



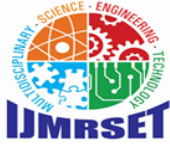
# International Journal of Multidisciplinary Research in Science, Engineering and Technology

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## International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

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# Medbot: AI-Powered Diagnosis

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**ABSTRACT:** Applications in the machine learning and artificial intelligence domain have gained traction immensely in the last decade. It has now various uses in the health industry. With the aid of machine learning algorithms, the prediction of diseases has become easy. With the technology by their side, doctors are left to concentrate only on the treatment side of the case. The technology is driving innovation in the healthcare sector, improving people's standard of living through the years. The project in focus will develop a healthcare chatbot powered by Natural Language Processing and machine learning algorithms to predict diseases. The user interacts with the chatbot like a doctor, and depending on the symptoms provided by users, the chatbot itself will identify the symptom and predict the possible disease.

**KEYWORDS:** Decision Tree, Natural Language Process, Chatbot.

### I. INTRODUCTION

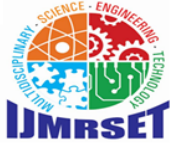
Health is much cherished by the wishful mind that needs health to be happy. Only a healthy body can sustain a healthy mind. Modern times are much less aware of health incarnations by their fast-paced life where no time is left to adopt any measures for health maintenance in daily life. In such a scenario, intervention by the symptoms-driven disease prediction application can be a very useful tool. This research is focused on applying the concepts of natural hospitals on something small today, that can turn out to be a big problem tomorrow.

The ideology rests on having a zero-cost and 24X7 availability solution for people to be better health aware. A user can at any time quit their busy schedule just on track with their health without having to visit any specialist doctor for a mere consultation.

The project aims to create a healthcare chatbot through natural language processing and machine learning. The prospective users will engage with the chatbot just as they will with any person, and it will be through a range of queries that the chatbot will ascertain the user's symptoms and thus predict the disease through the application of machine learning algorithms. This system can greatly help in day-to-day health monitoring, raises health awareness, and puts pressure on everyone to take proper health measures. This study says such systems are not commonly operational yet, and users are not much aware of it. The realization of this model can save the users a lot of time, which otherwise would go in hospital visits, by making this model available for free, anytime, anywhere. The disease prediction chatbot can greatly influence the health status of our society. It is more reliable and much less humans prone to errors. The people bypass hospital examinations for the simple reason that...

### II. LITERATURE SURVEY

The prospect of decreasing medical costs is, I would argue, especially important and holds some promise for the development of more advanced technologies in the future. Thanks to advanced medical technology, the doctor now has back-and-forth interaction with their patients. But imagine an environment wherein even patients could self-test, obtain a recommendation, and, instead of going to the hospital to schedule an appointment to see the doctor for a diagnosis, they



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converse with a Chatbot? This interesting proposal involves the creation of an alternative to the traditional method of going into the hospital and making an appointment with the doctor for diagnosis.

[1] Chatbot for Disease Prediction and Treatment Recommendation using Machine Learning: Published in 2019 3<sup>rd</sup> International Conference on Trends in Electronics and Informatics (ICOEI). One would interact with the Chatbot as one would with another human and, through a series of queries, the Chatbot would elicit symptoms of the user and so predict the disease and recommend treatment.

[2] Medbot: Conversational Artificial Intelligence Powered Chatbot for Delivering Tele-Health after COVID-19- Published in 2020 5<sup>th</sup> International Conference on Communication and Electronics Systems (ICCES): Telemedicine can be used by medical practitioners to connect with their patients during the recent Corona virus outbreak, whilst attempting to reduce COVID-19 transmission among patients and clinicians. Amidst the pandemic, Telemedicine has the potential to help by permitting patients to receive supportive care without having to physically visit a hospital by using a conversational artificial intelligence-based application for their treatment. Thus, tele health will rapidly and radically transform inperson care to remote consultation of patients. Because of this, it developed a Multilingual Conversational Bot based on Natural Language Processing (NLP) to provide free primary healthcare education, information, and advice to chronic patients. The study introduces a novel computer application acting as a personal virtual doctor that has been opportunely designed and extensively trained to interact with patients like human beings.

This application is based upon a server-less architecture and it aggregates the services of a doctor by providing preventive measures, home remedies, interactive counseling sessions, healthcare tips, and symptoms covering the most prevalent diseases in rural India. The paper proposes a conversational bot "Aapka Chikitsak" on Google Cloud Platform (GCP) for delivering telehealth in India to increase the patient's access to healthcare knowledge and leverage the potentials of artificial intelligence to bridge the gap of demand and supply of human healthcare providers. Through this conversational application, the healthcare facility accessibility barriers have reduced and smart consultations are procured remotely to ensure timely treatment and quality care, thereby successfully aiding the society.

[3] A Medical ChatBot-Published in June 2018 International Journal of Computer Trends and Technology : Normally Users are not aware about all the treatment or symptoms regarding the particular disease. For small problems users have to go personally to the hospital for check-up which is more time consuming. Also handling the telephonic calls for the complaints is quite hectic. Such a problem can be solved by using medical ChatBot by giving proper guidance regarding healthy living. The medical chatbots functioning depends on Natural language processing that helps users to submit their problem about the health. The User can ask any personal query related to health care through the chatbot without physically available to the hospital. By Using Google API for voice-text and text voice conversion. Query is sent to ChatBot and gets a related answer and display answer on android app. The System's major concern behind developing this web-based platform is analyzing customers' sentiments.

[4] In recent times, healthcare is becoming more accessible to a wider group of people through the medium of technology. The concepts of artificial intelligence, machine learning and neural networks have provided substantial assistance in the field of healthcare. In today's fast-paced world, people generally tend to neglect their health, depriving them of a serious problem. Such a problem may be handled through a symptoms-driven disease prediction application. Our project is aimed at providing the users with immediate and accurate prediction of those diseases against which they are having symptoms, with a detailed analysis of their pathology reports. The disease prediction chatbot is developed using natural language processing and machine learning algorithms. For the prediction of diseases, we have used two classification algorithms namely, Decision tree and KNN (k-nearest neighbors). The performance of these techniques are compared and based on their accuracy, the best model is selected. As per our results, the accuracy of Decision Tree and KNN are 92.6% and 95.74% respectively. This project also looks forward to providing medical consultation on the predicted disease. The pathology report analysis is performed using the concept of Optical Character Recognition (OCR). Tesseract is an open-source recognition engine to perform OCR. The text extracted from the report is used for interpreting the results in an easier way and to provide a graphical analysis of the test results.

### III. PROPOSED METHOD

The system proposed here is a medical bot that urges the user to discuss health issues and symptoms. A disease is



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predicted by the chatbot based on the symptoms given by the users. This chatbot system can detect symptoms based on user interaction, by which it can predict diseases and suggest cures. Hence, the Chatbot creates access for many people to look into their healthcare. The user can engage with the chatbot and then rely on it for timely treatment. The chatbot allows logging into the system for the users. Here User signs up on chatbot application. User then interacts with the system, words and symptoms are recognized using natural language processing, and the disease is predicted by means of naive bayes algorithm. There is an admin who controls the chat bot application.

Admin can see details of all users and also add, delete or update symptoms and diseases. The chatbot thus trained is symptom-disease dataset based. Fig.1 presents a model where in the symptoms recognized by the user, the system recognizes the disease. Chatbot encourages patients to talk about their medical issues and to predict the disease.

The system proposed here consists of a medical bot that pushes users to discuss health concerns of which symptoms are also included. Based on the symptoms given by the user, a disease will be predicted by the chatbot. This chatbot system can also identify symptoms from user interaction; it uses these symptoms to predict the disease, thus recommending treatment. This way, Chatbot becomes very beneficial to the people who look into their wellbeing. Engage with a chatbot user, who can rely on it to receive timely treatment. The chatbot has been designed to log in users into the system.

Here User registers on chatbot application. A user afterward interacts with the system; words and symptoms are recognized by natural processing, and a naive Bayesian algorithm predicts the illness. His job is to manage the application of the chatbot. Admin can see all users' detail and add, remove, or change any symptom or disease. The chatbot has symptoms-disease dataset trained on it. Fig.1 shows a model in system recognizes the disease in symptoms identified by the user. Chatbot encourages patients to talk about their medical issues and predict the disease.

Advantages of Proposed System :

- it can make a disease prediction quite efficient with respect to symptoms.
- Offers diet plans according to the predicted disease.
- One can find nearby hospital according to this location in case he requires taking health related test based on the location chosen

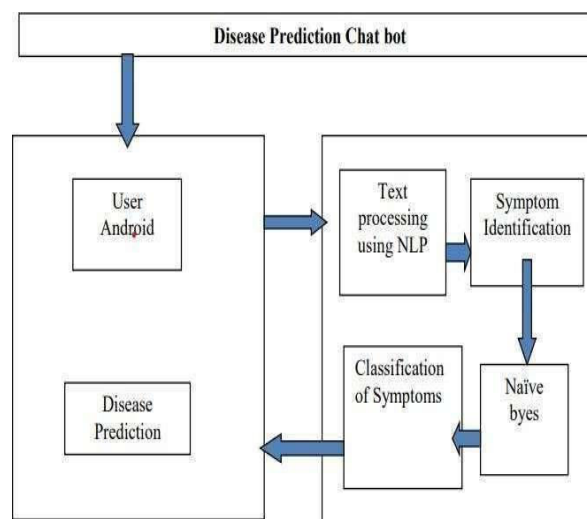


figure no 1. Working model of proposed system.

Natural Language Processing (NLP) is an artificial intelligence discipline that assists in the preparation of programs for processing and analyzing natural language data. It sets up communication between computers and people in a natural language format. The proposed system for this work is a chat system based on the retrieval-based model of NLP, where a lot of queries are given to the bot that has been provided with a set. The intelligent chatbot can take care of the patients by understanding and evaluating their symptoms that are features of the Proposed System. The Proposed System is an Android Application comprising a Chatbot. System operation will be:

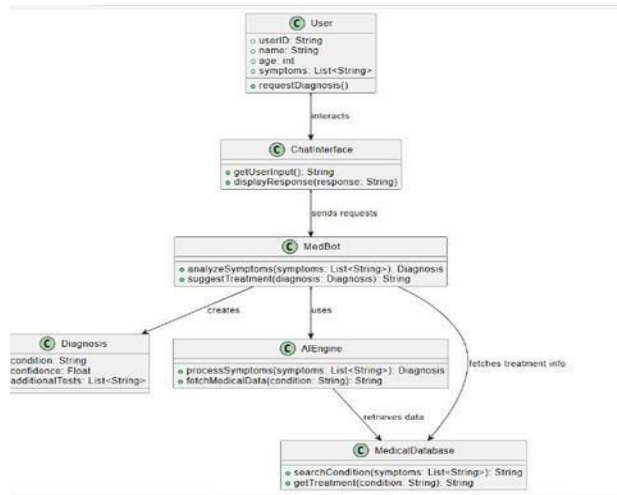


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- Build a simple and interactive real-time chat system.
- A dedicated system that can deal with all queries regarding a medicine.
- Effective symptom-based disease prediction.
- Suggest nearby hospitals based on the disease.

## IV. SYSTEM ARCHITECTURE



## V. RESULTS



Figure2-Login/Signup Form Page



Figure 3-Registration Page



Figure 4-Successfully Registered Page



Figure 5-Chatbot Diagnosis Using AI



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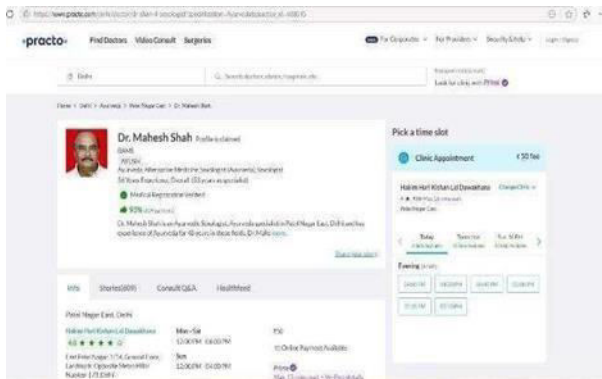


Figure 6-Consulting Doctor



Figure 7-Login Page

### VI. CONCLUSION

AI-based disease diagnostics chatbots may become revolutionary tools in healthcare by providing accessibility, affordability, and some preliminary diagnostic help. With the help of ML, NLP, and an ample medical knowledge base, these chatbots can analyze symptoms and give users possible diagnoses and recommendations. Therefore, the proposed system tries to resolve some of the major challenges facing modern healthcare, such as accessibility, early diagnosis, and relieving the burden on medical professionals.

While AI-driven chatbots may have great advantages, factors like diagnostic accuracy, data privacy, and regulatory compliance must be solved. Further research is needed to upgrade the AI models to integrate with real-time patient data and better gain user trust through validation from transparent and reliable medical professionals.

AI-powered disease diagnosis could be in the future integrated with telemedicine applications, wearable devices, and hospital management systems for patient care and health outcomes. By improving the AI algorithms and controlling for ethical application, AI-based chatbots could become important players in modern healthcare by bridging the gap between patients and medical professionals.

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