

# Design & Implementation of Healthcare Chatbot using Artificial Intelligence

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**Abstract:-** Healthcare is critical to living a happy life. However, it is quite difficult to secure a doctor's consultation for every health issue. This chatbot may be used by regular humans in any sort of emergency case, where it can advise people on primary care before seeing a doctor, or it can sometimes work as a doctor for small and short- term health issues such as a cold, headache, and so on. Along with this chatbot, there will be assistance for those in need who seek immediate solutions. A user can identify the true condition by reporting symptoms of it. The true goal of this job is to work on the user's symptoms and make medical advice based on them in order to decrease the time and expense associated with the procedure. It is a system that communicates with users via Natural Language Processing (NLP), or a computer software that interacts with consumers through NLP. Chatbots are computer programmes that engage with users using natural language.

**Keywords:-** Artificial Intelligence, Healthcare, Chatbot, Medical Assistance, NLP, TF-IDF

## I. INTRODUCTION

Today, the healthcare sector is one of the world's most important focus areas. Individuals are becoming more vulnerable to lifestyle diseases. Many individuals are working on artificial human brains that can think and respond like humans [1]. A chatbot is a simple example of this technology. As we all know, computers currently assist people in every manner. Artificial intelligence has been developed in computer technology to improve systems in a variety of ways [2]. Computers provide us with information, engage us, and assist us in a variety of ways. A chatbot is a programme designed to mimic intelligent dialogue via text or speech. Nonetheless[3], this work focuses solely on text [4]. Today, the healthcare industry is one of the world's most important emphasis areas [5]. Individuals are growing more vulnerable to lifestyle disorders. Many individuals are working on artificial human brains that can think and respond like humans [6], [7], [8]. A chatbot is a simple example of this technology. A chatbot is a programme designed to facilitate text-based conversation between humans and machines [9], [10]. It's software that uses NLP to assist individuals have coherent conversations in multiple languages.

## II. BACKGROUND STUDY (LITERATURE)

### PAPER 1:

**Title:** Enhancing LMS Experience through AIML

### Baseand Retrieval Base Chatbot using R Language

#### Description:

The paper goes into detail about the use of various algorithms such as N-gram, Stemming, TF-IDF, and cosine similarity. This paper describes how to use these algorithms to quickly obtain an optimised result. It explains numerous requests and how a chatbot may address them. They also provided test cases for algorithms and defined the functional architecture of databases for ease. Essentially, chatbot quality

### PAPER 2:

#### Title: Artificial intelligence based personal assistant

#### Description: -

Here In this work, a chatbot is constructed for healthcare reasons, providing the user with a healthcare assistant. A dialogue interface allows a user to engage with a healthcare assistant. It provides features such as illness diagnosis based on the user's symptoms, medical term definitions, doctor recommendations, treatment scheduling, and tracking/monitoring of the user's health metrics. They examined overall performance in both offline and online situations. They also conducted several trials to evaluate the system's quality and functionality. Many studies have been conducted in the previous few years on this issue in order to build an eHealth environment for the convenience of patients.

### PAPER 3:

#### Title: Chatbot Human-to- Machine Conversation Modeling

#### Description: -

In this paper, they created a chatbot system with hardware and software. This chatbot runs with Bluetooth and also does movements. They used voice communication for commanding chatbots. The query asked by the user will be searched in a database that is stored in raspberry pi. This chatbot works only with specific diseases like cold, typhoid, malaria etc.

## III. METHODOLOGY

The suggested system includes a chat interface that allows users to connect with the system. The user can either enter symptoms he is experiencing or health-related questions. The chatbot will forecast the ailment or deliver appropriate information based on the user's input.

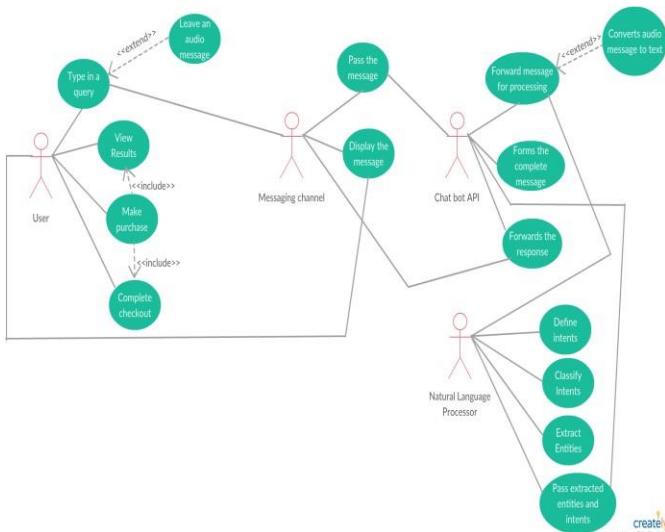


Figure 1: Block Diagram

If the user is conversing through speech, the system will first turn the user's input into text. The Speech Recognition package, which is accessible in Python, was used to convert voice to text. If the input text is not in English, it will be transformed to English. The Google trans python package was used to do this language translation. The NLP module receives the translated input.

#### IV. IMPLEMENTATION

This system architecture overview of a chatbot healthcare application is included in this system. The customer enters the query as text in the UI. The UI receives the user inquiry and forwards it to the chatbot programme [1]. The literary experiences pre-processing procedures in the chatbot application include tokenization[2], where the words are tokenized, at which time the stop words are eliminated, and feature extraction is based on n-gram, TF-IDF[3], and cosine likeness. To recover the answer, the question answers are saved in the knowledge database. \*Of course, the area is still in its infancy, with only a few modest startups getting venture capital, primarily in large technological centres[4],[5].At the moment, healthcare chatbots appear to be a combination of patient-only and patient-clinician applications.

#### V. CONCLUSION

To get better outcomes, the system might be trained with a bigger and more thorough dataset. Future development might include extending the system to include more languages. Deep Learning algorithms may be used to improve illness categorization accuracy and outcomes. Natural Language Generation may be used to improve chatbot replies by training a model on diverse conversational datasets.

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