AI-TRIAD: AN AI ASSISTED TRIP ADVISOR

A PROJECT REPORT

Submitted by

AMRUTHA ANIL (KGR19CS016)

ANANDHU ANIL (KGR19CS017)

NIVEDITHA R NAIK (KGR19CS058)

SARATH KUMAR M B(KGR19CS066)

to

The A P J Abdul Kalam Technological University

in partial fulfillment of the requirements for the award of the Degree

of

Bachelor of Technology

In

COMPUTER SCIENCE AND ENGINEERING

DEPT. OF COMPUTER SCIENCE & ENGINEERING

(NBA Accredited 2022 - 2025)

COLLEGE OF ENGINEERING KIDANGOOR

JUNE 2023

VISION AND MISSION OF COLLEGE

VISION

To be a leading engineering institution in the region, providing competent professionals, who engage in lifelong learning, driven by social values.

MISSION

To prepare engineering graduates for the development activities of the society and industry, and to prepare them for higher engineering education.

VISION AND MISSION OF DEPARTMENT

VISION

To become a center of excellence in Computer Science and Engineering imparting quality professional education to develop competent professionals with social values who are capable of life long learning.

MISSION

To impart quality technical education to students at undergraduate level through constant knowledge upgradation by maintaining pace with the latest sophisticated innovations , research development and industry interaction in the field of Computer Science and Engineering with focus on lifelong learning for the well-being of the society.

Program Educational Objectives (PEO)

PEO1- Have sound knowledge and technical skills required to remain productive in the field of Computer Science and Engineering.

PEO2- Be efficient team leaders, effective communicators and successful entrepreneurs.

PEO3- Resolve technical problems with a positive outlook towards well-being of the society.

PEO4- Function in diverse environments with the ability and competence to solve challenging problems.

PEO5- Pursue lifelong learning and professional development through higher education.

Program Specific Outcomes (PSO)

PSO1- Ability to appreciate, learn and develop applications using modern programming languages, and databases.

PSO2- Ability to understand and analyze computer networks, distributed systems and computer system architectures for the designing of new systems.

PSO3- Ability to apply knowledge of domains like machine learning, cloud computing , image processing, data mining and software engineering to tackle innovative problems.

DECLARATION

We undersigned hereby declare that the project report "AI-TRIAD: AN AI ASSISTED TRIP ADVISOR", submitted for partial fulfillment of the requirements for the award of degree of Bachelor of Technology of the APJ Abdul Kalam Technological University, Kerala is a bonafide work done by us under supervision of Mrs.Revathy A S. This submission represents our ideas in our own words and where ideas or words of others have been included, We have adequately and accurately cited and referenced the original sources. We also declare that we have adhered to ethics of academic honesty and integrity and have not misrepresented or fabricated any data or idea or fact or source in our submission. We understand that any violation of the above will be a cause for disciplinary action by the institute and/or the University and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been obtained. This report has not been previously formed the basis for the award of any degree, diploma or similar title of any other University.

AMRUTHA ANIL
ANANDHU ANIL
NIVEDITHA R NAIK
SARATH KUMAR M B

Kidangoor
16-06-2023

DEPT. OF COMPUTER SCIENCE & ENGINEERING

COLLEGE OF ENGINEERING KIDANGOOR

2022-23

CERTIFICATE

This is to certify that the project entitled **"AI-TRIAD:AN AI ASSISTED TRIP ADVISOR"** submitted by **AMRUTHA ANIL(KGR19CS016), ANANDHU ANIL(KGR19CS017),NIVEDITHA R NAIK(KGR19CS058), SARATH KUMAR M B(KGR19CS066))** to the APJ Abdul Kalam Technological University in partial fulfillment of the award of B.Tech. degree in Computer Science and Engineering is a bonafide record of the project work carried out by them under our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Mrs.Revathy A S
Assistant Professor
Dept. of CSE
Project Guide

Mrs. Mary Priyanka
Assistant Professor
Dept. of CSE
Project Coordinator

Dr.Ojus Thomas Lee
Associate Professor
Dept. of CSE
Project Coordinator

Mrs. Jyothis Joseph
Assistant Professor
Dept. of CSE
Head of the Department

External Examiner

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Amrutha Anil

Anandhu Anil

Niveditha R Naik

Sarath Kumar M B

Abstract

Before the AI revolution, traveling was a chore. When planning your trip, an AI assistant can help you do everything, from booking your hotel to adding the dates to your calendar. Think of an AI travel assistant as a travel agent, which offers a budget friendly tour packages whether it may be business ,family or solo travelling but without an actual human on the other end. With the help of data science and machine learning, travelers can get recommendations tailored to their needs. Travelers can use these chatbots more frequently, especially following the COVID-19 pandemic and these chatbots can offer answers to frequently asked questions through automated responses. In short the whole vacation or trip from starting to end can be planned in a single touch.performance of the Indian tourism industry. Nowadays, everything a traveller must do is out there on an internet site. Employing a website, travellers can plan where they need to travel, weigh budgets and make bookings and cancellations and compare options. Doing this involves reading copious amounts of descriptions, terms and conditions, instructions and user comments before arriving at decisions. The opposite option is to supply a chatbot that's a conversational app that reduces the quantity of interaction required by refining intent and context into the conversation.

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Chapter 1

Introduction

Travelling is a crucial to think about terms of development. Exchange of traditions, knowledge and fashion helped in opening doors of curiosity for citizenry. Today planning a tour is out there on websites. AI is changing every aspect of our lives. From self-driving cars to talking bots, there are numerous samples of AI in use today. Gone is the times once you had to calculate an agent to plan your next holiday. You have not got to engage yourself therein tiresome chain of conversations together with your agent for your travel arrangements. AI now infiltrates every aspect of the tour and travel industry. As we are presenting the knowledge on the project of AI based Tour Management System, we've noticed that Technology and AI is playing a really much important role within the tourism industry, globally. From the hotel, flights, visa arrangements, till the booking of the taxi or table within the hotel, we get to ascertain n numbers of applications, websites and portals for an equivalent. Still, thanks to the advancement of those platforms, many people don't feel comfortable with an equivalent and still prefer the middlemen or agents for the services. With the assistance of this technology, you'll get a customized and intelligent travel solution tailored consistent with your needs. Quick access to the appointments, schedules and reservations with virtual tour planner/ guide making your holiday/ tour more stressfree. The main target of the work project lies on current AI applications like chatbots or robots and their usage along the traveller journey.The official definition of

tourism is "travelling for business or pleasure; the business of providing tours and services." and has only achieved the dimensions that we know today due to the easiness of travelling and accommodation.

1.0.1 Features

1. To provide a solution that is feasible and user-friendly for the management and planning of tour/vacation.
2. Recommend and suggest various options needed for travel arrangements that are relatively convenient to the user.
3.Assistance through out journey with a chat bot.
4. Provide the user with the basic requirements ideology of planning a tour and budget.
5.Give a better understanding about the place that the user is going to visit to avoid confusion and chaos-Certified guide.
6.Preplanned, transparent and handy notifications of the next task that is assigned.
7. Proper baggage handling : tracking and proper management assistance.

Chapter 2

Literature Survey

2.1 Artificial Intelligence Systems applied to tourism

This paper was proposed byLuis Duarte,Jonathan Torres,Vitor Ribeiro and Inês Moreira. This paper reports on the main applications of AI systems developed for tourism and the current state of the art for this sector. The paper also provides an up-to-date survey of this field regarding several key works and systems that are applied to tourism, like Personal Agents, for providing a more interactive experience. They also carried out an in- depth research on systems for predicting traffic human flow, more accurate recommendation systems and even how geospatial is trying to display tourism data in a more informative way and prevent problems before they arise.

2.2 AI Based Tour Management System

The paper proposed by Amit Shinde, Sohan Chougule, PrachiKadam, Vaishnavi Kharat focuses on the expansion and performance of the Indian tourism industry. Nowadays, everything a traveller must do is out there on an internet site. Employing a website, travellers

can plan where they need to travel, weigh budgets and make bookings and cancellations and compare options. Doing this involves reading copious amounts of descriptions, terms and conditions, instructions and user comments before arriving at decisions. The opposite option is to supply a chatbot that's a conversational app that reduces the quantity of interaction required by refining intent and context into the conversation.

2.3 The Value of Service Robots from the Hotel Guest's Perspective: A Mixed-Method Approach

The paper proposed by Ingrid Y. Lin, Anna S. Mattila. Service robots (SR) are increasingly valued and embraced; they are here to stay. Research on collaborative intelligence to better understand robotic-human partnerships is scarce. To bridge that gap this study aimed to examine the value of SR from the guest's perspective, thus gain a deeper understanding of the co-value creation process in the context of full-service hotels. A mixed-method design was used to capture the depth and breadth of perceived value of SR. Study 1 is a qualitative study probing consumers' sense making regarding SR. Study 2 used structural equation modeling to test the hypotheses derived from Study 1. Results indicate that perceived privacy, functional benefits of SR, and robot appearance positively influence consumers' attitude towards adoption of SR. Functional benefits and novelty had an impact on the individuals' anticipated overall experience.

2.4 Chatbot-based Tourist Recommendations Using Model-based Reasoning

Chatbots have gained increasing importance for research and practice with a lot of applications available today including Amazon's Alexa or Apple's Siri. This paper proposed by Iulia Nica , Oliver A. Tazl , Franz Wotawa1, presents the underlying methods and technologies behind a Chatbot for e-tourism that allows people textually communicate with the purpose of booking hotels, planning trips, and asking for interesting sights worth being visit. In particular, we show how model-based reasoning can be used for enhancing user experience during a chat, e.g., in cases where too many possible selections are available or where user preferences are too restricted causing inconsistencies and as a consequence not possible answers to be provided. Besides the underlying foundations, we provide a use case from the intended tourism domain to show how such a model-based chatbot effectively can be used in practice

2.5 Using a chatbot to increase tourist's engagement

Paper proposed by Hosseini, Samane. Technological innovations like Artificial intelligence (AI) are increasing efficiency every day across many industrial sectors. Few industries can compare to how much Artificial Intelligence (AI) has improved the tourism industry. Machine learning (ML) and modern chatbots have become functional and appear to be examples of how this technology can positively affect our daily lives. The objective of this thesis is to introduce the impact of chatbot technology in the tourism industry and researching its current state. Furthermore, this research provides enough information to evaluate the digital trends and growing demands in the tourism sector. This research also aims to design a Telegram chatbot that can assist travelers in planning their travel activities and also increase the tourist's engagements with their environment. This research discusses if tourists like this idea, their journeys will be much simpler as they do not have to use other services to get necessary information about the cities they are visiting. For

businesses, this means higher engagement of tourists with local businesses, which in turn means more profit.

Chapter 3

System Analysis

3.1 Proposed System

Travelling is a crucial to think about terms of development. Exchange of traditions, knowledge and fashion helped in opening doors of curiosity for citizenry. Today planning a tour is out there on websites. AI is changing every aspect of our lives. From self-driving cars to talking bots, there are numerous samples of AI in use today. Gone is the times once you had to calculate an agent to plan your next holiday. You have not got to engage yourself therein tiresome chain of conversations together with your agent for your travel arrangements. AI now infiltrates every aspect of the tour and travel industry. As we are presenting the knowledge on the project of AI based virtual travel assistant, we've noticed that Technology and AI is playing a really much important role within the tourism industry, globally. From the hotel, flights, visa arrangements, till the booking of the taxi or table within the hotel, we get to ascertain n numbers of applications, websites and portals for an equivalent. Still, thanks to the advancement of those platforms, many people don't feel comfortable with an equivalent and still prefer the middlemen or agents for the services.

3.1.1 Overview

This report starts by introducing the various features available for customers who are planning a holiday or a vacation. This is an app that offers various packages and required assistance to clients who are looking forward to plan a vacation or business trip. With the help of data science and machine learning, travelers can get recommendations tailored to their needs. So far there are no apps that provide all the features as mentioned above , in a single touch. The thesis introduces the fundamentals of chatbots and their functionality and conversational interfaces.The primary aim of this research is to design and create a chatbot along with some added features like 24x7 service of the chatbot for holidaymakers to plan their trips and help them to make the right choices. More specifically, the the implemented chatbot aims to help travelers to organize their itineraries and give them personalized suggestions based on their preferences. Here advanced technologies like AI are used for the implementation of chatbots for engagement with customers throughout their journey.

3.1.2 Advantages

While using this virtual travel agent, the client has several benefits from it. The client can directly get the available packages according to the budget and his needs. The client can plan the trip in a well organised step by step manner without a mess.This is the point where AI technology comes into play . The needs are automatically tailored with the help of a chatbot assistance. This means any doubts while and during journey would be easily clarified by the chatbot, which once packege is booked is activated and provides the service 24x7 throughout till the end of the journey. Following are some features/advantages;

1. To provide a solution that is feasible and user-friendly for the management and planning of tour/vacation.

2. Recommend and suggest various options needed for travel arrangements that are relatively convenient to the user.

3.Assistance through out journey with a chat bot.

4. Provide the user with the basic requirements ideology of planning a tour and budget.

5.Give a better understanding about the place that the user is going to visit to avoid confusion and chaos-Certified guide.

6.Preplanned, transparent and handy notifications of the next task that is assigned.

7. Proper baggage handling : tracking and proper management assistance.

3.2 SRS

3.2.1 ER Diagram

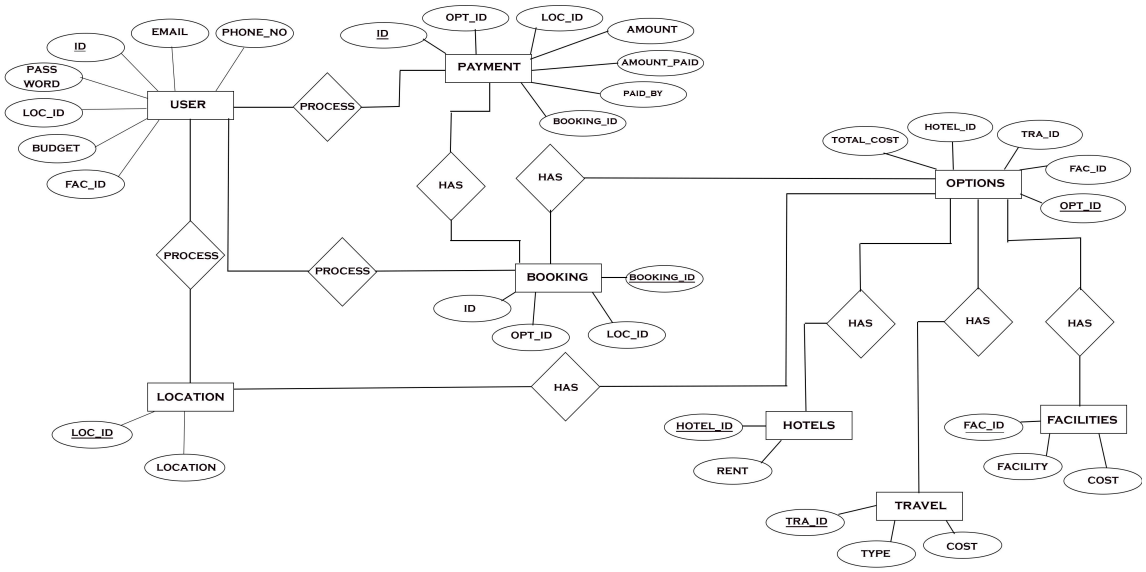

Figure 3.2.1: *ER Diagram*

3.2.2 Sequential diagram

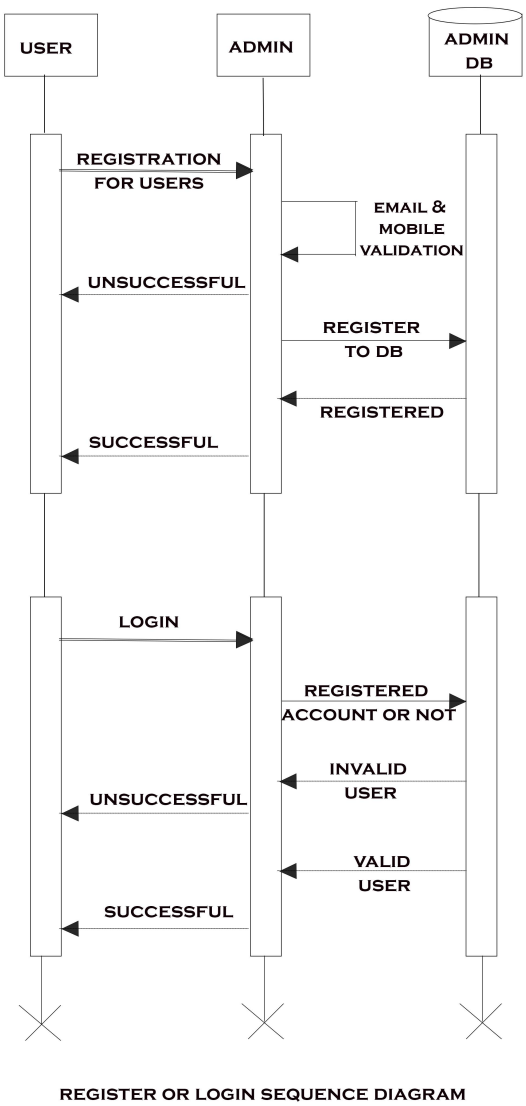

Figure 3.2.1: *Sequential Diagram*

3.2.3 Sequential Diagram

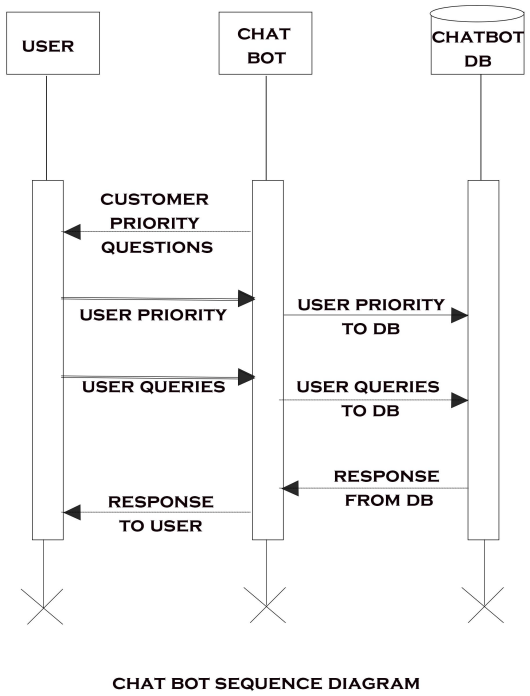

Figure 3.2.1: *Sequential Diagram*

3.2.4 Use case diagram

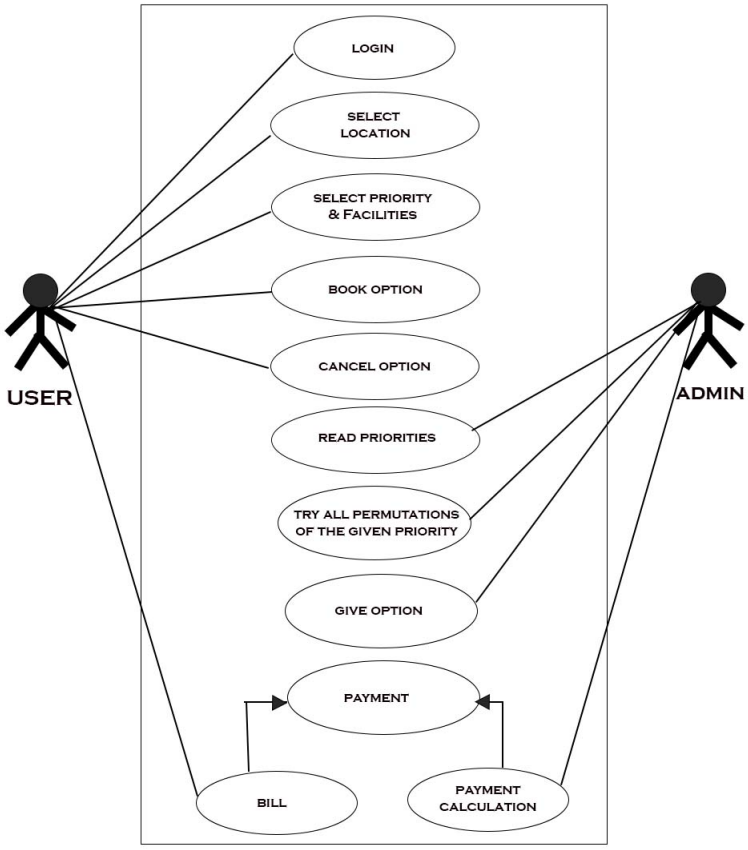

Figure 3.2.1: *Usecase Diagram*

3.2.5 System Architecture

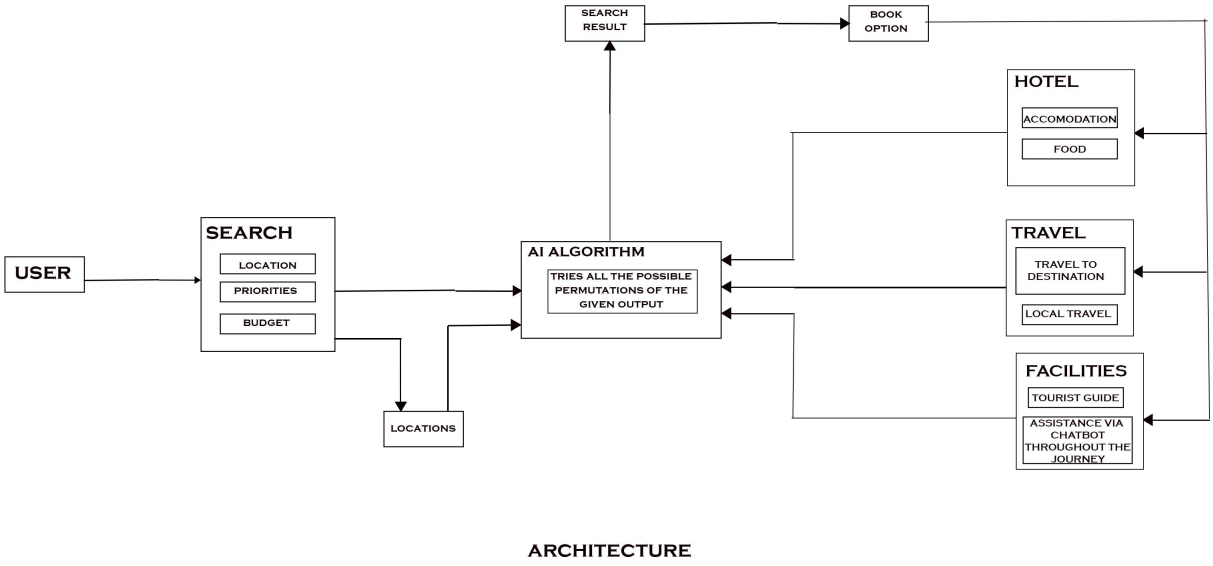

Figure 3.2.1: *System Architecture*

3.2.6 Functional & Nonfunctional Requirements

Functional Requirement

The system's main function is to help the user to schedule his trips or tours effectively and more conveniently thereby improving the traditional method and providing a better and financially optimal way to plan and book a trip or tour.This system will help people to plan and book a trip sitting at home in a customized manner and thereby reducing time and money.It also allows people to book extra facilities like tour guide,chat bot assistance,local travel etc..

1. Description and Priority Connection is achieved to the web server through the login page. The user must fill in the required fields and login. This function has most priority to ensure authenticity of the user and that only user should be able to access devices.

2. Stimulus/Response Sequence

i. User enters username and password.

ii. The details are verified and validated by web server.

iii. If valid the user can proceed to use the application.

3. Functional Requirement

*REGISTER/SIGN UP

*LOGIN

*SEARCH LOCATION

*SEARCH HOTEL

*SEARCH TRAVEL FACILITY

*SEARCH FACILITIES

*SELECT OPTION HAVING HOTELS,TRAVEL FACILITY AND OTHER FACILITIES

*BOOK OPTION

*TRANSACTION

Nonfucntional Requirement

1.Performance Requirements This System requires active internet connection at all times that is from signing in to the app and must have an accessible database of the entire nearby Parking spots to connect the users in order to easily surf through the app and find the suitable spot for parking and immediately book the space. So the mobile device should be connected to a wireless network.
2.Security Requirements The following things are required to ensure that the automation process is completed in a safe and secure manner:
1) The username and password has to be checked before providing access to the app else the
user should be denied any access.
2) The login details of a user should be stored securely and should not be visible to any other user.
3) While accepting the booking we must confirm that it has been checked by an authorized authority

3.2.7 Hardware & Software Requirements

Software Requirement

FRONT END 1.Fllutter ,Dart
BACK END 1.Flutter, Dart
DATABASE 1.Firebase

Hardware Requirement

Android-10.0 and higher
Computer with a 1.1 ghz or faster processor

minimum of 2GB RAM or more

2.5 GB of Available Hard disk space

Chapter 4

System Implementation

4.1 Modules

4.1.1 appuser

This report starts by introducing the various features available for customers who are planning a holiday or a vacation. This is an app that offers various packages and required assistance to clients who are looking forward to plan a vacation or business trip. With the help of data science and machine learning, travelers can get recommendations tailored to their needs. So far there are no apps that provide all the features as mentioned above , in a single touch. The thesis introduces the fundamentals of chatbots and their functionality and conversational interfaces.The primary aim of this research is to design and create a chatbot along with some added features like 24x7 service of the chatbot for holidaymakers to plan their trips and help them to make the right choices. More specifically, the the implemented chatbot aims to help travelers to organize their itineraries and give them personalized suggestions based on their preferences. Here advanced technologies like AI are used for the implementation of chatbots for engagement with customers throughout their journey. This module is where user specifications are done and queries are retrieved.

4.1.2 Hotel

This module gives a detail view of how the hotels are created and how it can retrieved from the users. The queries from the user are taken processed in the app module and output is generated. This module specifies the type of specifications used for various features in hotel such as int rate , string state etc . Hotel data used is specified here . The retrieved query from user is processed and mapped to provide combinations with other features of the app. These prepared datasets can be viewed as questions where users can choose the option they like in order to book tickets.

4.1.3 Travel modes

This module specifies the various initialisations of data related to travel modes such as type ,name , rate etc. The query from users is taken processed through dialogs , locater,logger and router and mapped on to the database. This travel modes option can be viewed on the app where users can fill in the details.

4.1.4 Trip

This is the module where the chat bot works. For trip we use the data represented in this module which can be viewed in the second page of the app. The chatbots make a live chat where users can specify their requirements and plan their trip. The sevices used for this app are firestore service , gpt service and user service. People can make use of the gpt till the end of their journey.

Chapter 5

Results

Tourism is currently recognized as a global industry which is highly growing at a high rate like other industries. There are many different activities that occur in tour activities. Our 'AI Based Tour Management System' web based application helps in managing and planning a vacation or a tour with a user friendly environment and work with runtime changes and schedule the same for necessary requirements, the proposed system also enables users a vacation that can be without any time bound restrictions and best fit in budget. The following shows how the app works;

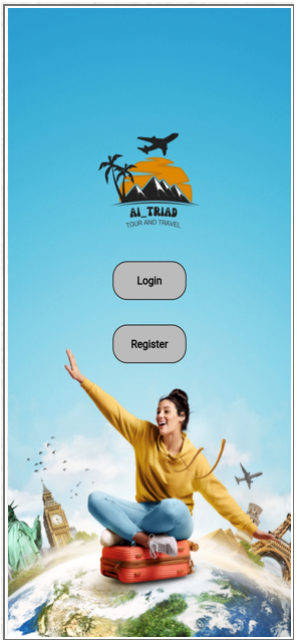

Figure 5.0.1: *Home page*

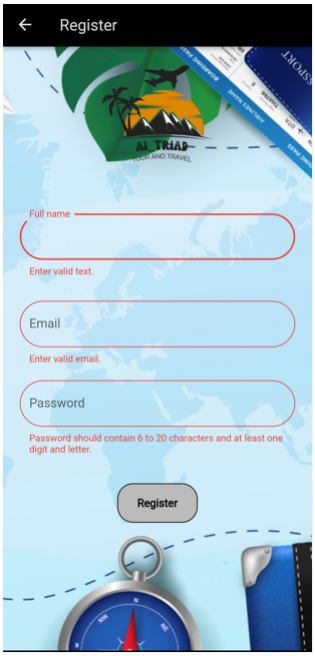

Figure 5.0.2: *Login*

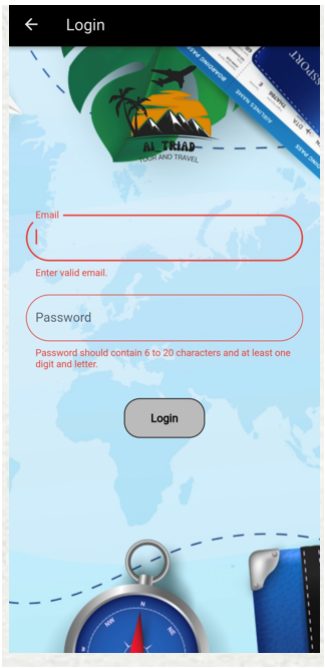

Figure 5.0.3: *sign up*

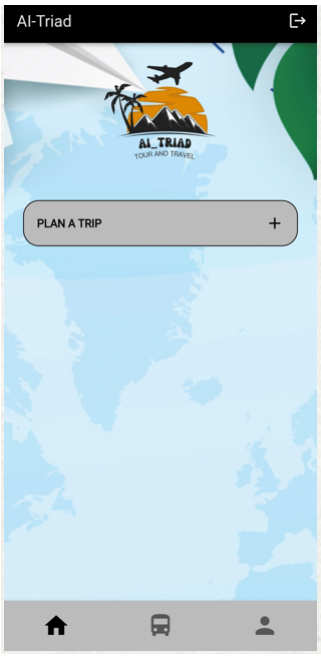

Figure 5.0.4: *Plan a trip page*

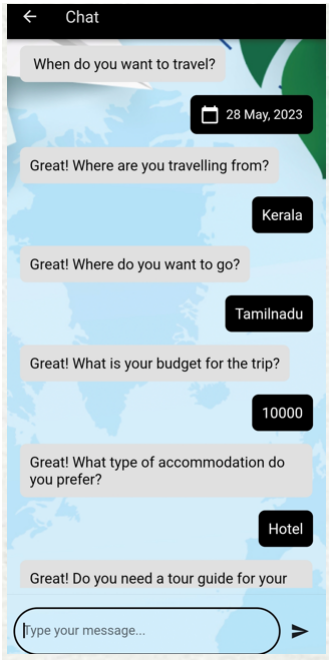

Figure 5.0.5: *chat page*

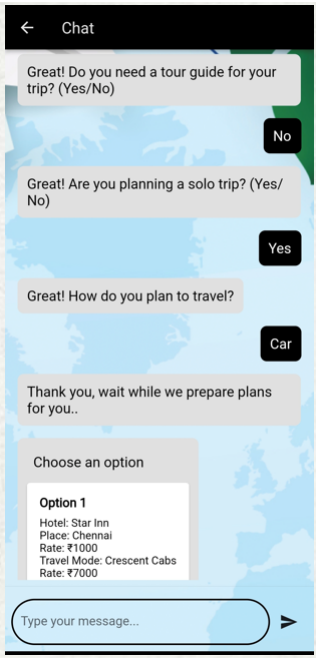

Figure 5.0.6: *chat page*

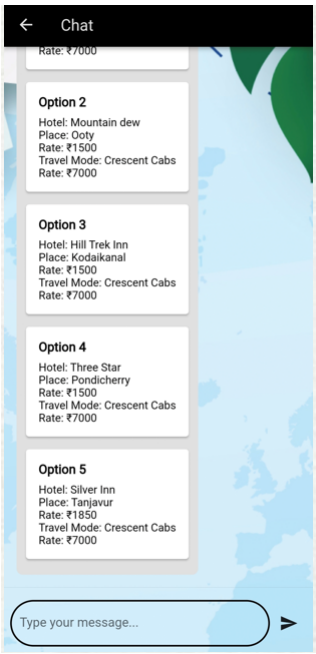

Figure 5.0.7: *chat page*

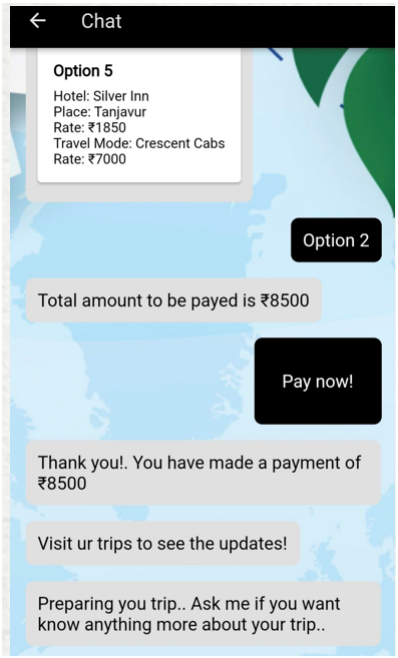

Figure 5.0.8: *chat page*

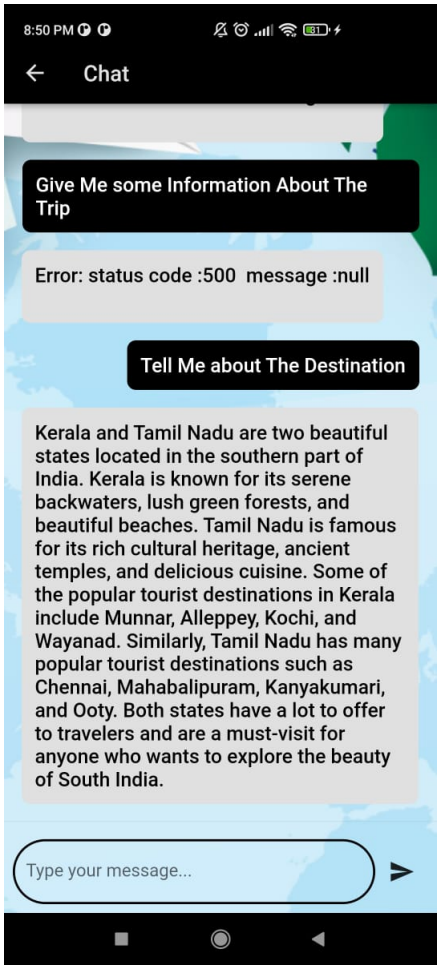

Figure 5.0.9: *Gpt page*

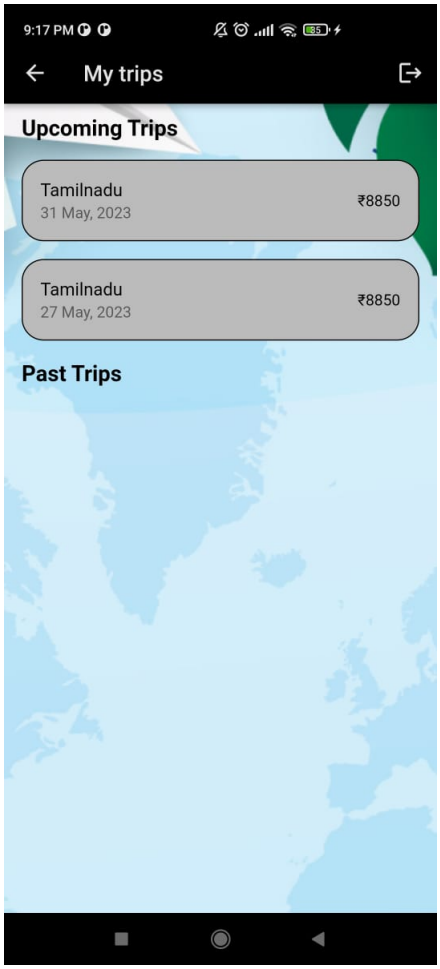

Figure 5.0.10: *Gpt page*

Chapter 6

Conclusion and Future scope

Today, tourism is considered a global industry and, like other industries, is experiencing significant growth. Various activities are performed in the tour activities. Web-based "AI TRIAD – An AI Assisted Trip Advisor". This application helps you manage and plan your vacations and tours in a user-friendly environment and work with your runtime. With modifications and planning to meet the necessary requirements, the proposed system could also allow users to take time off. No time limit and best fit within your budget. This project is fully customizable by integrating with various APIs. has a friendly environment. In conclusion, we can say that this web-based application is useful for managing and completing tours. Conduct relevant activities effectively and efficiently.
1. Artificial intelligence can provide a wealth of knowledge on a variety of topics, including general infrastructure, tourist infrastructure, and so on.
2. Artificial Intelligence (AI) easily addresses customer needs by offering timely information on key factors such as infrastructure facilities, Destination tourism infrastructure facilities, and so on.
3. Artificial intelligence has infiltrated every part of the travel industry.
4. Reminders and alerts for schedules and appointments come in handy during runtime.
5. You can get a customized and intelligent travel solution tailored to your needs with the aid of this technology

Chapter 7

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Chapter 8

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