

# Rasa Tourism Chat Bot

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## ABSTRACT

Artificial Intelligence is the new prime factor for paradigm shift of the new age technologies. It has created a new realm in every field- from education to entertainment or from biotechnology to manufacturing industry. Though tourism is a late runner in this race, but this sector has also witnessed a huge change with the magical touch of AI. This sector being one of the highly emerging sectors, contributing very high GDP, has adapted several machine learning techniques or data analytics, which has made tourism model smarter and dynamic. In India, tourism has an ample scope to grow and Indian tourism sectors are also adapting several popular AI techniques like deep learning, artificial neural network, predictive analytics, robotics or new technologies like virtual reality or augmented reality. This technological adaptation has made their services much better, heled in dynamic pricing, or for smart customer experience management. This paper has conducted a study on Indian tourism sectors providing online services and discusses about the current AI technologies used by them while exploring the pros and cons faced by them. The paper is alienated in three different segments- section 1 contains introduction part, section 2 discusses about related works in similar area, third section deliberates about different AI techniques adapted by Indian tourism sectors along with their pro and cons.

Keywords: Intelligent chatbot, Virtual assistants, Tourism tasks.

## I. INTRODUCTION

Tourism sector has witnessed a paradigm shift with the rapid adaptation of AI technologies like automation, virtual reality, machine learning algorithms which has made the tourism sector more smart and dynamic. Specially for the last few years tourism sector, being

one of the highest commercial sectors, gaining competitive advantages by adapting AI techniques to solve their problems.

E commerce sectors are of several types, like B2B, B2C, C2C, B2G, G2B E commerce. This paper mainly emphases on Business to Customer (B2C) E commerce

as tourism sectors are mostly customer centric and there

are many E Commerce websites running their businesses in India like GoIbibo.com, makemytrip.com, yatra.com etc. Nowadays they are using AI applications for dynamic price fixing, recommendation engine, better customer management, facilitating customized booking etc. Mostly Business to consumer sectors work in tourism industry.

E Commerce services have the facilities like 24x7 customer support, better customer management and improved service etc. and with the addition of technologies like natural language processing, robotics or data analytics this sector is being influenced to achieve a higher competitive advantage. By a report of Business line on use of AI by Indian Tourism sector online E Commerce sites like MakeMyTrip and GoIbibo are using voice based intelligent chatbots for online ticket booking and they are able to customize the booking options. According to the report, by 2020, Make My Trip could be one step place for booking by 2020.

Tourism sector is focusing on artificial intelligence for the last few years. The industry has been revolutionized. Mainly in few areas have got the focus-Robotics, Automation of services, recommendation engine, chatbot or intelligent agents etc. Nowadays the hotels are using robotic science also for service automation and many improved technologies are being used for smart tourism. In this highly competitive era, customer satisfaction is the primary condition of getting business, so generating travel lists depending upon the customers' behavior is a new trick applied by the tourism industries and giants like GoIbibo, makemytrip.com or oyo.com are also using such strategies to attract more customers and to get the competitive advantage., will discuss more detailed about several techniques of AI are used in Indian tourism scenario.

## II. RELATED WORKS

### **An effective product recommendation for E Commerce website using hybrid recommendation system**

E-Commerce websites are the major emerging trends in the current scenario, which facilitates online product selection, purchase and sales. Nowadays E-

commerce websites have better popularity and advent nature, so numerous count of users wish to share their opinions about their experience in the form of making reviews, ratings and blogs. A lot of Recommender System (RS) have followed the above mentioned factors for finest product suggestion to the users. Although, the results are best and reliable, the e-commerce system should take extra considerations on the related/similar product analysis. The personalization can't be determined with only product similarity, this also need to be identified by their personalized features and interest. So, the proposed system performs effective product recommendation and increases the customer satisfaction.

**"Recommender systems in ecommerce."** The majority of the current customized recommender frameworks utilize either cooperative sifting or information digging for giving proposals. Notwithstanding, such strategies are plagued with issues of sparsity and versatility. In this paper, we present a Framework for Customized Proposals in Online business (Binge) that joins the qualities of both cooperative sifting and information digging for giving better suggestions. We tentatively assess our framework and show the advantages utilizing a bunch of genuine and engineered datasets. We likewise propose a clever closeness metric for productively processing cooperative clients. Exploratory outcomes show that the proposed comparability metric ultimately depends on 12 significant degrees quicker and has better prescient abilities contrasted with other closeness measurements. **Current Applications of Artificial Intelligence in Tourism and Hospitality,**

The unrest achieved with the advancement of ICTs has caused sensational changes in the movement business and friendliness industry. The Development 2.0 destinations depicted by sharing information energetically have been winning for a long time and are getting ready for the use of substantially more mind boggling sharp systems in the movement business and kind disposition. Taking into account the intricacy of the movement related dynamic cycle, keen frameworks and the travel industry fit in impeccably. Administration computerization, man-made brainpower and robots have furnished the travel industry organizations and associations with huge new open doors. Computerized reasoning has proactively been embraced somewhat in different pieces of the

movement business, nevertheless, the sensible composing with respect to the matter continues to be meager. This paper means to proceed with the conversation on the man-made consciousness applications in the travel industry which has quite recently begun as of late, consequently giving truly necessary logical perspective regarding the matter. **‘Conversational recommendation system with unsupervised learning’** We will show a conversational items suggestion specialist. This framework shows how we consolidate research in customized suggestion frameworks with research in exchange frameworks to construct a virtual deals specialist. In view of new profound learning advancements we created, the virtual specialist is fit for figuring out how to connect with clients, how to respond to client questions, what the following inquiry to pose is, and what to suggest while talking with a human client. Regularly a plunge conversational specialist for a specific space requires a huge number of hand named conversational information or manually written rules. This is a significant boundary while sending off a discussion specialist for another space. We will investigate and show the viability of the learning arrangement in any event, when there is no manually written rules or hand named preparing information.

### Information Extraction for a Tourist Recommender System, Information and Communication Technologies in Tourism

Information extraction algorithms are presented for a semantic personalised recommender system 'Sightsplanner' for tourists visiting Tallinn, Estonia. The main challenges are: information is spread across various information sources, it is usually stored in proprietary formats and is available in different languages in varying degrees of accuracy. These challenges are addressed and ideas on how to deal with each of them are presented: scraping and extracting keywords from different web portals with different languages, dealing with missing multilingual data and identifying the same objects from different sources.

### III. Methodology

#### Proposed system:

Existing Systems were based on either rule based or neural networks but rasa brings best of both worlds. It uses both rule based engines and neural networks based models to deliver output and produce user-like

conversations. In proposed system, the passengers no need to go to travel centers to get the all information about travelling (vehicles) and facilities. It takes less time to train as we are using pre-trained neural network and using transfer learning on them.

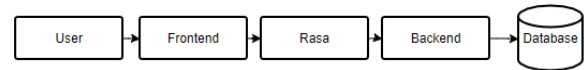


Figure 1: Block diagram

## IV. IMPLEMENTATION

### NATURAL LANGUAGE PROCESSING:

Normal language processing (NLP) is a subfield of semantics, software engineering, and computerized reasoning worried about the collaborations among PCs and human language, specifically how to program PCs to process and examine a lot of regular language information. The outcome is a PC prepared to do "grasping" the items in reports, including the logical subtleties of the language inside them. The innovation can then precisely extricate data and experiences contained in the records as well as arrange and coordinate the actual archives. A chatbot is a NLP programming that can reproduce a discussion (or a talk) with a client in normal language through informing applications, sites, versatile applications or through the phone.

For what reason are chatbots significant? A chatbot is much of the time depicted as one of the most evolved and promising verbalizations of joint effort among individuals and machines. Regardless, as per a mechanical viewpoint, a chatbot simply addresses the ordinary improvement of a Request Answering structure using Standard Language Dealing with (NLP). Sorting out responses to requests in standard language is one of the most well-known Occurrences of Typical Language Taking care of applied in various endeavors' end-use applications.

Transform human language into organized information

Rasa Open Source gives open source normal language handling to divert messages from your clients into expectations and substances that chatbots comprehend.

In light of lower-level AI libraries like Tensorflow and spaCy, Rasa Open Source gives normal language handling programming that is receptive and as adaptable as need might arise. Make ready quick with simple to utilize default setups, or trade out custom parts and adjust hyperparameters to get the most ideal exhibition for your dataset.

Rasa Open Source is the most adaptable and straightforward answer for conversational artificial intelligence — and open source implies you have unlimited authority over building a NLP chatbot that truly helps your clients.

What is normal language handling?

Regular language handling is a classification of AI that breaks down freestyle text and transforms it into organized information.

Normal language handling is the fundamental step that transforms a series of words into a structure that can be deciphered and followed up on by different frameworks in the application.

This cooperation encourages fast development and programming dependability through the aggregate endeavors and abilities of the local area.

The Rasa Exploration group unites a portion of the main personalities in the field of NLP, effectively distributing work to scholarly diaries and gatherings. The most recent areas of examination incorporate transformer designs for plan characterization and element extraction, move advancing across exchange errands, and packing enormous language models like BERT and GPT-2. As an open source NLP instrument, this work is profoundly noticeable and reviewed, tried, and worked on by the Rasa People group.

Rasa Open Source permits you to prepare your model on your information, to make an associate that figures out the language behind your business. This adaptability additionally implies that you can apply Rasa Open Source to various use cases inside your association. You can utilize a similar NLP motor to construct a partner for interior HR undertakings and for client confronting use cases, similar to customer banking.

Provincial vernaculars and language backing can likewise introduce difficulties for some ready to move NLP plans. Rasa's NLU designing is absolutely to deal with various expectations in a solitary message, mirroring the manner in which clients truly talk. Consider a model like "Indeed, put in my request. At the point when will it show up?" Rasa's NLU motor can prod separated various client objectives, so your remote helper answers normally and fittingly, even to complex information.

Rasa's open source NLP motor likewise empowers designers to characterize progressive elements, by means of substance jobs and gatherings. This opens the capacity to show complex conditional discussion streams.

All client messages, particularly those that contain delicate information, stay no problem at completely on your own framework. That is particularly significant in managed ventures like medical care, banking and protection, making Rasa's open source NLP programming the go-to choice for enormous business IT conditions. Hidden NLU model execution testing and planning data transformation control

Rasa's open source NLP engine comes outfitted with model testing limits out-of-the-box, so you ought to have confidence that your models are getting more exact after some time, before you pass on to creation.

Measure F1 score, model conviction, and contemplate the show of different NLU pipeline arrangements, to keep your partner running at max activity. All NLU tests support blend with industry-standard CI/Smaller plate and DevOps instruments, to make testing a robotized game plan step, dependable with planning endorsed methodology.

The Rasa stack additionally interfaces with Git for rendition control. Treat your preparation information like code and keep a record of each and every update. Effectively reign in changes and carry out audit and testing work processes, for unsurprising, stable updates to your chatbot or voice associate.

A discussion driven way to deal with regular language handling

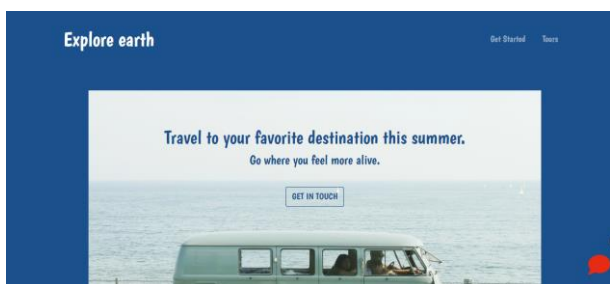
Indeed, the best NLP frameworks are just basically as great as the preparation information you feed them. Contrasted with different devices utilized for language handling, Rasa underlines a discussion driven approach, utilizing experiences from client messages to prepare and show your model how to work on after some time. Rasa's open source NLP works consistently with Rasa X to catch and get a handle on discussion information, transform it into preparing models, and track enhancements to your chatbot's prosperity rate.

### Contextual Conversations

Taking context into account is often key to providing a good user experience. This page is a guide to creating contextual conversation patterns.

### V. Results and Discussion

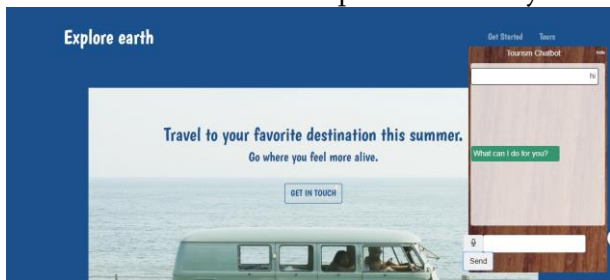
The following screenshots are depicted the flow and working process of project.



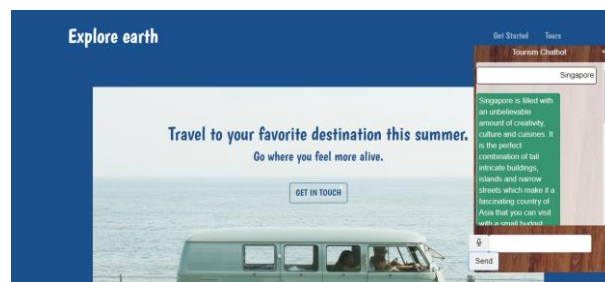
Above is the home page of the project



In above screen chatbot is opened and ready to use



In above screen chatbot ask if the user needs any help



In above screen chatbot's response

### VI. Conclusion

Chat bots are a thing of the future which is yet to uncover its potential but with its rising popularity and craze among companies, they are bound to stay here for long types of chat bots being introduced, it is of great excitement to witness the growth of a new domain in technology while surpassing the previous threshold. We are inventing the system because of the need of the increasing population of our country. As we know if we want to travel from one place to another place (national/international) we need to go to travel centres we need to get the all information about travelling structure in the sense how would be the travel maintenance, availability of travels (buses, trains, flights), timings, stoppings, availability of seats, food facility (inside flights), travels management (how would be the staff(driver, conductor, pilot), food providers, first aid facilities while traveling), etc., Thus, the tourism chatbot will give the assistance to the students even the passengers no need to visit the travel centres.

### VII. REFERENCES

- [1]. Shruti S. and Gripsy J. V.(2017),An effective product recommendation for E Commerce website using hybrid recommendation system,IJCSC,8(2),2017,pp-81-88.
- [2]. Schafer, J. Ben, Joseph Konstan, and John Riedl. "Recommender systems in ecommerce." Proceedings of the 1st ACM conference on Electronic commerce. ACM, 1999.
- [3]. Zlatanov S and Popesku J(2019),Current Applications of Artificial Intelligence in Tourism and Hospitality, International Scientific conference on Information Technology and data

- related research, January 2019, DOI: 10.15308/Sinteza-2019-84-90.
- [4]. Y. Sun, Y. Zhang, Y. Chen, and R. Jin, 'Conversational recommendation system with unsupervised learning', pp. 397–398. Association for Computing Machinery, Inc, (2016).
- [5]. Ayeh K. J and et. al. Information Extraction for a Tourist Recommender System, Information and Communication Technologies in Tourism 2012: Proceedings of the International Conference in Helsingborg, Sweden, January 25–27, 2012.
- [6]. Divya, Indumathi, Ishwarya, Priyasankari, "A SelfDiagnosis Medical Chatbot Using Artificial Intelligence", proceeding MAT Journal, October-2017.
- [7]. Tobias Kowatsch," Text-based Healthcare Chatbots Supporting Patient and Health", 01 October 2017.
- [8]. Chin-Yuan Huang, Ming-Chin Yang, Chin-Yu Huang, "A Chatbot-supported Smart Wireless Interactive Healthcare System for Weight Control and Health Promotion", proceeding of the IEEE, April-2018.
- [9]. Boukricha, H., Wachsmuth, I.: Modeling Empathy for a Virtual Human: How, When and to What Extent. The 10th International Conference on Autonomous Agents and Multiagent Systems-Volume 3. International Foundation for Autonomous Agents and Multiagent Systems, 2011, pp. 1135–1136
- [10]. Agarwal, R., Gao, G., DesRoches, C., et al.: The Digital Transformation of Healthcare: Current Status and the Road Ahead. Information Systems Research 21, 796-809 (2010).
- [11]. Aron, A., Aron, E.N., Smollan, D.: Inclusion of Other in the Self Scale and the structure of interpersonal closeness. Journal of Personality and Social Psychology 63, 596-612 (1992).
- [12]. Bickmore, T., Cassell, J.: Social Dialogue with Embodied Conversational Agents. In: Kuppevelt, J.C.J., Bernsen, N.O., Dybkjær, L. (eds.) Advances in Natural Multimodal Dialogue Systems, vol. 30, pp. 23–54. Springer, Dordrecht (2005).
- [13]. Bickmore, T., Gruber, A., Picard, R.: Establishing the computer–patient working alliance in automated health behavior change interventions. Patient Education and Counseling 59, 21-30 (2005).

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