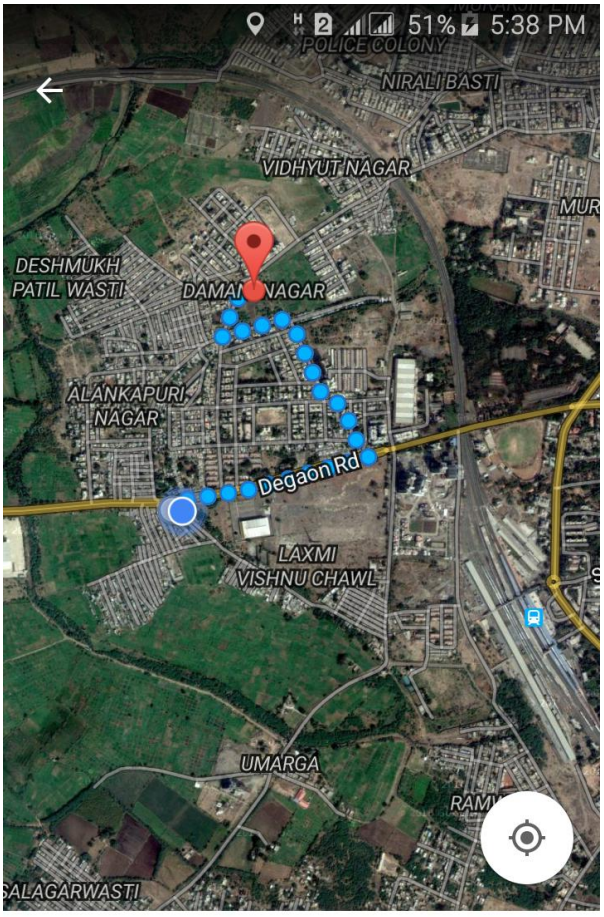

Fig. 2 Location details

5. CONCLUSION

Android application for text based location services provides information users location. It also saves previous location of users and displays current location of users below text messages. One can also tab location, zoom the map to see the details and also track information about from which place messages are arrived. However, it helps to find solution if any case there is a emergency. Although there are number of location based services are available which tracks location through mobile device, this proposed work provides location details through text messages.

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