

# AI Based Chatbots

Aditi Rahul Jadhav, Ghodke Mayuri Balaji, Telangi Rahul Digambar

Department of Computer Engineering, Zeal College of Engineering and Research, Pune, Maharashtra, India

## ABSTRACT

### Article Info

Volume 9, Issue 2

Page Number : 348-357

### Publication Issue :

March-April-2022

### Article History

Accepted : 15 March 2022

Published: 30 March 2022

For using software applications, user interfaces that can be used includes command line, graphical user interface (GUI), menu driven, form-based, natural language, etc. The mainstream user interfaces include GUI and web-based, but occasionally the need for an alternative user interface arises. A chatbot based conversational user interface fits into this space. The chatbot is a class of bots that have existed in the chat platforms. The user can interact with them via graphical interfaces or widgets, and the trend is in this direction. They generally provide a stateful service i.e. the application saves data of each session. On a college's website, one often doesn't know where to search for some kind of information. It becomes difficult to extract information for a person who is not a student or employee there. The solution to these comes up with a college inquiry chat bot, a fast, standard and informative widget to enhance college website's user experience and provide effective information to the user. Chat bots are an intelligent system being developed using artificial intelligence (AI) and natural language processing (NLP) algorithms. It has an effective user interface and answers the queries related to examination cell, admission, academics, users' attendance and grade point average, placement cell and other miscellaneous activities.

**Keywords:** - Artificial intelligence, chat bot, knowledge base, lemmatization, natural language processing, semantic sentence similarity, wordnet

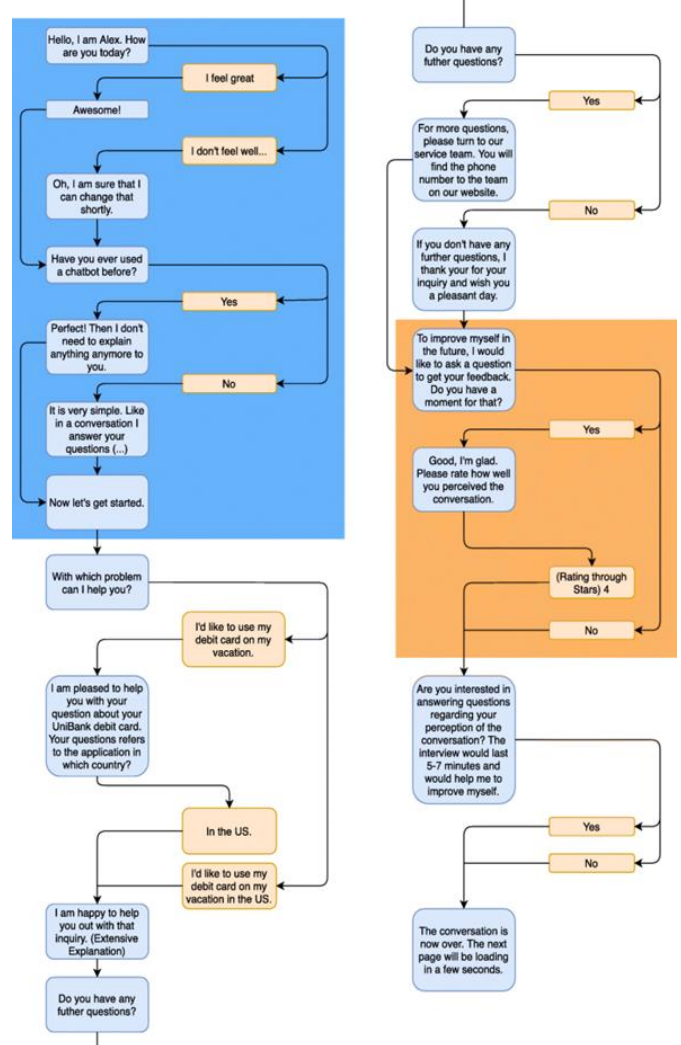
## I. INTRODUCTION

Nowadays, we see the chat bots everywhere Chat bots are the source of answers to the users questions in any particular domain where it is operating. Chat bots are the source of answers to the users questions in any particular Communicating with customers through live chat interfaces has become an increasingly popular means to provide realtime customer service in e-commerce settings. Customers use these chat services

to obtain information (e.g., product details) or assistance (e.g., solving technical problems). The real-time nature of chat services has transformed customer service into a two-way communication with significant effects on trust, satisfaction, and repurchase as well as WOM intentions (Mero 2018). Over the last decade, chat services have become the preferred option to obtain customer support (Charlton 2013). More recently, and fueled by technological advances in artificial intelligence (AI), human chat service agents

are frequently replaced by conversational software agents (CAs) such as chatbots, which are systems such as chatbots designed to communicate with human users by means of natural language (e.g., Gnewuch et al. 2017; Pavlikova et al. 2003; Pfeuffer et al. 2019a). Though rudimentary CAs emerged as early as the 1960s (Weizenbaum 1966), the “second wave of artificial intelligence” (Launchbury 2018) has renewed the interest and strengthened the commitment to this technology, because it has paved the way for systems that are capable of more human-like interactions (e.g., Gnewuch et al. 2017; Maedche et al. 2019;

A. Basics of chat bot A chatbot is an artificially intelligent creature which can converse with humans. This could be text-based, or a spoken conversation (in case of voice-based queries). Chat bots are basically used for information acquisition. It can run on the local PCs and mobile phones, though most of the time it is accessed through the internet. It can be compelling, captivating and spell-binding. It is a conversational agent which interacts with users in a certain domain or on a particular topic with input in natural language sentences. Mainly a chatbot works by a user asking some question or initiating a new topic of discussion. Chat bots can be referred as software agents that pretend as human entity. These are the agents with AI embedded and using NLP they can answer to user questions. Predefined knowledge base helps develop a response to the query



## II. LITERATURE SURVEY

In this paper, authors have explained how the chatbot behaving as a human conversational partner are designed to comprehend a conclusive human response. In today's world, it is difficult to collect correct information easily while hiring the right candidate. Using simply a chatbot can be a solution to this problem. Recruiters can use this in day-to-day life to automate time-consuming tasks.

Firstly, messaging service growth has spread rapidly over the past few years. It incorporates features such as payments, ordering and booking, which would require a separate application or website. So rather than downloading a series of separate applications, users can perform tasks such as buy goods, book restaurant and ask questions all through their favorite messaging apps.

Example of some of the popular apps are Facebook Messenger, WhatsApp, WeChat and Line.

According to, chatbot application can be classified into two groups such as task-oriented and non-task-oriented. Task-oriented chatbots aim to assist the customers to complete certain tasks and have short conversations. For example, Siri, Google Now, Alexa dialogue agents can give travel directions, find restaurants and help to make phone calls or texts. On the other hand, Non-task-oriented chatbots focus on conversing with customers to answer questions and entertainment.

### III. ADVANTAGES

#### 1. AI Chatbots Service More Customers

AI chatbots are like virtual customer service representatives, always ready to answer questions. They can attend to more customers and give more replies, even with a big surge of traffic to your website.

#### 2. AI Chatbots Collect and Analyze Data

Chatbots can gather data and create detailed reports on customers' behavior and preferences. They can extract information about those browsing customers, including the products they are looking for. Chatbots can then recommend products based on customers' search activities.

#### 3. AI Chatbots Reduce Human Resource Costs

A company can reduce the number of employees in its customer support team by introducing AI chatbots. This saves costs that go into retaining an employee while increasing the company's overall ROI.

### IV. DISADVANTAGES

#### 1. AI Chatbots Lack Human Empathy

AI chatbots can imitate human responses, but they are still far from imitating human emotions. Many customers want to connect with brands on a level that is not yet possible with AI chatbots.

#### 2. AI Chatbots Are Expensive

If your business is large and complex, then you need one of the advanced models of AI chatbots, which may burn a hole in your pocket. Also, the installation charges can be expensive.

#### 3. AI Chatbots' Decision-Making Are Limited

AI chatbots, which specialize on automated replies, are still incapable of making immediate, complicated decisions. Although they can handle simple queries, they may fail to address complex requests. Most customers want immediate solutions, and if they don't get it, they will feel dissatisfied.

### V. CONCLUSION

AI-based CAs have become increasingly popular in various settings and potentially offer a number of time- and cost-saving opportunities. However, many users still experience unsatisfactory encounters with chatbots (e.g., high failure rates), which might result in skepticism and resistance against the technology, potentially inhibiting that users comply with recommendations and requests made by the chatbot.. Our study is thus an initial step towards better understanding how AI-based CAs may improve user compliance by leveraging the effects of anthropomorphism and the need to stay consistent in the context of electronic markets and customer service.. We hope that our study provides impetus for future research on compliance mechanisms in CAs and improving AI-based abilities in and beyond electronic markets and custom and service context.

### VI. FUTURE SCOPE

Chatbots are on track to play a major role in the contemporary enterprise. Chatbots are fully functioning, semi autonomous systems that can assist customer service experiences and response time. Chatbot applications streamline interactions between people and services, enhancing customer experience

## VII. APPLICATIONS

1. **Bots Can Be Used for Specialized Tasks:** Tasks like hiring a cab, ordering food online, or even checking the weather can be easily accomplished via chatbots. Similarly, businesses can make use of chatbots to manage inventory and purchase orders
2. **Chatbots Offer Better Service on Mobile Devices:** There is no doubt that the future of browsing is mobile; already the number of mobile users is higher than PC users. Using chatbots in mobile apps enables the creation of more streamlined user interfaces. It allows users to browse, evaluate, purchase, and get support from a single interface.
3. **You Can Scale Up Your Operations:** Human beings have their limitations; an agent may be able to engage with a maximum of 3 customers at a time, whereas AI-based chatbots have no such limits. By fortifying your workforce with chatbots, you can interact with more users, helping you increase your customer base and even enter new markets.

## VIII. REFERENCES

- [1]. Yuhua Li, David McLean, Zuhair A. Bandar, James D. O'Shea, Keeley Crockett, "Sentence Similarity Based on Semantic Nets and Corpus Statistics", IEEE Transactions on Knowledge and Data Engineering, Volume 18 - No. 8, August 2006.
- [2]. Emanuela Haller, Traian Rebedea, "Designing a Chat-bot that Simulates an Historical Figure", IEEE Conference Publications, July 2013.
- [3]. Pratik Slave, Vishruta Patil, Vyankatesh Gaikwad, Girish Wadhwa, "College Enquiry Chat Bot", International Journal on Recent and Innovation Trends in Computing and Communication, Volume 5, Issue 3, March 2015.
- [4]. "AIML Based Voice Enabled Artificial Intelligent Chatterbot", International Journal of u- and e-Service, Science and Technology Volume 8 - No. 2, 2015.
- [5]. Amey Tiwari, Rahul Talekar, Prof. S. M. Patil, "College Information Chatbot System", International Journal of Engineering Research and General Science, Volume 2, Issue 2, April 2017.
- [6]. Rachit Kulkarni, Ankit Methwani, Nakul Pawar, Charmi Valecha, Pooja Shetty, "College Chat-bot", International Journal of Advanced Research in Computer Engineering & Technology, Volume 6, Issue 4, April 2017.
- [7]. Chaitrali S. Kulkarni, Amruta U. Bhavsar, Savita R. Pingale, Prof. Satish S. Kumbhar, "BANK CHATBOT - An Intelligent Assistant System Using NLP and Machine Learning", International Research Journal of Engineering and Technology, Volume 4, Issue 5, May 2017.
- [8]. Yash Mehta, Shreya Sawkar, "The college chatbot", International Journal of Computer Applications, Volume 173 - No. 7, September 2017.
- [9]. Prof. K. Bala, Mukesh Kumar, Sayali Hulawale, Sahil Pandita, "Chat-Bot For College Management System Using A.I", International Research Journal of Engineering and Technology, Volume 4, Issue 11, Nov 2017