Chat-Bot for Travel Assistance

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ABSTRACT
One of the major drivers of the economies of many nations worldwide is tourism. The newest technology being adopted by hotels, travel companies, and airlines is chatbots. Thanks to artificial intelligence, chatbots were made possible. One of the important factors in the growth of tourism and the support of interconnection is the use of digital technology. For individuals who need rapid information on any tourist destination, it is quite helpful. It is essential to acquire knowledge of any destination before planning a trip there. The developed chatbot program responds to all of the user's inquiries about locations nearby, travel times, specialties, etc.
Chatbots have acquired a great deal of importance for research and other practical purposes with a ton of apps available today. Our chatbot application provides people the facility of textual communicationfor planning trips and enquiring about interesting sights worthy of their significance.
Keywords: *chatbot, Artificial Intelligence (AI), Natural Language Processing (NLP), Machine Learning (ML), Neural Net (NN).*

I. INTRODUCTION

The current strongest and largest industry in the globe is tourism with worldwide economy accounting for about 11% of global gross domestic product (GDP). Many travelers these days like to obtain all the necessary facts to make a judgement that is clear-cut required to go to a specific location. Hence, a chatbot is preferred over search engines and browsers by most users in most cases. Artificial intelligence has played a key role in the development of chatbots. Every element of our lives is changing because of AI. Every area of the tourism and travel sector is now permeated by AI. Globally, AI is having a significant impact on the travel and tourism sector.

A chatbot is a software solution which uses artificial intelligence to interpret and reply to human speech. A chatbot is a "computer software meant to imitate a conversation with human users, especially over the Internet,"

according to the definition. These chatbots are in extremely high demand and utilization, particularly in the tourism industry. Chatbots are employed in the tourism and hospitality sectors to streamline services including reservations, recommendations, and other functions.Because thesechatbots are more educational and user-friendly than travel assistant apps, many consumers prefer using them. There are many different kinds of chatbots, including text- and voice-based ones. In this project, we are making a text based chatbot for travel assistance related purposes.

II. CHATBOT BASICS

One of chatbots' key qualities is that they try to sound human when interacting with humans. To understand one or more human languages, all chatbot apps use artificial intelligence mark-up language or natural language processing. The recently created chatbot technology would be one of the most practical and user-focused applications of artificial intelligence (AI). A chatbot knowledge-base is a collection of dialogue management rules that are employed by various processing techniques.Designing a highly profitable chatbot

necessitates a good plan in order to provide outstanding customer service, boost brand value, and differentiate the company from rivals. Technology providers are also creating a range of pre-built APIs and platforms that enable chatbot development with minimal coding. By relying on voice notes, text, and UX, chatbots make sure to provide consumers with experiences that are nearly ideal. This enables users to receive the responses they expect in a form that is more similar to how a real human would have typed or spoken. Since the information is available immediately in the chatbot, the user wouldn't have to spend a lot of time looking around on different websites and keep making sense out of the overwhelmingly large amount of data available on the internet.
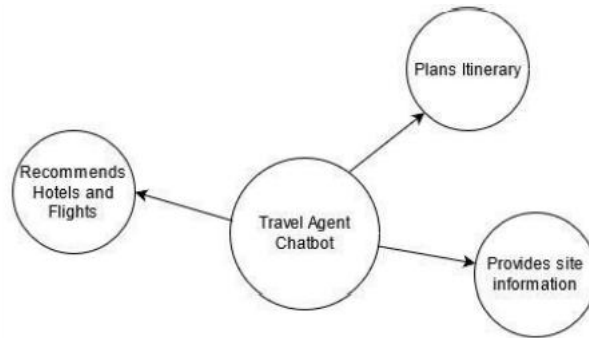
### III. CHATBOT WORKING AND SOFTWARE

A. CHATBOT ARCHITECHTURE

Our solution uses a chatbot application to receive input in the form of text or speech, analyses that information using Natural Language Processing techniques to determine what the user is attempting to say or ask, and then answers appropriately. The three primary modules of our system are as follows: A knowledge base, which serves as it's brain, a voice recognition engine, which serves as a user-machine interface, and an interpreter program. To construct an intelligent travel chatbot, we can use deep learning to build a knowledge base and combine it with machine learning and AI techniques. Dialogflow, Open Weather Map, Kaggle dataset, Python, and Google Cloud Platform could be used in its development. The user's request will be understood by the message processing system, and after that the user text's intent is determined by the intent categorization module. Usually, it involves choosing one of several predefined intentions, while more advanced chatbots can recognize numerous intents from a single message. The context information, such as the prior message history's intentions, is used in intent categorization. The entity recognition module takes the user's text and derives structured information from it. For instance, the open weather map API (Application Programming Interface) can be used by weather intent to retrieve the weather report. The candidate answer generator processes the user request by performing all the domain-specific computations. It employs various techniques, such as external APIs, or even asks a person to assist with the development of responses. These calculations result in a list of potential responses. All of these responses ought to be accurate based on the logic used in the domain. The last user message's entities and purpose must be used, along with the context, by the response generator.
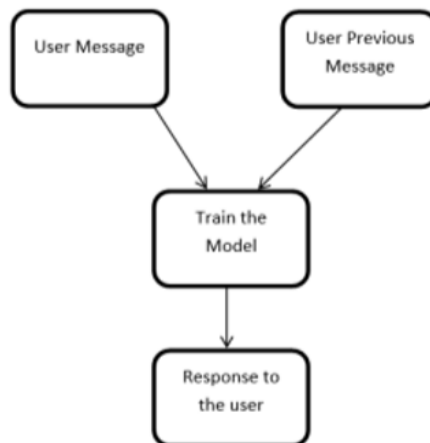
B.   DIALOGFLOW MODEL

Many chatbots use decision tree logic, thus the response they provide depends on the keywords the user enters that are identified. Through conveniently accessible live chats that are available day or night, chatbots can connect to backend systems and give necessary information. Several frameworks, including Microsoft Bot Framework, Wit.ai, Dialogflow, IBM Watson, etc., can be used to create chatbots. Starting with the user's input inquiry in the chatbot interface, the algorithm is applied within the chatbot and after that, the message is filtered by central processing and the chatbot engine. Certain characteristics can appear to be human responses and resemble human intelligence. The engine next establishes a connection to the company's database, where all company information is stored and regularly updated to produce reliable information. The bot will respond to the user's inquiry in the last phase with the most relevant response.
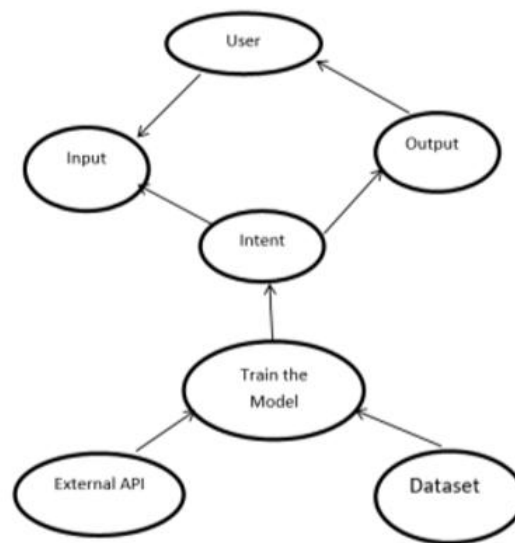
IV.   CHATBOT ADOPTION IN TOURISM

The travel and tourism industry stands to gain a lot from chatbots. Customers are being drawn in by their usability as more and more people use chatbots to communicate on platforms like Facebook Messenger and WhatsApp. In other cases, chatbots are also capable of performing duties like providing precise information on the vacation spot we choose, booking hotels, determining the quickest route, etc. Natural language processing is carried out by Natural Language Understanding (NLU), which extracts all intentions, entities, and any structured information from user input messages. We use a dataset in this chatbot that includes examples of user messages such as hellos, goodbyes, searches, requests for information about restaurants, shopping malls, hotels, cafes, requests for recommendations for locations close to the user, live location, as well as weather data in order to respond to the user's inquiry. When the user wants information, the chatbot can provide it to them in their native tongue.

V. CONCLUSION

Conversational chatbots will have a big influence and be better for users because they give more accurate information than travel app competitors. Once implemented, the software will have a significant impact on many users and replicate actual travel firms. All user travel-related queries could be centrally located on our system. Technological fear positively modifies the correlations between chatbot quality factors and post-use endorsement. The study of this project indicates that the use of chatbot brings increase in productivity and profit for travel and tourism based businesses

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