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TourBuddy: A Tour Guide

Swapnil Wani[1], Mrunmayee Kulkarni[2], Narayan Ananthakrishnan[3], Aditi Pathak[4]

[1]*Assistant Professor,* [2, 3, 4]*Under Graduate Students, Department of Computer Engineering, SIES Graduate School of Technology, Mumbai University Mumbai, Maharashtra.*

Abstract: The tourism industry heavily relies on effective communication and personalized recommendations to cater to diverse traveler needs. In recent years, chatbots have emerged as a promising solution to deliver real-time assistance and tailored suggestions to travelers. The chatbot, which makes use of cutting-edge natural language processing and machine learning algorithms, can comprehend customer inquiries in a variety of languages and offer pertinent details about local businesses, travel, lodging, and attractions. In addition, the chatbot's effectiveness and user satisfaction are assessed for various language groups through user testing and feedback analysis. The findings show that the multilingual tourist chatbot improves traveller engagement and pleasure by efficiently handling language obstacles, making personalised recommendations, and giving travellers insightful information.

Keywords: Personalized recommendations Chatbot, real time assistance Natural language processing, travel, multilingual.

I. INTRODUCTION

The travel and tourism industry has changed and expanded dramatically, relying more and more on technology. Technology has revolutionised booking and trip planning, speeding up the process with online platforms, mobile apps, and AI-powered chatbots. Chatbots are becoming more and more significant in a number of industries, including the travel industry, due to their various benefits. By providing timely responses, customised recommendations, and round-the-clock accessibility, they enhance the client experience. In the tourism sector, they assist with bookings, itinerary planning, and travel information, which increases output and improves customer satisfaction. In the current digital era, chatbots are a priceless tool for businesses since they streamline processes, reduce costs, and offer faultless customer care across a variety of industries.

From the spectacular castles and forts of Jaipur, Jodhpur, and Udaipur to the vibrant colours of its bustling markets and the serene beauty of its desert landscapes, Rajasthan offers an unparalleled sensory experience.

According to recent research, Rajasthan is one of India's most popular tourism destinations for both domestic and international tourists. The state welcomed over 51 million domestic tourists and over 1.5 million foreign visitors in 2019, which greatly enhanced its revenue from tourism.

The objective of this research is to provide valuable insights into the optimal approaches for developing tourism chatbots that effectively convey the spirit of Rajasthan and provide useful resources and assistance to tourists. It accomplishes this by looking at the features, UIs, and technological advancements that the Rajasthan Tourism website makes use of.

II. LITERATURE REVIEW

Chatbots for tourism have risen to prominence as useful instruments for augmenting traveller experiences, delivering tailored suggestions, and giving 24/7 support. With a focus on applications, functionality, and technological foundations, this literature review offers a comprehensive analysis of the research that has already been done on tourism chatbots. The evolution of chatbots for tourism, their function in the travel sector, and the particular needs and difficulties they encounter are all covered. It also examines current developments in the field of tourism chatbot development, point out important areas for further study, and suggest avenues for innovation and development in the future.

This table emphasizes on the important concepts to be highlighted for better understanding of the project.

TABLE 2.1

| Sr.No.	Date and Author	Name	Description
[1]	S. Mohanty and B. K. Swain, 2013	Develop a Double Ended Voice Enabled System (DESES) for use in the travel and tourism (TT) sector of India.	Enable natural language interaction between users and the DESES, making it accessible to both literate and illiterate individuals. Facilitate speech-based input and output for enhanced usability, particularly beneficial for physically challenged users
[2]	R.Srinivasana, M.Kavithab, R.Kavithac, K.Thaslima Nasreend, 2021	Chatbot Application for Tourism using Natural Language Tool Kit	This chatbot utilizes model-based reasoning to improve user experience during conversations, especially when there are too many possible options or when user preferences are too restrictive, leading to inconsistencies.
[3]	Dandison C. Ukpabi and Bilal Aslam and Heikki Karjaluoto, 2021,	Chatbot Adoption in Tourism Services: A Conceptual Exploration	The objective of the research presented in the article is to develop a chatbot for the tourism industry using Natural Language Toolkit (NLTK) and natural language processing techniques.
[4]	M. Lombardi, F. Pascale and D. Santaniello,2021	An application for Cultural Heritage using a Chatbot	The paper aims to demonstrate the effectiveness of chatbots in providing travelers with relevant information, answering inquiries about destinations, and enhancing the overall user experience in trip planning.
[5]	Patrick Steven Siaw Chock Chiong, Amar Seeam, Preetila Seeam,2022	Development of a Smart Tourism Information Chatbot for Mauritius	Deploy a tourism chatbot that will provide the recommendations to tourists coming to Mauritius and attract potential tourists plan their next trip in a few steps, using off-the-shelf technologies (Rasa, Telegram, etc).
[6]	Hoon-Chul Kang; Ki-Beom Kang; Dong-Hyun Kim; Myeong-Cheol Jwa; Tae-Seung Ko, Jeong-Woo Jwa,2023	Smart tourism chatbot system using Multi-domain Tourism Information DST	In this paper, we develop the AI-based chatbot service using a pretrained language model (PLM) and provide tourism information. The proposed chatbot system consists of the DST server, the Neo4J graph DB and MySQL DB servers, NLG server.

III.   PROPOSED METHODOLOGY
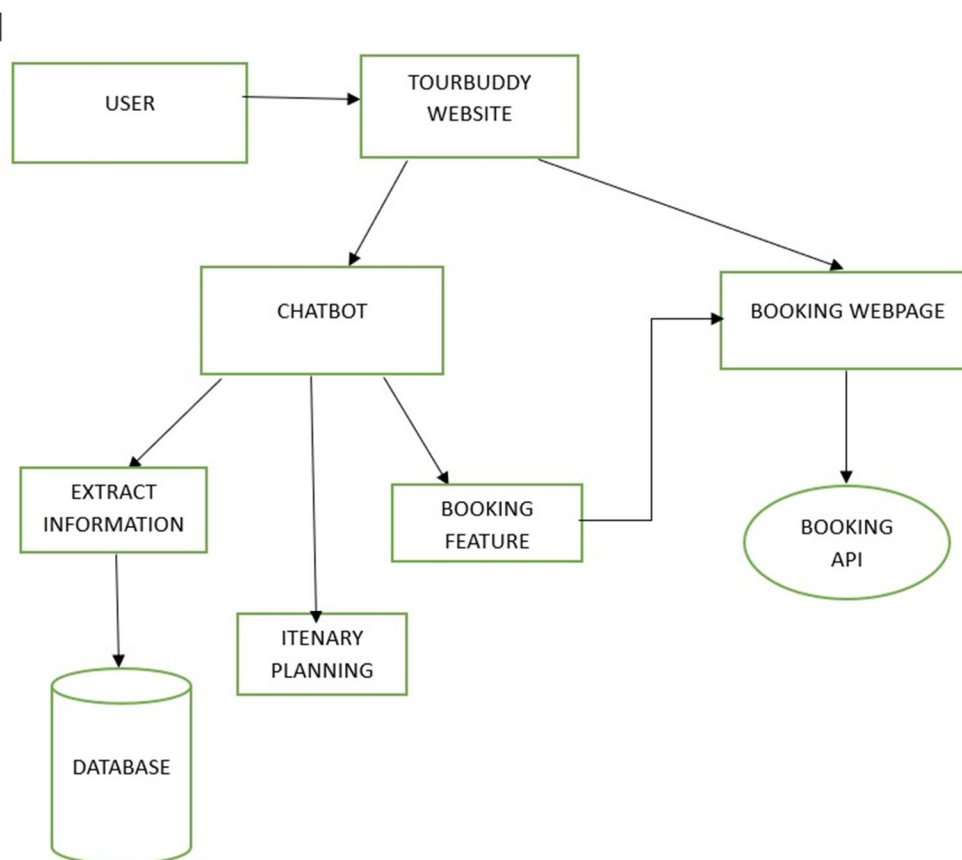
Fig:3.1

A.   Data Collection

The initial phase of our research involved meticulous data collection, wherein we compiled a detailed file comprising comprehensive information extracted from various websites on Google. This step was pivotal as it laid the foundation for our knowledge-based chatbot tailored for Rajasthan. The compiled dataset encompasses a wide range of details, including but not limited to, places to visit, local delicacies, markets for shopping, and distances between attractions within Rajasthan. Through rigorous study and analysis of Rajasthan's cultural and tourist landscape, we curated this dataset to ensure its accuracy and relevance to the target audience. This data serves as the backbone of our chatbot, enabling it to provide users with timely and accurate responses to inquiries related to local food markets and heritage sights in Rajasthan. Additionally, this initial data collection phase has not only facilitated the development of our knowledge-based chatbot but also lays the groundwork for future feature enhancements and expansions, thereby contributing to the ongoing evolution and refinement of our project.

B.   Information Gathering

To respond a user's inquiry about a chatbot designed to help tourists in Rajasthan plan their trip by explaining how the chatbot can help with that process. This is an example of a response:

You may easily explore the beauties of this magnificent state with the aid of a chatbot designed to assist tourists visiting Rajasthan. This is how it can help you:

Destination Recommendations: Whether you're interested in ancient forts, cultural sites, or natural wonders, the chatbot may recommend well-liked tourist locations in Rajasthan depending on your tastes.

Travel Planning: You can ask the chatbot for advice on organising your itinerary, covering lodging, activities, and modes of transportation at each location.

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Local Dining and Cuisine: Find out where to eat traditional Rajasthani food, including street food treats and thalis. Information on well-known cafes and restaurants can also be obtained from the chatbot.

Places to shop in- Suggest places like local streets where you can shop things which are local to places in Rajasthan.

C. Plan Itenary

One of the most important features of Tour Buddy is the itenary planning feature. This innovative feature facilitates the creation of personalized travel plans for users through an interactive dialogue. The development begins with meticulous consideration of user needs, preferences, and constraints. Through the Botpress platform, a structured conversational flow is crafted, enabling the bot to elicit pertinent information from users in a user-friendly manner. The dialogue sequence encompasses queries regarding the user's identity, the duration of their trip, the starting location, preferred destinations to visit, and the allocated budget. Leveraging Botpress adaptable framework, the chatbot dynamically adjusts its inquiries based on user responses, ensuring a fluid and engaging interaction. Furthermore, extensive testing and refinement iterations are conducted to enhance the bot's decision-making logic and conversational prowess. This iterative approach allows for the continual optimization of the itinerary generation process, ultimately yielding tailored travel plans that align precisely with each user's unique preferences and requirements.
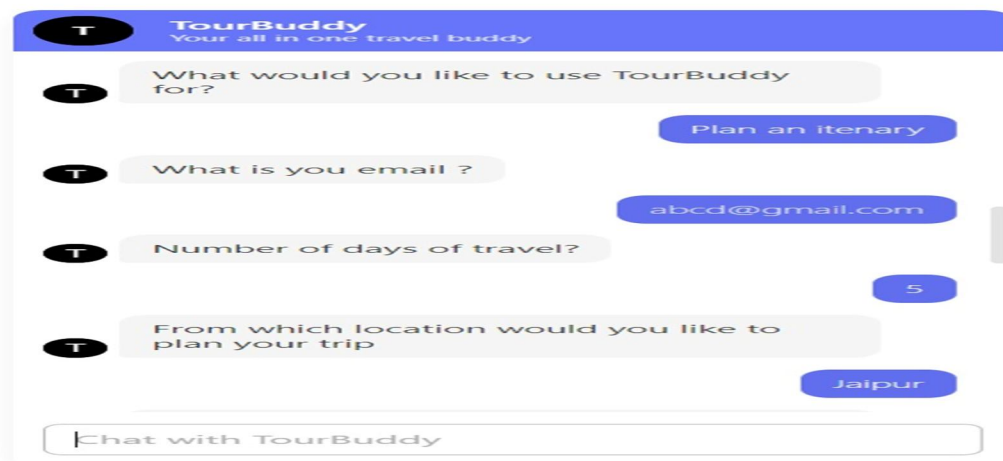
IV. RESULTS

Fig:4.1

Fig:4.2

Fig:4.3

Fig: 4.4

Fig:4.5

V. CONCLUSION

In conclusion, a well-thought-out tourism recommendation system may significantly improve the travel and tourism sector by offering tailored advice to visitors. These systems use cutting edge technology to enhance user experiences and expedite the travel planning process, such as artificial intelligence, natural language processing, and machine learning. Tourism recommendation systems provide personalised recommendations for travel destinations, lodging, activities, and itineraries based on individual tastes. Traveller's benefit from this customisation by being able to make decisions based on their own interests and requirements.

By offering prompt and pertinent information, lessening decision fatigue, and streamlining the travel planning process, these technologies aim to improve the user experience overall. Numerous elements are taken into account by tourism recommendation systems, such as user preferences, historical data, ratings, reviews, and location-specific information. They compile and examine this information to offer thorough recommendations. Recommendation systems for tourism should be updated and enhanced on a regular basis to remain accurate and relevant. For continuous improvement, it is important to consider user feedback, changing preferences, and developing technolog.]y.

To provide a great user experience, it's critical to take ethical factors into account, such as openness in suggestions, fairness, and eliminating biases in the recommendation algorithms.

VI. FUTURE WORK

Virtual Tour Guides: Chatbots with augmented reality (AR) or virtual reality (VR) capabilities can work as virtual tour guides, offering travellers immersive experiences and up-to-date knowledge about monuments, historical sites, and tourist attractions.

Integration with Internet of Things (IoT) Devices: When tourism-related information and services are integrated with IoT devices, such as wearables, smart speakers, and connected cars, travellers can access them more conveniently and easily by being able to access them hands-free.

Travel Agents Powered by AI: State-of-the-art artificial intelligence algorithms empower chatbots to function as knowledgeable travel advisors. By continuously gaining knowledge from user interactions and comments, these agents can anticipate travellers' needs, provide more insightful recommendations, and offer proactive support.

Sustainability and Responsible Tourism: By helping travellers make environmentally responsible decisions by supplying information about eco-friendly lodging, ethical tour operators, and sustainable travel options, chatbots can support sustainable and responsible tourism practices.

REFERENCES

[1] S. Mohanty and B. K. Swain, "Double ended speech enabled system in Indian travel & tourism industry," EEE International Conference on Computational Intelligence and Computing Research, Enathi, India, pp. 1-7, 2021.

[2] R.Srinivasana, M.Kavithab, R.Kavithac, K.Thaslima Nasreend, "Chatbot Application for Tourism using Natural Language Tool Kit," TURCOMAT, vol. 12, no. 9, pp. 1786-1789, 2021.

[3] Dandison C. Ukpabi and Bilal Aslam and Heikki Karjaluoto, "Chatbot Adoption in Tourism Services: A Conceptual Exploration," Robots, Artificial Intelligence, and Service Automation in Travel, Tourism and Hospitality, 2021.

[4] M. Lombardi, F. Pascale and D. Santaniello, "An application for Cultural Heritage using a Chatbot,," 2nd International Conference on Computer Applications & Information Security (ICCAIS), Riyadh, Saudi Arabia, 2019, pp. 15-20, 2019.

[5] Chiong, Patrick Steven Siaw Chock, Amar Kumar Seeam and Preetila Seeam. "Development of a Smart Tourism Information Chatbot for Mauritius." *International Conference on Intelligent and Innovative Computing Applications* (2022): n. pag.

[6] M. Lombardi, F. Pascale and D. Santaniello, "An application for Cultural Heritage using a Chatbot,," 2nd International Conference on Computer Applications & Information Security (ICCAIS), Riyadh, Saudi Arabia, 2019, pp. 15-20, 2019.4

[7] F. Clarizia, F. Colace, M. De Santo, M. Lombardi, F. Pascale and D. Santaniello, "A Context-Aware Chatbot for Tourist Destinations,," 2019 15th International Conference on Signal-Image Technology & Internet-Based Systems (SITIS), Sorrento, Italy, 2019, pp. 348-354, doi: 10.1109/SITIS.2019.00063..

[8] K. K. D. N. Dilshan, U. M. D. M. Parussella, H. M. C. J. Herath, C. A. J. P. Chandranath, S. Thelijjagoda and T. Jayalath, "JESSY: An Intelligence Travel Assistant," 2021 3rd International Conference on Advancements in Computing (ICAC), Colombo, Sri Lanka.

[9] J. Bozic, O. A. Tazl and F. Wotawa, "Chatbot Testing Using AI Planning," 2019 IEEE International Conference On Artificial Intelligence Testing (AITest), Newark, CA, USA, 2019, pp. 37-44, doi: 10.1109/AITest.2019.00-10..

[10] Neha K. Kulkarni , Nilesh Marathe,, "Tour Planning Chatbot for Tourism and Travel Industry," INTERNATIONAL JOURNAL OF ENGINEERING RESEARCH & TECHNOLOGY (IJERT) Volume 11, Issue 05 (May 2022).

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