



AI Based Healthcare Chatbot

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ABSTRACT

Over the past ten years, there has been a huge need for applications in the fields of machine learning and artificial intelligence. It now has a wide range of uses in the healthcare sector. Using machine learning algorithms has made it simpler to anticipate diseases. With the aid of technology, doctors can now focus solely on providing care. The pace of medical innovation is being accelerated by technology, raising people's standards of living over time. With the aid of machine learning and natural language processing, we are creating a healthcare chatbot in this project to anticipate sickness. Users converse with the chatbot in the same way as they would with a doctor, and the chatbot identifies symptoms and diagnoses diseases depending on the information provided by users.

Keywords: Chatbot, NLP, Naïve bayes

I. INTRODUCTION

If one wants to be happy, maintaining their health is crucial. A healthy mind can only exist in a healthy body. People today are less concerned with their health. They neglect to manage their health and are less conscious of their health status due to their busy lives.

The application for disease prediction based on symptoms can help prevent such a situation. The goal of this study is to develop a chatbot application by combining the ideas of machine learning and natural language processing. Through a series of questions, users can communicate with the chatbot exactly like they would with a real person. The chatbot will then use a machine learning algorithm to recognise the user's symptoms and anticipate their diagnosis. This technique can be very helpful to people in conducting daily check-ups, educating them about their health, and motivating them to take the necessary precautions to stay healthy. This study reveals that such a system is underutilised and that few individuals are aware of it. By using this free software wherever they are, users can skip the time-consuming process of visiting hospitals by implementing the suggested structure. The health of our society could significantly change as a result of the disease prediction chatbot. It is less prone to human error and more dependable. People avoid going to the hospital for minor problems that could develop into big ones later. The idea is to concentrate on a solution that is totally free and accessible all day long. People might become more conscious of their health in this way. Even with a busy schedule, a user can ask questions at any time and maintain track of his own health without visiting a specialist doctor only for advice.

II. LITERATURE SURVEY

Technology development has a significant impact on the healthcare industry. Technology has benefited patients as well as clinicians, giving them a first-hand testing environment.

[1] Chatbot for Disease Prediction and Treatment Recommendation using Machine Learning - Published in 2019 3rd International Conference on Trends in Electronics and Informatics (ICOEI) : The proposed system is to create an alternative to this conventional method of visiting a hospital and making an appointment with a doctor to get a diagnosis. People can interact with the Chatbot just like they do with another human and through a series of queries with the chatbot. The chatbot will identify the symptoms of the user and thereby, predicts the disease and recommends treatment.

[2] Medbot: Conversational Artificial Intelligence Powered Chatbot for Delivering Tele-Health after COVID-19-Published in 2020 5th International Conference on Communication and Electronics Systems (ICES): 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. This conversational application has resulted in reducing the barriers for access to healthcare facilities and procures intelligent consultations remotely to allow timely care and quality treatment, thereby effectively assisting 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 functioning of medical chatbots depends on Natural language processing that helps users to submit their problems about their health. The User can ask any personal query related to health care through the chatbot without physically being 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 displays the answer on the android app. The System's major concern behind developing this web based platform is analysing customer's 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 tend to neglect their health which may result in a critical problem. Such a problem can be avoided by using the symptoms driven disease prediction application. Our project focuses on providing the users immediate and accurate prediction of the diseases based on their symptoms along 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. PROBLEM STATEMENT

The most common place for sick people to receive medical examinations, disease diagnosis, and treatment recommendations is at hospitals. Almost everyone in the world has been doing this for a long time.

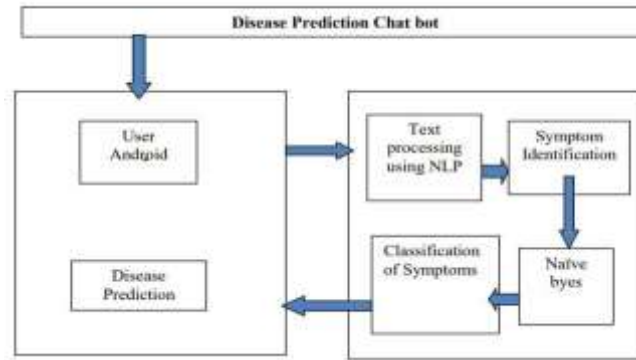
It is regarded as the most trustworthy method for determining one's health status. Most of the time, consumers are unaware of all the available treatments or symptoms for a given ailment. Users must go visit the hospital for a checkup for minor issues, which takes additional time. As a result, there has recently been a substantial effort to reduce the workload of doctors and increase the general competency of the health care approach using machine learning.

IV. PROPOSED SYSTEM

In this proposed system, a medical chatbot is built that motivates users to discuss their health problems. Based on the symptoms provided by the users. Chat bot will predict the disease. This chat bot system will be able to identify symptoms from user interaction. Using these extracted symptoms, chat bot predicts the disease and recommends treatment. By this way Chatbot becomes very useful to the people who focus on their wellbeing. The user can interact with chat bot and can depend on them to get timely treatment. Patient interacts with the system and the words, symptoms are recognized by the use of natural language processing, and the disease is predicted using a naive bayes algorithm. The chatbot is trained on symptoms-disease dataset. The chatbot encourages patients to discuss their medical issues and predict the disease.

Advantages of Proposed System :

- Can efficiently predict the disease based on symptoms.
- Provides methods to follow according to the predicted disease.
- It will give users a brief info about the disease.



Natural language processing (NLP) is a field of artificial intelligence that helps in designing a program to process and analyse natural language data. It permits to set up communications among PCs and people in a characteristic language. The proposed framework is a talk interface that depends on the Retrieval based model of NLP where the bot is prepared with a lot of inquiries with a set. Such a wise chatbot can manage the patients by comprehension and surveying their side effects that are features of the Proposed System. The working of the system is as follows:

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Enter the symptom you are experiencing
:fever

Searches related to input :
0 ) high_fever
1 ) mild_fever
Select the one you meant (0 - 1): 0

Okay. From how many days ? : 10

Are you experiencing any
chills ? : yes
vomiting ? : no
fatigue ? : no
high_fever ? : yes
headache ? : yes
nausea ? : no
constipation ? : no
abdominal_pain ? : no
diarrhoea ? : no
toxic_look_(typhos) ? : no
belly_pain ? : no
  
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The chatbot will take symptoms as input from the user. And then will provide you with the related searches from the dataset to know the extent of the symptom experienced.

Then it will provide users with possible symptoms to answer the question in a yes or no so that it can analyze all the symptoms the user is experiencing and on that basis will perform calculations for predicting the disease that user could most probably have.

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You should take the consultation from
doctor.

You may have Typhoid or (vertigo) Pa
roymsal Positional Vertigo
An acute illness characterized by feve
r caused by infection with the bacteri
um Salmonella typhi. Typhoid fever has
an insidious onset, with fever, heada
che, constipation, malaise, chills, an
d muscle pain. Diarrhea is uncommon, a
nd vomiting is not usually severe.

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The chatbot will then provide the user with appropriate suggestions on whether the user needs to consult a doctor or not. It will also give users a brief description about the predicted disease.

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Take following measures :
1 ) eat high calorie vegetables
2 ) antibiotic therapy
3 ) consult doctor
4 ) medication

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The chatbot will also provide users with the proper measures which the patient needs to follow for getting into better health conditions.

VII. CONCLUSION

Our project aims to be a medical chat bot which can be used to replace the conventional method of disease diagnosis and treatment recommendation. Chat bot can act as a doctor. The chatbot acts as a user application. The user of this application can specify their symptoms to the chat bot and in turn, the chat bot will specify the health measures to be taken. General information about symptoms and diseases are available in the dataset and thus the chat bot instance can provide information about disease and treatment to the user. After analysing the symptoms of the different users, it finally predicts the disease to the user. We believe this approach incorporated into existing strategies in the field of healthcare will provide assistance to the healthcare specialist and patients.

VIII. REFERENCES

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