An-Najah National University

Faculty of Engineering

Computer Engineering Department

Easy To Be a Tourist

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Acknowledgment

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Moreover, we are extremely thankful to our families, mothers who spend all their lives raising us and to be happy and healthy, fathers who gave us everything we need to be fully educated and successful in life, so thank you from the bottom of our hearts.

Abstract

Traveling around the world has become one of the most pleasures. With the huge technological improvement in the last century, people start to hear about beautiful nature views, historical places, fantastic cities and more. But outside, there are an uncountable number of places, you would be happier to visit some places more than others. So, you would better know which place it's the one for you in advance.

To be a tourist and to have an opportunity to travel and discover the world, is such an amazing thing. However, there are many things you need to consider before starting your journey. Usually, tourists travel to new countries where people have different traditions and may speak different languages, this makes the communication between tourists and local people a little bit hard. Also, tourists may get misleading information and start visiting places not their interests, here is where we come in.

Our project aims to help tourists choose the right places by providing a description for each place. You hate reading? Don't worry, our text-to-speech system will read the description for you. This will help you not to lose any view by reading while riding to your places. Also, a translation system will be added to solve the language barrier issue between tourists and local people.

In addition to text-to-speech and translator systems, people can login to their accounts, react and comment about a specific place, post their journey experience in their timeline and other people can comment on posts. Moreover, users can share their journey with a live video chat so anybody can join their channel and join them virtually with their journey.

Chapter 1: Introduction

1.1 Problem

This app gives a solution for people who love traveling and share their experience with others, tourists usually have to communicate with local people who may speak different languages. Moreover, tourists like to have someone to describe for them the places they visit. However, you don’t have this guy all the time, so use text-to-speech to describe anything for you.

1.2 Objectives

The project aims to find a way for people to share their traveling experience and see others' experiences, comment and like other people's posts and create their own posts. Live streaming provided so people can share their experience in real time.

Users can do the following:

- Register a user and fill him/her with information, email, phone number and password.
- Users can login by their email and password.
- Users can change their names and passwords.
- Users can create a hotel, city or timeline (post), providing the needed information for each.
- Users can see all created cities, hotels, and timelines.
- Users can view city (hotels and timelines too) details, what is the rate of this city and they can see other people's reviews for this city.
- Users can rate hotel, city and timeline.
- Users can add a review for a specific hotel, city or timeline.
- Users can use a text-to-speech robot to hear city details (about this city section), this applies for hotels and timelines as well.
- Users can use a built-in translator to translate from all languages to all languages and they can hear the translated text.
- Users can use a text-to-speech robot with any text they need, no matter how long this text, text-to-speech robot will provide the text to voice service.
- Users can start live broadcasting their cameras and mics. Moreover, live chatting is provided for the audience to communicate with the broadcasting host.
- Users can enter a specific broadcast depending on the city they like to see its owner broadcast. In other words, when a user starts broadcasting, the audience can enter his broadcasting by going to one of his own locations (hotel, city, or timeline) and press the live icon shown on the screen.

1.3 Importance

App importance appears in many ways, when you can decide where to go, you can see other people's posts, and reviews for cities and hotels, and also you can see the most rated locations. In addition, when you can’t communicate properly with local people, you can use a built-in translator to translate and hear what they are saying. Moreover, when you want your family, friends and followers to see you and send you live.

1.4 Report Organization:

The next chapter will discuss the **constraints** and the extreme difficulties faced in making the system. Also, it will highlight the **courses** needed to help implement and create this system. Chapter 3 (**Literature Review**) will talk about some precedent projects in this field, and how it differs from this application.

Chapter 4 (**Methodology**) will talk about how the work was done, and what were the tools, hardware techniques and technologies used in building the project. The next chapter (**Results and Discussion**) will discuss this project's results and outcome. The last chapter (**Conclusion and Recommendation**) will discuss the recommendations and some future work.

Chapter 2: Constraints and earlier work

2.1 Constraints:

We faced several constraints while implementing our project, we considered them as motivating challenges:

1. The difficulty of team members meeting to coordinate some tasks.
2. The difficulty of getting the best experience of the supervisors and meeting them.
3. Shortage of time

    a- As we deal with new technologies that we didn't learn in university like flutter, dart language android studio IDE, we face many understanding issues since we don't know what is the best source to learn best practices on these new technologies.

    b- Long time self-learning many new things related to the field like how to make frontend speak with the backend and vice versa, how to build widgets in flutter, how to implement live streaming, how to create text-to-speech robots and more.

2.2 Earlier Work:

We implement the backend and the frontend of the project using technologies that we learned from the university like database, software engineering, etc. However, we used most new technologies which we never learned in university.

- Frontend
    - We used a flutter framework with dart language to implement the GUI and frontend behavior.
    - Android Studio IDE as an environment to build the app.
    - We used many dependencies that help us with live streaming, notification and text-to-speech.

- Backend
    - We used PHP language with cloud web hosting.
    - How to send push notifications by firebase push notification service.
- Database
    - We used the MySQL database to save user's information, reservation details, etc.

We had to take online courses and read many documents to learn all mentioned technologies and how to do best practices with them. Each technology will be described more in chapter 4.

Chapter 3: Literature Review

There are many existing apps that try to provide a good experience for tourists all over the word but none of them gather all tourists needs, add hotels, cities they went to, share their experience in their timelines, video life stream their journeys, see all others people locations and posts and comment and like them and more.

One of traveling apps is visit palestine app which specializes for tourists who like to visit palestine. However, this app can't be used all over the world like our app.

Chapter 4: Methodology

In this chapter we will describe our system, using technologies, user experience, each screen job, and all used services.

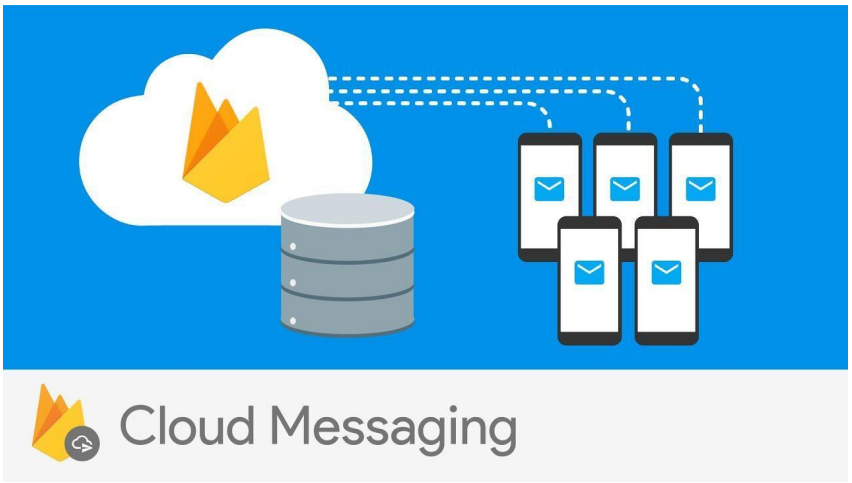
4.1 Frontend Side

4.1.1 flutter

Flutter is a free and open-source mobile UI framework created by google, this framework allows you to create mobile application that can run on android and IOS with only one codebase. to develop the app using flutter, new language called dart was learned, it's a very high-level language and easy to program with. Flutter is very easy and has a high performance other real native app, and it has very good documentation and a big community.

4.1.2 Android Studio IDE

4.1.3 Firebase Push Notification Service



4.1.4 Zego Live Streaming

ZEGOCLOUD is a global leading cloud communication service provider that enables the enterprises and developers to easily and quickly obtain real-time audio and video communication capabilities by integrating a single SDK. ZEGOCLOUD provides solutions for various scenarios, such as live streaming, live audio room, online education, metaverse, avatar, telehealth, etc. We used this service to create our live streaming as a reliable, high quality and cross-platform compatible live streaming.

4.2 Backend Side

4.2.1 XAMPP

XAMPP is an open-source software developed by Apache Friends. XAMPP software package contains Apache distributions for Apache server, and PHP. And it is basically a local host or a local server. This local server works on your own desktop or laptop computer. This XAMPP server software gives you a suitable environment for testing MYSQL, PHP and Apache projects on the local computer. We used XAMPP in the first stages of the project and on testing.

4.2.2 000WEBHOST

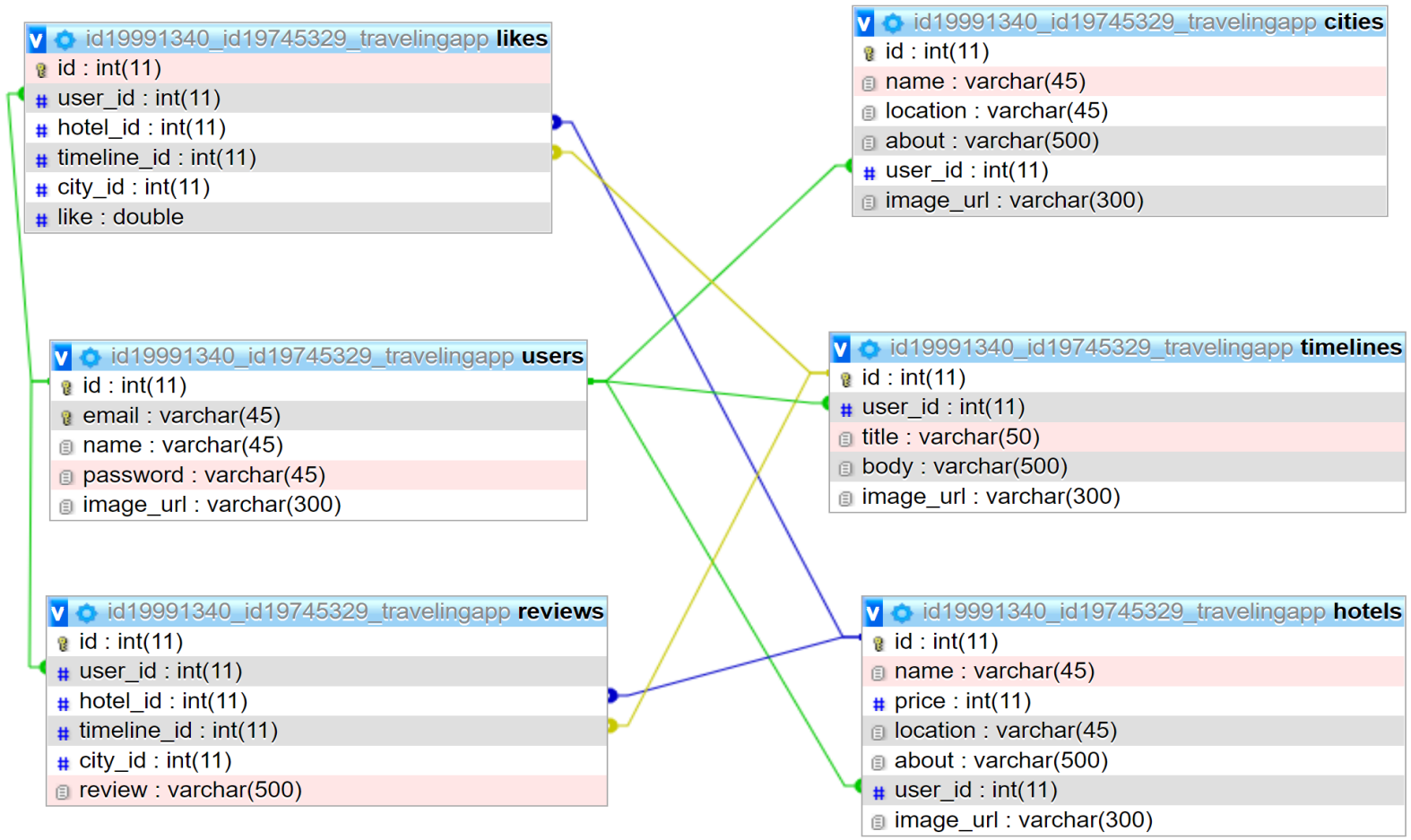
000webhost is a free website hosting solution that provides an array of valuable features, including a website builder, WordPress support, and no ads. Users can upgrade to a paid plan to get even more features. 000webhost is the best free web hosting solution for those who are truly on a tight budget. We used 000webhost on the production phase so our backend can be reached from any location in the world.

4.3 Database Side

4.3.1 MySQL

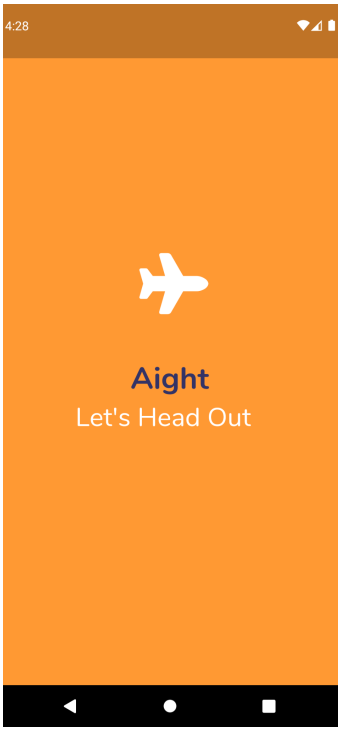
MySQL, the most popular Open Source SQL database management system, is developed, distributed, and supported by Oracle Corporation.

We used MySQL to build our database because we have a good knowledge about how it works and how to operate it on our servers. Our system database structure is described in the image below.



4.4 Methods and technologies

In this chapter, each screen on the app will be described, how to use it, and how it's behaved with the backend.



This screen is just for welcoming information, it appears for 3 seconds the first time you open the app.

Figure 1: Welcome Page.

Then we have these three pages to show quick review of what our app is doing and what its providing, users can go through these three pages or just skip it (see figures 2, 3, and 4)

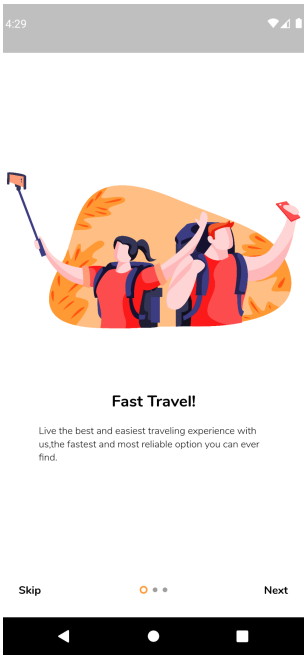


Figure 2: Feature Page 1.

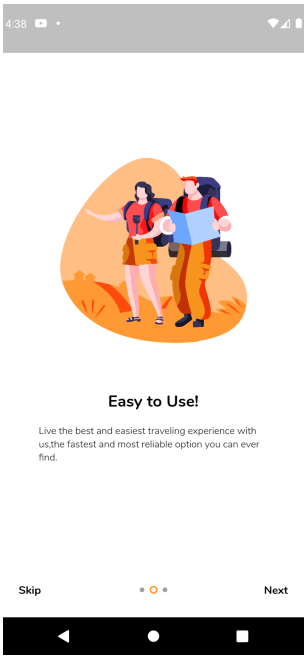


Figure 3: Feature Page 2.

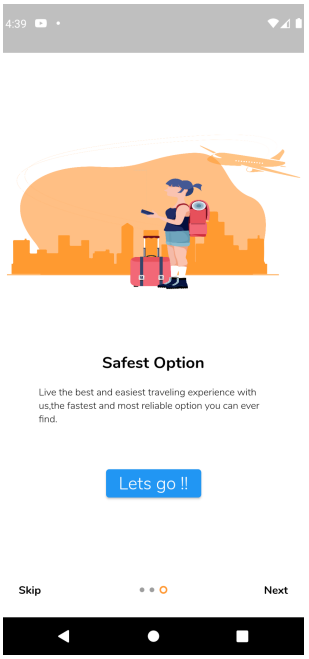


Figure 4: Feature Page 3.

This screen shows the login page, users can log in with their email and password.

The password will be hidden unless the user presses the eye icon on the right of the “Password” and “Confirmation” text fields.

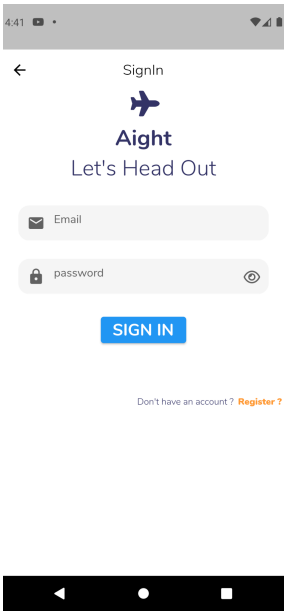
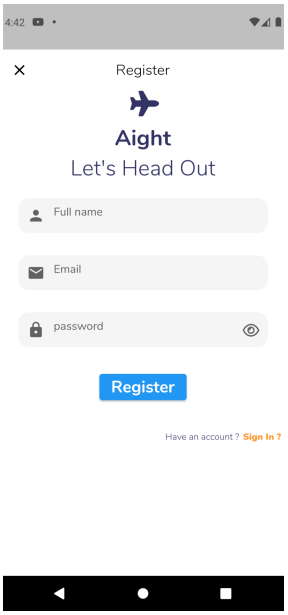


Figure 5: Login Page.



This screen shows the signup page, users have to create an account to start with the app.

Users have to enter their name, email address, and password. If the account is created successfully, the user will be directed to the main screen.

The password will be hidden unless the user presses the eye icon on the right of the “Password” and “Confirmation” text fields.

Figure 6: SignuP Page.

When the user logged in successfully, it will redirect to this screen.

Users can see all created hotels, cities and timelines. For each hotel or city, image, name, location and rating will be shown. For each timeline image, title, and rating will be shown.

To go through more details about the hotel, city, or timeline, click on it and you will redirect to a detailed view.

As you scroll horizontally, you will see more results.

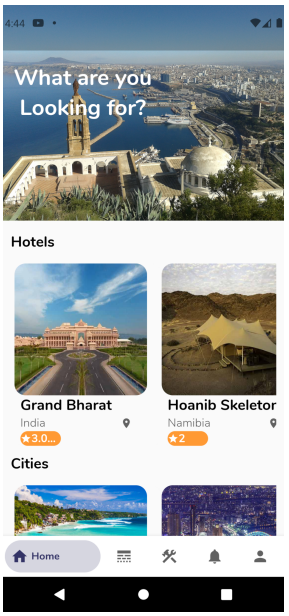


Figure 7: Home Screen 1.

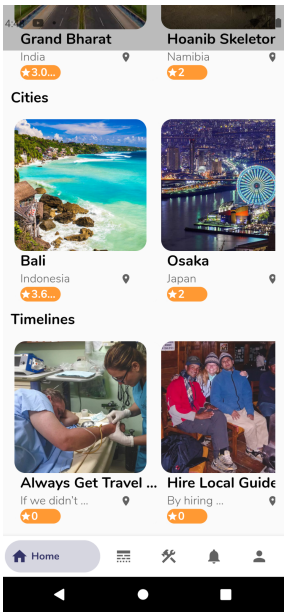


Figure 8: Home Screen 2.

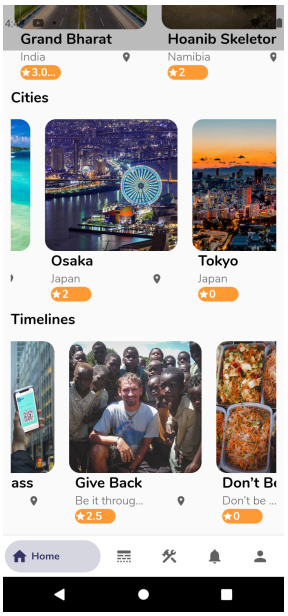


Figure 9: Home Screen 3.

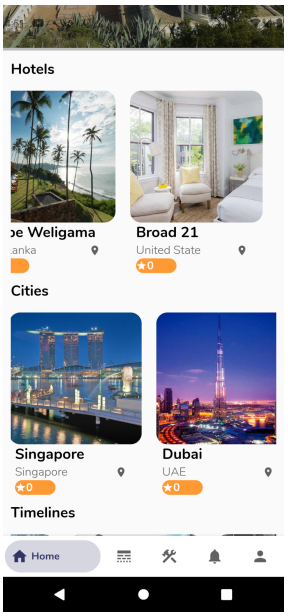


Figure 10: Home Screen 4.

When a user clicks on a hotel, a screen with a lot of information will be shown, hotel image, name, rating, locations, about and equipment.

The detailed screen has two views, overview and review views. From the overview view, the user can delete his own hotel, rating an hotel, and use a text-to-speech robot to hear out about this hotel's section.

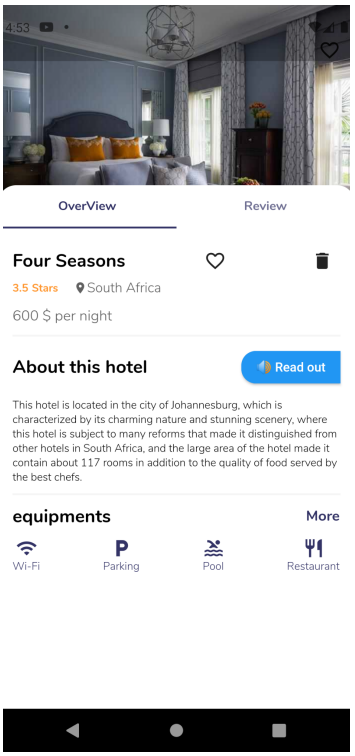


Figure 11: Overview Screen.

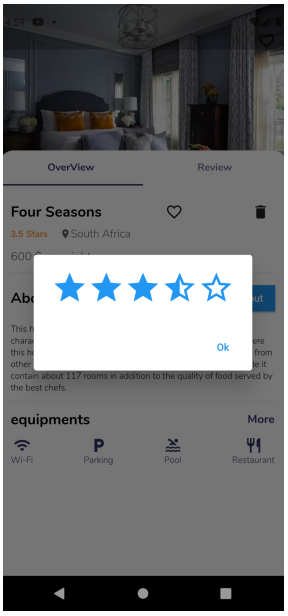


Figure 12: Rating Widget.

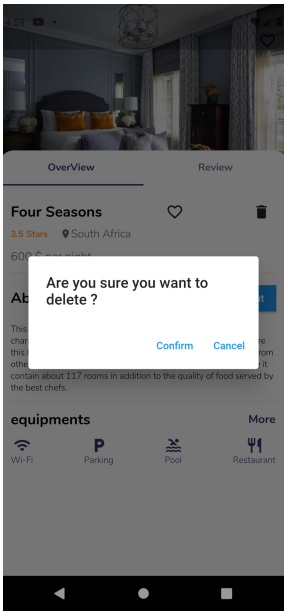


Figure 13: Delete Widget.

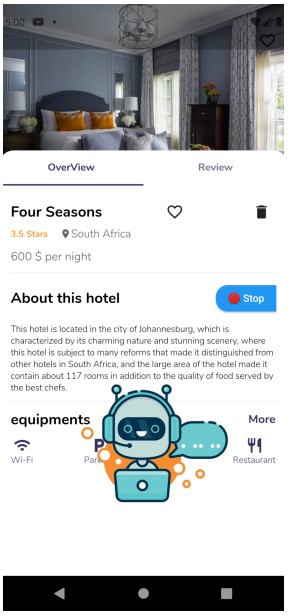
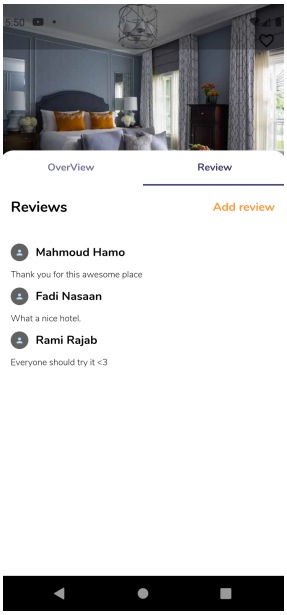


Figure 14: text-to-speech robot.



From the review screen, users can see all reviews for a specific hotel, city, and timeline. Of course, the user can add his/her own review as well.

Figure 15: Review Screen.

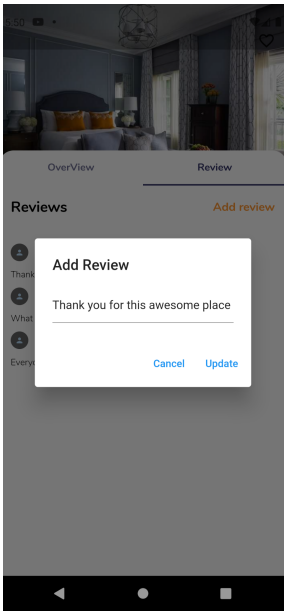


Figure 16: Add Review Widget.

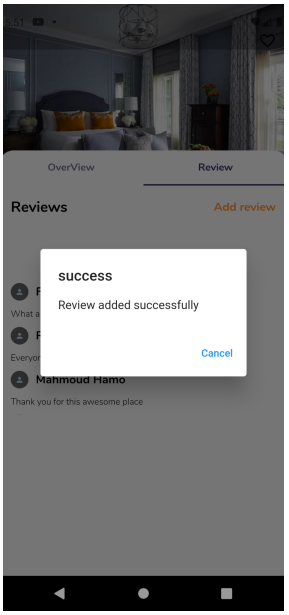


Figure 17: Review Added Successfully.

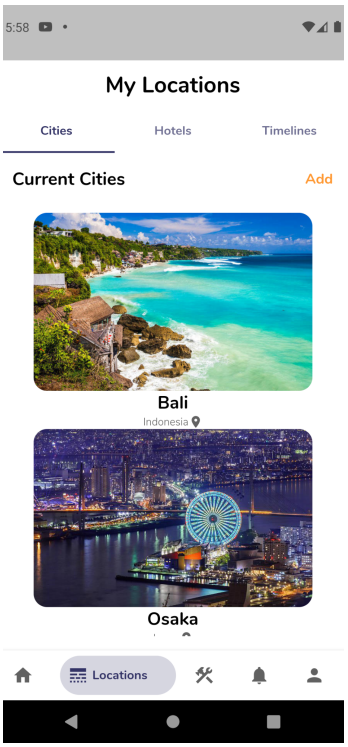


Figure 18: Owned cities Page.

When the user chooses the location tab in the bottom bar, a screen will show all hotels, cities and timelines that are related to him/her.

The user can navigate all his own hotels from the hotels tab in the top, from this tap, the user can see his own hotels, cities, and timelines separately.

To add a new hotel, city or timeline, users press the orange colored ‘add’ world in the top of the listview widget.

Figure 19: Owned Timelines Page.

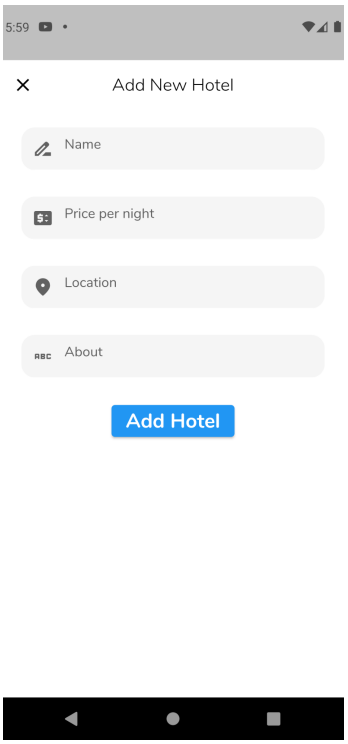


Figure 20: Add New Hotel Page.

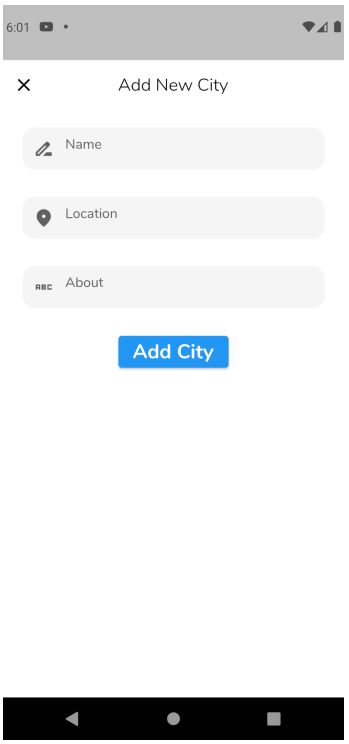


Figure 21: Add New Timeline Page.

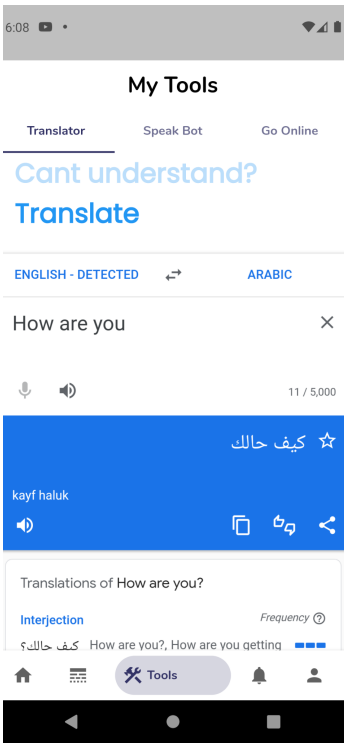


Figure 22: Translator Page.

When the user chooses the tools tab in the bottom bar, a screen will show translator, speaking bot, and video streaming pages.

In the translator page, users can type any text from any language and translate it to any language and listen to the translated text.

In the speak bot screen, users can type anything they want and the text-to-speech robot will speak out what they write so they can hear what they typed, this is added as small feature beside the bit feature where text-to-speech bot can speak out hotels, cities, and timeline about section in the details page.

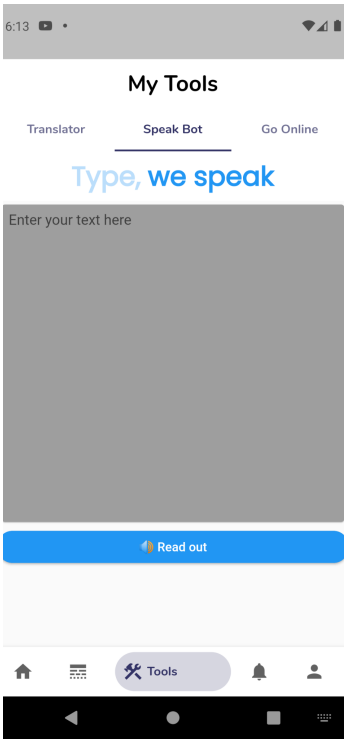


Figure 23: Empty Speak Bot.

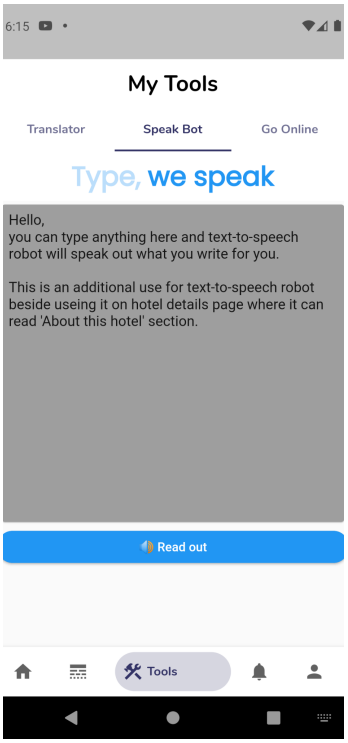


Figure 24: Non-empty Speak Bot.

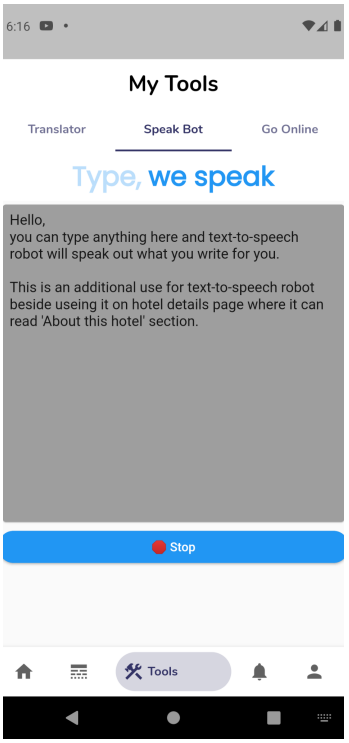
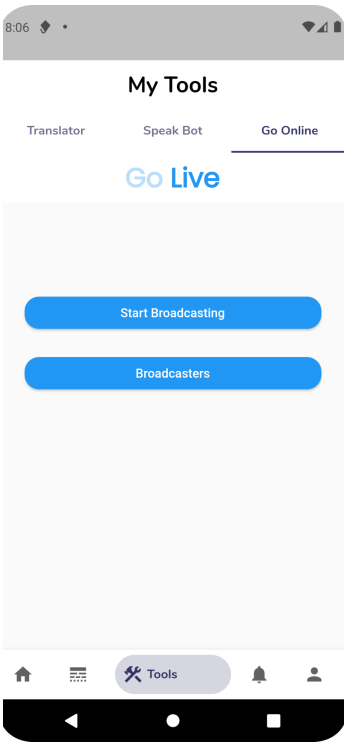


Figure 25: Speak out text.



In Go Online Page, users can start their own video broadcasting, sharing their experience with others, broadcasting host can share his/her camera and can use live chatting, audience can use live chat only.

As a broadcasting host, users can start and end the broadcasting, and they can see audience names, and they can use many video and sound effects to make their broadcasting experience better.

Users can see all broadcasters, all people that are doing a live sharing.

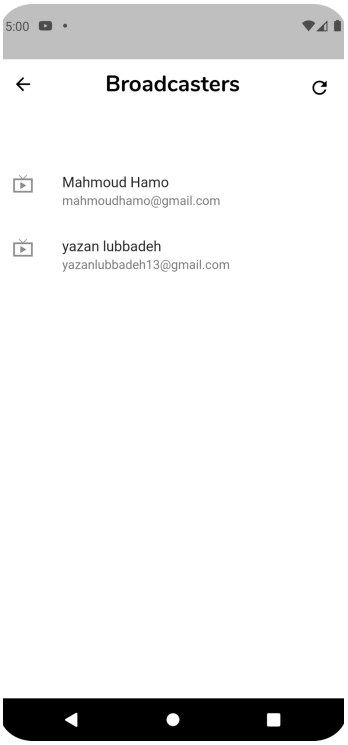
Audience and see host and other audiences names, and he/she can use live chatting to communicate and react with the host and other audiences.

Figure 26: Go Online Page.

Figure 27: Start Live Page.

Figure 28: Video Streaming Page.

Figure 29: Live chating.



To join broadcasting as an audience, the user can go to the detailed page for the hotel, city, or timeline he would like to join its owner live, then press in the TV icon, or he/she can press on 'Broadcasters' button and see all people that are doing a live sharing right now and join.

Any audience presses on the TV icon, he/she will join the live streaming for the hotel, city, or timeline owner.

When a user starts streaming, his/her streaming link will be distributed across all his/her own locations (cities, hotels, and timelines), so anybody can join the streaming from any of user owned locations.

If user try to watch location awner that doesn't even broadcasting, a message with 'no host is online will show up'

Figure 30: Show Broadcasters Page.

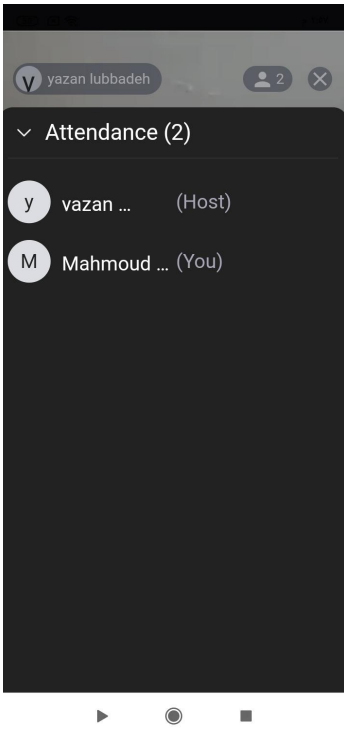


Figure 31: People Inside the live Page.

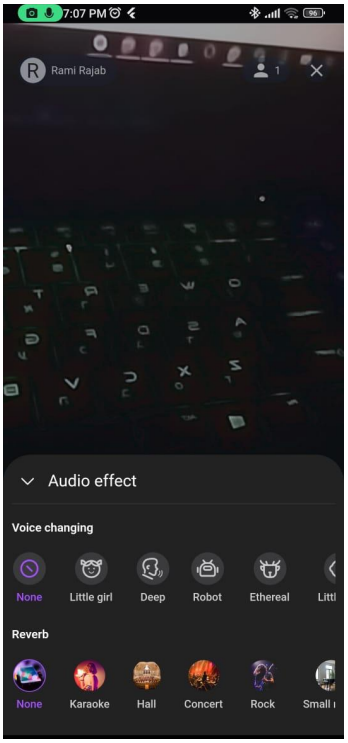


Figure 32: Audio Effects Widget.

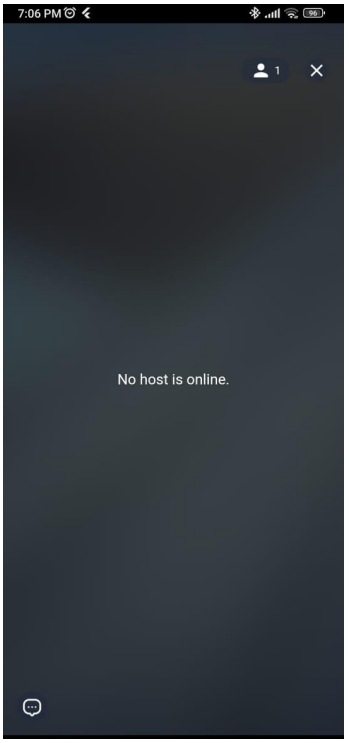


Figure 33: No Host Is Online Page.

This screen shows incoming notifications, when somebody adds a new city, hotel, or timeline, a notification will be sent to other users to let them know about the new locations.

The user can press into notification to go to the details screen for the new location (city, hotel, or timeline).

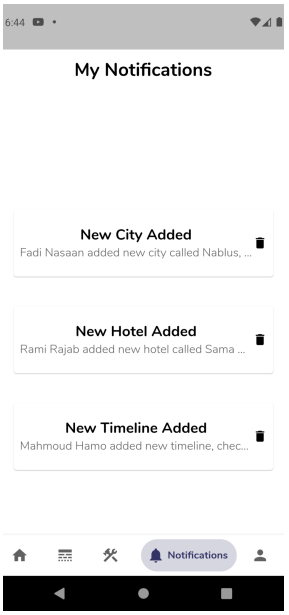
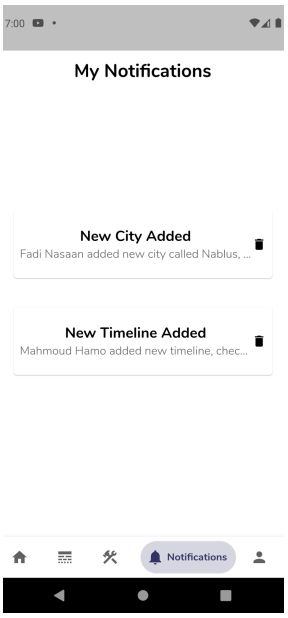
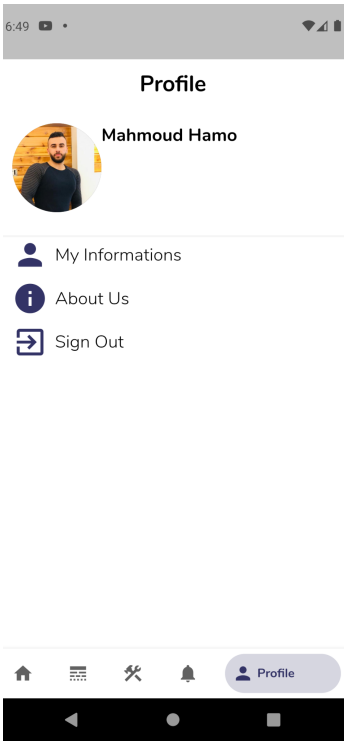


Figure 34: Notification Page.



The user can delete a specific notification by pressing on the trash icon on the right of each notification.

Figure 35: Delete Notification.



When the user chooses the profile tab in the bottom bar, a screen will show the user image, user can change his image by pressing into it, this is valid for all hotels, cities and timeline that user owns.

When the user presses ‘My Informations’, another page will be shown so the user can view his/her personal information, user can change his/her name, password, and personal picture.

Figure 36: Profile Page.

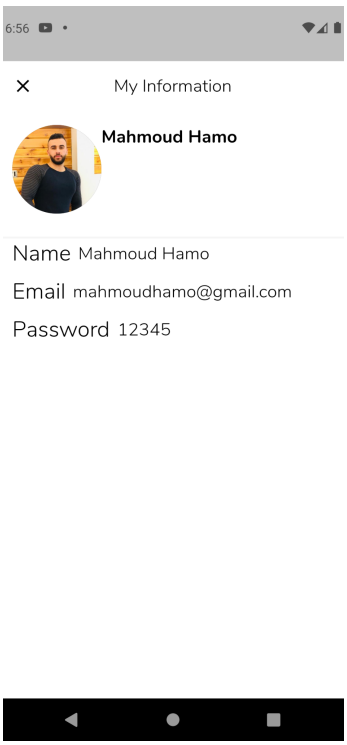


Figure 37: User Information Page.

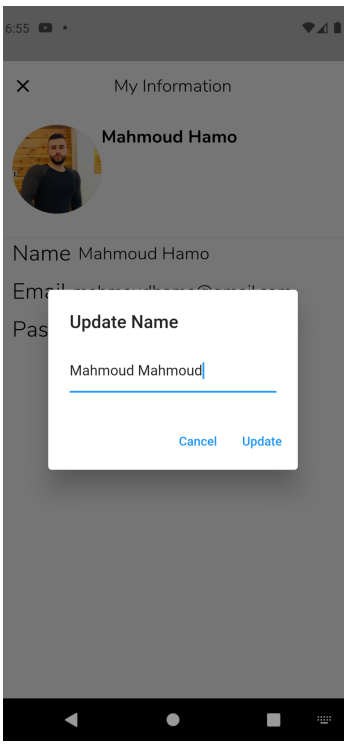


Figure 38: User Change Name.

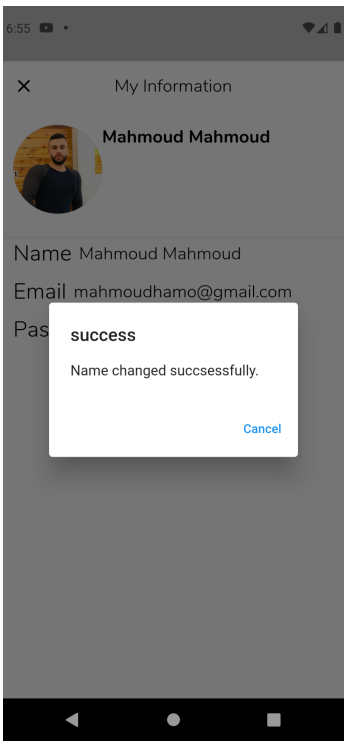


Figure 39: User Name Changed Successfully.

The app has a web version that can run on any browser, it's very nice to have your app also in your computer and add your posts and see other's. Anybody can open the website version by this link.

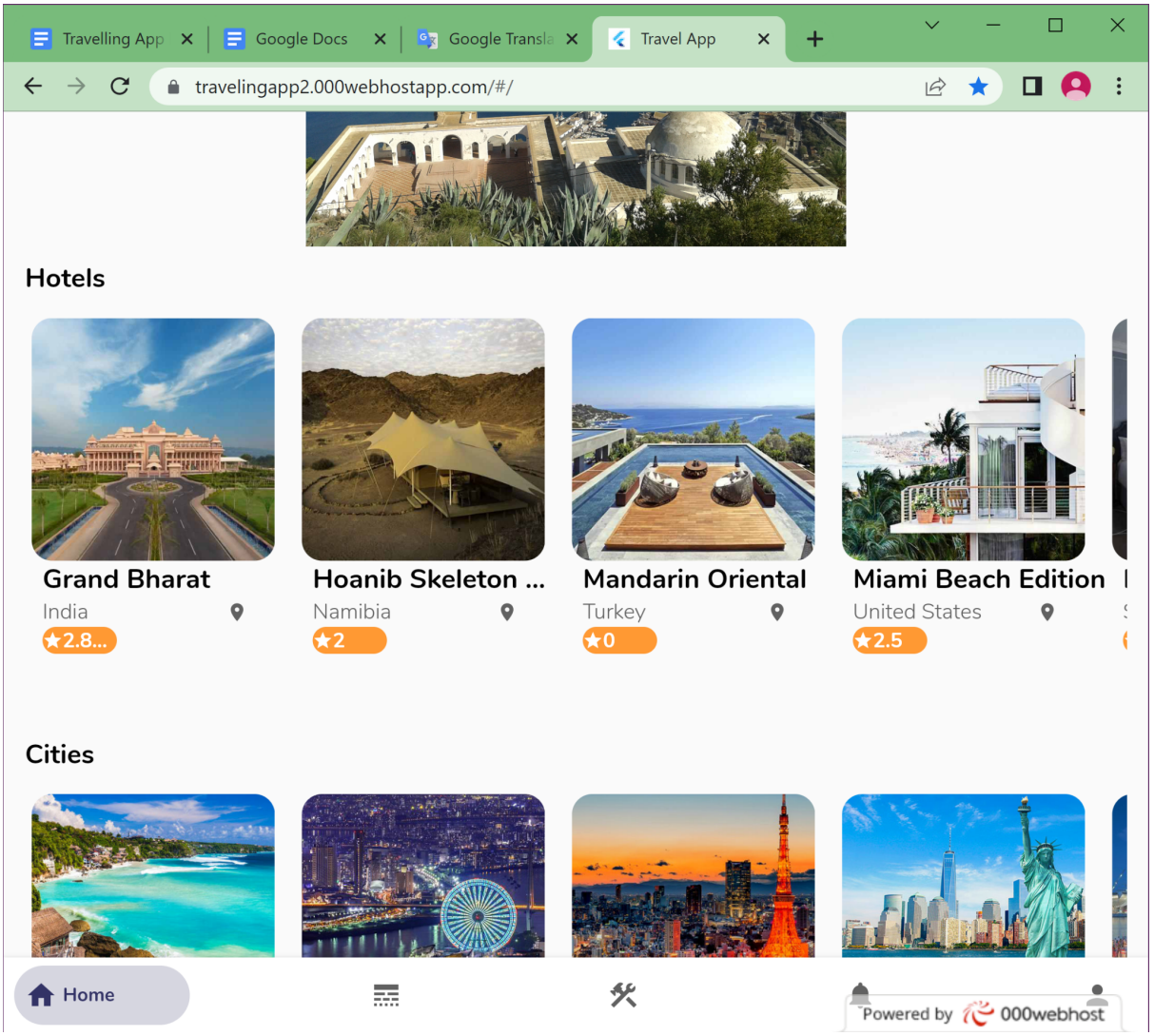


Figure 40: Web App.

Chapter 5: Results and Discussion

This application is a cross-platform mobile application written by flutter and PHP. The app used to make it easy for tourists to communicate with local people and hear out about new places and other people's experiences. Moreover, they can add the places where they went and talk about their experience using live video or by posts.

The outcome of the Project:

- A cross-platform application that can be run on web and android.
- Allowing users to translate texts from any language to any language.
- Allowing users to discover all other people's locations.
- Allow users to share their locations.
- Allow users to live video streaming and messaging.
- Allow users to use text-to-speech robot to hear out location details or anything they want.
- Allow users to comment on others posts and locations.

Chapter 6: Conclusion and Recommendation

6.1 conclusion

Finishing this project provided us with a decent knowledge of important frameworks. Finally, we can put the conclusion lines as follows:

- Learning flutter as a nice and modern frontend mobile framework.
- Learning PHP language with xampp as a high-performance and modern PHP-run environment and how to build a responsive backend by using it.
- Learning many practical techniques on the dart and best practices for building nice interactive and network-efficient mobile apps.
- Learning about the google cloud platform and how to use Google cloud notifications.
- Learn about Zrgo Live Streaming Services and library to create video and chat streaming.

6.2 Recommendations

Before we start implementing our application, we spend a long time looking for the best frameworks, languages, and services to start with it. The flutter framework for building cross-platform mobile applications was the easiest, high-performance, high-level, and large community framework. It’s enough to know that it was created by Google. So, we recommend it to create applications that need to be scalable and time-restricted because it’s very fast to finish a job with flutter.

6.3 Future Work

We did the harder job of creating our app with all these features. But still, there are many things on our minds to improve the app.

- We would like to expand our app so even locations owners can add their hotels and places then they can specify a price for their hotels, location, services, etc. This will lead us to end up with some profit from the app.
- We would like to add a recommendation system for users to give them some suggestions about what would be the best places for them to go. This will make the app smarter and more desirable.
- We would add more features to make things easier for tourists, like adding a map system so they can discover nearest places.
- Adding a group system will be so useful, people can divide themselves into groups and go to places together and everybody can see others by GPS so they don’t lose anybody during the journey.
- Some features are not working properly with web version like live streaming and notification system, we would like to do more research to make it work on web version as it is on android.

Chapter 7: References

[1] https://en.wikipedia.org/wiki/XAMPP

[2] https://flutter.dev/

[3] https://developer.android.com/studio

[4] https://firebase.google.com/docs/cloud-messaging

[5] https://visitpalestine.ps/visit-palestine-smartphone-travel-app/

[6] https://www.zegocloud.com/product/live-streaming

[7] https://www.000webhost.com/

[8] https://travelingapp2.000webhostapp.com/#/