FindYou- A Mobile Application Based Emergency Notifier

Keerthana B.Chigateri
Assistant Professor-II
Department of Computer Science & Engineering
NMAMIT,Nitte

Abstract—**The FindYou application is an android application that creates a social network only amongst phone-book users. Unlike other apps, this application not only enables the users to communicate but also gives the ability to users to share their location with their two emergency contacts during any critical/emergency situations by sending SMS to both the contacts and by calling the first contact. Apart from this special feature it also lets user to set location reminder for particular contacts which notifies the user when that particular contact(s) reaches the specified distance which reduces the waiting time of both the users considerably in unfavorable conditions both in familiar and unfamiliar places. It is mainly intended to help its users to communicate with each family/friends especially in a critical/emergency situation. The notification alarm reduces the human intervention which helps the user if the user is driving or riding a vehicle thereby decreasing the accident rate. Thus they can set up a meeting with their contacts or cancel the meeting depending upon their schedule. In addition to these features, the users can see the distance from all their contacts with whom they have shared their location. In contrast to other apps, this is not plugged with other social networks thereby minimizing the delay, power and data consumption by the smart phone thus keeping it simple and specific purposeful. It is a reactive app meaning location is shared only upon receiving the request from the other user in the contacts. The request can be accepted or rejected.**

Keywords: FindYou; Emergency; Communication; Sharing.

I. INTRODUCTION

Advances in technology have lead to drastic changes in the ways of communication. With the origin of traditional mobile phones, contacting other person was just a click away. Gradually the development of Smart phones not only revolutionized the communication by creating multiple different modes like usage of apps, video calling, voice recording etc,. but transformed life by offering various other essential facilities at finger tips like shopping, bill payments etc,.Nowadays, the need of fast communication is the integral part of almost every sector in the society. But at the same time accentuating more on safety and security during crisis/emergency should be intrinsic. Over a period of time, expedient understanding and supporting this activity have been diversified based on the breakthrough of the technology. The exposure of the Internet and the smart-phone has elevated the ways in which such critical situations are communicated and managed to prevail over whichever barrier influenced geographically, empowering them to exchange information coherently. Yet, none of other approaches persisted to bridge the gap between geographically segregated people as mobile phone does. The evolution and growth of smart phones has justified these various needs[1]. Android architecture is contained in a "Linux kernel with middle-ware, libraries and APIs written in C and application software running on a platform which includes java compatible libraries based on Apache", a free type software and open source license, feature that makes it very interesting and attractive among developers[3]. We use the Android architecture in order to implement the FindYou. as it is primarily meant for touchscreen devices like smart phones, tablets which are widespread across the generations. The FindYou application is an android application that creates a social network amongst the contacts with required authentication. This application comes with a special feature that allows its user to share their location with their two emergency contacts during any critical/emergency situations. Also, the users of this application can enable notifications to be received when a particular contact reaches the desired location thus reducing the waiting time considerably in unfavorable conditions both in familiar and unfamiliar places.

In this work, the user downloads the application and registers with the server. Unlike other apps like MeetYou this app doesn't provide multiple ways to register like Facebook login, and MeetYou login[6]. but can register uniquely by the user's phone number. The users can share the location with their contacts by communicating with the server. Also the conversations that take place between the users will be updated to server. If a new user registers to the application, the server will update this information in the contact list of the users who have the new number in their phone-book. The location of every user will be continuously updated to the server using GPS.

The main objective of the project is to demonstrate a system that shows the fast need of communicating the location details during emergency/critical situations. It automatically calls the first emergency contact and shares the location to both the emergency contacts through the messages. Along with this feature, it also notifies the user when the desired contact reaches a closer distance. This app also calculates the distance between two users which will be displayed along with their contact and allows them to configure the notification when they reach the specified distance and also enable them to coordinate a meeting depending upon their schedule.

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II. STATE OF THE ART

In today's world, Smart phones are admitted as vital part of life of any person through various surveys. And as the days are passing people are adapting innovative features to get close to their friends and family. Whatsapp, facebook are the examples of such features. In these applications people can communicate, share their photos and even they can share their location by which another person can be aware of whereabouts of their near and dear ones. But we don't have any simple and specific application with the feature of informing friends and family during emergency/critical situations through a single touch at any point of time.

Find My Friends-designed only for iPhones[8].

Google+-can't track your friends, but you can share your current position with them in a text or a gchat. In the latter case, it will actually ask you if you want to share your location if your friend asks something like "Where you at?"[7].

Glympse-temporary sharing[7].

Swarm-doesn't offer real-time updates[8].

Connect, Familonet- Network issues due to many features[8].

Life360 Family Locator, Find My Friends-pro-version not free[4].

MeetYou – Social Networking on Android-apprises the user that their friends have arrived close by and also enable the user to see their friends and the distance to them using augmented reality facilities[6].

Most of the applications provide general facilities for the smart-phone users by tapping few times like discovering different amenities available in particular place such as finding the along side amusement park or health centre etc. They also link with other social networking sites like Facebook. Users can also login from different ways. The main focus of this work is to model and accomplish a specific and simple client-server system that helps users to share their location automatically with their friends/family during the emergency/critical situation through SMS and call by a single click/touch/tap. Unlike other apps, it doesn't provide multiple ways to register like Facebook login, Google login etc. but can register uniquely only by the user's phone number. It also traces the user whereabouts using GPS and communicate location to the user. Along with this, the user will be served with an alert message about his/her friend's whereabouts when his/her friend is within walk-able distance to the user. The user can be traversed to his target effectively using this application. It also helps the user when he/she is in an unfamiliar place. All smart-phone users can conveniently use this application.

III. SYSTEM DESIGN

The system design is the process of interpreting the architecture, elements, units, interfaces and data for a system to assure the essentials. Systems design could be seen as exercising the systems theory to product formulation. This application is intended to provide the following functionalities:

1. Register yourself and save two mobile numbers.

2. In emergency this app will send your location to the saved mobile numbers.

3. User can communicate with others on this app.

4. User can track his/her contacts on map.

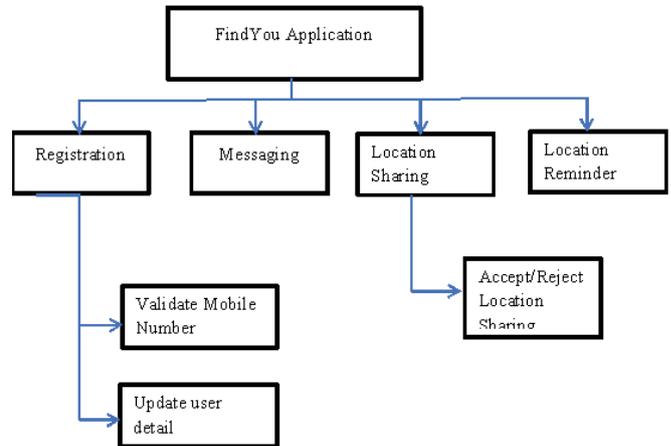5. User can set location reminder for particular contacts

Fig. 1. Block diagram of FindYou application

This application requires a user to register him/her uniquely by using mobile number. Upon successful registration, user needs to store two contact numbers which can be notified with the user's location in emergency. After this user will get the main page of the application in which there will be two sub-windows named as emergency and contacts, in emergency window user can tap on emergency icon and his/her location will be sent to the saved mobile numbers by SMS and call and in contacts window user can find all the contact that are using the same application. To share the location with the contacts user need to send the request to their contacts. Once the request is received from the other end then user can check the location of the contact and can set location reminder for that contact.

IV. SYSTEM IMPLEMENTATION

FinYou Application is the main module. It has four sub modules namely:

1. Registration

2. Messaging

3. Location Sharing

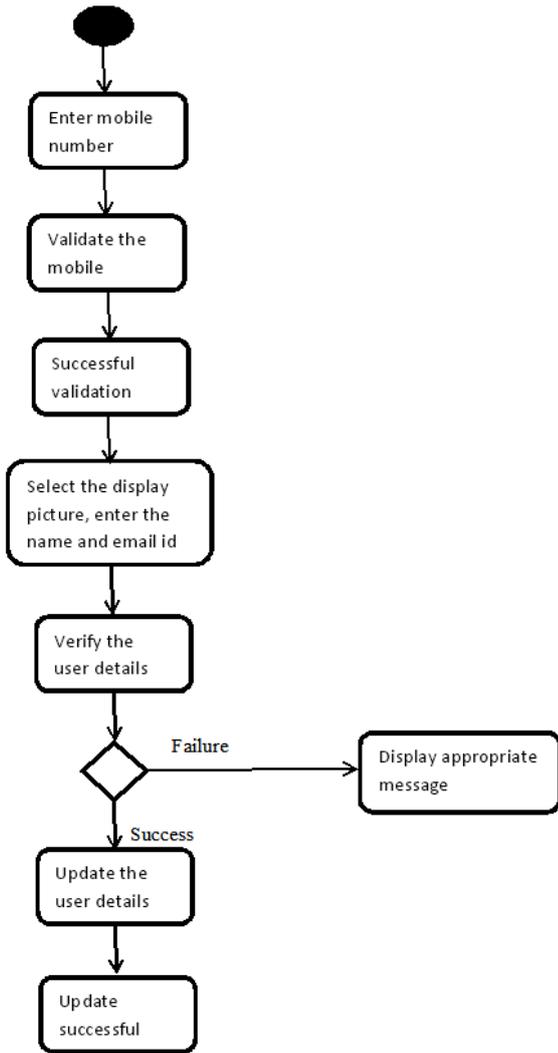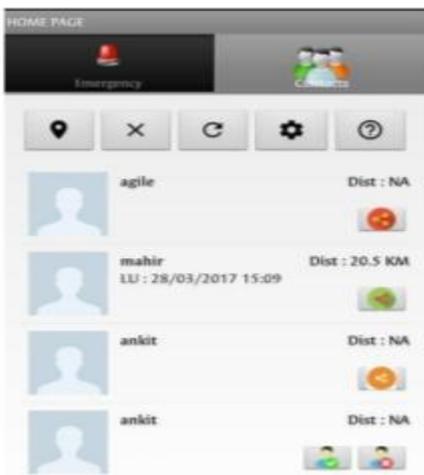4. Location Reminder

Module 1: login and registration

Fig. 2.   Control flow diagram of Registration

User needs to enter valid mobile number(10 digits)for registration.

Module 2: Emergency Alert

On clicking the buzzer, an emergency massage is sent along with the location as URL to back-up numbers. Below figure shows the snapshot of the same.
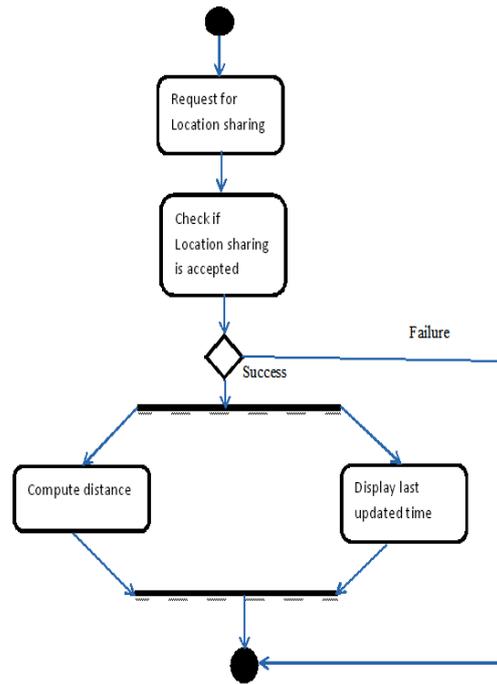

Module 3: Location Sharing

Fig. 3.   Control flow diagram of Location Sharing

Module 4: Messaging

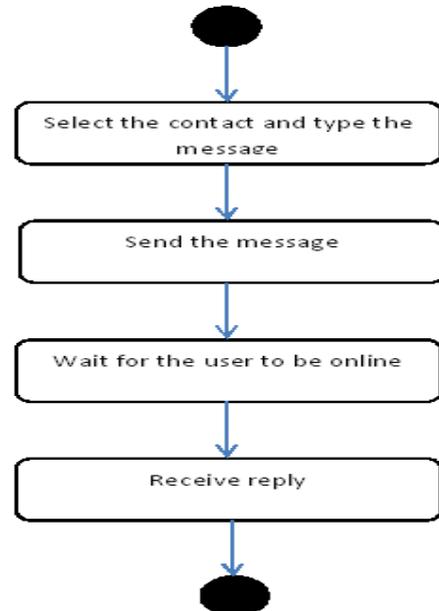Click and hold on the contact with whom you want to chat and then select the messaging option.

Fig. 4.   Control flow diagram of Messaging

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Module 5: Location Reminder

   Once the location sharing request is accepted if we click and hold on contact, we have an option locate on map that will display the location of the requested user.
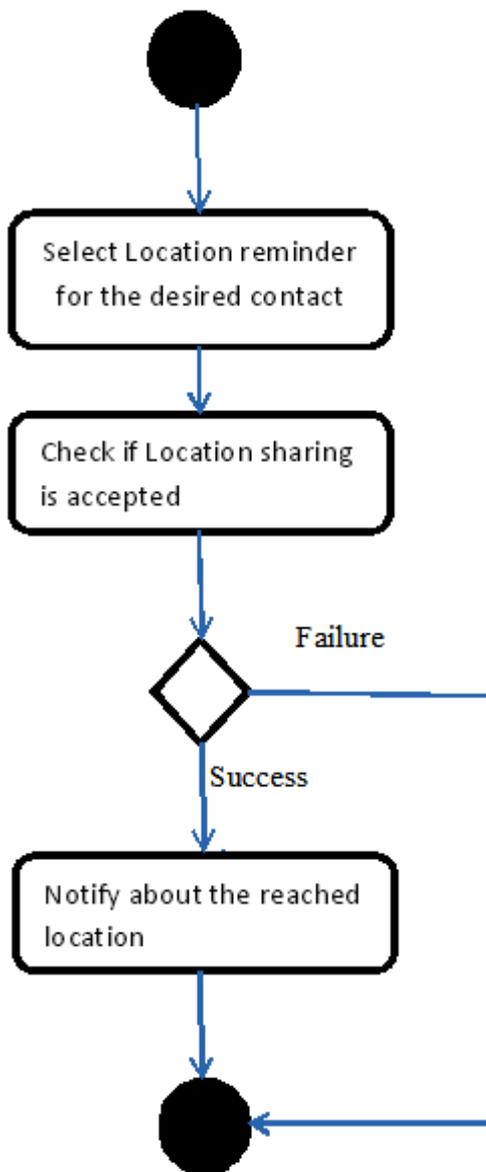

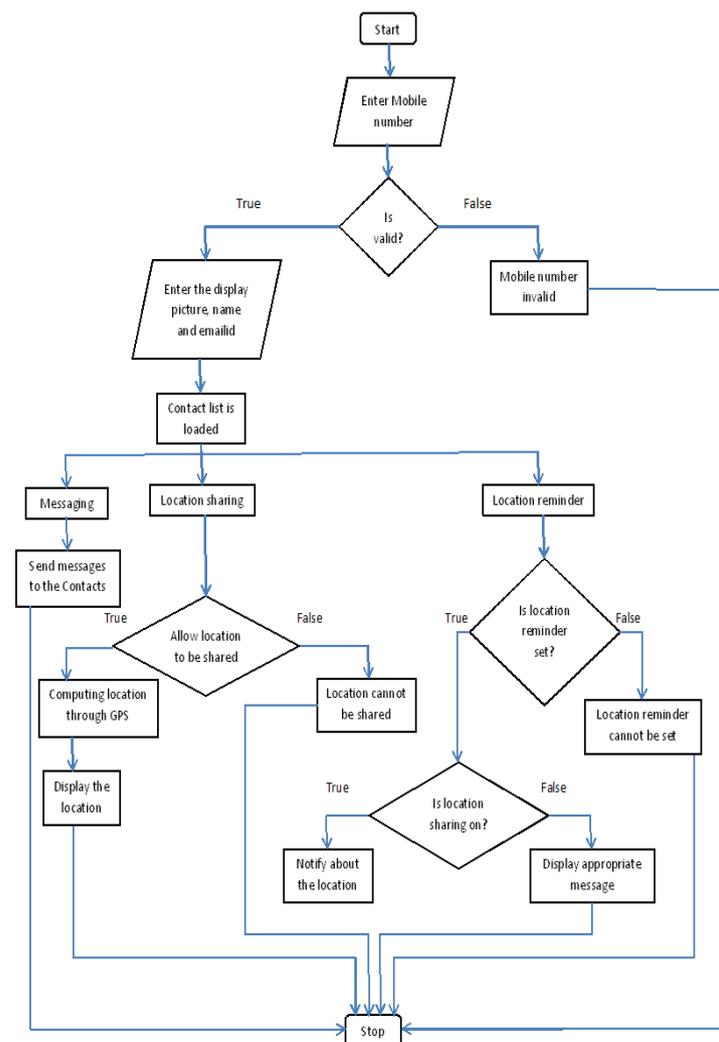Fig. 5.   Control flow diagram Location Reminder

Fig. 6.   Control flow diagram of the FindYou application

V.   EXPECTED RESULTS

A FindYou user can operate different services as follows:
1.   Choosing action: The user can choose the actions like messaging, setting location reminder and location on map from the home page.
2.   Request Sending: To share the location with a particular contact request can be raised. The request can be accepted or rejected.
3.   Add location: a particular/specific location like very interior/remote place can be added for precise intimation and to alert the numbers during emergencies.
4.   Mock location: To test the app this feature is used. It gives false coordinates. When turned on it can be used for safety during intrusive situations.

VI.   VALIDATION/TESTING

Testing has been done on four users and no significant issues were observed. In future an effort to add more users will be carried out.

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VII. CONCLUSION

FindYou application will have two contacts for emergency module and notifies them during the emergency/critical situations of the user by sending SMS to both the contacts and calling the first contact by just a single touch/click on the emergency icon thereby speeding up the support process and avoiding undesirable consequences. It also creates a network of interactions that empowers sharing user location-based facts and deeds they carry out. For this purpose, available Android location solutions like GPS technology, wireless and mobile towers are used to learn the approximate location of a mobile phone running this program[2]. Information display has been achieved by using both default elements extended by Android platform and more complex elements including heterogeneous lists CWAC (Commons Ware Android Component), Google Maps and augmented reality using Mixare Library[9,10].

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