MCAN IA 2 Report: HelpDesk - Emergency Service Finder

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1. Abstract

HelpDesk is an Android Application that helps the user find the location of the nearest Emergency Service Centre (Police Station, Hospital, etc.). It can also be used to contact emergency service hotlines directly. This app is primarily intended to be used in emergency situations where quick access to these services is essential. This app can be very useful especially for women to directly contact women's hotlines as well as to get information on nearest emergency service stations. The application hopes to become a centralized source for locating any emergency service or connect to any emergency hotline as quickly and with as little hassle as possible. The application is developed using java in android studio and makes use of Google Maps Intents and Google Maps SDK API. The GUI of the app is designed to be user friendly and self-sufficient in explaining the functions/features of the app. The working of the app was tested for all the features and the application functioned correctly.

2. Introduction

2.1 Motivation (Need of the Project)

Help desk provides different types of emergency services at a single place which is very much important in case of emergency. Time is the most important aspect in case of any emergency and hence to not waste any time and not delaying any action there was a need to find all essential services at a single place. We often see cases where someone who could have gotten help earlier didn't get the help and the situation worsened. Thus to help people in times of panic and emergency, to save lives, we decided to build this project.

2.2 Problem Definition

Developing a simple Android Application to ease the process of providing all the essential emergency services at a single place. The application will assist the user for locating emergency service stations be it in daily life or in emergency situations. A simple interface will be provided to the user for choosing the service he needs quickly. Support for different types of services such as police stations, hospitals, women safety helpline, fire stations, etc. will be provided.

2.3 Scope

- The application will provide an interactive and visual layout for the user to choose a single or multiple services required
- The user can get phone numbers of the nearest police stations, hospitals, fire stations.
- The application gives the location and complete address of the destination as well as other information such as rating and operational hours.
- The app provides an area which can be used to contact the developer and users can state about the bugs and fixes required by them.
- The app provides a section where answers related to frequently asked questions (FAQ) are provided.
- The application can be extended to other languages and also more interactive features can be added.

3. Implementation

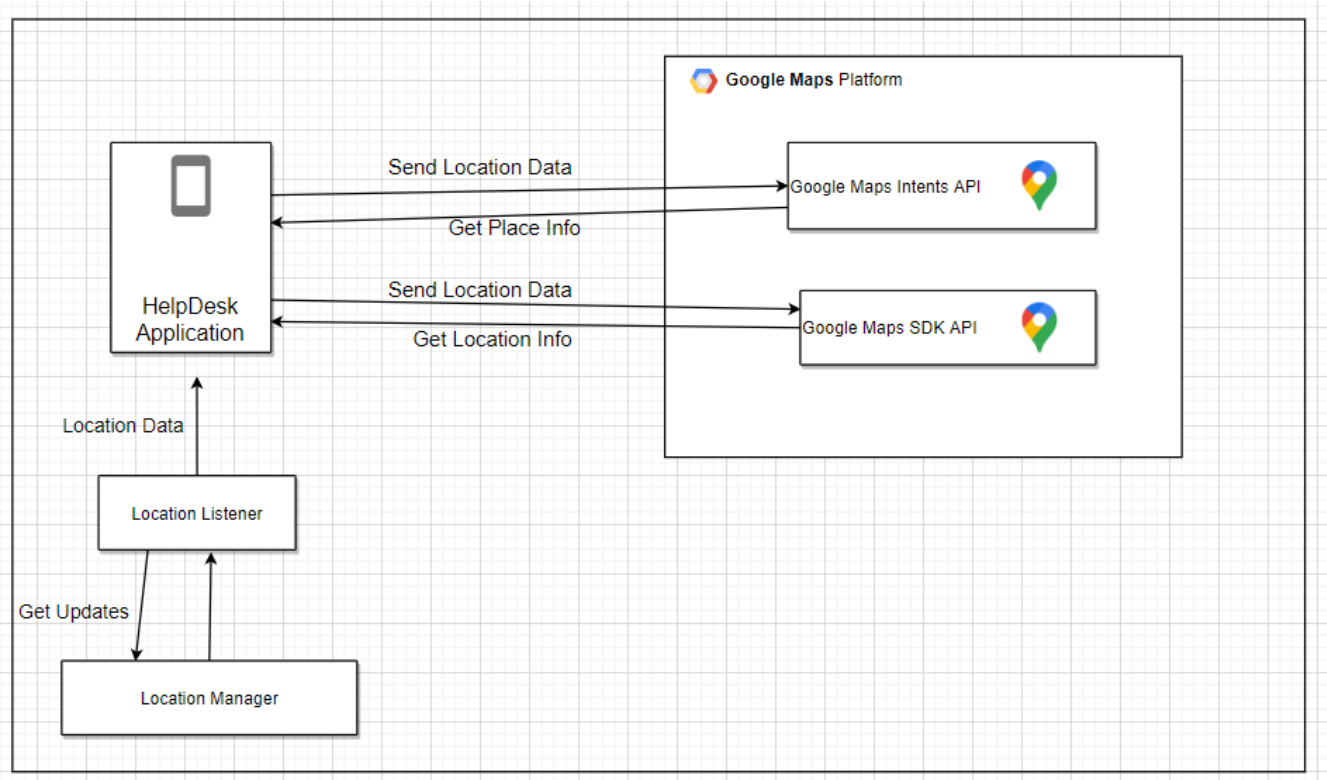
Tech Used:

- Android Studio
- Java
- Google Maps Intents & Google Maps SDK

The app was developed in Android Studio using Java as the programming language and primary features of the app used Google Maps Intents.

3.1 System Architecture

The following diagram represents the system architecture of the application: -



The Application is built using Java on Android Studio. The user interface as well as all the functionalities have been coded using Java. The app functions using 2 API's which send information based on the location (i.e. current location) sent to them from the device. Current Location of the device is obtained using the Location Listener Class and Location Manager Class. Location Listener handles location changes and Location Manager asks for location updates. This allows the application to constantly update current location. Google Maps and Google Intents API can be integrated by first installing the SDK from Android Studio and then entering the API key into the downloadable config files. Metadata is added to the AndroidManifest.xml file and other configuration files are included into the project directory. GUI is designed using the XML file. Final result is displayed using the API response that is fetched.

3.2 API's Used & Hardware/Software Requirements

API's Used

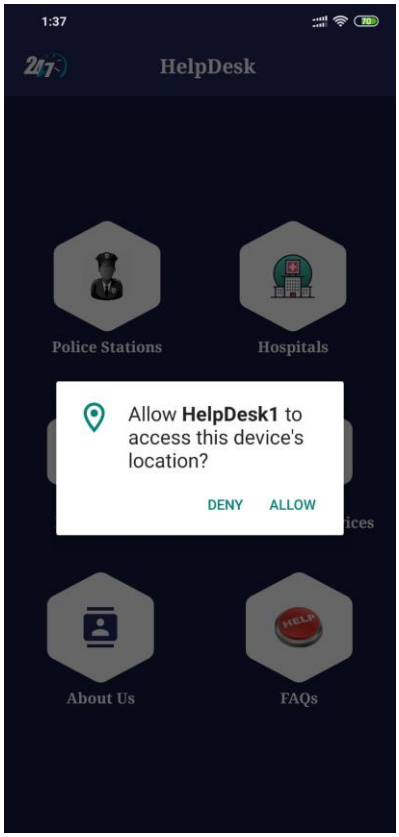
- Google Maps Intents – Used to launch Google Maps application with requested information on the user's device
- Google Maps SDK API – Used to display maps with marker.

Hardware Requirements – Android Device with GPS/Location functionality

Software Requirements – Android 8.1 (Oreo) - Android SDK Level 27

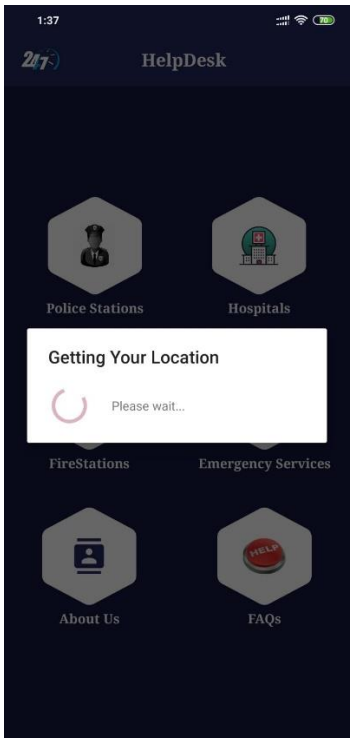
3.3 Working

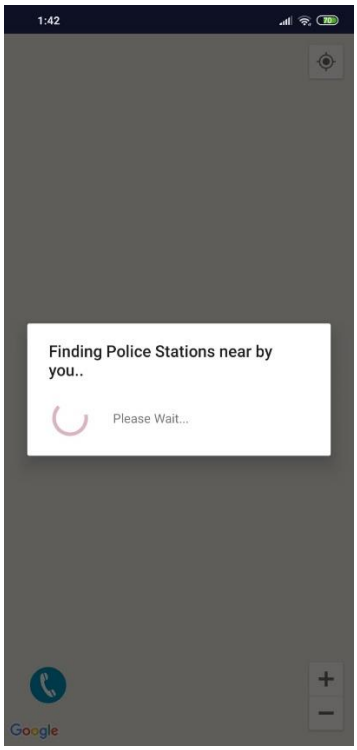
1. User Interface & Location Access:

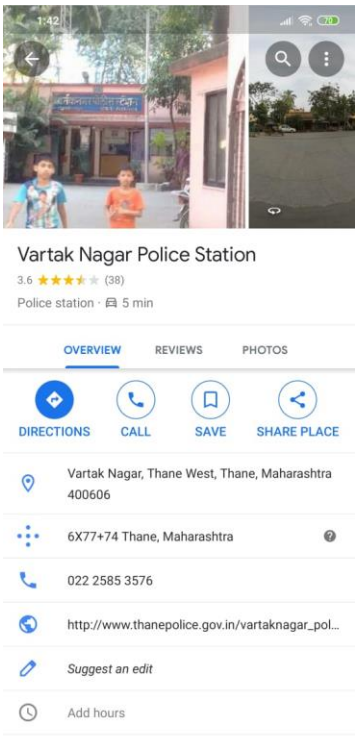


The image above illustrates the user interface of the application. All the features of the application can be accessed from this screen directly. The Application will ask for location access on startup. Location Access is essential for functioning of the application

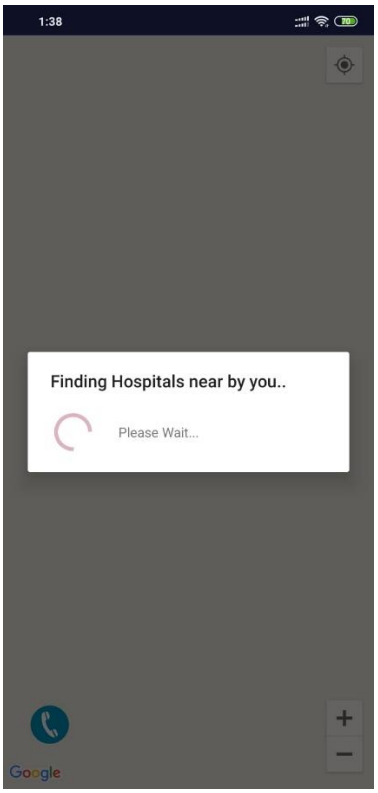
2. Locating Emergency Services
For Police Station:

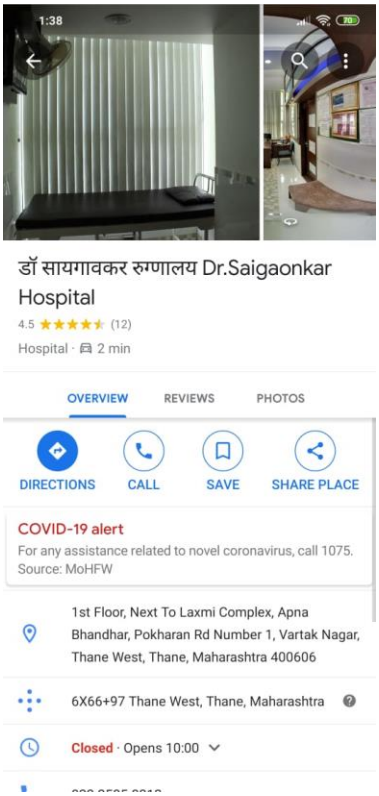






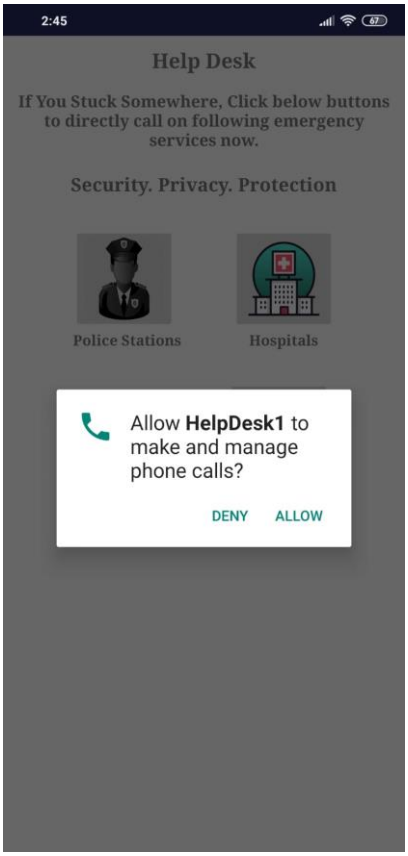
For Hospitals:

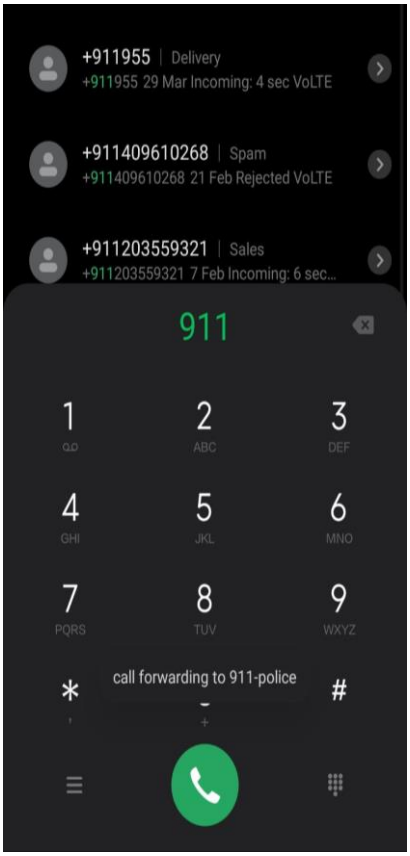




The application first gets the user's current location and then using the API finds the nearest hospital, Police station or Fire Station and then display's the returned information. Above screenshots show the working of the application for police stations and hospitals respectively. The app functions similarly for fire stations as well.

3. Contacting Emergency Services





The App asks for permission to make phone when this feature is accessed for the first time. Once granted the permission the app will direct the user to whichever emergency service he wishes to contact by clicking on the respective service.

3.4 Results

The app was tested for all the integrated emergency services and the app successfully displayed the location of each. The feature to contact emergency services also worked as intended.

4. Conclusion

Our application was successfully deployed to our android devices and was tested for locations of each of the emergency services. The primary feature of the app functions correctly and the application can be deployed. The application can be further improved by adding the functionality to contact nearest emergency services directly than to contact general helplines. Other Emergency Services contacts such as Suicide Prevention Hotlines can also be added to improve the app.

5. References

- https://developers.google.com/maps/documentation/android-sdk/start
- https://crisisresponse.google/emergencylocationservice/how-it-works/
- https://developers.google.com/maps/documentation/urls/android-intents

6. Appendix

6.1 User Manual

1. The Application requires location access permission for it to function.
2. The Application requires permission to manage and make phone call.
3. Following are the steps to obtain Emergency Service location from the application.
    - Police Station – At the landing page of the app click on the police stations button. The app will automatically get your current location and then look for a police station near you and display the results in Google Maps. You will need Location Access turned on for this feature to work.
    - Hospital - At the landing page of the app click on the hospitals button. The app will automatically get your current location and then look for a hospital near you and display the results in Google Maps. You will need Location Access turned on for this feature to work.
    - Fire Station - At the landing page of the app click on the fires tations button. The app will automatically get your current location and then look for a fire station near you and display the results in Google Maps. You will need Location Access turned on for this feature to work.
4. Following are the steps to contact emergency services using the application.
    - At the landing page of the app click on the emergency services button.
    - Select the desired emergency service(Eg. Police Station, Hospitals, Fire Stations) you want to contact and click on the button corresponding to its name. The application will automatically contact the desired service. The app will need the permission to manage and make phone calls for this feature to function.

6.2 Programmers Guide

Primary Classes Used: - Location Manager, Location Listener (For getting location data)
API's: - Google Maps Intents, Google Maps SDK