International Journal of Scientific Research in Science, Engineering and Technology
Print ISSN: 2395-1990 | Online ISSN : 2394-4099 (www.ijsrset.com)
doi : https://doi.org/10.32628/IJSRSET2310394

LocoSpot - Smart Tourist Guide

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ARTICLEINFO

Article History:

Accepted: 10 May 2023
Published: 26 May 2023

Publication Issue
Volume 10, Issue 3
May-June-2023

Page Number
239-244

ABSTRACT

The idea of creating an Android travel application with a retrieval-based chatbot that can assist users is investigated in this study. Our system provides reliable and accurate information on every tourist site in Pune, together with an online map. The recommended design will also incorporate a retrieval-based chatbot system, which will allow it to assist those in need and make the programme more user-friendly by providing text guidance so that users may communicate with the bot. We discovered that several websites provide various services. Websites provide booking services, but there is no method for travellers to find potential destinations.This bot will only react to questions regarding the programme and point users in the right direction so they can use it without any trouble. Our strategy will encourage all other travellers to use the easy routes and dramatically increase customer satisfaction and retention.The result of the project is an Android application with a chatbot that suggests hidden local tourist spots, providing an engaging and interactive experience for travellers seeking unique destinations. The application improves its responses and features location-based services and user authentication for personalized recommendations.

Keywords—Retrieval, Deep Learning, Chatbot, Android

I. INTRODUCTION

Currently, with 11% of the global Gross Domestic Product (GDP), tourism is the most powerful and significant industry in the world economy. Nowadays, a lot of travellers prefer to choose quickly after acquiring all the relevant background information.
And as a result, tourists look online for assistance. Tourists may get a lot of comprehensive travel information online[5]. The issue is that while exploring the internet, tourists may not always find accurate and trustworthy information. It is often essential for travellers to consult with experts, natives, or friends about which tourism attractions to visit at their desired destinations (e.g., where to go, where to stay, and how to get there, Customs and Immigration rules, warnings, and so on)[1].The fact that this information availability was left behind was due to mainly two problems, namely lack of quantity of information in English as the international lingua

franca, and the low quality of English inmany available tourism information media[2]. The tourist industry may also face challenges due to the high requirements for customer service. The tourism industry has always put the needs of its customers first. The studies related to Asia Pacific region show that tourism is primary business in India, Thailand, Myanmar, Indonesia, Vietnam, Bangladesh, Pakistan and Nepal, etc. and religious tourism holds a good share for tourist inflow[4]. It's important to keep the customer content and happy. As a result, we want to create an Android travel application with a bot that offers trustworthy information and top-notch customer service all day long.The use of mobile applications for mobile devices is rapidlygrowing and has become apparent for the world's largest industry travel and tourism[3].

A software programme that can understand and respond to human conversations is known as a chatbot. It is constructed using artificial intelligence software. These chatbots are often made to mimic actual human discussions with consumers.

The chatbot is able to understand requests, commands, or human input and respond correctly. To make interactions seem more realistic, bots may be continually being created. Chatbots are widely utilised as virtual customer service representatives, serving as the user's first point of contact and responding to inquiries with pertinent information or thoughtful responses. The most typical applications of this strategy are voice-based or text-based chat help.

Deep learning, a branch of artificial intelligence and machine learning, may help chatbots learn from data and conversations with humans. These chatbots may be programmed to respond to people and taught to recognise awareness in text.

II. LITERATURE SURVEY

The interfaces for chatbots come in a variety of styles. Some of the most well-known platforms for creating chatbots are the ones listed below:

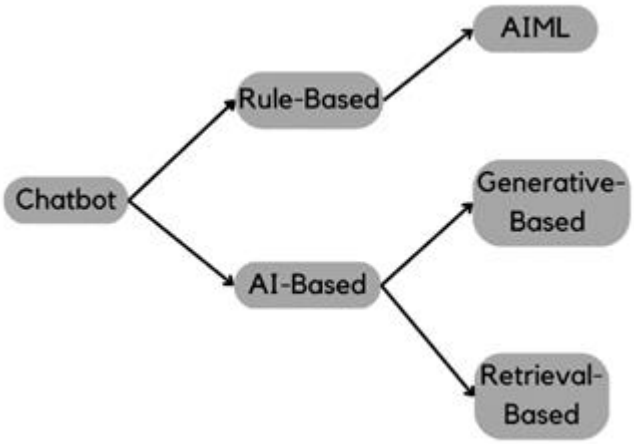

Fig. No. 1. Types of Chatbot

A. AI Chatbots

By mimicking a conversation between two actual individuals, artificial intelligence (AI) chatbots connect users with the information they need. They can be voice- or text-based. Text-based chatbots are often utilised on websites and social media platforms to assist with customer assistance.

Voice-based chatbots are most commonly used for telephone customer care. In recent years, AI chatbots have gained a lot of popularity.

These AI chatbots might be modelled using one of two concepts:

i. Retrieval-Based Chatbot

One deep learning chatbot approach is a retrieval-based chatbot. These chatbots operate in accordance with directed flow theory or graph theory. Chatbots provide the most helpful responses from a database of predefined responses.

The answers are predicated on the available information. Retrieval chatbots use methods like deep learning and keyword matching to determine the optimal response. Since the retrieval strategy is concentrated on data obtaining, there are less mistakes.

But this could come out as being too restricted because it just provides a fixed response and no new output.

ii. Generative-Based Chatbots

Another application for deep learning is in generic chatbots. Instead of choosing from a list of pre-written replies, a generative chatbot system builds your language combinations. This bot may be made using the Seq2Seq paradigm. Using long-term and short-term memories (LSTMs), this model, also known as the encoder-decoder model, creates text from the training data. The seq2seq methodology can also be useful for machine translation applications. What is the encoder-decoder model or seq2seq used for, in a nutshell?

Each word after the user's supplied word will be predicted by taking into account the possibility that the word will appear.

B. Rule-Based Chatbots

A rule-based chatbot uses a tree flow rather than artificial intelligence to help customers with their enquiries. This suggests that the chatbot will eventually utilise questions to guide users to the right answer. All of the current structures and responses are offered to let the user choose their interactions. All questions must be straightforward as a result. Rules-based chatbots can be built with simple or complex codes, but in order to work, they must always follow the code's protocol. The following concept may be used in the construction of rule-based chatbots:

i. AIML

AIML stands for Artificial Intelligence Markup Language. It is an XML dialect used to develop talkative software agents. It has a set of rules outlining the chatbot's conversation capabilities. It can be combined with a Natural Language Understanding (NLU) processor that applies these ideas to respond to text-based queries made with the aid of a chatbot. More rules make a chatbot more intelligent.

III. METHODOLOGY

The dataset's types, patterns, and responses will be provided to the chatbot. Natural Language Toolkit (NLTK), Keras, and Python can be used to build this retrieval-based chatbot. In this system, Python is used.

Step 1: Data Collection

Here we collect the popular data from an Instagram reel as this might indicate the authenticity and separate spam from actual useful data.

Step 2: Data pre-processing

Pre-processing will be done on the text data while working with,

1. Name of Place
2. Price per unit
3. Rating of the place/food
4. Whether it is value for money or not?

Step 3: Feature Extraction

The collection of keywords and the frequency of the keywords in the document are extracted by feature extraction. Also, the places are ranked from 5 stars to 1 star for better retrieval.

Step 4: Build the Application

Gather data from Instagram reels that are relevant to your problem and goals. Pre-process the data by cleaning and transforming it into a format that can be used for training and testing the chatbot.

Several chatbot frameworks, such as Dialogflow, Botpress, and Rasa, provide tools for designing and developing chatbots. We use the Brainshop framework.

Determine what the chatbot should be able to do and what kinds of questions or requests it should be able to handle. This will require an understanding of the data collected from Instagram reels and the target audience for the chatbot.

Write a script for the chatbot to follow and interact with the user.The chatbot script is the text that the chatbot will use to interact with users. The script should be designed in such a way that it is clear, concise, and easy to understand.

Once your chatbot is trained, you can deploy it to an Android app. There are many different ways to do this, so you will need to choose a method that is right for you. Some popular methods include using a chatbot API, embedding a chatbot in your app, or using a chatbot framework. We decided to design an API around our data for our project.

Step 5: Debugging

Once your chatbot is deployed, it is important to test it to make sure that it is working properly. You can do this by interacting with the chatbot yourself or by asking other people to test it. You should also monitor the chatbot's performance over time to make sure that it is still providing accurate and helpful information.

IV. SOFTWARE DESCRIPTION

A. This application has 2 user-level privileges:

i. Admin

Admin-level privileges are powerful and should only be granted to trusted individuals who need them to perform their job responsibilities. These privileges can be used to perform malicious actions if they fall into the wrong hands. Therefore, it's important to keep these privileges limited and ensure that proper security measures are in place to prevent unauthorized access.

ii. User

User-level privileges are designed to ensure that users can perform their job responsibilities within the system, without having the ability to perform actions that may compromise the security of the system or the data. These privileges are typically more limited than admin-level privileges and are focused on allowing users to complete their tasks and collaborate with others securely and efficiently.

B. Admin Login logs in using his id and password. The user has two options to log in, either Log in using an existing user or by creating a new user and password combination.

C. There are several prospects for the user to interact with the application.

i. Check the Weather

The app will typically display the current weather conditions, such as temperature, precipitation, and wind speed, in your area. You may also be able to view the weather conditions for a different location by entering a city name.

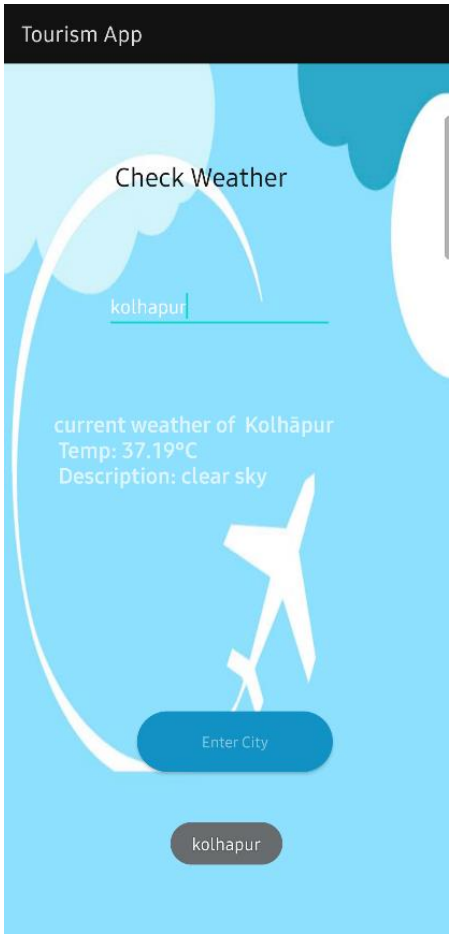

Fig. No. 2. Weather Activity

ii. View the list of all recommended places

Viewing the list of all recommended places is a key step in using a location-based application to discover new places and activities that match your interests and preferences.

iii. Check for nearby Hotels

Checking nearby hotels on an app is a quick and easy way to find a place to stay while travelling or on a vacation. Just make sure to choose a reputable hotel

that provides accurate and up-to-date information, as well as secure payment options.

iv. Engage with the Chatbot with text-basedrecommendations

Engaging with a chatbot with text-based recommendations is a convenient and efficient way to receive personalized suggestions for a variety of topics or interests.Once you have received recommendations from the chatbot, you can take action on them by following the links provided or by making a purchase or booking. You may also choose to save the recommendations for later or share them with others.

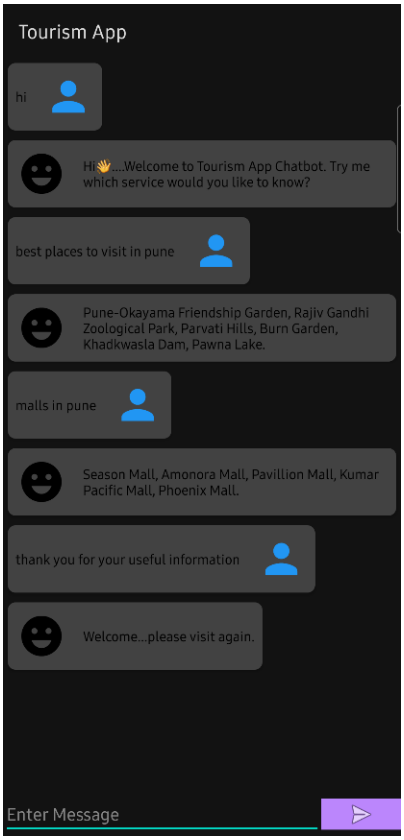

Fig. No. 3. Chatbot Activity

v. Food Recommendations

you can get food recommendations and discover new restaurants, cuisines, and dishes. Whether you prefer traditional dishes or exotic flavours, there are many sources available to help you find your next favourite meal.

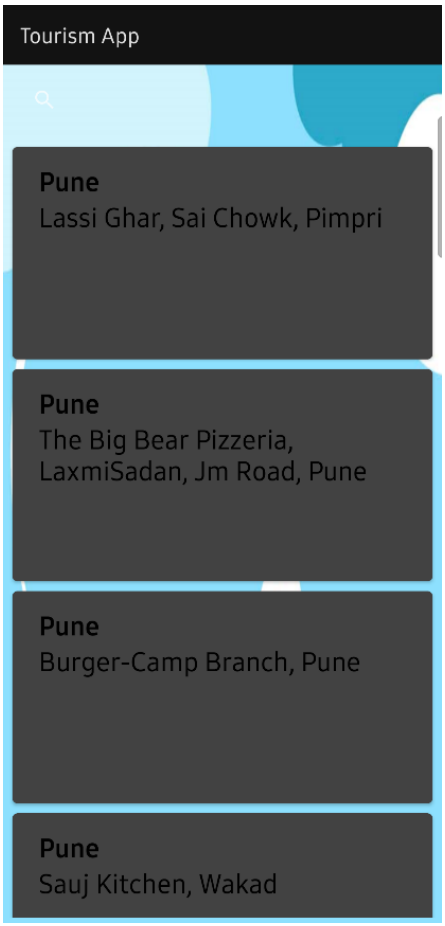

Fig. No. 4. Recommendation List Activity

vi. User will also be able to check bus and flight routes

You can check in on your bus or flight route and ensure a smooth travel experience. It's important to arrive early and be prepared with your ticket and identification to avoid any delays or issues.

V. CONCLUSION

In conclusion, the development of an Android application featuring a chatbot for recommending hidden local tourist spots provides a valuable tool for travellers seeking unique and off-the-beaten-path destinations. Through the use of natural language processing and machine learning, the chatbot is able to provide personalized recommendations and improve its responses over time, offering an engaging and interactive experience for users. The application's location-based services and user authentication

features further enhance its ability to provide relevant and tailored recommendations.

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Cite this Article

Prof. R. M. Kawale, Mukund H. Sutar, Ayubkhan D. Nadaf, Vishal M. Chormale, Siddheshwar G. Pawar, "LocoSpot – Smart Tourist Guide", International Journal of Scientific Research in Science, Engineering and Technology (IJSRSET), Online ISSN : 2394-4099, Print ISSN : 2395-1990, Volume 10 Issue 3, pp. 239-244, May-June 2023. Available at doi : https://doi.org/10.32628/IJSRSET2310394
Journal URL : https://ijsrset.com/IJSRSET2310394