ISSN 2395-695X (Print)
ISSN 2395-695X (Online)
International Journal of Advanced Research in Biology Engineering Science and Technology (IJARBEST)
Vol. 2, Special Issue 10, March 2016

DEVELOPMENT OF AN ANDROID APPLICATION - HIT ON EMERGENCY

S.D.Vijayakumar[1], A.K.Dineshkumar[2], M.Dineshkumar[2], T.Elakkiya[2], A.Gandhi[2]

Assistant Professor[1], Final Year Students[2], Electronics and Communication Engineering

Erode Builder Educational Trust's Group of Institutions, Kangayam-638 108, Tiruppur, Tamilnadu, India.

sdv.ece@ebet.edu.in[1], akdineshkumar95@gmail.com[2], dineshkumar8795@gmail.com[2], elakkiya3194@gmail.com[2], agandhikgm@gmail.com[2]

Abstract- **This paper is about the development of android application which is used by anyone during emergency situation in anyplace to call the nearest ambulance, police and fire station with the help of GPS location. This application will send the GPS location through message for the respective mobile number which is used for navigation purpose. This application also helps to send our current location to anyone by entering the mobile number. This application is both for provider and user in which the update page is opened if the provider is logged in or else the home page is opened. The main aim of this application is to reduce the Golden time. According to Doctors terminology Golden time is the time taken between accident and the rescue process.**

Keywords- GPS, Emergency situation, Golden time, Navigation, Message.

I. INTRODUCTION

A. Existing System

Nowadays accidents are very frequent and for the first aid and taking the person to hospital someone call to the ambulance what he had in his contact. After that he will update the accident location. Sometimes more than one person will call for the ambulance which may be the same or different ambulance. If same, it makes call traffic or if the driver had attended the call already it makes disturbance to the driver. If different, it is the waste of time. In case the ambulance is busy (on service) the call may disturb the driver and it is the waste of time. If fire accident occurs the calling person will intimate the location to the driver which is not accurate. This may cause time delay because of not knowing the exact location. Usually we will use some reference to point some address. If the listener is new to the location it is difficult to understand.

B. Proposed System

The main aim of this application is to avoid the time delay because of not knowing the exact location. This application has a wide application in day-to-day life.

C. Why Android?

Android is the operating system that powers more than one billion smart phones and tablets. Since these devices make our lives so sweet, each Android version is named after a dessert. Whether it's getting directions or even slicing virtual fruit, each Android release makes something new possible.

II. HIT ON EMERGENCY APPLICATION

This application is same for both the user and the ambulance driver. This application is used to

- ✓ Call the nearest Ambulance
- ✓ Call the nearest Police
- ✓ Call the nearest Fire service
- ✓ Send the GPS location to anyone

A. Application First Page

When the user launches the application there will be four options namely Ambulance, Police, Fire and Location. If the GPS is not enabled then the application will show an alert message that GPS location service should be turned on and it will redirect to the GPS location Settings. If the ambulance driver is logged in the **Service page** is opened when he launches the application.

ISSN 2395-695X (Print)
ISSN 2395-695X (Online)
International Journal of Advanced Research in Biology Engineering Science and Technology (IJARBEST)
Vol. 2, Special Issue 10, March 2016

B. Ambulance Service

If the user wants to call the ambulance then the user should select the ambulance option. It will get the current GPS location of the user. Ambulance driver needs to create an account by providing the details such as Mobile number, Name and Password. When the ambulance driver is registering, he must be in the place where the ambulance is normally in service. It also stores the location in the database. After the user location is found the nearest ambulance is found by comparing the user location and the locations of every ambulance. Once the nearest location is found then the application will call directly to that ambulance driver's number. If the driver accepts, then the location is sent to the driver or else the next nearest ambulance driver is called automatically. This is continued until the ambulance driver accepts.

If the ambulance is in service then the driver should update his status as he was in service. If the ambulance is not available or else the driver is not available then the driver needs to update his status as he was not in service.

C. Police and Fire

This application normally contains the database having the police and fire stations number and the location. Once the user location is found the nearest station is found and the call will be done automatically along with the message having GPS location.

D. Location

This option is most useful in day to day life. This is to send the current location to any mobile number. This is mainly used for navigation purposes.

III. Methodology

A. Software

To develop this application **Android Studio** IDE is used.

B. Android Studio Kit

An official Android IDE your best way to build Android apps.

- Android Studio IDE
- Android SDK tools
- Android 6.0 (Marshmallow) Platform
- Android 6.0 emulator system image with Google APIs

C. System Requirements for Windows OS

- Microsoft® Windows® 8/7/Vista (32- or 64-bit)
- 2 GB RAM minimum, 4 GB RAM recommended
- 400 MB hard disk space
- At least 1 GB for Android SDK, emulator system images, and caches
- 1280 x 800 minimum screen resolution
- Java Development Kit (JDK) 7

D. What is IDE?

An integrated development environment (IDE) is a programming environment that has been packaged as an application program, typically consisting of a code editor, a compiler, a debugger, and a graphical user interface (GUI) builder. The IDE may be a standalone application or may be included as part of one or more existing and compatible applications.

E. Database

Both the fire and police modules databases are stored locally which comes along with the installation file. Ambulance database is accessed with the help of internet which is maintained in the central server.

F. GPS

Global Positioning System in android devices provides latitude and longitude in decimal degree. The location provided by the GPS module is stored in the database for future uses in Ambulance, Police and Fire Service modules. To get the accurate location both network provided location and GPS provided location is preferred in this application. The update of new location is updated every second and for every meter changes.

H. Automatic Call

The mobile number is retrieved from the database and the call is done automatically by starting the Action Call Intent.

I. Message

The GPS location is send through the message in background without affecting the current activity. This is achieved with the help of telephony SMS manager.

ISSN 2395-695X (Print)
ISSN 2395-695X (Online)
International Journal of Advanced Research in Biology Engineering Science and Technology (IJARBEST)
Vol. 2, Special Issue 10, March 2016

J. Distance Calculation

The distance between two locations is found for finding the shortest distance to call the ambulance / police / fire service.

K. Left Draw

For the ease of using the application, left draw is included. This drawer navigates the user between login page and home page.

IV WORKING PRINCIPLE

A. Application

The below flow chart explains the general working of the application. After launching the application it checks whether an Ambulance driver is logged in or not. If so it navigates to the service page or else Main page is opened.

B. Service Page

This page is to update the status of an ambulance driver whether the driver is in Service or Out of service. If the driver needs to logout, the left draw of the service page navigates to the logout page. Once the driver is logged out then the main page is opened.

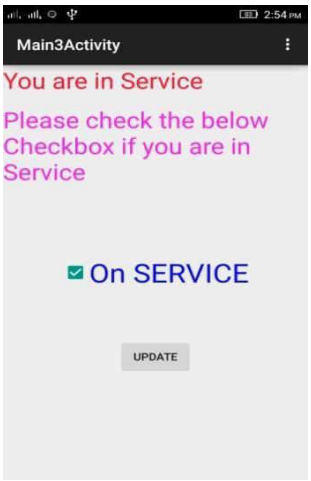


Fig 4.1., Service Page

C. Main Page

When the main page is opened it checks whether GPS is enabled. If GPS is not enabled then the application will alert through the dialog box to enable the GPS.

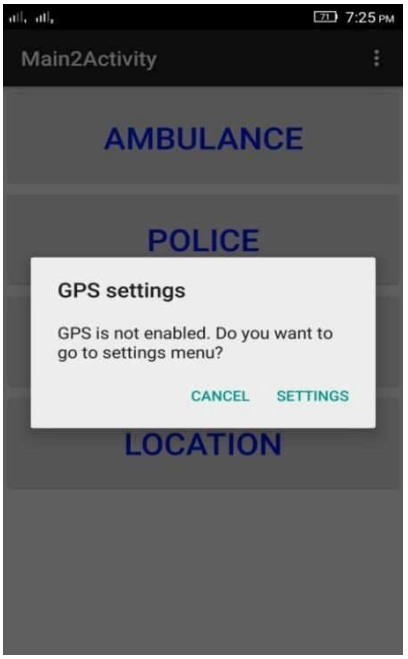


Fig 4.2., Main Page

If the user selects the settings button in the dialog box then application will redirects directly to the GPS settings. If the user selects cancel button the dialog box is closed.

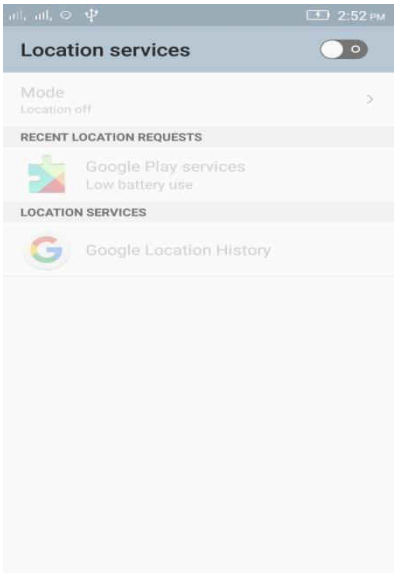
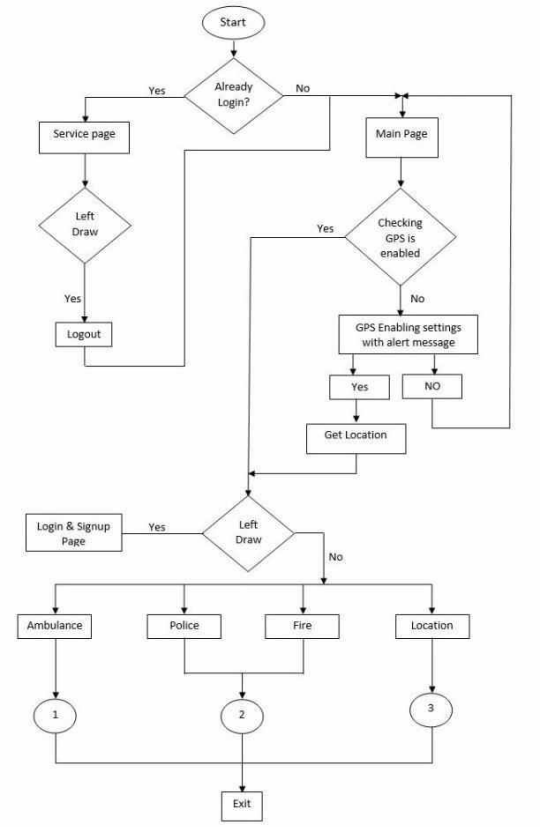


Fig 4.3., GPS Settings Page

Once the GPS is enabled the current location is obtained. The latitude and longitude values which are the decimal degrees are stored in the double data type variable for future usage.

ISSN 2395-695X (Print)
ISSN 2395-695X (Online)
International Journal of Advanced Research in Biology Engineering Science and Technology (IJARBEST)
Vol. 2, Special Issue 10, March 2016



Flowchart 4.1., General working of the application

D. Login Page

This page is the left draw of the main page. Username and the password are authenticated and the service page is opened. Login page also have a button for registration. If register button is clicked then the register page is opened.

Fig 4.4., Login Page

E. Register Page

This page is used to create an account for an ambulance driver. This collects data such as mobile number, user name, password and the location. The important thing is that while creating the account the driver should be in the place where the ambulance is parked usually.

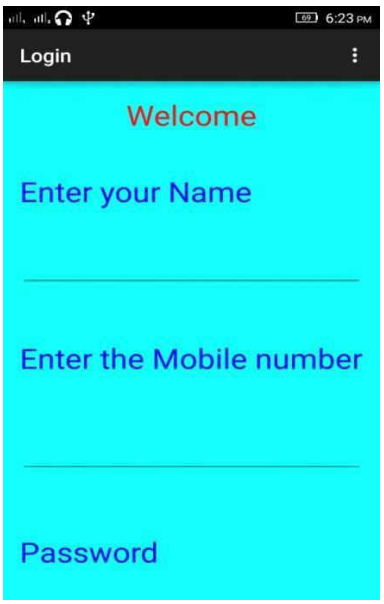


Fig 4.5., Register Page

F. Location Sending Module

This page will send the current location through message to the entered mobile number.

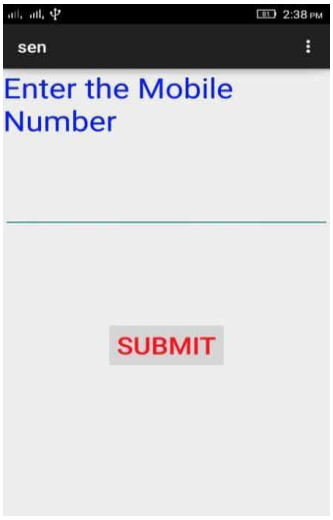


Fig 4.6., Location Sending Page

ISSN 2395-695X (Print)
ISSN 2395-695X (Online)
International Journal of Advanced Research in Biology Engineering Science and Technology (IJARBEST)
Vol. 2, Special Issue 10, March 2016

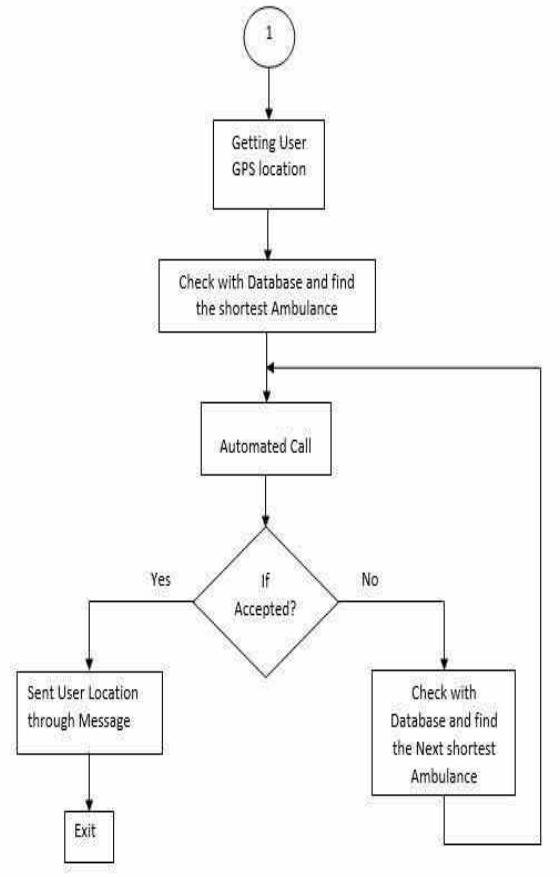
G. Ambulance Module

When the user selects the ambulance option the current location of the user is obtained from the GPS. Then it is compared with the ambulance drivers location stored in the database to find the shortest distance ambulance. After finding the shortest distance an automatic call is done for that mobile number. If the driver accepts to attend, then the GPS location is send through the message. If the driver rejects then the call is done for the next shortest distance ambulance. The process is repeated until the driver accepts to attend.

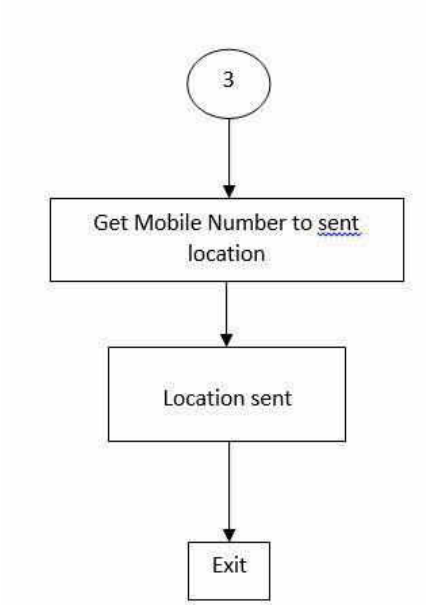
H. Police and Fire

When the user selects the fire or police the current location of the user is obtained from the GPS and then it is compared with the database to find the shortest police station / Fire station. Once the shortest location is found an automated message containing the user location is send to the mobile number and then an automated call is done.

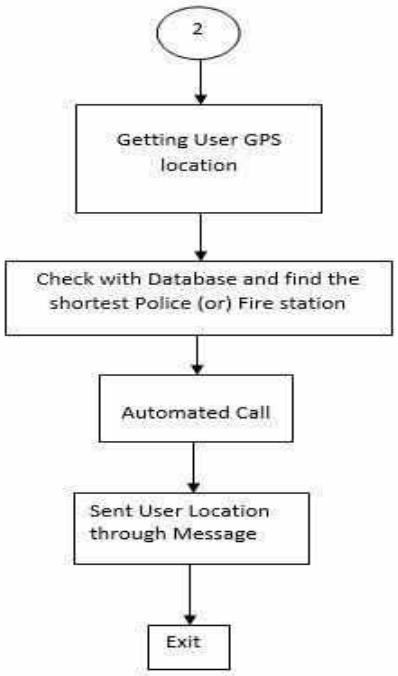
I. Flowcharts



Flowchart 1.2., Ambulance Module



Flowchart 1.3., Location Sending Module



Flowchart 1.3., Fire and Police Module

V RESULT

The application is tested in different locations with the local database. The location is very accurate and the location is sending successfully through the SMS. Automatic call is also working and the expected result is achieved.

VI CONCLUSION

This application is very helpful to call the Ambulance, Police and Fire stations from an unknown location. And also it is useful to guide new person for reaching the destination using Google Navigation by sending the exact GPS location.

VII FUTURE ENHANCEMENTS

The application can be improved in many ways. The following are some of the possible ways,

- Introducing Offline mode
- Linking the application with Google Navigation automatically after receiving the GPS location.

VIII REFERENCES

[1] J. Steele, N. To, "The Android Developers Cookbook: Building Applications with de Android SDK", Addison-Wesley Professional, First edition, October 27, 2010.

[2] R. W. Ouyang, A. K. S. Wong, C. Mung, T. W. Kam, "Energy Efficient GPS Measurement and Path Reconstruction for People Tracking", IEEE Global Telecommunication Conference, Dec. 2010.

[3] H. Li, L. Zhijian, "The study and implementation of mobile GPS navigation system based on Google Maps", International Conference on Computer and Information Application, Dec 2010.

[4] Android Developer Guide: http://developer.android.com/

[5] Reto Meier, (2012) "Professional Android ™ Application Development" Published by John Wiley & Sons, Inc.

[6] Wei-Meng Lee, (2012) "Beginning Android ™ Application Development" Published by John Wiley & Sons, Inc

[7] http://www.gartner.com/newsroom/id/2335616

[8] http://developer.android.com/about/dashboards/index.html

[9] http://www.appbrain.com/stats/number-of-android-apps

[10] http://www.appbrain.com/stats/android-market-app-categories

[11] http://en.androidwiki.com/wiki/Diagram_of_the Android_architecure

[12]http://developer.andriod.com/guide/components/activiites .html

[13] http://developer.andriod.com/guide/components/services.htm l

[14] http://developer.andriod.com/about/dashboard/index.html