

Medical Chatbot in Artificial Intelligence and Machine Learning to Help Human

¹Aaysha Inamdar, ²Mohit Pandey, ³Sonali Ghorpade, ⁴Prajakta Dawari, ⁵Prof. Rashmi kulkarni, ⁶Prof. Kalyani kadam

^{1,2,3,4,5,6}Dept. of Information Technology Engineering, SCOE, Savitribai Phule Pune University, Pune, Maharashtra, India

Abstract - A medical chatbot that leverages artificial intelligence and natural language processing provides personalized and interactive healthcare services. A medical chatbot can interact with users in a conversational manner, simulating human-like interactions through text-based or voice-based conversations. It employs advanced algorithms to analyze user input, understand their symptoms or health concerns, and provide relevant information or recommendations. The medical chatbot uses machine learning algorithms to provide personalized healthcare services. This enhances user engagement and satisfaction and improves patient empowerment. Medical chatbots have the potential to revolutionize healthcare by providing accessible and convenient services to a wide range of users, accuracy, security, and ethical concerns need to be addressed.

Keywords: Symptoms, Diseases Conditions, Treatments/Therapies. Medications, Healthcare providers, Procedures/Test.

1. Problem Statement

Many people struggle to access timely medical advice due to limited healthcare resources or their inability to reach out to medical professionals. A medical chatbot AI can provide prompt and accurate medical advice, guidance, and support to people in need.

The chatbot is be able to answer various health-related questions, provide suggestions for self-care, and direct users to relevant medical professionals when needed.

2. Introduction

A medical chatbot AI is an artificial intelligence program designed to simulate conversation with users, with a focus on providing medical information and assistance. These chatbots can use natural language processing and machine learning techniques to understand user queries and provide personalized responses, based on a database of medical knowledge and best practices. Medical chatbot AIs can assist with a variety of tasks, such as symptom checking, medication management, appointment scheduling, and general health advice. They are a convenient and accessible resource for

individuals seeking medical information and support, and can help alleviate pressure on healthcare providers by providing quick and efficient responses to common queries.

3. Libraries

NLTK (Natural Language Toolkit) – This is a popular library for natural language processing and can be used to analyze and understand the user's input in the chatbot. It can also be used for sentiment analysis and text classification, which can be useful for providing personalized responses.

Tensor flow

The Brain Team and Google worked together to develop This collection. It is an open-source high-level computing library. Moreover, it may be found in machine learning and deep learning algorithms. Tensor operations are often used in it. Researches use this python module to perform complex physics and mathematics problems. Due to its flexible design, computation may be distributed across a variety of platform (CPUs, GPUs, and TPUs), including PCs, server cluster, mobile devices, and edge devices.

Keras

In order to develop and deploy ML arrangements at a high iteration velocity, Keras offers fundamental reflections and building components. Tensor Flow's scaling and cross-platform features are widely applied.

Layers and models serve as Keras' main data structures. All of the layers in the CNN model are constructed using Keras. When the class vector is converted into a binary class matrix during data processing, it helps with the overall model's building.

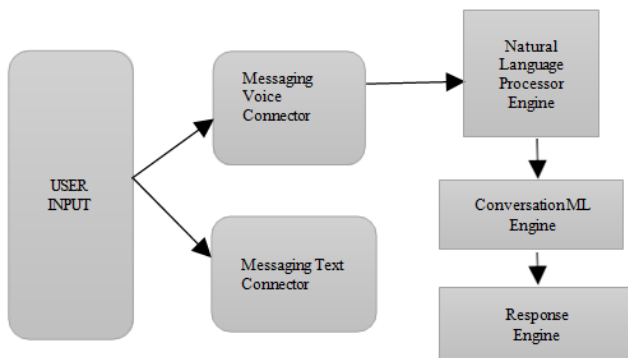
SpaCy

This is another natural language processing library that can be used for tasks such as entity recognition and named entity recognition. It also has pre-trained models for tasks such as part-of-speech tagging and dependency parsing.

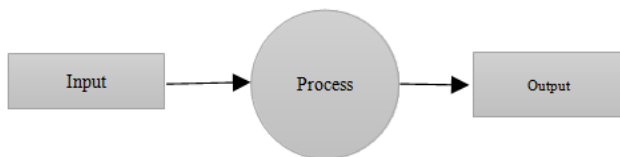
Scikit-learn

This is a machine learning library that can be used for tasks such as classification and clustering. It can be used for tasks such as intent classification and entity recognition in the chatbot.

4. System Architecture



Data Flow Diagram



5. Methodology

Requirements gathering, data collection, Natural Language Processing (NLP) model development, decision-making algorithms, testing and validation, deployment and maintenance, and regulatory compliance are all important steps in the development of a medical chatbot AI.

These methodologies may involve collaboration between healthcare professionals, data scientists, software engineers, and other stakeholders.

6. Future Scope

Chatbots can become more personalized by incorporating contextual information, integration with wearables and IoT devices, improved NLP and AI techniques, expansion of healthcare services, assistance in mental health, and integration with telemedicine services. These advances can help chatbots handle complex queries and provide personalized responses.

7. Conclusion

Our medical chatbot provides medical help to patients for a variety of diseases, such as fever, cold, typhoid, malaria, and jaundice. This system is necessary due to the shortage of doctors in our country, which can improve the potency and performance of the medical business by decreasing the death rate.

REFERENCES

- [1] Augello A. Saccone G. Gaglio S. Pilato G., Humorist Bot: Bringing Computational Humour in a ChatBot System. Proceedings of the International Conference on "Complex, Intelligent and Software Intensive Systems (CISIS)", 4-7 March 2018, Barcelona, Spain, pp.703-708.
- [2] Gambino O. Augello A. Caronia A. Pilato G. Pirrone R. Gaglio S., Virtual conversation with a real talking head. Proceedings of the Conference on "Human System Interactions", 25-27 May 2018, Kraow, Poland, pp. 263-268.
- [3] Vojtko J. Kacur J. Rozinaj G., The training of Slovak speech recognition system based on Sphinx 4 for GSM networks. Proceedings of International Symposium "EL, MAR (Electronics in Marine) focused on Mobile Multimedia". 12-14 Sept. 2017, Zadar, Croatia, pp. 147-150.

Citation of this Article:

Aaysha Inamdar, Mohit Pandey, Sonali Ghorpade, Prajakta Dawari, Prof. Rashmi kulkarni, Prof. Kalyani kadam, "Medical Chatbot in Artificial Intelligence and Machine Learning to help Human" in proceeding of International Conference of Recent Trends in Engineering & Technology ICRTET - 2023, Organized by SCOE, Sudumbare, Pune, India, Published in IRJIET, Volume 7, Special issue of ICRTET-2023, pp 191-192, June 2023.
