

# Design and Development of Android Based Mobile Application for Emergency Services

Kishori Deokate<sup>1</sup>, Pratiksha Turankar<sup>2</sup>, Md. Arbaz<sup>3</sup>, Prof. S. D. Kale<sup>4</sup>

<sup>1,2,3</sup> (E&TC Engineering Department, Jagadambha College of Engineering & Technology, Yavatmal, Maharashtra  
Email: kishorideokate@gmail.com, [pratikshaturankar1998@gmail.com](mailto:pratikshaturankar1998@gmail.com), [arbaz.mohd007@gmail.com](mailto:arbaz.mohd007@gmail.com))

<sup>4</sup> (E&TC Engineering Department, Jagadambha College of Engineering & Technology, Yavatmal, Maharashtra  
Email: [jcet.sdkale@gmail.com](mailto:jcet.sdkale@gmail.com))

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## Abstract:

In India most of the population are android users and use Google maps in exigency to search and locate the emergency services such as Fire Brigade, Police station Garage etc. When the user searches for a specific hospital, Google Map shows all possible Hospitals that are at a far distance from the user. So we have designed and developed Android Based Mobile HELP Application for the categorized emergency services namely Hospitals, Medical Stores, Pathology Lab. This Android application is built using the Android studio platform using react native frameworks and Java Script, JSON language as front end and XML as backend application development. The Dashboard of HELP Application displays the categorized emergency services available services with their contact details, Email ID and the address nearest to the user, also this HELP application provides the share button, calling button, Email button and Map Button. Using share button, the user can share the details with others through various applications such as Telegram, Whatsapp, Email and SMS etc. Using calling button, the user can call directly to the desired services through the HELP App. The Google Map button helps the user to track the required categorized emergency services. Integration of Google Maps API (Application Programming Interface) using Firebase gives optimized search results which also gives the additional information such as time required to reach the desired destination, acquaintances in the nearer area, which is useful for the visitor or needy peoples to locate and use of GPS of the Mobile able track the desired service.

**Keywords — XML, Firebase, Android, API, GPS, Java, JSON, Android Studio etc.**

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## I. INTRODUCTION

In India most of the population are android users and use Google maps in exigency to search and locate the emergency services such as Hospitals, Medical Store etc. When the user searches for a specific hospital, Google Map shows all possible Hospitals that are at a far distance from the user. If the person is new in the city, he does not know the available hospital in the city, the specialty of the doctors and location of the Hospital. He uses Google Map for searching the nearby Hospital, it is troublesome to locate and track the different

Hospital. Also the list of all Garages is not available at any platform with the contact details.

The categorized list of emergency services help to search the desired service in an easy way instead of searching on the browser and avoid the complexity of the search specific emergency service. If we want to book an appointment with a Doctor then also we can contact them through an android application. For any other help like Medical Store, Pathology Lab., all the details and contact numbers are provided there to get fast help.

## II. LITERATURE SURVEY

After the literature review of several papers from the various journals and international conferences, we have selected the following papers which can help to fulfil the aim of our project work. The brief summary of these papers are highlighted below.

### A. *Emergency Services using Android*

In this paper <sup>[1]</sup>, the categorized emergency services such as Hospitals, Police Station, Fire Engine Departments And Fuel Stations within the 5 km radius from the user are located and displayed using the Android Application with the details of contact information. This proposed Android application consists of five models namely Registration, User, Services, Location and Direction. This Android applications which is built using the Android studio platform and Google SDK's using react native frameworks and JavaScript language

### B. *Literature Review on Emergency Help Application*

In this paper <sup>[2]</sup>, the quick access to the contact details of the emergency helpline services through the development of the Android applications were proposed. The proposed system makes calls and sends SMS notifications to the user's trusted contact in an emergency, also uses mobile sensors and features for finding the nearest hospitals. This Android Application consists of the six modules namely Instruction, Register, Display Details, Action, Message Creation and Location Tracker.

### C. *Android Based Emergency Alert Button*

In this paper <sup>[3]</sup>, the Android SOS application being developed and designed for the user who needs to inform the trusted person at the remote end that he is in exigency by pressing the SOS trigger button. The proposed model runs in background after the SOS button is pressed, capturing the user location details such as latitude, longitude and nearby places and sending it to the user register person through the SMS. The registered person can be able to track the current location of the user using the Mobile GPS of the user.

### D. *Pocket Ambulance*

In this paper <sup>[4]</sup>, the categorized emergency services such as Ambulance were developed on the Android platform. This proposed Android

application has On Tap System Model which is able to locate the nearby ambulances and track their path on a map and On Call System Model which is able to find the nearby hospitals and contact details and navigation. This application uses the GPS for positioning and firebase for providing the optimum result for the location of the ambulances driver and the client with the help of the Google map API.

### E. *Design and Development of A Smartphone Based Application to Save the Lives During the Accidents and Emergencies*

In this paper <sup>[5]</sup>, Smartphone based applications were developed using Android Studio with Java as a backend and XML as a front end development that can observe a record and track the necessary actions in an emergency. These applications are able to detect the occurrence of accidents, send SOS alerts to emergency services such as medical ambulance, register contact with nearby acquaintances, synchronize with the ride healing services and also propose the Weather, Warning On Road Conditions, Natural Disasters were further included with this Android application.

### F. *Android Best Mobile Application Development and Its Security*

In this paper <sup>[6]</sup>, the Android mobile platform and details of the security information for the Android were discussed. The Android consists of the open source OS with the Linux base platform, middleware, user interface and the applications software. In this paper the layered approach for the Android application development and static and dynamic analysis on the Android programs to automatically detect the suspicious application using the Android application sandbox were also discussed.

## III. PROPOSED WORK

So we proposed to design and develop an Android Based Mobile HELP Application for the categorized emergency services namely Fire Brigade, Police station Garage etc.. The Main Dashboard of HELP Application displays the six categorized emergency services, by selecting a particular emergency service shows the list of available services with their contact details, Email ID and the address nearest to the user, also this

HELP application provides the share button, calling button, Email button and Map Button.

The share button helps the user to share the details with others through various applications such as Telegram, Whatsapp, Email and SMS etc. It is helpful to those who don't have an HELP App on their phones. The calling button helps the user to call directly to the desired services through the HELP App. The Google Map button helps the user to track the required categorized emergency services. Integration of Google Maps API (Application Programming Interface) using Firebase gives optimized search results in the HELP Android Application which also gives the additional information such as time required to reach the desired destination, acquaintances in the nearer area, which is useful for the visitor or needy peoples to locate and use of GPS of the Mobile Phone able track the desired service.

This Android application is built using the Android studio platform using react native frameworks and Java Script, JSON language as front end and XML as backend application development.

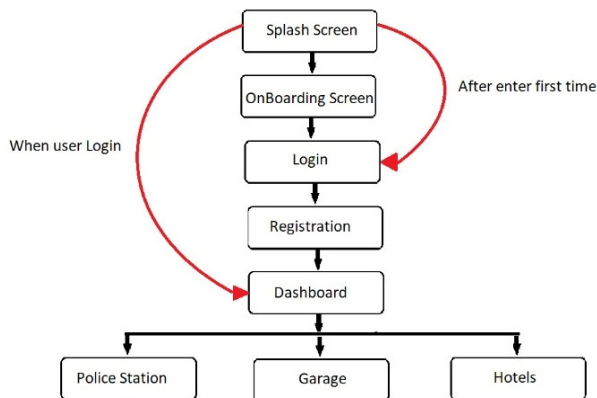


Fig. 1: Flow chart of User Registration

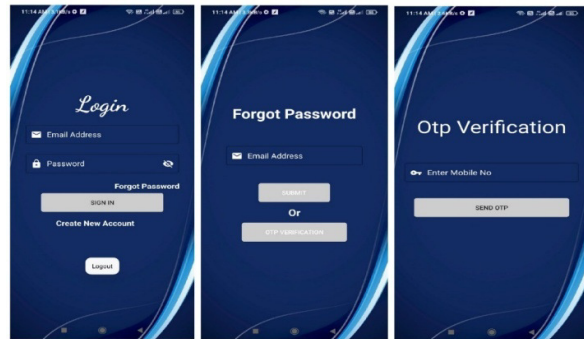


Fig. 2: Login, Forgot Password, OTP verification.

**REGISTRATION:** If the user log in first time then there is a registration process first user have to select a photo for their profile and also add number, name and mail ID after filling all the details the user can go through main interface that is dashboard.

**LOGIN:** if a user has already made an account in the help service app, then all he has to do is to enter his email and password. if not then he has to register to navigate the dashboard.

**FORGOT PASSWORD:** The user forgot the password can be reset his password by clicking on Forgot Password button. We can reset it in two different ways.

1. OTP Verification
2. Email Verification

1. **OTP VERIFICATION:** If the user want to login again then user will have to enter their mobile number then system will check whether, the number registered or not, if it is registered previously from same number then it will sent an OTP to the registered mobile number hen the user can log in their previous account after entering the OTP.

2. **EMAIL VERIFICATION:** If the user log in again then they have two options, lo in through OTP or Email verification. If the user has to give his email address, then he will check whether the email address is there or not, if it is, then a link will be sent to his email address.

**DASHBOARD:** The main panel of our application is Dashboard. When we log in then we have this type of interface, it gives us services which are available in our application. Also it has a drawer interface that includes many things which is explained later in drawer interfaces. When click on a particular service then we have a list of that particular service, it is same for the other.

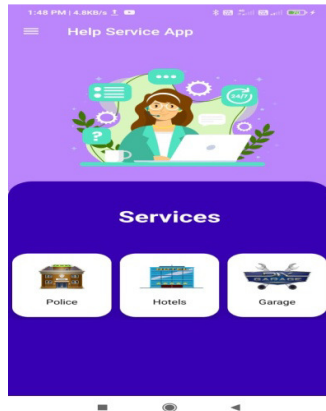


Fig. 3 : Dashboard of HELP Application

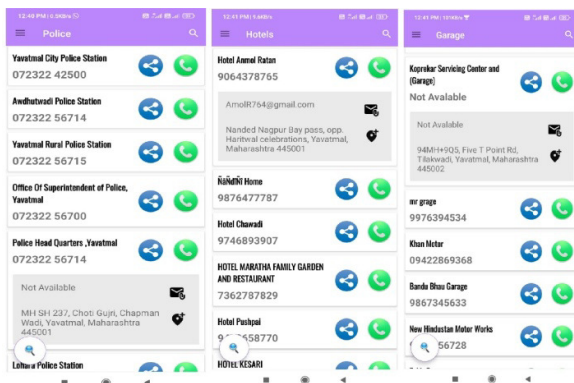


Fig. 4: List of Police Station, Hotels and Garage.

When we click on medical store, hospital or Pathology Lab then it will show the list of those particular services. When a person click on medical store then it will give a list of medical store, suppose the user wants to search medical store then there is search bar option. If user wants to share the details of the medical store to other it will share through Mail, Telegram, Whatsapp, etc. Here we have another option of calling when user click on calling symbol it will directly go to dialer pad and call will be connected automatically. If we long press on that store then it will show two options that

is GPS and mailing using GPS user can directly go through map it is beneficial for them, and it saves their time also he can mail them to provide service.

#### IV. RESULT

We have designed and developed Android Based Mobile HELP Application for the categorized emergency services namely Fire Brigade, Police station Garage etc. Here the user firstly registered them using Email ID and Password, and after completing OTP verification, the user can see the Dashboard of categorized emergency services. By selecting any of the emergency services, the List of nearest services shown on the screen contains information such as Service Name, Contact number, Email ID and address of the Service. The screen showing the list of services, also has the share button, calling button, Email button and Map Button. By pressing the share button, the user can share the details with others through various applications such as Telegram, Whatsapp, Email and SMS etc. It is helpful to those who don't have an HELP App on their phones. By pressing the share button, the user can call directly to the desired services through the HELP App. Pressing the Google Map button helps the user to track the required categorized emergency services.

Integration of Google Maps API (Application Programming Interface) in the HELP Android Application gives the additional information such as time required to reach the desired destination, acquaintances in the nearer area, which is useful for the visitor or needy peoples to locate and use of GPS of the Mobile Phone able track the desired service. Google Map's API is a robust tool that can be used to create a custom map, a searchable map, check-in functions, display live data synchronizing with location and plan routes. We have provided a search option in the HELP Android Application to be able to search more available services without scrolling.



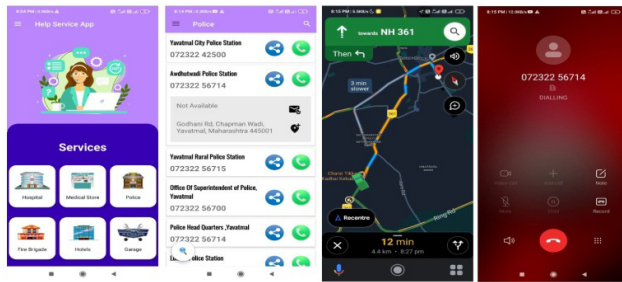


Fig. 5: Police Station a) Dashboard b) List c) Navigation d) Calling

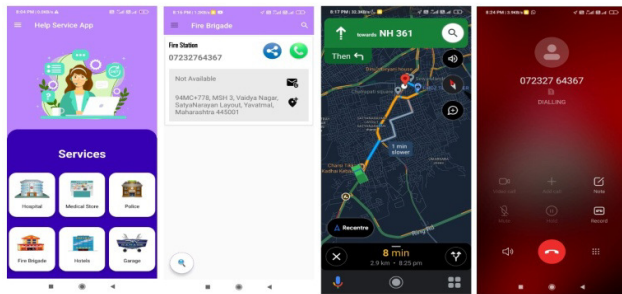


Fig. 6: Fire Brigade a) Dashboard b) List c) Navigation d) Calling

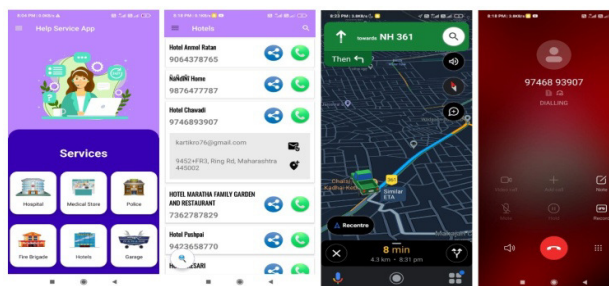


Fig. 7: Home Services a) Dashboard b) List c) Navigation d) Calling

## V. CONCLUSIONS

The Dashboard of HELP Application displays the categorized emergency services such as Fire Brigade, Police station Garage etc. by selecting a particular emergency service shows the list of available services with their contact details, Email ID and the address nearest to the user, also this HELP application provides the share button, calling button, Email button and Map Button. The user can share the details with others through various applications such as Telegram, Whatsapp, Email

and SMS etc. The user can call directly to the desired services through the HELP App. The user can track the required categorized emergency services as Integration of Google Maps and also gives the additional information such as time required to reach the desired destination, acquaintances in the nearer area, which is useful for the visitor or needy peoples to locate and use of GPS of the Mobile Phone able track the desired service.

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