

# Android based Smart Guide Application

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**Abstract**— Now a day, when people visit an unknown/unfamiliar place, it becomes quite difficult for that person to find a local guide and even if we get, we have to pay for it. Sometimes, we have been charged relatively high if we don't know how to deal with it.

To address the above-mentioned problem, we have come up with an idea to develop an application that simulates a local guide. The application mainly provides a set of probable services that could have been able to provide by a local guide.

The application mainly includes features like providing information related to popular places and how to visit this places it also provides information related to hangout places, shopping places, monuments, restaurants and also the facts about the place another feature that is also included is the most popular cities and also the information related to it we also have a feature called attributes and friends and features like weather forecast compass checklist are also included.

**Keywords**— location based services, local guide, travel application, android application

## I. INTRODUCTION

Android based Smart Guide Application is a local search platform proposed to serve as a local guide to people.

A person may want to visit a particular place like restaurants, pharmacies, hospitals etc. But previously it was not possible since it was limited to desktops which were not portable or a person may need to enquire people that he may meet in the surroundings and if the person doesn't know the local

language, it may become difficult to visit the desired place and also the whole process is very much time consuming.

And also, some people may misguide us and lead us to the wrong destination which is again a time consuming and needs more human power.

By using today's technologies, we can automate the process of finding places. By developing an Android application, we can replace the extra hard work that is needed.

People can search for restaurants, hospitals and other places on the basis of the shortest distance from their current location and also based on the ratings, reviews and also on the basis of money like if they want to visit a place which will be cheap, reasonable and will also provide good facilities like food, services etc.

For this facility, the person needs to download the android application and need to open the application on the android smart phone and will be used to search places.

## II. LITERATURE REVIEW

The last two decades have seen growing interest in the development of Android based platform. Our review of this area shows that there have been only few approaches that provide automated tools for the functioning of the application:

1. Ruchika Gupta et al in 2011[2] describe the Cost Effective Method by using two technologies GPS (GLOBAL POSITIONING SYSTEM) and GPRS (GENERAL PACKET RADIO SERVICE). This system allow the mobility to track by using GPS receiver and GPRS transmitter act as a Google map to detect location send by Mobile phone to use GSM network by using GPRS packet. Therefore, the overall cost of tracking based on

GPS system which is satellite based service which is available around the world .Apart of reducing the cost by using GPS and GPRS using separate device it will contain all the facilities which are included in mobile phone. Furthermore text messaging option for a cell will b added. The user will be able to send a text message to the server and the receiver in estimated arrival time

2. Gunay Gultekin et al in 2014[4] create a smart location based mobile shopping android application .This application help the user to search a product. By using SAGO , it identifies the location and search the product on the closet

store . This application manage to get the price from the each local store with the stock information and product list.

According to this paper, the user uses to save the both money and time by using this Android Application.

3. Behrang Parhizkar et al in 2012[3] describe the method of Augmented –GPS based navigation purpose . Here author describe about the Augmented based system which create a real scene like on capture digital virtual object with the fully dimensional based on that prosperities for e.g. it help to convert the 3D virtual image to 3D real world environment and allow more interactivity for the user . In this paper it is observe that the prototype of an Augmented reality system to provide the transport within the city via an interface on a mobile device. Therefore AR and GPS based navigation has changed the way to perceive explicitly after its penetration to hand held mobile device.

4. Sasaki M et al in 2005[1] proposed a location-based web service which can be easily operated even on our mobile phones which needs features which enable to upload real time location and to create the content “on the spot”. It is based on three basic factors: Internet, Mobile phone and GPS. The mobile phone on the user side is first connected to the operator’s network and access the web server via the Internet. The proposed web server consists of the following web applications:

1. User module to create and store contents.
2. Search module to search the content database.
3. Website module to respond to requests from the client for web contents.

The proposed system will provide an effective method to create and search information on a real time location basis and will extend the potential of a mobile phone and its applications.

5. Sardey Y et al in 2014[5] has improved the knowledge on the public transport domain of the system.It also has been implemented on different Android platform. The specific domains added to the system will prove to be advantageous to the system.

The GPS system has proved to be very beneficial to display the maps and routes to the different locations and also has proved to track the bus location giving an estimate to when the bus will reach the location. The project will be

implemented in the cloud platform so that it would be easily available to every android user. Hence, it will be proved as a beneficiary application to every bus traveller in their day to day schedule.

6. Patil et al in 2017[6] has proposed restaurant seat booking application gives online menus requesting and reservation making capacities and a menu suggestion benefit.

It enables to immediately identify customers via GPS-based location and then actively recommend the most appropriate menu for customers according to their consumption records.

For new clients the administration staff gives proposals in light of feast ubiquity and afterwards makes clients’ inclinations to store in the back-end database.

The App based service enables customer orders to be instantly transmitted via mobiles from anywhere. Consumption data can likewise be sent to the clerk for bill pre-processing. Restaurant managers can access the database to evaluate business status anytime and make appropriate redeployments for food materials. All requesting and use data is digitized for database storage which permits restaurant owners to consider discounts or customer promotions based on expenditure statistics. Customers can thus appreciate high quality service, which in turn highly promotes enterprise image and increases business revenue for the restaurant.

### III. METHODOLOGY

#### 3.1 Problem Statement:

After the detailed study of the previously mentioned research papers, we have found that the Navigation applications that are effective and in position now-a-days are based on conventional infrastructure and system. Thus, there is a significant dependency present in the resources available on premises. The effectiveness, efficiency, performance and throughput of these conventional Systems are not up to the mark.

To reduce these dependencies, we want to propose a Location based searching application which will be based on Android technology, which will hopefully solve all the above-mentioned shortcomings of the previous applications

#### 3.2 Limitations in existing systems:

The following points demonstrate the limitations which we had found while studying it.

**Infrastructure Cost:** In the existing systems, the infrastructure is very high. They have implemented a client-server architecture, where the server is maintained by the organization itself.

**Portability:** Some of the existing systems are not portable since it requires a physical server and a PC to access.

**Usability:** The existing systems are not user friendly since we have to install different applications for different services.

### 3.3 Proposed Solution

Following points are the objectives of proposed solution

3.3.1 An Android application can be developed since now a day everyone is having one Smartphone in hand.

3.3.2 For database we can implement either a centralized or a distributed system.

### 3.4 System Design

According to the hypothesis, we have found that, the diagrams mentioned below are needed to proceed further in the project and also it will help to know the idea we have implemented for our project. The list of diagrams needed to demonstrate the mechanism of the project is as follows:

#### 3.4.1 Flowchart

#### 3.4.2 Data Flow Diagram

3.4.1 Flowchart: A flowchart is a finite set of step by step processes followed to solve a particular problem. Following is the flowchart for our proposed system.

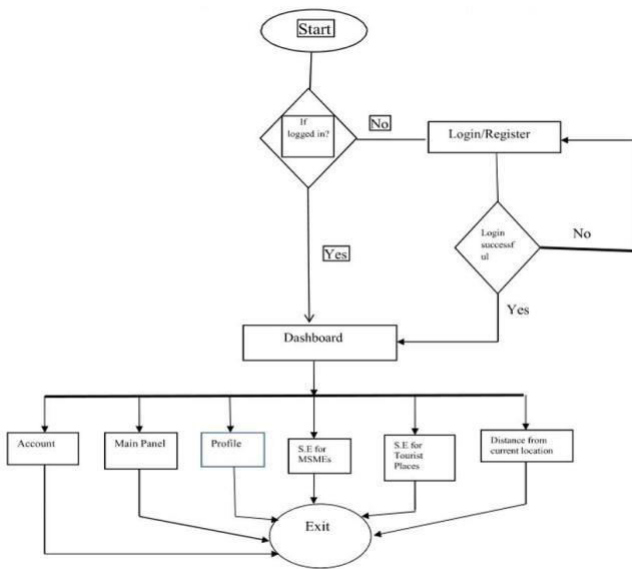


FIG 3.1 FLOWCHART FOR USER

3.4.2 Data Flow Diagram: A data flow diagram (DFD) illustrates how data is processed by a system in terms of inputs and outputs. As its name indicates its focus is on the flow of information, where data comes from, where it goes and how it gets stored. Following is the data flow diagram for our proposed system.



FIG 3.2 DFD LEVEL 0

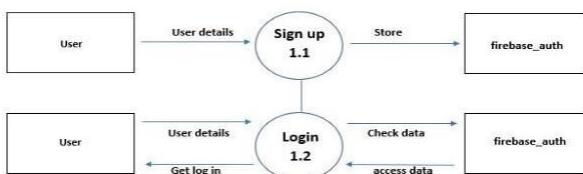


FIG 3.3 DFD LEVEL 1

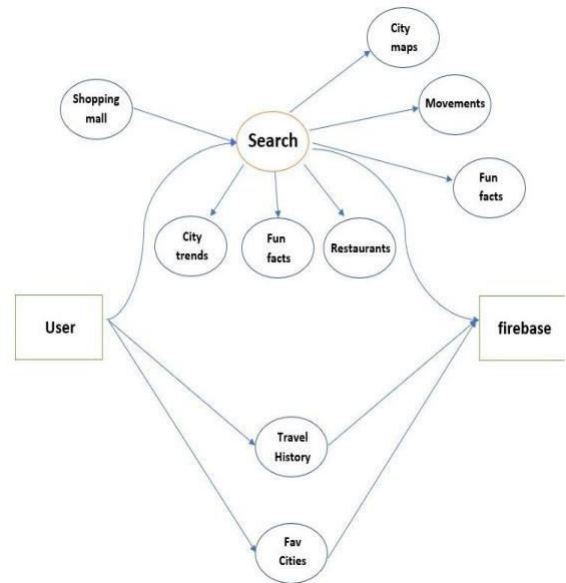


Fig 3.4 DFD Level 2

### 3.4 Implementation

The following sections describe all the modules implemented in this project.

#### 3.4.1 Authentication Module

In this module, user is authenticated using their login credentials or creates a new account. Without any proper login credentials, the user cannot access the data. There are two sub modules as follows:

A. Login Activity: In this activity the user is asked to login with their credentials.

There are basically two ways of login. The first way is the user can login by entering the emails address and password in the provided fields and then the user is authenticated based provided information. The second way is, user can login using existing account already logged in that device. If the Google Account is not having any login credentials in our application then it will be automatically create the account and tries to complete the signup process.

B. Signup Activity: In this activity, user can create the new account to register them use the app. To sign up, user had to provide their full name, email address and password. After filling up the form the user can sign up, once the first processing up is completed; the user is used to send the

second process. Once the role is selected, user had to provide the necessary information and need to send the request by clicking on the request button. The role is verified by the admin the user is approved they are allowed to access the app.

### 3.4.2 Modules

There are different modules namely Home, Destinations, Travel, My Trips, My Friends, Favourite cities and Utilities.

When we click on the module Home, we will see different functions like Hotels, Friends, Trips, Popular cities and Utilities.

In the Destination module we will find the function where we find the most popular cities. For e.g. If we click on Delhi we get to know the Weather, History of Delhi, Hangout places, Monuments, Shopping places, Restaurants with their rating and reviews, City trends.

In the module Travel we will find functions like Hotel booking, online shopping and real time locator. In hotel booking we can select the city we want to visit and book the hotel of our desire.

In the module online shopping we can shop online.

In the Real time locator we can select which items we want to be displayed in the map.

In the My Trips module we can enter trip name, date and select the city and we can add the trip.

In the My Friends module we can enter friend name with whom we want to travel and can make it public, so that our friend will be able to view the trip.

In the Favourite cities module we can add our favourite cities as for example we have added Mumbai as our favourite.

In the Utilities module we find functions like Checklist, Weather Forecast and Compass .In the checklist we can check whether we have all the necessary items with us or not which we did add before the trip. For the weather forecast we can select city of our desire to get updated on the weather there. We can also use the compass in the time of need or according to our needs.

## IV. RESULTS

We have tried to add few unique features like My trips, checklist and also we can add friends. Below are some screenshots of the application:



Fig 4.1 Authentication module

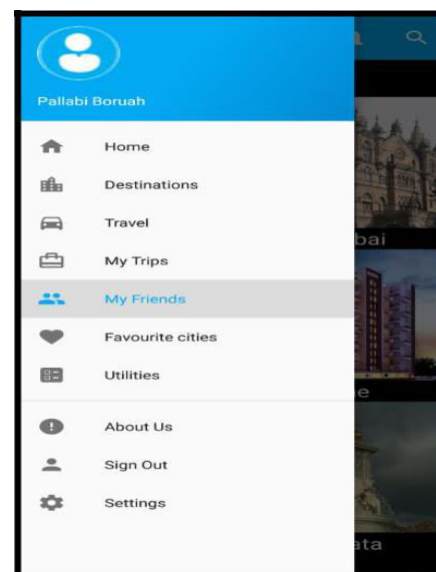


Fig 4.2 Different modules

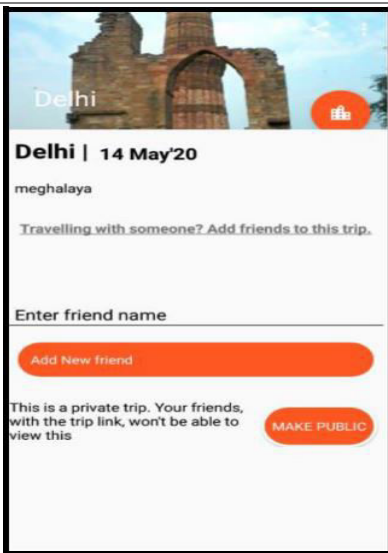


Fig 4.3 my friends activity

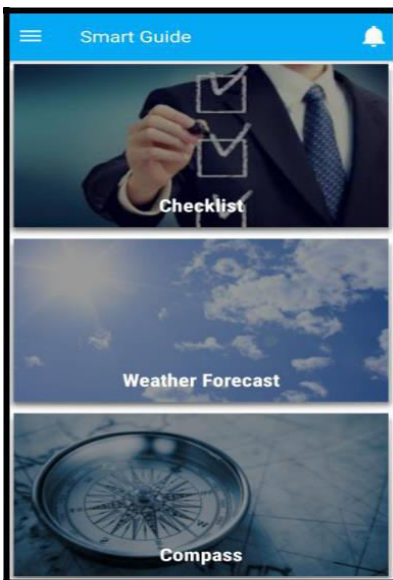


Fig 4.4 checklist, weather forecast and compass

#### 4.1 Features of the project

Following are the major features of this application

**Secure:** The application is very secure since the database is stored in Google

Firestore and users are allowed to use the app with proper authentication.

**Portable:** The application is portable because everybody has the Smartphone.

They simply need to download the application in their phone to use the application.

**Infrastructure Cost:** There is generally no infrastructure cost due to the implementation of cloud services. Authentication and database are both stored in Google Firebase which was a big advantage to reduce infrastructure and maintenance cost

#### 4.2 Limitation of the Project

Following are the limitations of the application:

- 1.The application is limited to only few specific cities or places.
- 2.Only one login mode is available.
- 3.Ratings and Review system is not available.

### V. CONCLUSION

In this project, we have studied about the problems faced by common people

when they travel to different places. We have surveyed and studied a few papers and we discovered some method in which the problem can be solved.

We have proposed a method which will be able to solve the problems found during survey. We have implemented the application in Android and have successfully implemented Google Firebase services. Authentication process has also been implemented using Firebase Authentication service and database has been implemented using Firebase Firestore service. People can easily add trips and find places to visit according to their convenience, they can also prepare themselves according to the weather and also the trips can be made public to their friends with whom they have planned the trip.

So, we conclude that we had successfully implemented our proposed solutions to a certain extent which was possible and developed a working application.

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