MINI PROJECT REPORT

INTRODUCTION TO AI CHATBOTS

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Certificate

It is certified that the work contained in the project report
titled "AI Chat Bot" by "Kasse lokesh babu(20bcs067)"
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Chandra(20bcs032)"and "Madhapuram Madhu Sudhan(20bcs080)" has
been carried out under My/our
Supervision and that this work has not been submitted elsewhere for a
degree

Signature of supervisor(s):

Name(s):

Department(s):

(Month, Year):

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INTRODUCTION

Artificial Intelligence (AI) chatbots have been making waves in the world of technology and customer service. These computer programs simulate human-like conversation and can understand and respond to user queries using natural language processing (NLP) algorithms. The introduction of AI chatbots has the potential to revolutionize the way businesses interact with their customers, providing quick, efficient, and round-the-clock support. AI chatbots can handle a high volume of interactions simultaneously, freeing up human employees for more complex tasks. The effectiveness of an AI chatbot is dependent on the quality of its training data and the sophistication of its NLP algorithms, but as technology continues to advance, these programs are becoming increasingly advanced and capable of handling complex interactions.

OBJECTIVES

The specific goals and objectives of the chatbot AI system, such as improving customer service, reducing response times, or increasing customer engagement. The specific group of people or customers that the chatbot AI system is designed to serve.
 A description of the needs, requirements, and expectations of the target audience and how the chatbot AI system will meet those needs.
The metrics and KPIs that will be used to measure the success of the chatbot AI system in achieving its objectives.
Any limitations, restrictions, or challenges that may impact the development or implementation of the chatbot AI system.
The chatbot AI problem statement serves as the foundation for the design and development of the chatbot AI system, helping to ensure that the solution meets the needs of the target audience and addresses the problem or challenge effectively.

And also in the system requirements there are the two types of requirements
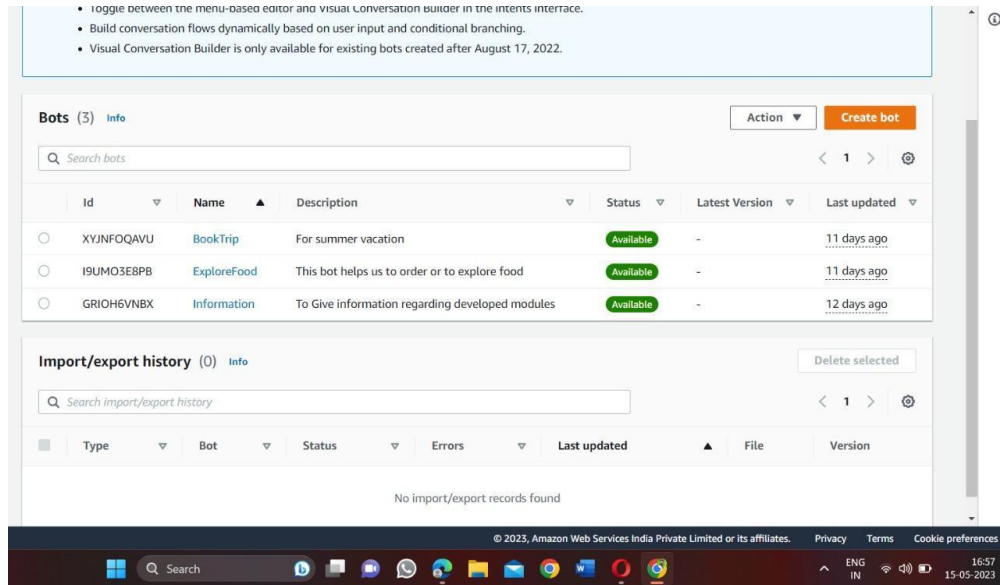
They are :

- **Technical requirements**
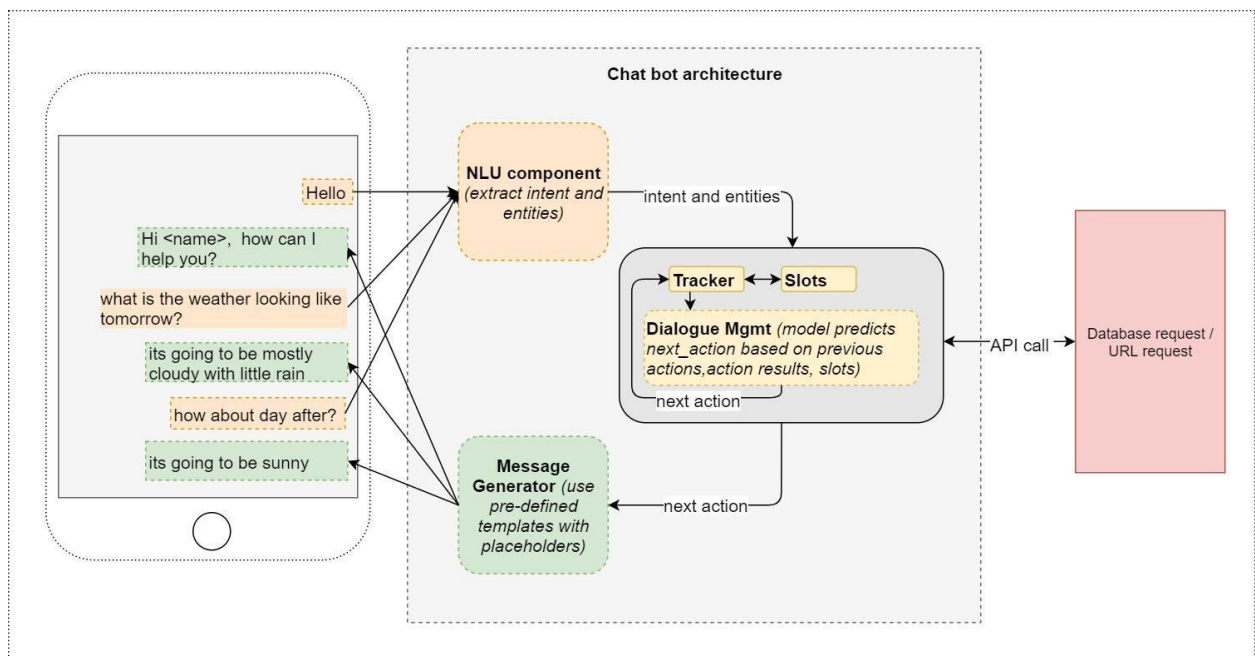- **Non technical requirements**

Dataset

These datasets can be found on various platforms such as GitHub, Kaggle, or the respective websites of the dataset creators. Please note that while these datasets provide a good starting point, they may require some preprocessing and cleaning before being used for training an AI chatbot.
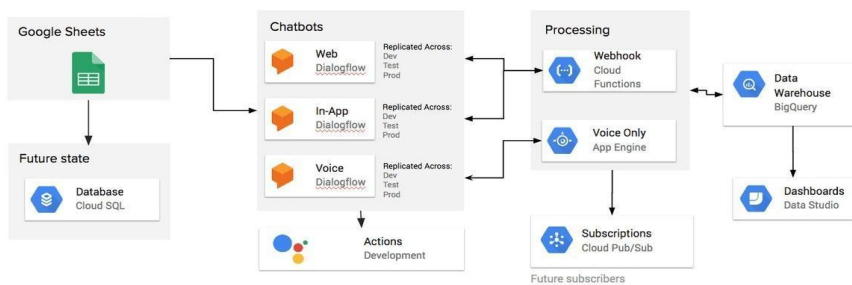
Remember to review the licensing terms and any usage restrictions associated with the datasets you choose to ensure compliance with the data provider's guidelines.

Bots (3) Info

Action ▼   **Create bot**

Q Search bots

‹ 1 › ⚙

	Id ▽	Name ▲	Description ▽	Status ▽	Latest Version ▽	Last updated ▽
○	XYJNFOQAVU	BookTrip	For summer vacation	Available	-	11 days ago
○	I9UMO3E8PB	ExploreFood	This bot helps us to order or to explore food	Available	-	11 days ago
○	GRIOH6VNBX	Information	To Give information regarding developed modules	Available	-	12 days ago

Import/export history (0) Info

Delete selected

Q Search import/export history

‹ 1 › ⚙

	Type ▽	Bot ▽	Status ▽	Errors ▽	Last updated ▲	File	Version

No import/export records found

Chatbot Architecture

Methodology

A chatbot AI problem statement is a description of a problem or challenge that a chatbot AI system aims to solve or address. It outlines the goals and objectives of the chatbot AI system and identifies the target audience and their needs. A well-defined chatbot AI problem statement includes the following elements.

CHATBOTS Chatbots are more versatile than given credit for. With the rise of advanced Artificial Intelligence, chatbots have become popular in the past few years as businesses discover innovative ways to put them to use. Being a beneficial agent, chatbots have made life easier for customers as they are available 24/7. They have helped businesses in managing tasks in a customized strategic way. Customer service is one of the major domain where chatbots found a start but their functionality extends much beyond that. Chatbots are communication facilitators which can be integrated into sales & marketing for lead generation, collecting visitor information & constantly engaging customers through the lead funnel. Below are some of the different kinds of chatbots that are out in the market

Discussion

Channels
Which channels do you want your chatbot to be in?

Languages
Which languages do you want your chatbot to "speak"? English,etc? Should it speak one language or multiple?

Analytics and Dashboards
Do you want the analytics to be in real-time? Are there any specific data you want to have on your dashboard like the number of users, automation rate, etc?

Technologies
Do you have any specific technologies you want the chatbot to be built with?

NLP and AI
Do you want the chatbot to have decision tree logic, Machine Learning (ML), Natural Language Processing (NLP), or Artificial intelligence (AI)?

Accessibility
We need to meet some specific accessibility requirements like WCAG or ADA

Users

Many people from your team are going to use the chatbot?
your customers or conversations do you expect to use the chatbot

Security.

Do you have any specific security measures and requirements you want the vendor or the chatbot to meet?

NON TECHNICAL REQUIREMENTS

Communication Skills

Just like any other job, AI jobs require professionals to be good communicators. In addition to having technical know-how, AI aspirants need to communicate innovative ideas effectively to their teams.

Collaboration

For an AI professional, it is necessary to effectively collect data and convey the information in a comprehensible manner to the team.
This requires teamwork. Hence, collaboration becomes an essential part of the job.

Marketing skills

No matter how good your idea or project is, it will not sell itself. Being able to market your ideas is crucial to succeed in the AI space.

Systematic and analytical thinking

Systematic and Analytical thinking is very important when building a career in AI. One needs to have a curious mindset, and a thirst for problem solving

Models and interfaces

Rasa framework files

At the moment of writing this report, we have been using the latest version of the Rasa framework v2.x and in this release the existing file structure and file extensions have changed from previous versions. Dealing with the framework changed and became better and smoother by using files with .yml extensions.

Intents

The file contains the Natural language understanding (NLU) model training examples. This includes intents, which are user goals, and example utterances that represent those intents. The NLU training data also labels the entities, or important keywords, the assistant should extract from the example utterance.

Entities

The important keywords that an assistant should take note of. For example, the message 'My name is Maher' has the name 'Maher' in it. An assistant should extract the name and remember it throughout the conversation to keep the interaction natural.

Utterances

Anything a user says. A single utterance is an entire sentence passed as input to the Chatbot to intent. By definition, an utterance holds an intent and could potentially include one or more entities. During each transaction with the Chatbot, an utterance is sent to the Chatbot's understanding unit to parse and interpret

Tracker

A tracker object maintains the current state of the conversations. It keeps track of the events that have happened so far, such as utterances and actions, as well as other data such as the slots and entities.

Slots

Slots are variables a Chatbot requires to perform a specific task. Slots are essential to interpret a user's input and adequately execute the action. Slots are commonly filled using Entities

Dialogue Handling/Policies

Rasa core is used to implement the dialogue handling component to predict which action to be executed and update the state for this action and give the output as well as used for next input.

Results

However, you can search for the datasets mentioned using popular platforms such as Kaggle, GitHub, or academic repositories. These platforms provide access to a wide range of datasets, including those suitable for training AI chatbots. By using relevant keywords like the dataset names or descriptions, you should be able to locate and access the datasets along with any associated documentation or instructions.

AI chatbots provide a range of results and outcomes based on their capabilities and the specific tasks they are designed to perform. Here are some common results that AI chatbots can deliver:

1. **Information Retrieval:**Chatbots can retrieve and present information based on user queries. This can include answering factual questions, providing product details, delivering news updates, or offering recommendations based on user preferences.

2. **Task Automation:**Chatbots can automate tasks by interacting with systems, databases, or APIs. For example, they can assist with booking appointments, making reservations, or processing transactions by connecting with relevant backend systems.

3. **Issue Resolution:** Chatbots can help troubleshoot and resolve customer issues by providing step-by-step instructions, guiding users through self-help processes, or escalating complex problems to human agents when necessary.

4. **Customer Support:**Chatbots can offer customer support by addressing common inquiries, providing product or service information, and offering assistance with account-related activities such as password resets or account updates.

5. **Personalized Recommendations:** Chatbots can analyze user preferences and historical data to provide personalized recommendations for products, services, or content based on individual needs and interests.

6. **Conversational Engagement:** Chatbots can engage users in natural language conversations, creating an interactive and user-friendly experience. They can maintain context, understand follow-up questions, and provide appropriate responses to keep the conversation flowing.

7. **Data Analysis and Insights:** Chatbots generate valuable data from user interactions, which can be analyzed to gain insights into customer behavior, preferences, and trends. This data can inform business strategies, marketing campaigns, and product development.

8. **Lead Generation and Sales Support:** Chatbots can engage with potential customers, collect information, and assist in the sales process by qualifying leads, providing product information, and guiding users towards making purchase decisions.

It's important to note that the specific results achieved by an AI chatbot will depend on its design, training data, underlying algorithms, and integration with relevant systems. The effectiveness of an AI chatbot can vary based on the complexity of user queries, the quality of training data, and the level of customization and personalization implemented.

Sample Codes

Conclusion

In conclusion, Al chatbots have become an increasingly popular technology in recent years, and they offer numerous benefits to businesses and individuals alike. These chatbots can improve customer service, increase efficiency, and reduce costs. They can also provide personalized experiences to users, helping to build brand loyalty and improve customer satisfaction.

Overall, Al chatbots have the potential to revolutionize the way we interact with technology and each other. As technology continues to advance, we can expect to see even more sophisticated chatbots that can provide even greater benefits to businesses and individuals alike.

References

Certainly! Here are some references that you can use to further explore the topic of AI chatbots:

1. Bojanowski, P., Grave, E., Joulin, A., & Mikolov, T. (2017). Enriching word vectors with subword information. arXiv preprint arXiv:1607.04606.

2. Ghose, A. (2019). Making sense of AI chatbots. Journal of the Academy of Marketing Science, 47(4), 731-747.

 3. https://www.pubnub.com/blog/building-ai-chatbot/

4.https://www.researchgate.net/publication/342880348_Introduction_to_AI_Chatbots