Project Synopsis

on

**RESERVATION HUB: NESTED CHATBOT**

Submitted as a part of course curriculum for

**Bachelor of Technology**

in

**Computer Science**



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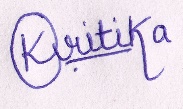
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**DECLARATION**

We hereby declare that this submission is our work and that, to the best of our knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgement has been made in the text.



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**CERTIFICATE**

This is to certify that Project Report entitled “**Reservation Hub: Nested Chatbot**” which is submitted by **Kritika Dubey, Khushi Chandelia and Lokesh Verma** in partial fulfilment of the requirement for the award of degree B. Tech. in Department of Computer Science of Dr A.P.J. Abdul Kalam Technical University, Lucknow is a record of the candidates own work carried out by them under my supervision. The matter embodied in this report is original and has not been submitted for the award of any other degree.

**Date: 12/12/2021 Supervisor Signature**

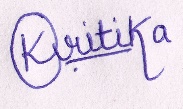
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**ABSTRACT**

Besides Booking ticket, IRCTC also provide customers to check the Passenger Name Record (PNR) status, Running Status of Train,andTrain Schedule*.*

While the time taken to get the information is under two minutes for most cases, but there are some common complaints related to:

Toomuch information and tables of text require more time to parse the information and find what we were looking for.

The website doesn’t load fast or does not have the updated information.

Taking in consideration to the above discussed problem our team has come up with a better way to present the Reservation status.

Implementation of Chatbot in the website, being lightweight and nimble seemed adept for this situation.

Using the power of chatbots to serve travel related information in a quick and easy to consume format.

The essential feature includes the ability to quickly answer customer queries, ability to multitask, ability to provide round-the-clock customer support and overall customer satisfaction.

**INTRODUCTION**

Reservation Hub is providing a place where user can book their seats in trains and also can ask their queries and train status. So, to simplify this process we have introduced a chatbot on reservation site.

The purpose of this source is to describe the railway reservation system which provides train timing details, reservation, billing and cancellation on a chatbot.

Taking in consideration to the above discuss purpose our team has come up with a better way to represent the reservation status. Implementation of chatbot in the website being lightweight and nimble seemed adept for this situation. Using the power of chatbot to serve travel related information in a quick and easy to consume format.

It is fast and concise and also it provides easy way to the passenger to get the queries.

**PROBLEM STATEMENT**

Besides Booking ticket, IRCTC also provide customers to check the Passenger Name Record (PNR) status, Running Status of Train,andTrain Schedule*.*

While the time taken to get the information is under 2 minutes for most cases, there are some common complaints related to:

Too much information and tables of textrequire more time to parse the information and find what we were looking for.

The websitedoesn’t load fast or does not have the updated information.

**OBJECTIVE**

Taking in consideration to the above discussed problem our team has come up with a better way to present the Reservation status.

Implementation of Chatbot in the website, being lightweight and nimble seemed adept for this situation.

Using the power of chatbots to serve travel related information in a quick and easy to consume format.

Fast and Concise.

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**LITERATURE REVIEW**

**DESIGN AND DEVELOPMENT OF CHATBOT- A REVIEW**

Summary

One of the essential tasks in a machine learning and natural language processing is the modelling of conversation. Although chatbots can perform many tasks, the primary function they have to play is to understand the utterances of humans and to respond to them appropriately.

Then we presented different related works to our subject, and the AI concepts needed to build an intelligent conversational agent based on deep learning models Finally, we presented a functional architecture that we propose to build an intelligent chatbot for health care assistance.

The chatbot is also known as chatter robots, are software agents that simulate human conversation via text or voice messages. One of the 1st and main goals of Chatbot had always been to resemble an intelligent human and make it hard for others to understand their real nature.

These conversational agents can go into a point of fooling the users and making them believe they are talking to a human, but are very limited in improving their knowledge base at runtime. In order to understand the user input and provide a meaningful response, the chatbot uses deep learning methods.

Moreover, they interact with humans, using natural language ,different applications of Chat-bots such as medical chatbots, call centres, etc. Better organization of patient information, medication management.

The mean research topics in natural language processing (NLP) are user intention identification and Information extraction. Recently the development of deep learning and deep neural network models have helped a lot in building self-learning chatbots.

**A Tool of Conversation: Chatbot**

Summary

Chatbot is widely popular now-a-days and catching speed as an application of computer communication. This paper addresses the design and implementation of a Chatbot system. We will also study another application where Chatbots could be useful and techniques used while designing a Chatbot.

A chatbot is a program designed to counterfeit a smart communication on a text or spoken ground. But this paper is based on the text only chatbot. Chatbot recognize the user input as well as by using pattern matching, access information to provide a predefined acknowledgment.

When the input is bringing into being in the database, a response from a predefined pattern is given to the user. A Chatbot is implemented using pattern comparing, in which the order of the sentence is recognized and a saved response pattern is acclimatize to the exclusive variables of the sentence.

The application of a Chatbot can be seen in various fields in the future. This paper covers the techniques used to design and implement a Chatbot. A Chatbot refers to a chatting robot. It answers to the questions asked by the user. During designing a Chatbot, how does the Chatbot speak to the user?

And how will be the conversation with the user and the Chatbot is very important The Chatbot is created in such a way to help the user, improve the communication and amuse the user. Chat dialog box show up to create a conversation.

**A Survey on Railway Reservation Bot Using NLP**

Summary

In this paper, we going to look about RAILBOT the usage of NLP (Natural Language Processing) in Artificial Intelligence. Traditionally, to get a query replied by means of a software program application software concerned the usage of a search engine or filling out a form.

The era at the middle of the upward thrust of the chatbot is natural language processing. It may be advanced by using integrating it into the company`s corporation software program, allowing more personal questions to be spoke back. This paper effectively defined and carried out a chatbot which can be used to get a few fundamental statistics related to Indian Railway including PNR, teach popularity and Seat Availability, and so on.

It saves the time of the person as they are able to without delay fetch the statistics at the identical time as speaking with the Chatbot the use of text or voice in the above-mentioned deployed strategies.

In this paper, we`re going to see approximately the NLP with the NLTK toolkit and a few techniques, there has been a current upsurge in speech-based search engines like google and yahoo and assistants together with Siri, Google Chrome and Cortana.

Natural Language Processing (NLP) strategies together with NLTK for Python can be implemented to have a look at speech, and clever responses can be decided with the resource of designing an engine to provide appropriate human like responses.

**RAILBOT: A Railway (IRCTC) Chatbot**

Summary

Artificial Intelligence Applied to Challenges in the Fields of Operations and Customer Support Traditionally, Mastercard has been seen as simply a payment processor, and while that remains a large part of the business Mastercard also offers hundreds of products to financial institutions and others in its ecosystem around the world.

Their systems accumulate data and, in this paper, they present four different examples of applying Artificial Intelligence to this data to solve business problems.

The developed chatbot relies on textual entailment to identify the best answer for a statement conveyed by a human agent. To exploit domain knowledge, the agent uses climate change ontologies converted into an adequate format for the API. AI model. Hence, we developed a Climebot, which is an argumentative agent for climate change based on ontologies and textual entailment.

Executable Semantics of Recursively Nestable Dialog Flow Specifications for Web Application Information systems for the support of complex business processes are often equipped with web-based front-ends to allow convenient user access.

To produce executable specifications of the users` interactions with such web-based applications, we use a visual language that enables developers to model their complex dialog structures.

Study on the Public Information Service Systems of Railway Industry As we enter the 21st century, we experience one of the most important changes in our lives—information technology has been an important resource in the modern scientific and technology competition.

**An Overview of Machine Learning in Chatbots**

Summary

A chatbot is an intelligent system which can hold a conversation with a human using natural language in real time. Due to the rise of Internet usage, many businesses now use online platforms to handle customer inquiries, and many of them turn to chatbots for improving their customer service or for streamlining operations and increasing their productivity.

However, there is still a gap between existing chatbots and the autonomous, conversational agents businesses hope to implement .The research findings suggest that chatbots operate in three steps: understanding the natural language input; generating an automatic, relevant response; and, constructing realistic and fluent natural language responses.

A chatbot, also known as a conversational agent, is a computer software capable of taking a natural language input and providing a conversational output in real time .For example, ELIZA in 1966 matched user prompts to scripted responses, and Artificial Linguistic Internet Computer Entity (ALICE) in 1995 introduced natural language processing (NLP) to interpret user input.

These assistants are now using voice recognition powered by AI to learn the words and phrases of the user`s voice in order to interact with users in a personalized manner. Although there are still improvements to be made, voice recognition technology is becoming increasingly used in business and commerce which can hear and understand what you are saying even in noisy environments Chatbots can only recognize specific sentence structures;

**Chatbots: - Are they Really Useful?**

Summary

The need of conversational agents has become acute with the widespread use of personal machines with the wish to communicate and the desire of their makers to provide natural language interfaces (Wilks, 1999) Just as people use language for human communication, people want to use their language to communicate with computers agreed that the best way to facilitate Human Computer Interaction (HCI) is by allowing users to express their interest, wishes, or queries directly and naturally, by speaking, typing, and pointing.

A chatbot system is a software program that interacts with users using natural language. Different terms have been used for a chatbot such as: machine conversation system, virtual agent, dialogue system ,and chatterbot.

Initially, developers built amused chatbots for fun ,and used simple key word match- ing techniques to a match of a user input, such as ELIZA. The seventies and eighties, before the arrival of graphical user interfaces, saw rapid growth in text and natural-language interface research, e. g. Cliff and Atwell A987).

Since that time, a range of new chatbot architectures have been developed, such as (, CONVERSE ELIZABETH, HEXBOT ) , With the improvement of data-mining and machine-learning techniques, better decision-making capabilities, availability of corpora, robust linguistic processing tools standards like XML and its applications, chatbots have become more practical, with many commercial applications .

**METHODOLOGY**

We are using HTML, CSS, JavaScript Library (REACT.JS) and framework (ANGULAR) for client-side programming.

DJANGO for server-side programming.

MYSQL for Databases.

We are using MACHINE LEARNING concept for Chatbot implementation in Python Programming Language.

**FLOW CHART**

**OUTCOME OF THE PROJECT**

The essential feature includes the ability to quickly answer customer queries, ability to multitask, ability to provide round-the-clock customer support and overall customer satisfaction.

The IRCTC Chatbot will support Hindi/English Language plus will be voice enabled.

Confirmation of the user query eliminated misunderstanding

Dummy friendly

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