

EASY GO : THE TRAVEL ASSISTANT APP

A mini project report submitted to CUSAT in partial fulfillment of the requirements
for the award of the degree of

BACHELOR OF TECHNOLOGY

In

COMPUTER SCIENCE AND ENGINEERING

Submitted by

AHAMMED SHAHEEDHUDHEEN (20218502)

ANOOS M (20218509)

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Under the guidance of

Mrs. Vineetha G R,

Assistant Professor,

Dept. of CSE

Mrs. Bindu P K

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Department of Computer Science and Engineering
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COCHIN UNIVERSITY COLLEGE OF ENGINEERING KUTTANAD, ALAPPUZHA



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the mini project certified **EASY GO : THE TRAVEL ASSISTANT APP** is a bonafide report of mini project done by **AHAMMED SHAHEEDHUDHEEN (20218502)**, **ANOOS M (20218509)**, **ATHUL C P (20218513)**, **MOHAMMED SAIF (20218525)**, **MUHAMMED MUSTHAFA SHAHAL V (20218526)**, towards the partial fulfilment of the requirement of the degree of **B.Tech in COMPUTER SCIENCE AND ENGINEERING of COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY**.

Mrs. Vineetha G R,
Assistant Professor,
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Place : Pulincunnu

Date : June 2021

ACKNOWLEDGMENT

We have put all our effort into building this application from scratch, but it would not have been made possible without the assistance from many people. We would like to take this opportunity to thank a few who were closely involved in the completion of this project.

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Mohammed Saif

Muhammed Musthafa Shahal

ABSTRACT

Travelling is a great way for humans to escape from the stressful and tiresome routines of their daily lives. It is a boundless way to learn about various cultures, places and a lively method to meet new people. But it can become a tiresome job to plan and gather information about your destination. A good travel app can make the planning effortless so that you can enjoy your journey.

We have created EasyGo to help you overcome these obstacles. This application allows a user to sign up/log in and search for basic amenities near a destination. The chatbot provides us the information of a destination like nearby attractions, best time to visit etc.

The application is made with flutter software development kit (SDK). It uses firebase as the database. We have used the Maps SDK Application programming interface (API), Places API, Autocomplete API. We have also integrated a chatbot constructed using Dialogflow.

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INTRODUCTION

The number of people who take travelling seriously has been increasing for the past few years. If we reckon with people from India we can see a tremendous change in the realm of globetrotting. People are exploring different strategies for travelling, they are riding their motorcycles, hitchhiking, some of them even go to the extremes like walking and cycling. They are expected to face many difficulties this voyage. We have developed EasyGo as a solution for their struggles.

AIM:

EasyGo aims to make the travellers aware or educated about the destinations and attractions they plan to visit. This information will help them in great proportions. We aim to eradicate the misconceptions and false information about a tourist destination. Thereby encouraging more travellers to visit such locations.

OBJECTIVE:

The objectives of EasyGo are:

- To provide information about tourist attractions to the users.
- To deliver the basic needs for a traveller around a tourist destination.
- To uplift local tourist attractions by providing proper information about them.
- To provide reliable, precise and accurate information about a destination to the users.

PURPOSE:

This document focuses on giving a comprehensive description of the EasyGo application. The user can sign up and login to the application to make use of the services available. The application provides the user with information about various tourist attractions. The user can also make use of the amenity search if they are already on their way.

SCOPE:

More people are coming into tourism and travel nowadays, as a result demand for travel applications are increasing. This provides more opportunities for the application to exhibit its excellent services. The application can be developed a lot more by adding features like hotel bookings, community tab etc. This application also has a scope of becoming a good business model as tourism is expected to grow in future.

RELATED WORKS

Places Been

"Places Been" is a travel tracker app that allows you to conveniently search and mark those places. Visited places are displayed with their corresponding country flag on a map. The app automatically generates a list of all visited countries and states/provinces/regions based on the cities you tagged. It also helps you to keep track of your personal Bucket List - all places that you are still planning to visit and your fav places.

TravelSpend

TravelSpend is an app to track your spending while traveling the world. It's perfect for someone who is planning their next trip or is already on vacation. If you travel in a group you can share expenses with friends and family to see "who owes who."

Wanderlog

Wanderlog is a complete travel app for planning every kind of trip, including road trips and group travel! Create a trip itinerary, organize flight and hotel reservations, view places to visit on a map, and collaborate with friends. After your trip, share a travel guide or trip story to inspire other travelers.

Roadtrippers

Roadtrippers is a map built for travelers. Plan your summer road trip with friends or find an amazing place nearby you never knew existed. You're always 5 minutes away from something awesome!

Discover millions of places, like local diners and quirky roadside attractions, or scenic points, national parks, and hotels. Get inspiration from our pre-made trip guides of

some of the most interesting and once-in-a-lifetime routes you need to see at least once.

Packpoint

PackPoint is a free travel packing list organizer and packing planner for serious travel pros. PackPoint will help you organize what you need to pack in your luggage and suitcase based on length of travel, weather at your destination, and any activities planned during your trip.

SYSTEM OVERVIEW

The project aims to assist tourists. The user can see the amenities of a particular place and they can select the best place for visit.

The user for the system is:

Tourist:

The tourist can plan their trip by taking the suggestions using the EasyGo app and they can fetch details of the amenities of particular tourist places.

1.PRODUCT PERSPECTIVE

This is considered as an application that provides the travel assistant for the tourists. This will help them to discover more unknown places.

2.USER CHARACTERISTICS

Tourists are our users.

3.PERMISSIONS REQUIRED

1. Full Network Access: It uses the network access to provide internet for firebase, APIs and chatbot to connect with dialogflow.
2. Access to current location: Access to current location is needed for showing the destinations and to figure out nearby amenities.
3. Microphone Access : The application requires access to the microphone of the mobile device for voice message input into the chatbot for any queries
4. Storage permissions: Storage permissions are required for the application to be installed on the device.

4.FUNCTIONAL REQUIREMENTS

There are two Categories:

4.1 MODULE DESCRIPTION

1. Login Screen
2. Sign Up Screen
3. User registration
4. Home screen
5. Map screen
6. Map loader
7. User location viewer
8. Location search autocomplete
9. Search Location Viewer
10. Amenities nearby location generator
11. Amenities viewer
12. Amenities detail screen
13. Amenities detail generator
14. Chatbot screen
15. Chatbot using ML
16. Voice to text convertor
17. Reply generator
18. Accounts screen
19. Sign out processor

4.2 USERS OF THE SYSTEM

Tourists:

- Tourists can create an account and login with email and password.
- They can navigate to different places using Map API and can fetch the details of nearby Hospitals, Atm ,Places, Gas stations, Hotels.
- Users can fetch details of the above Amenities.

- They can chat with the bot to get the details of tourist destinations.

5. NON - FUNCTIONAL REQUIREMENTS

They are the quality requirements that stipulate how well a software does what it has to do.

5.1 PERFORMANCE REQUIREMENTS

They are required for the elite performance of the application.

- **Performance:** The firebase server is used also Dialogflow also integrated in it. It provides good performance and ability to manage performance with the increased number of users.
- **Reliability:** The software created should be reliable, that is it should perform its required functions under stated conditions for a specified period of time .
- **Usability:** It should be user friendly and should require least effort to operate.
- **Portability :** The application is made using flutter, firebase and Dialogflow. which are platform independent and can be transported to other servers with minimum effort.
- **Flexibility :** It is the effort required to modify an operational program. The whole application should be made using independent modules so that any changes done in one module should not affect the other one and new modules can be added easily to increase functionality.
- **Availability :** Application will run 24*7 if an internet connection is available.
- **Security :** Security requirements place restrictions on the freelancers and customers by permitting access only by using a password. The software developed is free from all security issues and the software details are secure.
- **Maintainability :** Maintenance is one form of change that typically is done after the software development has been

completed. Application needs timely updation of data by the developer.

5.2 SOFTWARE SYSTEM ATTRIBUTES

- **Execution Speed:** The speed with which a computational device can execute instructions and it is considerably good.
- **External Requirements :** Requirements which arise from factors external to the system.

5.3 EXTERNAL INTERFACE REQUIREMENTS

This section provides a detailed description of all inputs into and outputs from the system. It also gives a description of the hardware, software and communication interfaces and provides basic prototypes of the user interface.

User Interfaces:

First time when the user uses this system he will be directed to the login page. If the user has not registered, he/she should have to register through the registration page. Then the registered user is directed to the home screen. The user accesses different amenities in a particular place.

Hardware Interfaces:

- Mobile Device
- Mobile Simulators

Software Interfaces :

Flutter shall be used for developing the user interfaces with the help of Dart language and for database information Firebase and Dialogflow can be used.

Communication Interfaces:

The communication between the different parts of the system is important since they depend on each other. However, in what way the communication is achieved is not important for the system and is therefore handled by the underlying operating systems and database in the service system.

SYSTEM DESIGN

1. DFD LEVEL 0

DFD LEVEL 0

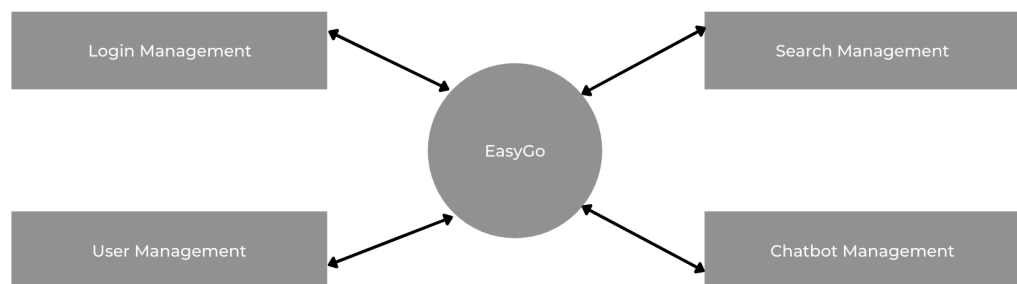


Figure 1.1 - Level 0 DFD

1. DFD LEVEL 1

LOGIN MANAGEMENT

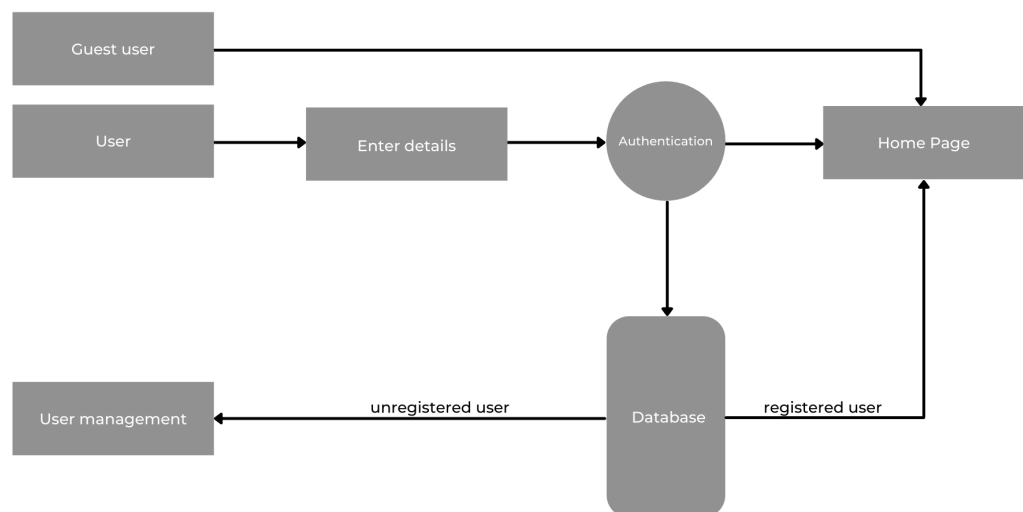


Figure 1.2 - Level 1 Login Management

USER MANAGEMENT

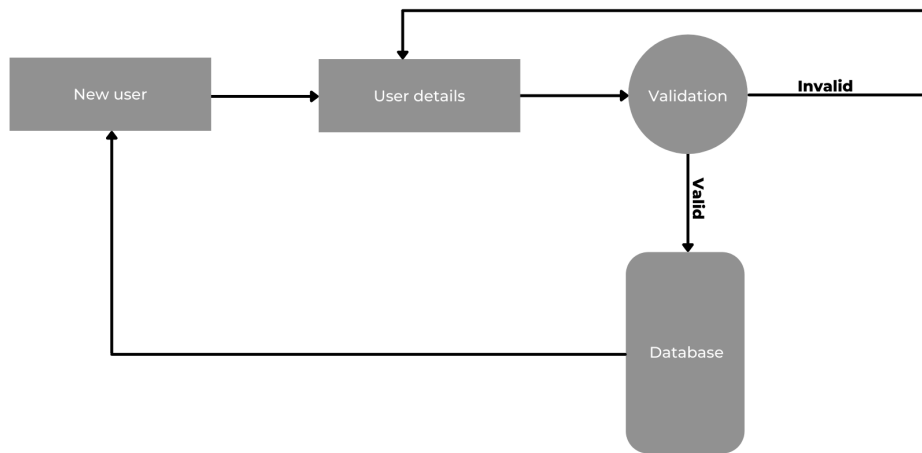


Figure 1.3 - Level 1 User management

CHATBOT MANAGEMENT

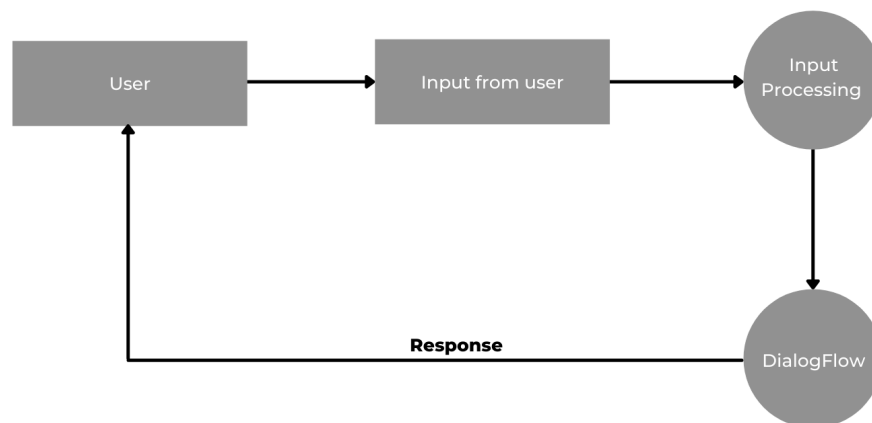
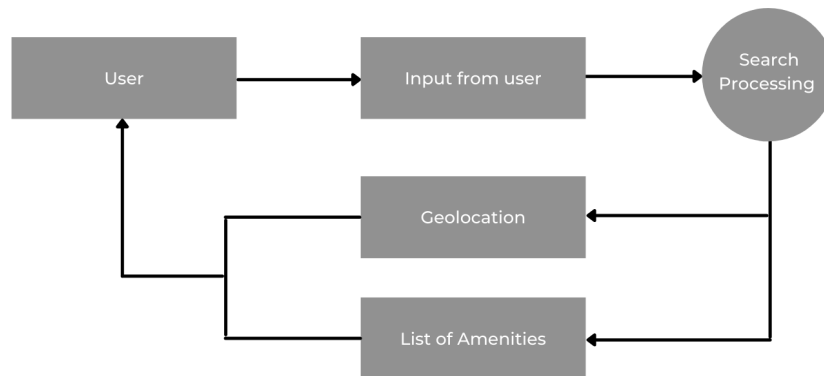
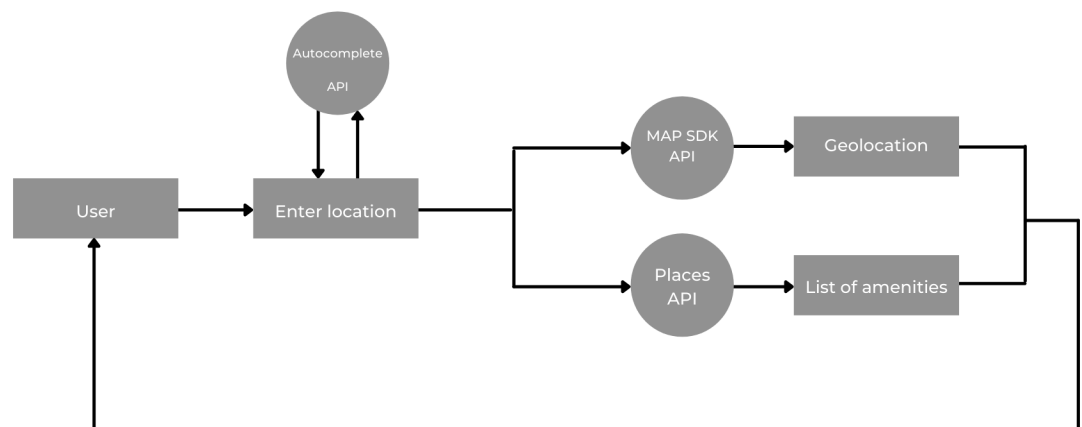
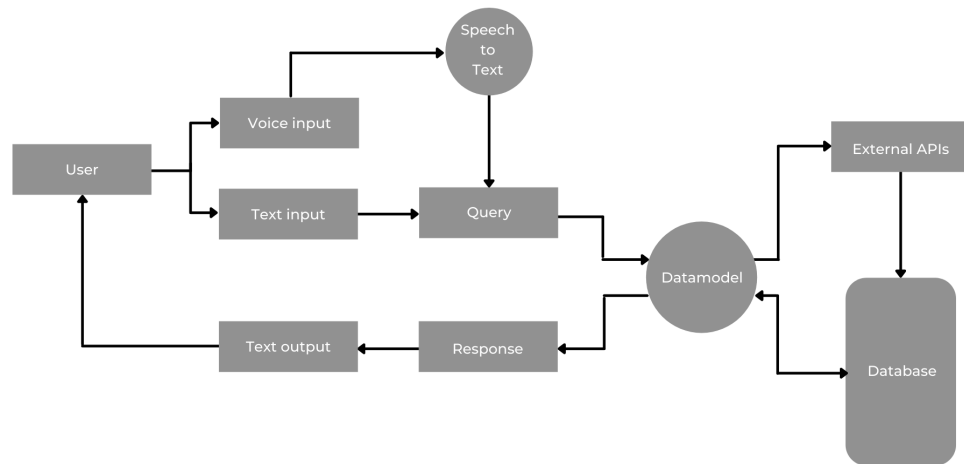


Figure 1.4 - Level 1 Chatbot management

SEARCH MANAGEMENT**Figure 1.5 - Level 1 Search Management****2. DFD LEVEL 2****SEARCH MANAGEMENT****Figure 1.6 - Level 2 Search Management**

CHATBOT MANAGEMENT**Figure 1.7 - Level 2 Chatbot Management**

3. DATABASE DESIGN

Database Design is a collection of processes that facilitate the designing, development, implementation and maintenance of enterprise data management systems. Properly designed databases are easy to maintain, improve data consistency and are cost effective in terms of disk storage space. The database designer decides how the data elements correlate and what data must be stored.

A database is a collection of interrelated data stored with minimum redundancy to serve many users quickly and effectively. The database serves as the repository of data, so a well-designed database can lead to a better program structure and reduce procedural complexity. In a database environment, common data are available and used by several users.

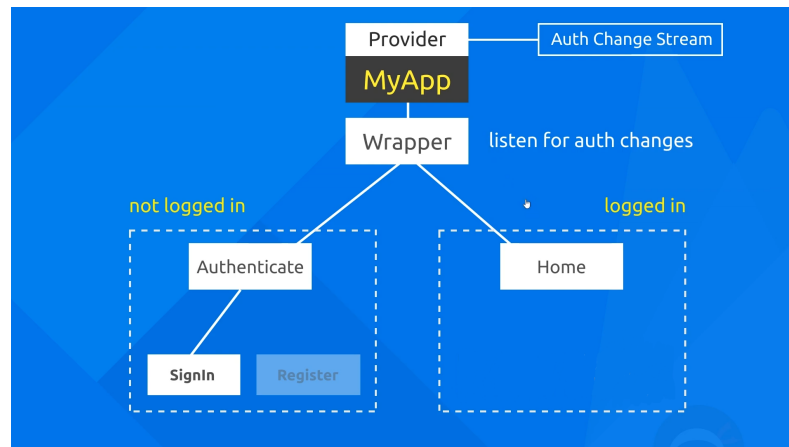
FIREBASE

Firebase is a Backend-as-a-Service (Baas). It provides developers with a variety of tools and services to help them develop quality apps, grow their user base, and earn profit. It is built on Google's infrastructure.

Firebase is categorized as a NoSQL database program, which stores data in JSON-like documents.

1. Authentication

It supports authentication using passwords, phone numbers, Google, Facebook, Twitter, and more. The Firebase Authentication (SDK) can be used to manually integrate one or more sign-in methods into an app.

**Figure 1.8 - Authentication flow chart**

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Create a Account

Full Name
John Mathew

Email
johnmathew@gmail.com

Phone Number
808688005

Password

Register

Already have an account? Log in

Figure 1.9 - Account creation

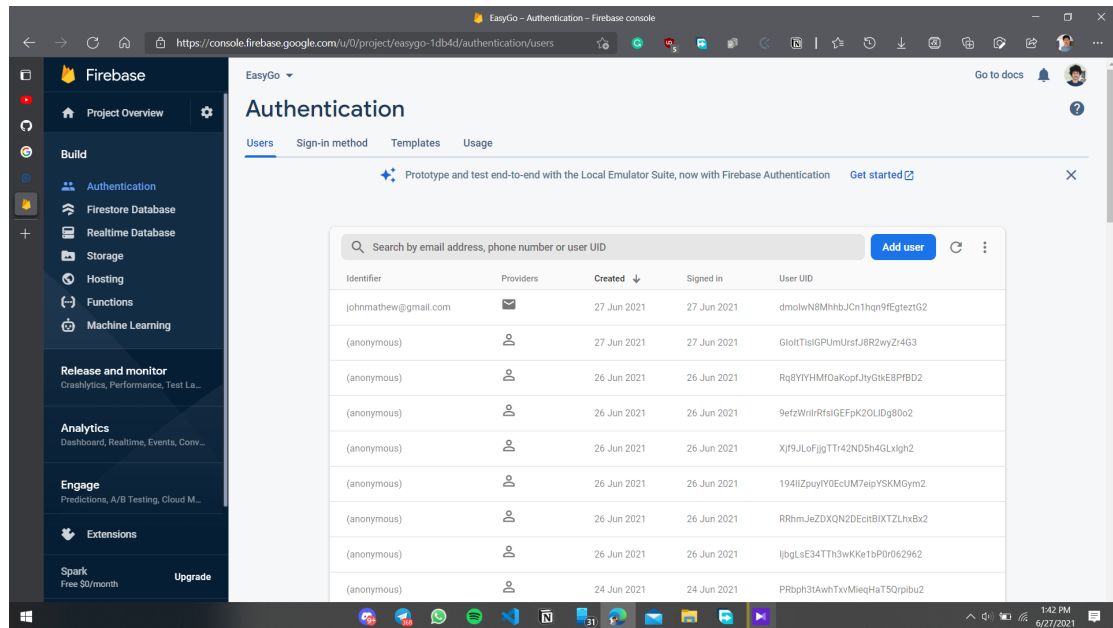


Figure 1.10 - Live change in Firebase

2. Realtime database

Data is synced across all clients in real time and remains available even when an app goes offline.

3. Hosting

Firebase Hosting provides fast hosting for a web app; content is cached into content delivery networks worldwide

4. ML DESIGN

Dialogflow is a Google-owned developer of human-computer interaction technologies based on natural language conversations. The company is best known for creating the Assistant (by Speaktoit), a virtual buddy for Android, iOS, and Windows Phone smartphones that performs tasks and answers users' questions in a natural language. Speaktoit has also created a natural language processing engine that incorporates conversation context like dialogue history, location and user preferences

Why choose dialogflow?

There are several reasons for choosing Dialogflow:

1. **Price** : If you just want to learn building a Chatbot or you don't have many users, a Standard Edition is totally free to use
2. **Multi-channel easy integration** :
Dialogflow provides one-click integrations to most popular messaging Apps like Facebook Messenger, Slack, Twitter, Kik, Line, Skype, Telegram, Twilio and Viber. Even to some voice assistants like Google Assistant, Amazon Alexa and Microsoft Cortana.
3. **Natural Language Processing(NLP)** : Compared to some platforms which work on predefined questions like Chatfuel, Dialogflow can offer better user experience with NLP. DialogFlow Agents are pretty good at NLP.

How it Works :

1. **Collecting Query** - Collect Query from User
2. **Voice Conversion Using AI** - Converts user voice to texts using AI
3. **Checking For intents** - Connect the text into already developed intents
4. **Accessing Database** - Search for correct answer for query in database or external server
5. **Collecting Data** - Collects appropriate data from server
6. **Replying to user** - Give Reply To user

Behind the scene :

1. **Creating Welcome intent** - Welcome intent to Welcome the user and give greetings
2. **Creating Message Reply intent** - Intent to Reply to User Queries
3. **Adding Knowledge Base** - Loading the bot with a lot of information.
Connecting to external servers
4. **Training the Bot** - Teaching the bot with a bunch of Queries the user will ask
5. **Adding Response** - Setting up the way of reply
6. **Creating GoodBye intent** - Intent to end the chat

ALGORITHMS

EASYGO APP

Step 1: Start

Step 2: Load the user login screen

Step 3: If the user already have account then

Load the login screen prompting user to enter email and password

If email and password are verified then

Load the home screen

Else

Show an error message “could not sign in with those credentials”

Else If user wants to create account

Load the sign up screen prompting user to enter the details such as name, email, phone number and password

If all credentials are satisfied

Load the home screen

Else

Show error message

Else

User can login as anonymous getting a temporary UserId

Load the home screen

Step 4: While user is logged in

Input option chosen as ch

Switch(ch)

Case 1:

Search Option (selects the search option from home screen)

Directed to place search screen where map is displayed

By default user's current location is displayed,

When user prompts to search a location, autocomplete suggestions are given as a list below the text field,

When user selects a location , it is shown in the map

While the selected location is displayed in map

Input option is chosen as am

Switch(am)

Case 1.1: Hotels Option(selects the hotel option from the amenities menu

Hotels nearby the searched location is displayed as different markers on the map

If any marker is selected

Shows the name of the hotel

If the name of the hotel is selected again

Shows the details of selected hotel - address and rating

Case 1.2: Hospitals Option(selects the hospital option from the amenities menu

Hospitals nearby the searched location is displayed as different markers on the map

If any marker is selected

Shows the name of the hospital

If the name of the hospital is selected again

Shows the details of
selected hospital - address
and rating

Case 1.3: Places Option(selects the places
option from the amenities menu

places nearby the searched location is
displayed as different markers on the
map

If any marker is selected

Shows the name of the place

If the name of the place is
selected again

Shows the details of
selected place - address
and rating

Case 1.4: Gas Option(selects the gas option
from the amenities menu

Gas stations nearby the searched location
is displayed as different markers on the
map

If any marker is selected

Shows the name of the gas
station

If the name of the gas station is
selected again

Shows the details of
selected gas station -
address and rating

Case 1.5: ATM Option(selects the ATM option from the amenities menu

ATMs nearby the searched location is displayed as different markers on the map

If any marker is selected

Shows the name of the ATM

If the name of the gas station is selected again

Shows the details of selected ATM- address and rating

Case 2: ChatBot Option(selects the chatbot option from home screen)

Directed to the chatbot screen

If user sends a message by keyboard

Chatbot responds to the question

Else If user sends message by voice

Voice is converted to text using AI,

Converted text is send to bot,

chat bot responds to the question

Else

Chatbot remains idle

Case 3: Account option(selects the account option from home screen)

Directed to the accounts page

If user selects signout

Sign Out the user session,

Direct to login screen

Step 5: End

CHATBOT

Step 1: Start

Step 2 : A user sends a text/voice message to App

Step 3 : If user sends voice it converted to text

Step 4 : The App transfers the message to Dialogflow

Step 5 : The Message is categorized and matched to a corresponding intent (intents are defined manually by developers of Dialogflow)

Step 6 : We define the following actions for each intent in the fulfillment (Webhook).

Step 7 : When a certain intent is found by Dialogflow, the webhook will use external APIs to find a response in external database

Step 8 : The external Database send back the required information to the webhook

Step 9 : Webhook sends formatted response to the intent

Step 10 : intent generates actionable data according to different channels

Step 11 : The actionable data go to output App

Step 12 : The user gets a text response.

Step 13 : End

ADVANTAGES OF THE SYSTEM

The major advantage of the “Easy Go : The Travel Assistant App” are:

- **Collection of details :**

The application uses google map to collect details about specific locations.

- **User Friendly :**

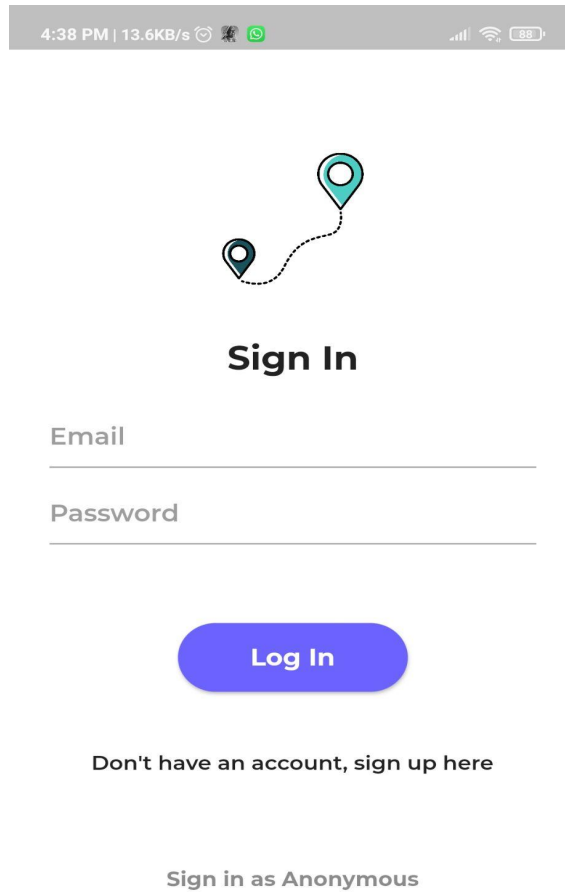
The application User Interface is very light and user friendly. And an uneducated person can also use the app because of the pictorial representation.

- **Support :**

Easy Go provides a well trained bot which can clear customers doubts and give advice to them.

- **Uplifting local tourism :** EasyGO delivers clear cut information about even lesser known tourist locations

RESULT



The image shows a mobile application interface for signing in. At the top, there is a status bar with the time 4:38 PM, data usage 13.6KB/s, and various icons. Below the status bar is a large, faint background illustration of a map with two location pins connected by a dotted line. The main heading is "Sign In" in a bold, black font. Below this are two input fields: "Email" and "Password", each with a horizontal line for text entry. A blue, rounded rectangular button labeled "Log In" is positioned below the input fields. Underneath the button is the text "Don't have an account, sign up here". At the bottom of the form is a link that says "Sign in as Anonymous".

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Sign In

Email

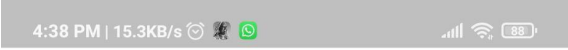
Password

Log In


Don't have an account, sign up here

Sign in as Anonymous

Figure 2.1 - Sign in Screen



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Create a Account

Full Name

Email

Phone Number

Password

Register

Already have an account? [Log in](#)

Figure 2.2 - Sign up Screen

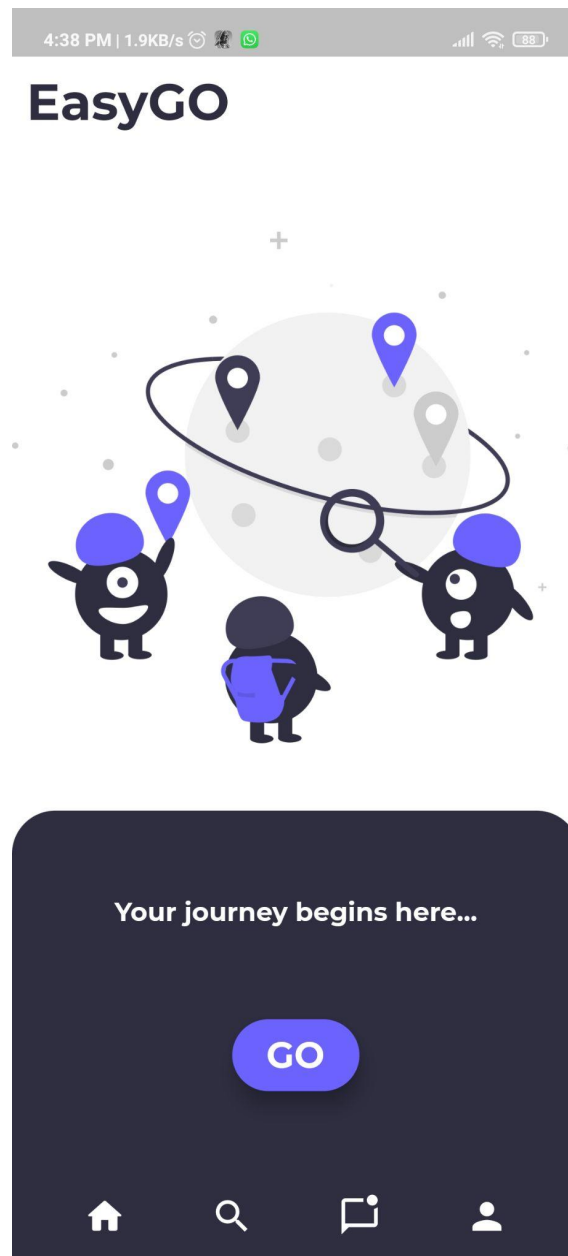


Figure 2.3 - Home Screen

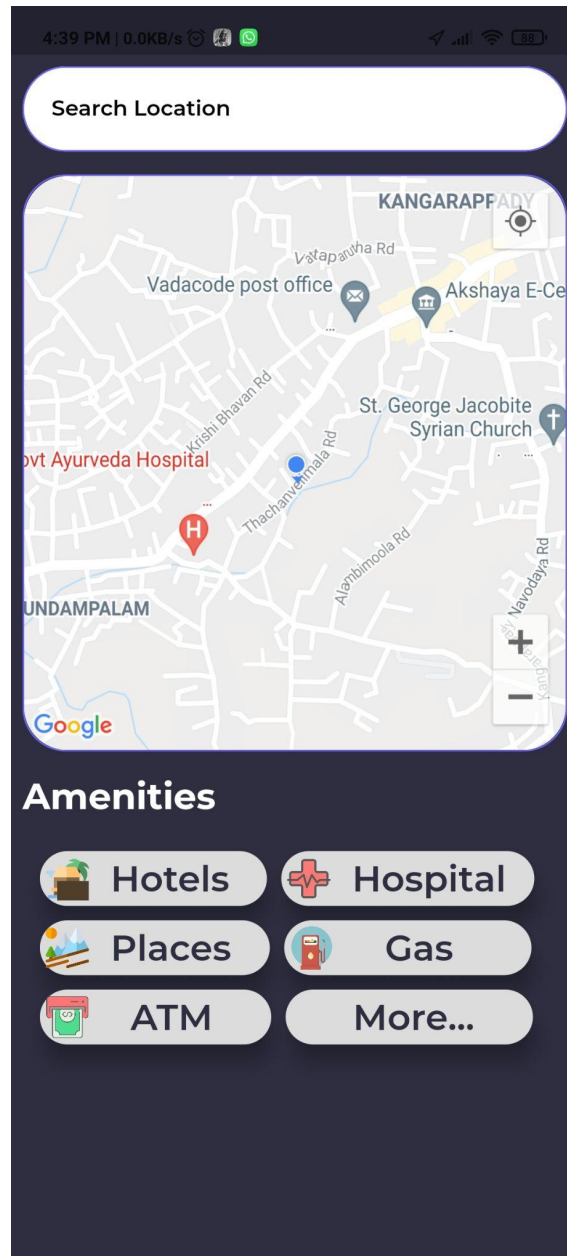


Figure 2.4 - Map Screen

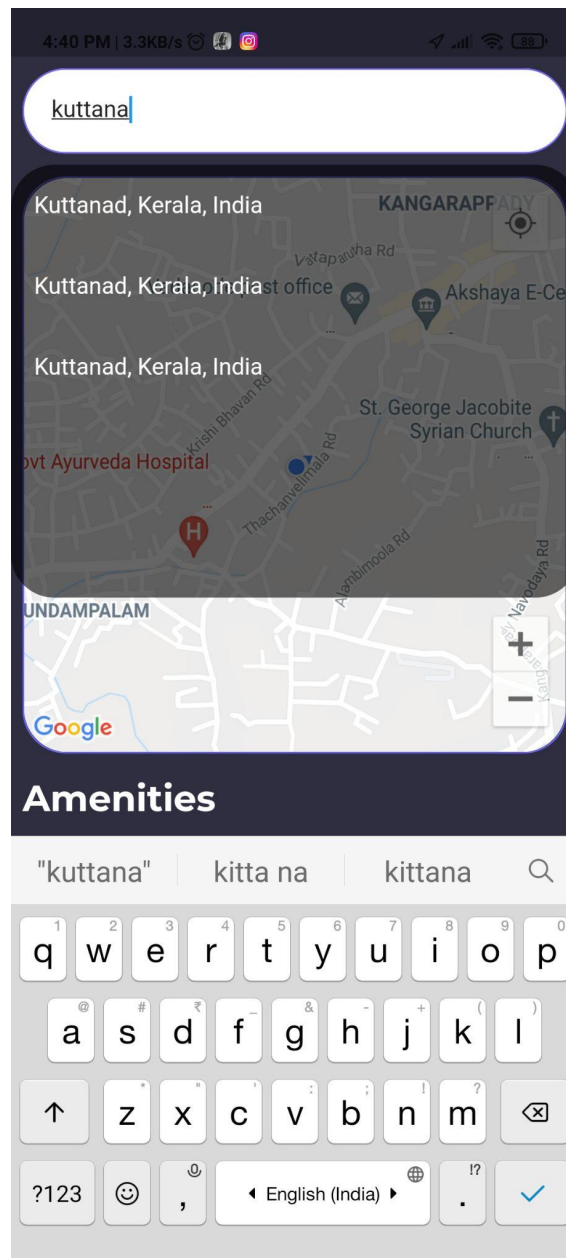


Figure 2.5 - Search Autocomplete

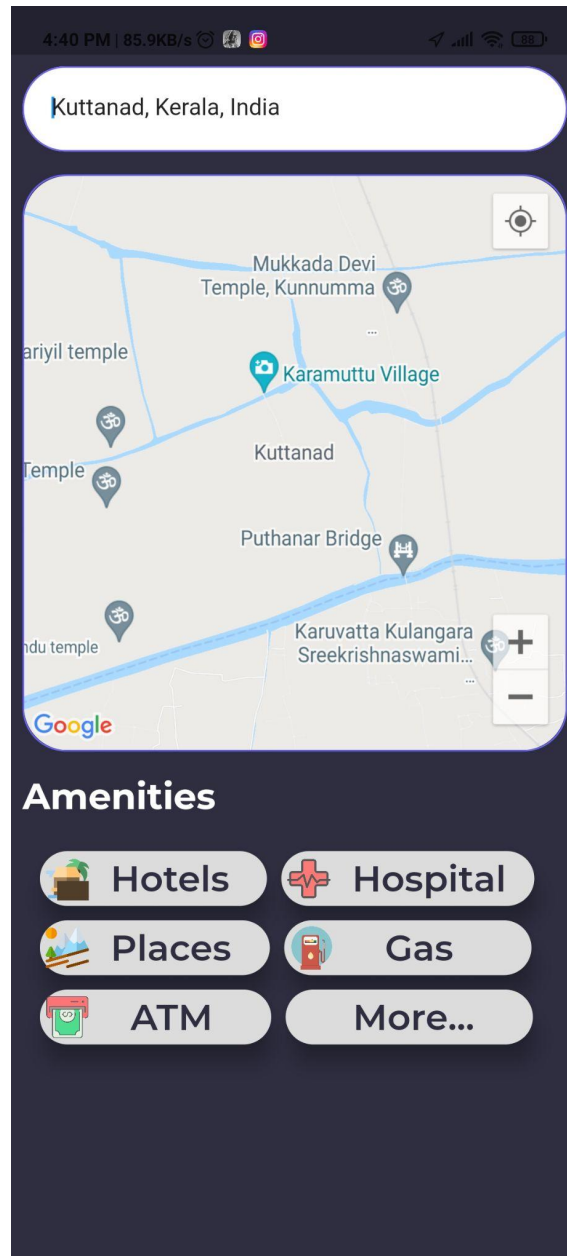


Figure 2.6 - Search Location Viewer

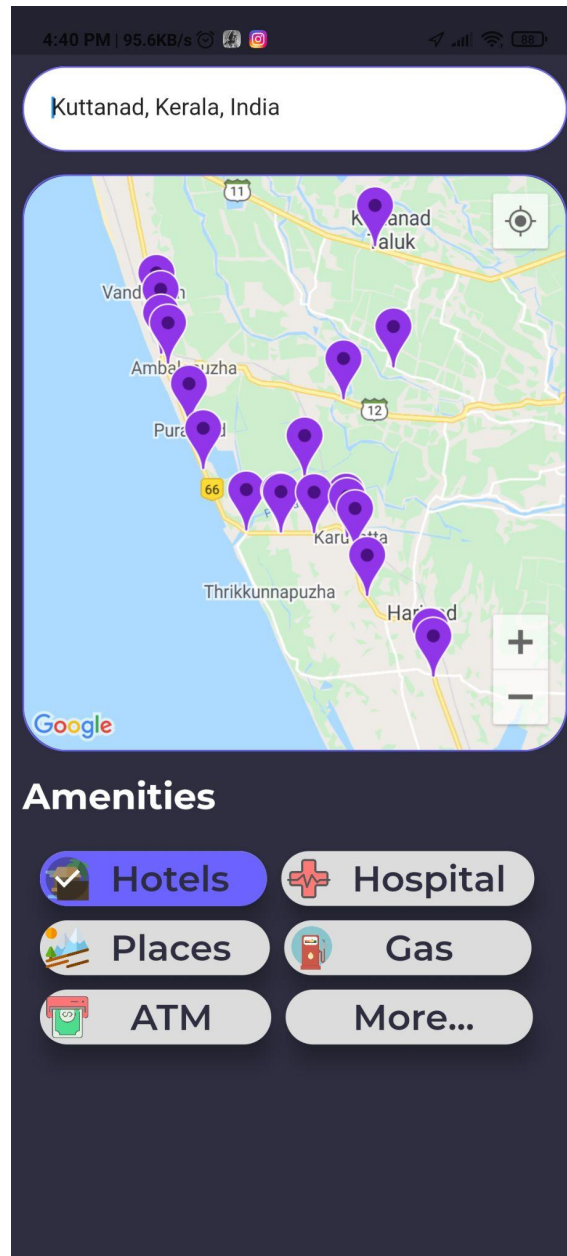


Figure 2.7 - Hotels

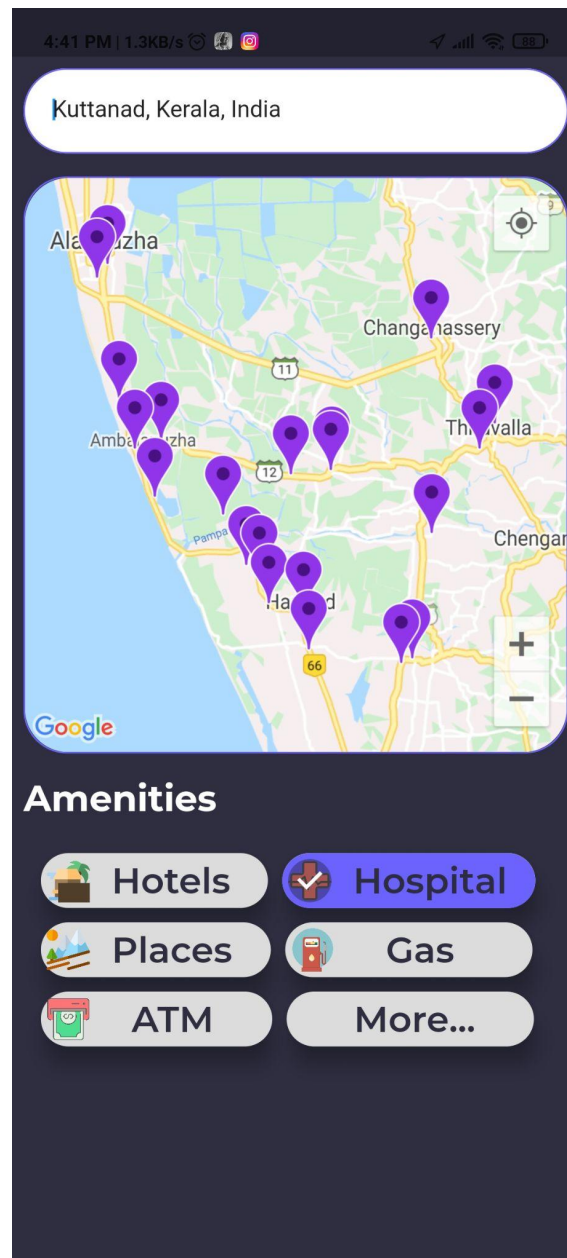


Figure 2.8 - Hospitals

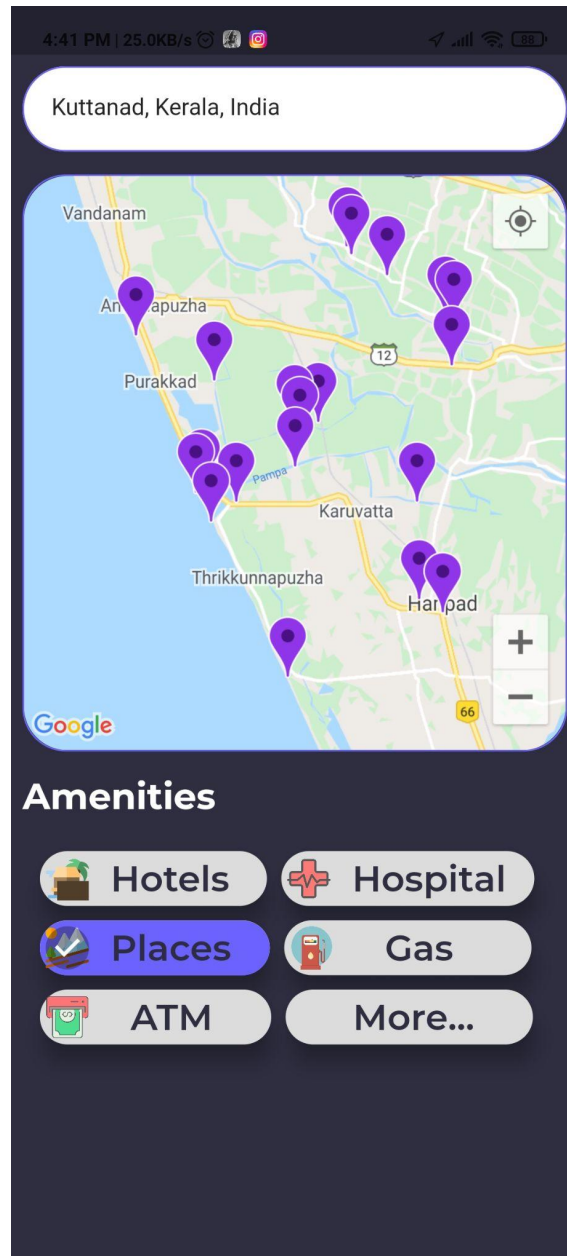


Figure 2.9 - Places

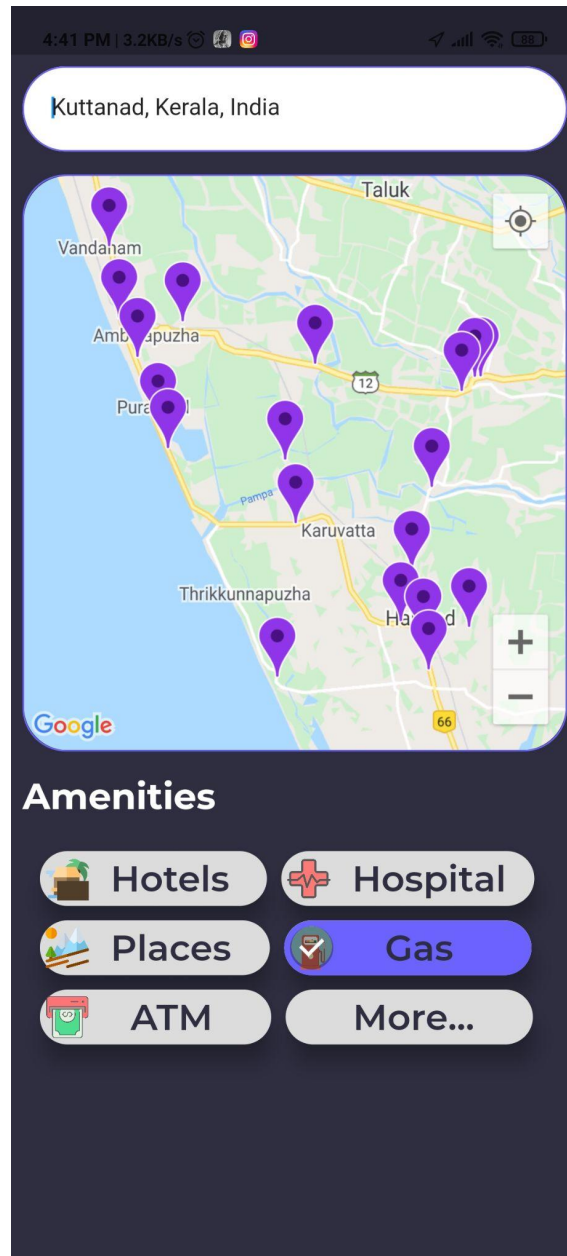


Figure 2.10 - Gas Stations

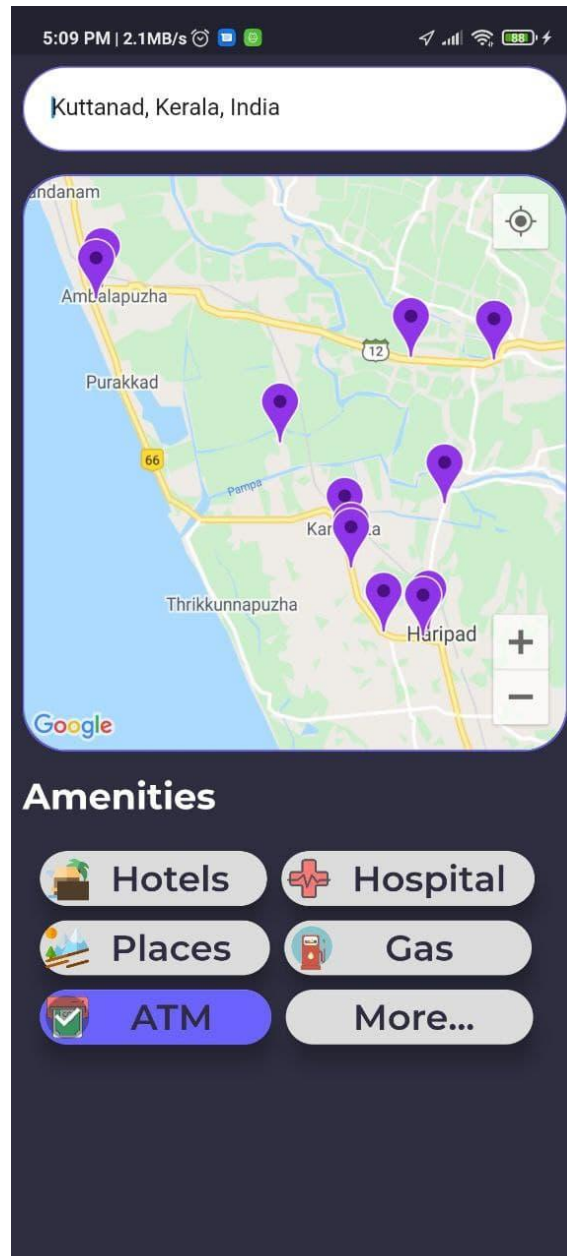


Figure 2.11 - ATMs

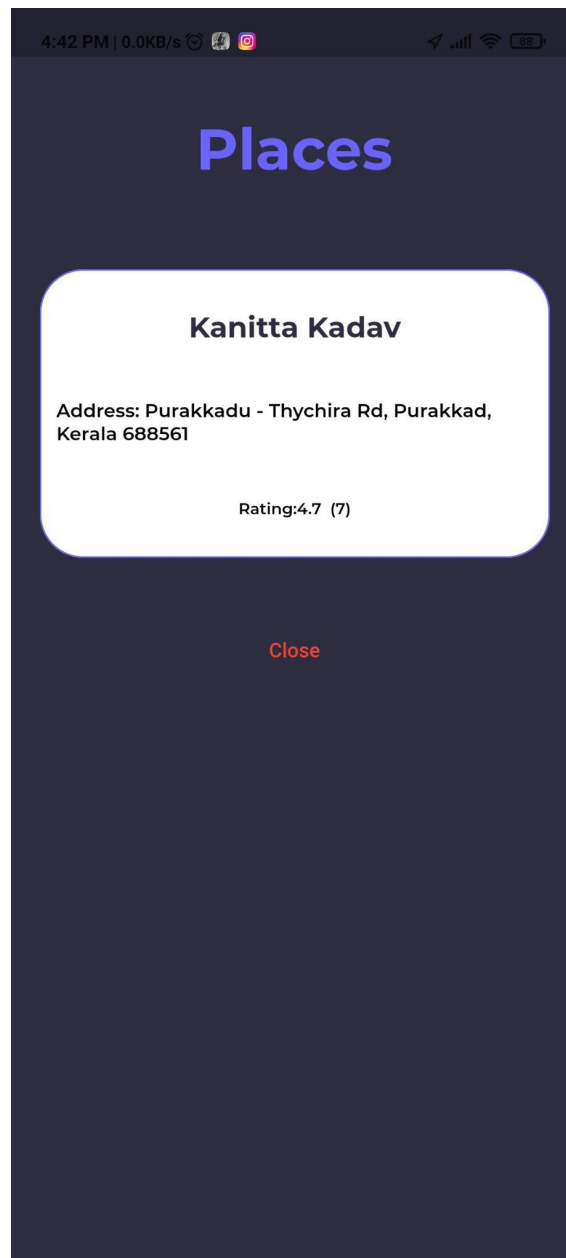


Figure 2.12 - Amenity Details

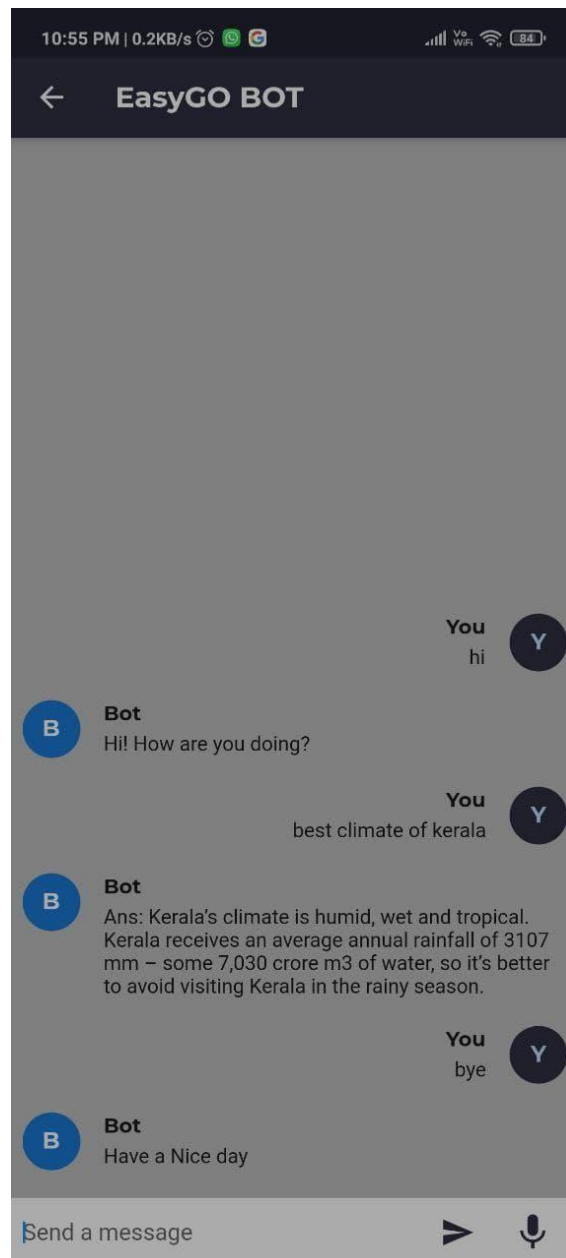


Figure 2.13 - ChatBot

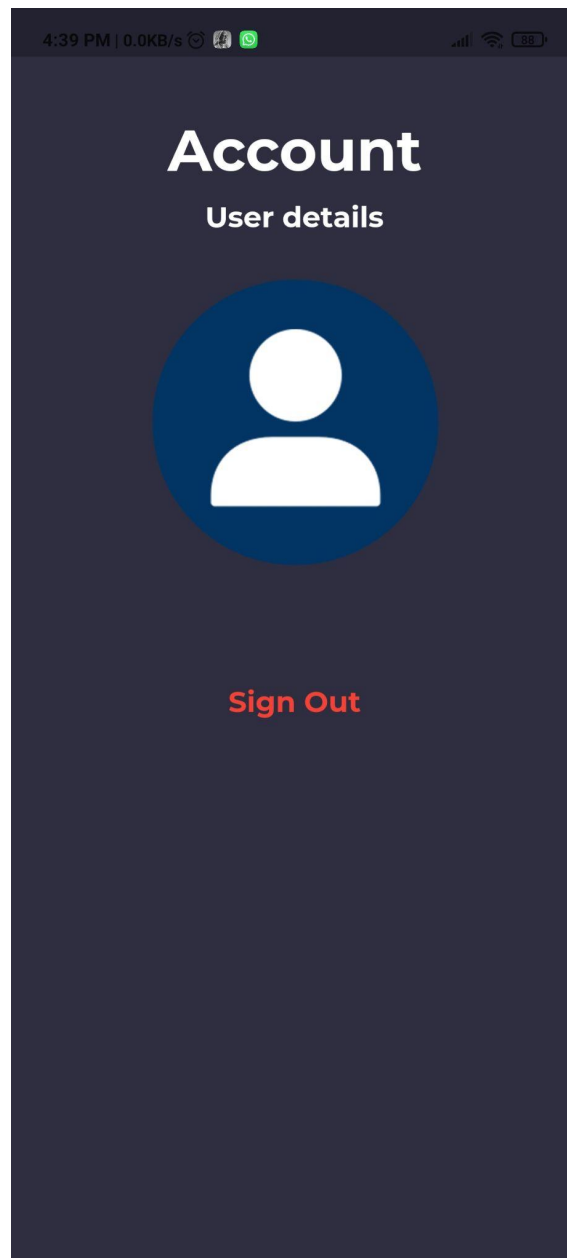


Figure 2.14 - Account Screen

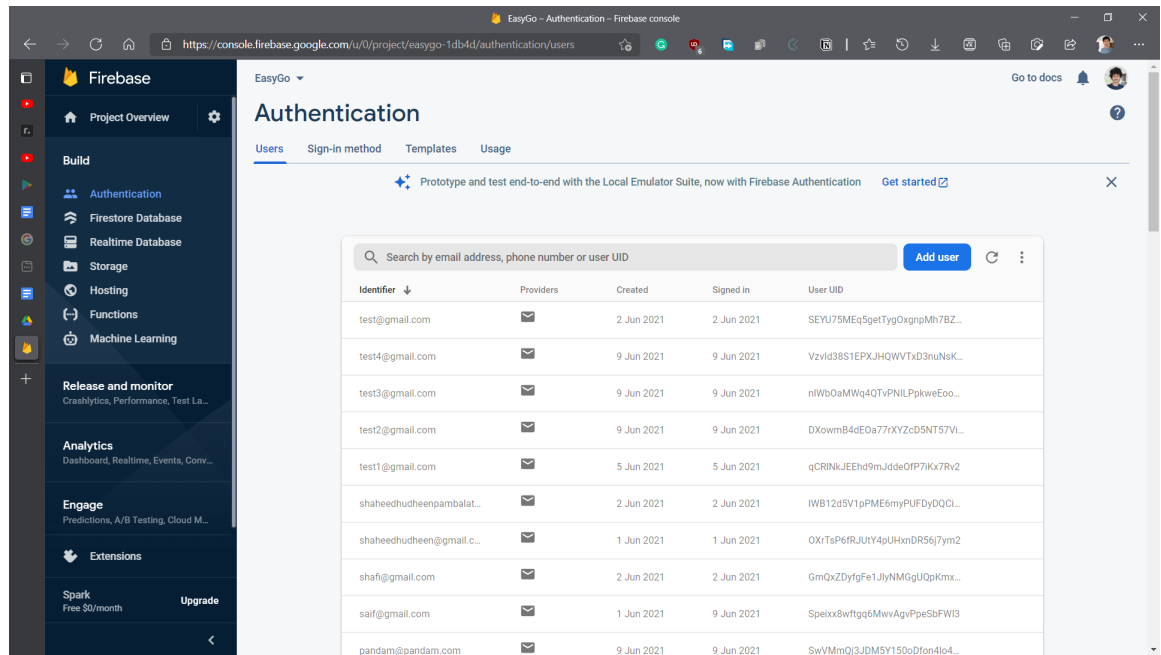


Figure 2.15 - Firebase

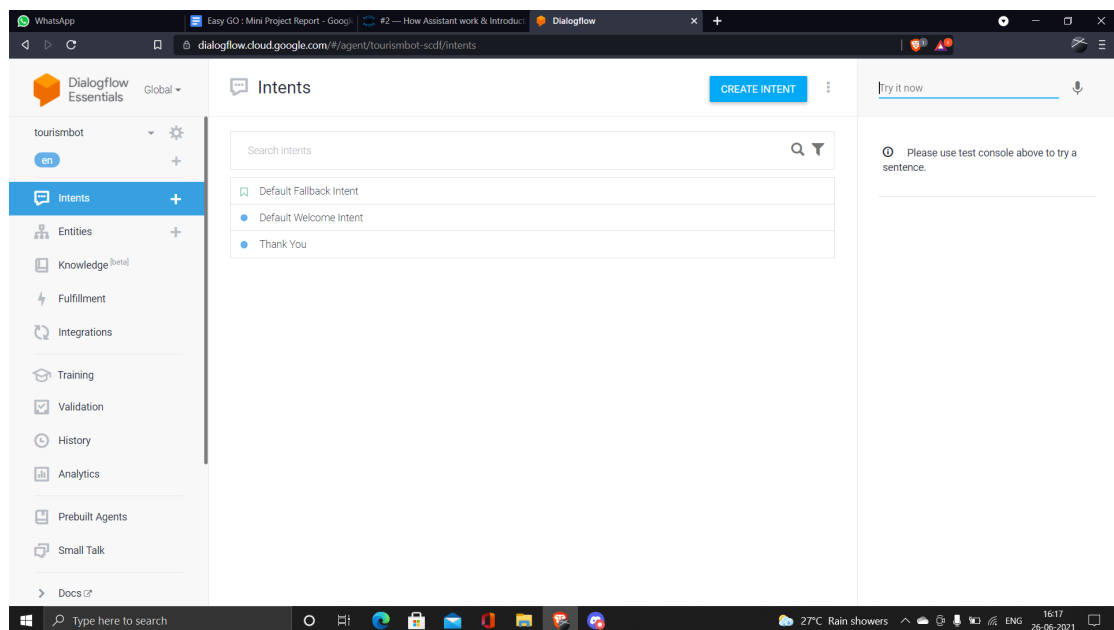


Figure 2.16 - Dialogflow

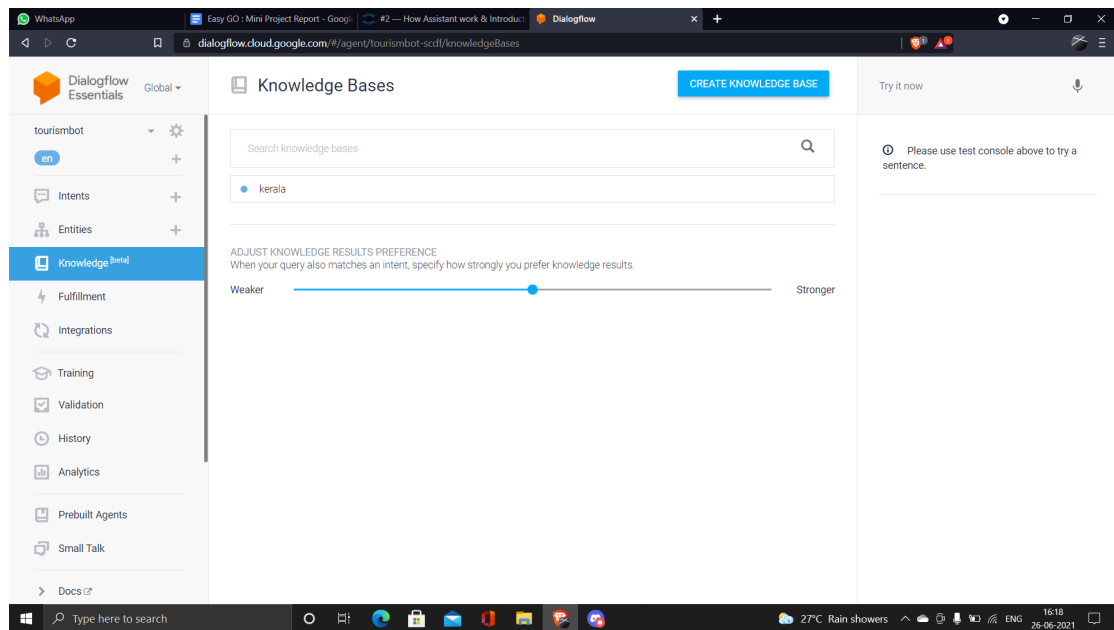


Figure 2.17 - Intent Creation

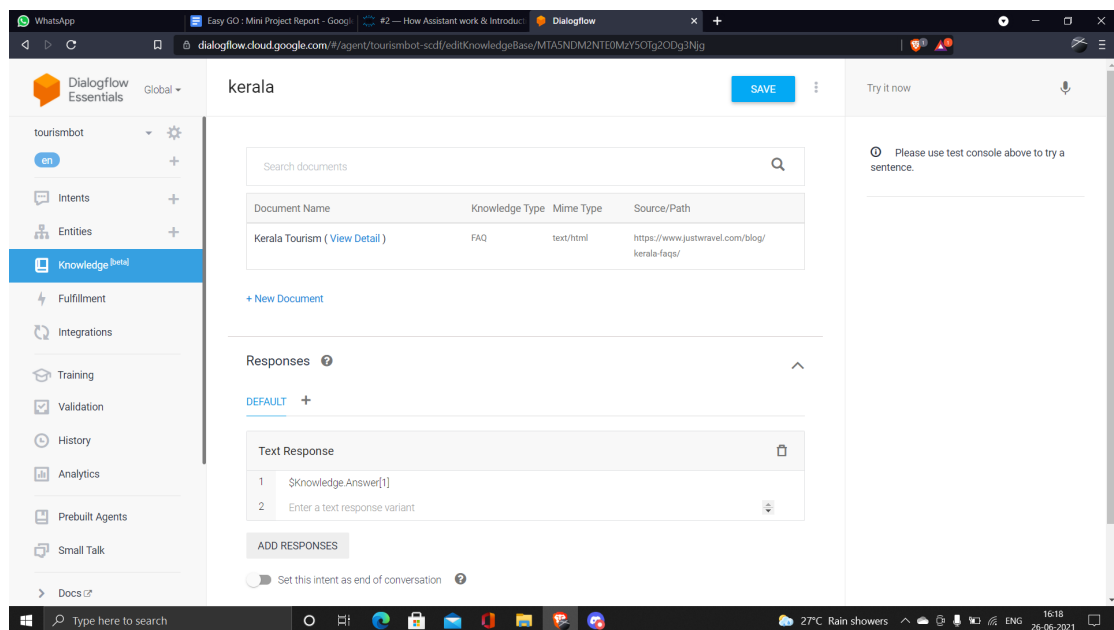


Figure 2.18 - Knowledge Base Creation

APPLICATIONS

- Educate the users about the Destinations they are planning to visit
- Helps to find Hospitals in a Particular Region Including Rural Areas
- Assists the User in Finding Stays Around a Location
- Supports You to Find Gas Stations on a Road Trip
- Helps to Search Atms and Restrooms

FURTHER WORK

The technologies are developing exponentially each day which makes life easier for humans. The EasyGo travel assistant can be further modified to provide more assistance to the tourists. The major modification that could be introduced is to include the hotel booking system in the application. By introducing this system tourists can book their stays in the location they are looking for with ease.

Another major feature that could be added is the suggestion system which shows the local tourist spots near the user's location and details about them, which helps the tourist to know about good spots to hangout nearby their location.

CONCLUSION

The main role of this application is to provide all kinds of information and basic needs to the user. The application is successful in

The interfaces implied in the application are user friendly and easy to understand. The application has been designed in a manner to help the user with the specified needs in a travel. The application is effective and efficient.

The system gives good results in the testing phase and the functioning of the application is quite simple and in regular order.

Any person can use this application for their assistance in their travel and can use the application efficiently

The application also has an extensibility feature that enables its updating to provide an upgrade in the abilities of the application.

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