iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** XII **Month of publication:** December 2023

DOI: https://doi.org/10.22214/ijraset.2023.57180

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue XII Dec 2023- Available at www.ijraset.com

Convomind: A User-friendly AI Chatbot

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Abstract: ***Artificially intelligent chatbots are computer programs that simulate human conversation by utilizing machine learning and natural language processing (NLP) techniques. AI chatbots are capable of conversing with drug users and providing a variety of services like customer service, superior generation, and tailored recommendations. Due to their capacity to provide round-the-clock customer service, enhance the stoner experience, and lower the costs associated with employing and training human agents, AI chatbots have becoming less and less common. Additionally, AI chatbots can learn from stoner relationships to improve their responses, making them over time actually more effective. Overall, AI chatbots are a valuable tool for companies and individuals looking to automate processes, increase user engagement, and provide their visitors with a personalized experience.***

Keywords: Convomind, Artificial Intelligence (AI), chatbot, Technology, NLP.

I. INTRODUCTION

A chatbot is computer software that facilitates conversation with the stoner via a natural route. Artificial intelligence has become more dangerous due to the constant expansion of information technology and communication. Artificial intelligence systems mimic mortal programming by making decisions on their own, carrying out routine jobs, responding to drug users quickly, and processing questions in the same way that people would. The chatbots are effective at convincing drug users that they are conversing with a mortal product because they have a very constrained knowledge base at runtime and no way to maintain track of all the discussions. Chatbots employ machine learning to grasp the questions and concerns of stoners and provide them with an appropriate response. They were created using AIML (Artificial Intelligence Markup Language) in order to engage or communicate with the user [1]. Despite the fact that AI chatbots have many benefits, there are concerns about how they may affect employment and budgets. As AI chatbots get increasingly sophisticated, they may eventually replace human workers in some tasks, creating job loss. Additionally, businesses are concerned about data segregation and security because chatbots may gather private data on drug users. AI chatbots are a significant response to the expanding demand for supported claims, improved client support, and simplified business processes in this era of digital metamorphosis. Still, it's essential to call the ethical implications of their use and insure that they are aimed and exercised in a responsible and transparent manner.

II. LITERATURE REVIEW

There are many operations that are attempting to replicate mortal trade and consolidate a mortal appearance, but in the majority of instances, the data used for discussion in bots is stored in the database built by a mortal specialist. We can create chatbots that behave in non-identical ways by using AI. The major goal of this chatbot was to create an algorithm that would recognize questions or enquiries from stoners and keep track of replies. to create a database where all related information is kept and compared with questions when a question is asked. There are some aggravating exploration pauses that need to be managed notwithstanding gradational advancements and inquiries of AI chatbots. Chatbots are reasoning machines that communicate with physical items using everyday speech. Addicts primarily engage with these operations to mesmerize in flimsy conversation. Recently, a number of different chatbot infrastructures and technologies have emerged, each attempting to more accurately and fully mimic natural mortal language.

Despite the current trendiness of chatbots, we are not wary of any research assessing how people interact with them verbally in particular. Several ongoing studies on chatbots have focused on enhancing or increasing their capacity to comprehend and respond to human language in meaningful ways. One looked explored a chatbot's resilience to unusual linguistic qualities from non-native ESL chairpersons, such as misspellings and wrong word placement. Another area of research has focused on determining how drug users' personality qualities or mortality rates relate to the chatbots they interact with and how that can result in decreased exposure in therapeutic or medical contexts.

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Massive investments have been made recently towards the development of chatbots. They were created in such a way that they ought to be able to provide clear, accurate answers to a variety of problems.

A friendly chatbot's main purpose should be to be a virtual companion for drug users rather than to answer every query they might have. Many AI chatbots have been created over the past few years by different developers. The goal of all the developers was to create a bot that could respond to all user questions in an approachable manner to improve the user experience. Many chatbots were created to find such results, but they began to lag for some reason because of a research gap that was not addressed in time and caused them to become out of current.

The table below provides the data of the AI chatbots which were developed before along with their developers and the gap remained in their research:

Table 1: History of previously developed AI Chatbots

Chatbot Name	Developer's Name	Research Gap
ELIZA	Joseph Weizenbaun	ELIZA lacked true understanding and relied on simple pattern matching techniques.
ALICE (Artificial Linguistic Internet Computer Entity)	Dr. Richard Wallace	ALICE uses AIML and pattern matching, which limited its ability to handle complex conversations and understand context outside its predefined patterns.
Jabberwacky	Rollo Carpenter	Jabberwacky is relied on AI algorithms to learn from user interactions, but it faced challenges for maintaining coherent and contextually appropriate conversations.
Mitsuku	Worswick	The responses are based on pre-defined sequences and lack to generate truly novel and creative responses.
Cleverbot	Rollo Carpenter	It can sometimes produce inconsistent and nonsensical responses due to lack of training data and algorithms.
Xiaoice	Microsoft Research	It struggles to understand complex user queries and generate truly human-like responses in all scenarios.

Gregarious chatbots were developed to meet drug addicts' demands for messaging, affection, and gregarious belonging rather than to satisfy the Turing Test, in contrast to early chatbots designed for chat. Therefore, social chatbots need to be able to celebrate emotion and monitor variations in intensity throughout a conversation. Social chatbots can also help drug addicts with a range of tasks in a setting of casual conversations. Greedy chatbots must acquire a set of skills to handle drug users' inquiries for this reason [14]. Greedy chatbots need to learn a variety of skills in addition to basic communication in order to help drug addicts with some unique activities. They must evaluate drug users' inquiries and develop the rationale and prosecution required to respond to these inquiries, such as by answering a question or acting. Social chatbots should convey their effects in a way that drug users may easily understand it. They should also stimulate the development of fresh themes to broaden the conversation.

A review of Chatbot project methods for facilitating conversation between a human and a computer is provided in this essay. One of the most intuitive and popular methods of computer and networked device commerce, speech recognition has only recently (in the past 20 years) become practical. This is due to the development of whirlwind computing. There is no desire to use traditional input inputs like the mouse, keyboard, or touch-sensitive cinema; speech recognition is widely acknowledged as the future of commerce with computers and mobile operations. It is very helpful for drug addicts who don't have the capability to exercise these traditional bias [9].

III. METHODOLOGY

1) *Gathering needs:* Throughout the Convomind AI Chatbot project's development, efforts were made to involve stakeholders, including clients and potential users, in order to gather needs. The following requirements were discovered through discussions, interviews, and surveys:

- Voice Chat: The chatbot's capacity to have voice-based chats with users was a major feature that made for a more comfortable and easy user experience.
- User-friendly UI: The chatbot's user interface had to be simple to use, appealing to the eye, and attractive. It should ensure easy user engagement by clearly and concisely presenting information.
- The chatbot needed to integrate with OpenAI's ChatGPT API in order to give intelligent and context-aware responses. The chatbot would be able to comprehend customer inquiries, produce suitable responses, and gain knowledge from user interactions thanks to this integration.
- Stack of technologies: To design dynamic and interactive user interfaces, HTML, CSS, and JavaScript were selected for the front-end. Python was chosen for the back-end development because of its simplicity, flexibility, and compatibility with the specified AI API. Flask was also picked because of this.

2) *Design:* The design phase is started based on the criteria acquired in order to develop a clear architecture and user experience for the chatbot. Among the design factors were:

- User Interface Design: To conceptualize the structure and layout of the chatbot's user interface, wireframes and mockups were used. This entailed specifying where UI components like chat bubbles, input fields, and buttons should be placed. The objective was to create an engaging and visually appealing interface.
- Integration Design: A strategy for integrating OpenAI's ChatGPT API with the user interface and back-end was developed during this phase. To ensure effective communication for AI-powered response creation, this entailed designing API endpoints, request/response formats, and data flow between the front-end and back-end components.

3) *Development:* The project continued on to the development of the chatbot after the design phase was finished. The tasks involved were as follows:

- Front-end development: JavaScript is used for interaction and dynamic functionality, CSS is used for styling and layout, and HTML is used for user interface design and structuring web pages.
- Chatbot server-side development is carried out using Python and the Flask web framework. The ChatGPT API of OpenAI has been connected with the business logic's implementation. Python offered the essential tools and frameworks for managing API calls, handling user input, and producing suitable responses. The creation of restful API endpoints for interacting with the front-end was made easier by Flask.

4) *Testing:* To ensure the quality and reliability of the chatbot, testing was conducted thoroughly, which includes:

- Functionality Testing: Test for the chatbot's features and functionalities was done to ensure they worked as expected. This involved verifying user input handling, response generation, and the proper integration of the ChatGPT API. The chatbot's ability to provide accurate and contextually relevant responses was evaluated.
- Integration Testing: Focus is made on validating the communication and data flow between the front-end, back-end, and external APIs. Extensive testing was conducted of the integration with OpenAI's ChatGPT API, ensuring smooth and seamless integration with proper handling of API requests and responses.
- User Acceptance Testing: Potential users were engaged to interact with the chatbot, gathering feedback on usability, effectiveness, and overall user experience. The feedback received helped to make necessary improvements and refinements to enhance the chatbot's performance and user satisfaction.

IV. RESULTS AND DISCUSSIONS

The project underwent thorough testing from the users. Fig. 1 depicts the home page on the Convomind. Fig. 2 depicts the response generated after requesting a query to Convomind.

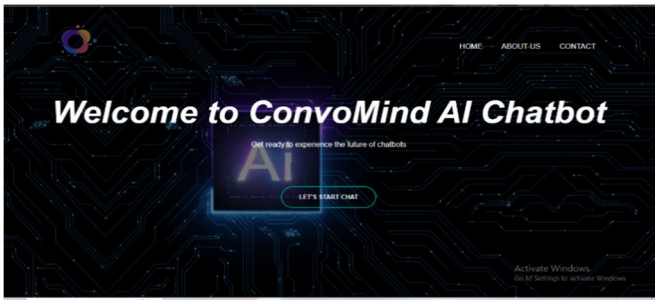


Fig. 1: Home page of Convomind



Fig. 3. Chat Interface of Convomind

Convomind was compared with the other AI chatbots which are existing. Most of the results of the comparison are in the favor of Convomind. The topics on which the comparisons were made are as follows:

A. Accuracy

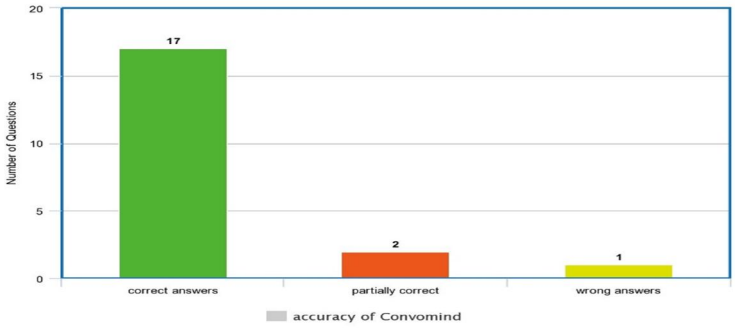


Fig. 4. Graph showing Accuracy of Convomind

The proportion of correctly responded, partially correct and wrong responded answers are shown in the graph. The chatbot was tested with 20 questions and was able to give correctly answer 17 questions correctly,2 questions were partially correct and 1 question was answered wrong according to that data is shown in the graph.

B. Response Time:

The bar graph for the response time is shown below. The proportion of response time taken by the AI chatbots namely ChatGPT, Bard, Chatsonic and Convomind in seconds are compared.

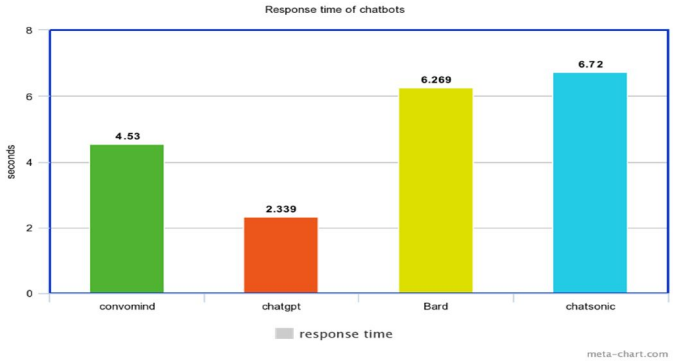


Fig. 4. Response time of Chatbots

These comparisons are made on the basis of time taken by different chatbots to answer the same questions and observations were made about the time taken to respond to a particular type of question. The average of such response time in seconds are taken for 20 questions and this average is depicted as the response time of a particular chatbot in the graph.

Convomind is an important and protean device for natural language processing. It can be exercised to produce AI- driven conversational gests that are more natural and intuitive than traditional chatbots. Because of that, it's an essential device for developing further exceptional and engaging conversational systems

V. FUTURE SCOPE

Convomind continues to add additional prompts as more and more stoners feed it. Savants improve artificial intelligence (AI) by forgoing standard training in favor of Convomind lanes, making it more helpful to stoners in the future. The area of educational technology will also be significantly impacted by Convomind. In order to provide experts a chance to ask questions and get their concerns allayed, several edtech businesses are now able to provide a subject's fundamentals while utilizing Convomind. Convomind will be effective in cases when it is used in the actual world, despite its flaws.

VI. CONCLUSION

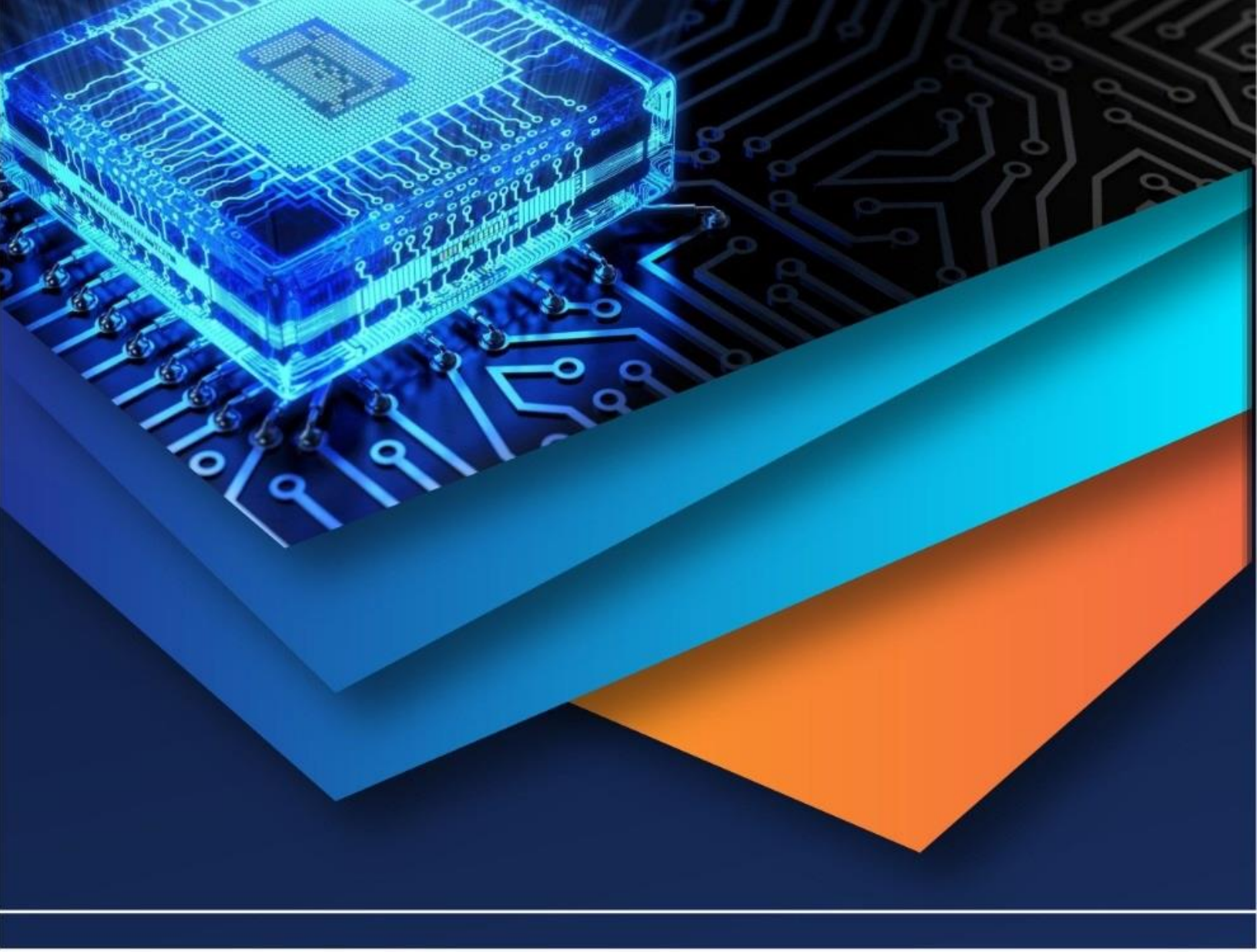
The major goal of this chatbot was to create an algorithm that would recognize questions or enquiries from stoners and keep track of replies. to create a database where all related information is kept and compared with questions when a question is asked. Chatbot adoption has the potential to deliver a wide range of benefits, including improved efficacy, delicacy, and availability. The use of chatbots is anticipated to become less prevalent in the future due to recent advancements in AI technology and the growing need for efficient and accurate services.

VII. ACKNOWLEDGMENT

We would like to convey our sincere gratitude to Prof. Priyanka Bhatele, our project's mentor, whose leadership and support have served as the compass guiding us through the challenging terrain of this research. Our perspective has been greatly influenced by her experience, patience, and persistent faith in our capacity to succeed. We sincerely appreciate her significant assistance and guidance throughout this trip.

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