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Infobot - Web Based Chatbot

Abishek. A. S[1], Harshavarthan. S. R[2], Ratnakumar. A[3], Seeni Arivazhakan[4], Sangeethapriya. J[5]
[1,2,3,4]Information Technology, Saranathan College of Engineering, Trichy, India
[5]Assistant Professor, Information Technology, Saranathan College of Engineering, Trichy, India

Abstract: *A web based chatbot is designed to interact with users via text or voice on a website. The purpose of web based chatbot is to provide a immediate assistance to users by answering frequently asked questions, providing information, and facilitating transactions. A web-based chatbot is an AI-powered software program that enables online conversations with website visitors. The chatbot is designed to simulate human-like interactions, providing personalized assistance and support to users. It can be programmed to respond to specific queries, guide users through various processes, and even help them make purchase decisions. The web-based chatbot is a powerful tool that enhances customer experience, boosts engagement, and streamlines business operations. Its ability to operate 24x7 and handle multiple users simultaneously makes it a cost-effective solution for businesses looking to improve customer service and increase their online presence. Nowadays, a lot of corporate websites have started adopting chatbots as support, whether it be for finance or as a means of virtual contact.Sequential Algorithm from Keras and RNN based Deep Learning Model are the algorithms used.The response time of our chatbot to the user queries is 0.2 milli seconds. And the loss time for our chatbot to the user queries is 0.03 milli seconds.*

Keywords: chatbot, website, python, flask, deep-learning

I. INTRODUCTION

Instead of offering direct contact with a real human agent, a chatbot or chatterbot is a software application used to conduct an online chat conversation using text or text-to-speech. By automating conversations and interacting with clients through messaging systems, chatbots are a type of software that may assist customers.The technology of the decade is chatbots, in which a machine can converse with people like a human.[2].In dialogue systems, chatbots can be employed for a number of tasks, including information collecting, request routing, and customer care.A piece of software known as a chatbot which communicates with people through written communication. In order to respond to client enquiries without the need of human agents, it is frequently incorporated in web sites or other digital applications. A computer programme that mimics human dialogue is known as a chatbot. From customer service to sales, chatbots are often utilised in a number of online contexts.Chatbots are utilized by organizations and governments across websites, applications, and instant messaging platforms to endorse products, ideas, or services, and are not merely components of virtual assistants[3].The employment of chatbot applications as a direct channel of communication between companies and end-users is experiencing a notable increase[5].The chatbot's ability to identify questions and comments is limited to the keywords chosen by its programmer. In order to circumvent this issue, the system typically generates conservative, concise, and straightforward speech to maintain a coherent conversation, but this may result in a dull dialogue[10].

II. EXISTING SYSEM

Utilizing deep learning techniques, the Chatbot suggested in this paper serves to assist users in their cultural heritage journey and can respond in both Italian and English languages.Subsequent efforts will focus on expanding the evaluation to encompass a greater number of users, and enhancing the Deep Learning methodology through implementation of an online learning strategy[6].

The Chatbot application is programmed to read non-sensitive messages, allowing similar messages to be processed and integrated into the system. These insensitive messages can be customized based on specific requests and requirements within the Chatbot program. Further development of this research could include the addition of a random message feature, eliminating the need for the server to first save contact numbers before sending messages. Additionally, a

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system capable of directly reading and responding to all messages without requiring the name of the contact could also be utilized[1].

The Chatbot provides medical information, such as the contact information of doctors, the locations of nearby hospitals, and how to obtain an oxygen cylinder. It also offers details on various aspects of diseases, including their symptoms, prevalence, diagnosis, and treatment procedures. This medical Chatbot exhibits significant potential for the future, particularly in terms of providing benefits to individuals in remote areas. The Chatbot employs TensorFlow to construct Natural Language Processing (NLP) for Chatbots, utilizing a deep neural network architecture[8].

The Chatbot implemented in this project is founded on an Ecommerce engine, with the aim of enhancing the user's interaction with the Ecommerce platform. While the Chatbot stores a range of pre-defined responses, it can also process complex user feedback, providing appropriate answers and product recommendations. Efficient Chatbot applications require grammar-based data parsing to ensure that users can comprehend the intended meaning of a sentence, by defining phrases that are capable of addressing the intricacies of the grammar used[4].

In this system, a visual platform is utilized to train the NLU engine. This is a single-page application that functions by providing the frontend login and views as a single file, thereby reducing server-side calls and enhancing performance, resulting in a smoother experience for the user. The platform enables users to effortlessly manage intents, texts, entities, and entity synonyms. The accuracy of the NLU engine can be improved by utilizing Artificial Neural Networks. Additionally, a semi-supervised learning system can be integrated to augment the dataset. The platform can be integrated with WordPress-based systems, as 60% of ecommerce websites are powered by WooCommerce, which is a WordPress plugin[9].

III. PROPOSED SYSTEM

We proposed a system with Java Script Object Notation (JSON) that has been used to predict. The NLTK (Natural Language Tool Kit) package facilitates the processing of human language data through a library that includes tokenization, parsing, and stemming of words. The package also imports the punkt package to employ an unsupervised algorithm that constructs a model for words and sentences.

The overall process consists of providing a Text based input or else voice based input at any languages then, converting them into queries and then passing the modules to recognize the appropriate response and finally provide a result in terms of text based response in chat window or else getting sound from the external audio device which is further converted into a voice output. When the user inputs a query into the chatbot, the chatbot utilizes the trained datasets to provide the most precise response. The user module is a vital component of any chatbot since it allows the chatbot to engage with users in a natural and intuitive manner.The admin module should provide functionality to manage the chatbot's data, such as storing and retrieving user information, conversation history, and analytics data. By using this, the chatbot administrator can obtain valuable insights into the chatbot's user interactions, which can be used to identify potential areas for enhancement. This component allows the chatbot administrator to configure the chatbot's behavior, such as setting default responses, defining conversation flows, or customizing the chatbot's appearance. Overall, the admin module is a critical component of any chatbot, as it provides the chatbot administrator with the tools they need to manage and optimize the chatbot's behavior. The speech recognition module in a chatbot is responsible for converting spoken language into text that the chatbot can process. Automatic speech recognition (ASR), also referred to as speech-to-text conversion, involves various sub-components that collaborate to deliver precise and dependable speech recognition. Overall, the speech recognition module is a crucial part of any chatbot that supports voice input, as it enables the chatbot to understand spoken language and interact with users in a more natural and intuitive way.

The user can select the language as per their preference and the enters their query. The chatbot produces the response based on the user preferred language. The multi-language module in a chatbot allows it to support multiple languages, enabling it to interact with users who speak different languages.This component is responsible for identifying the language of the user's input.

The contents of the web page can be translated according to the need of the user**.** A content translation module in a chatbot is responsible for translating content such as responses, prompts, and menus into the language that the user speaks. This enables the chatbot to communicate with users who speak different languages.The content translation module typically includes several sub-components that work together to provide accurate and reliable

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translations.Without this module, the chatbot may struggle to communicate effectively with users whospeak languages other than the one it was designed for.

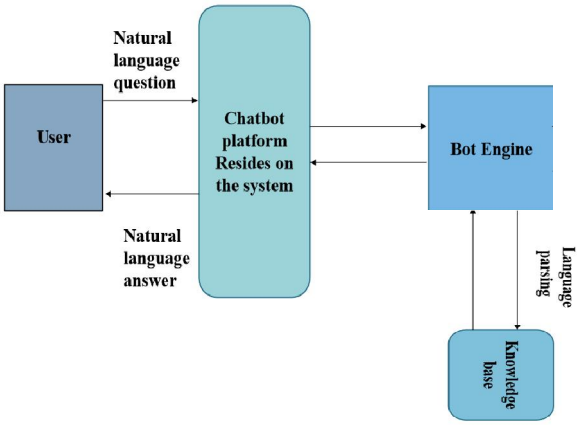

Fig.1 Architecture Diagram

IV. IMPLEMENTATION

To execute this procedure, a dataset must be loaded into the system and training is conducted on a Localhost server. The resulting dataset is saved as a model in data.pth. Subsequently, when input text or voice is sent via the Chat page, it is converted into a query and preprocessed to match with the training dataset. This process enables the identification of an appropriate response, which is provided as the primary output in the form of a label. This label is then converted into voice output.

V. EXPERIMENTAL RESULTS

Once the training process is complete, the resulting output is generated and attached. This allows for the commencement of testing the system by providing input.

```
Epoch [100/1000], Loss: 0.7783
Epoch [200/1000], Loss: 0.4894
Epoch [300/1000], Loss: 0.0036
Epoch [400/1000], Loss: 0.0041
Epoch [500/1000], Loss: 0.0024
Epoch [600/1000], Loss: 0.0004
Epoch [700/1000], Loss: 0.0767
Epoch [800/1000], Loss: 0.0004
Epoch [900/1000], Loss: 0.0392
Epoch [1000/1000], Loss: 0.0284
final loss: 0.0284
training complete. file saved to data.pth
```

Fig.2.1Number of Epochs Trained

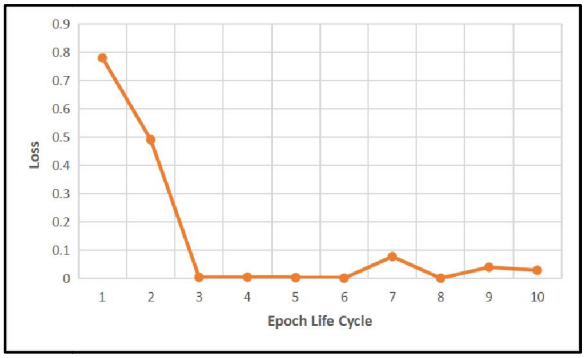

Fig.2.2 Loss Accuracy

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Fig.2.1 and 2.2 depicts the training of the dataset and the epochs involved in the training session, while the Fig.3 illustrates the output of the user module,which enables users to input their queriesto the chatbot.

Fig.3 Output of User Module

Fig.4 Multimedia Support

Fig.4 shows the desired output of the multimedia support of the chatbot on the user request. Fig.5 shows the result of the speech recognition module used in the chatbot.

Fig.5 Speech Recognition Output

Fig.6 and Fig.7 shows the desired output of the Translation module used in the chatbot.

Fig.6 Choosing the Language for Translation

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Fig.7 Content After Translation

VI. CONCLUSION

In this paper, we have discussed various modules that are typically included in a chatbot, including the user module, admin module, speech recognition module, multi-language module, and translation module.This Chatbot is user friendly in nature. The chatbot will be available 24x7. So the user can use the chatbot at any time. Now the user will get a response and easy navigation too. The response time of our chatbot to the user queries is 0.2 milli seconds. And the loss time for our chatbot to the user queries is 0.03 milli seconds.

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