Dr Bot - Ayurvedic, Allopathic, and Home-made solutions to all your diseases

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Abstract. Healthcare is essential to leading a healthy life. However, it is challenging to obtain a consultation with a doctor for every health problem. The idea is to create a therapeutic chatbot using Artificial Intelligence that can diagnose the condition and provide basic details about the disease before consulting a doctor. It will help diminish healthcare costs and improve the availability of medical awareness through a therapeutic chatbot. A new digital ecosystem, portrayed by chatbots, seems to offer a promising solution by incorporating the function of a virtual healthcare expert, who is always available to provide information with the required precision. This chatbot aims to make a conversation between humans and machines. Here the system stores the knowledge database to identify the sentence and decide to answer the question. Linguistic interaction is most important in counselling using Natural Language Processing (NLP) and Natural-language generation (NLG) to understand the dialogues of users. This chatbot makes the user experience seamless through dedicated regions for a particular outcome. The Chemist nearby function enables the user to reach the nearest health facility at the earliest and conveniently. The future of healthcare includes technology that seamlessly combines data on a patient's medical history, real-time health, insurance coverage, and financial information, all to support provider decision-making, improve patient health, and reduce costs.

Keywords - Chatbot, NLP, Ayurvedic, Allopathic, Home remedies, NLG, Healthcare, Therapy, Database, Dataset.

1 Introduction

During the last decades, there has been extensive research and market interest in health monitoring and health information exchange. Various wearable devices demonstrate this, and health monitoring systems have developed recently.

Furthermore, Artificial Intelligence has a significant impact in the area, as many tools and decision support mechanisms are incorporated into health monitoring systems.

With the advancements in information technology, Statistical analysis, Machine Learning, and Deep Learning algorithms have been successfully applied to many healthcare problems and have explained complex relationships and improved clinical practice predictions[3]. They can solve computer vision problems in the medical domain. Researchers have proposed different Machine Learning based solutions for medical issues in recent years. This paper aims to create a custom chatbot model that gives allopathic, ayurvedic, and homemade solutions to the diseases faced by the users. The chatbot even provides nearby medicals, hospitals, and healthcare centres near the user using the geolocation API in any emergency.using the geolocation API in any emergency.

It can be complicated and expensive for people with low or no income to visit the doctor and get the medical attention required for minor diseases or illnesses. Hence, to eliminate this problem and make medical attention available to everyone at ease, we develop a solution by making this chatbot and feeding it with the most accurate data. It also helps the hospitals and the doctors to manage the crowd, provide the necessary consultation, and minimise the interaction with people in an effortless manner.

2 Literature survey

This dialogue monitoring scheme for virtual doctors is modelled with the use of stochastic Petri nets for a virtual doctor. This research shows a significantly increasing number of people whose health conditions should be continuously monitored. There is a need for real-time monitoring of people's health conditions, easy

and fast access to their medical history, quick diagnosis, early detection of changes in patients' health patterns, and possible prevention of emergencies situations.The system continuously monitors the patient's health, detects changes in health patterns, and provides the first prognosis regarding the patient's health condition. It interacts with the patient by conducting a dialogue with them and exchanging information with a remote virtual doctor.[1]

This system is developed to reduce the healthcare cost and time of users. These systems can learn themselves and restore their knowledge using human assistance or web resources. This application is incredibly fundamental since knowledge is stored in advance. This chatbot aims to make a conversation between humans and machines. The complex questions and answers present in the database are viewed and answered by an expert. The system stores the knowledge database to identify sentences and decide to answer the question. The input sentence will get the similarity score of input sentences using bigram. The chatbot knowledge is stored in RDBMS.[2]

This paper is entirely based on Ayurveda. It aims to cure Heart Disease using the roots of Indian medicine policies mainly based on Ayurveda. Ayurveda or traditional medicinal systems are the ancient medicinal practices used to treat patients worldwide. The system/application developed in this paper uses Facial Recognition Technology and various algorithms and techniques to identify the problems faced by the Patient. Once the data is obtained from the patient, it is stored in the database and analysed; based on the image and the data taken from the user, the solution is provided. [3]

This paper is based on Ayurveda and uses plants to treat human diseases. This paper provides Ayurvedic information and the importance of a particular plant to the Ayurveda practitioners and general people. This also provides information about which plant can be helpful in which situation and in which geographical area can it be found. It also provides details about Ayurveda doctors and practitioners in the given area

and helps general people connect. Researchers have investigated different kinds of methods to detect plants by their leaves. To identify the leaf, most of the researchers have used morphological features of the leaf. The system/chatbot developed is just for informative purposes and an effort to increase the resources for Ayurvedic practitioners.[4]

This paper expands the system to resemble a medical doctor who interacts with a human patient for medical diagnosis. The interoperability is represented by utilising the medical diagnosis of a medical doctor in an executable machine fashion based on patient interaction with a virtual avatar resembling a real doctor. The Virtual Doctor System is installed in a local hospital in Morioka, where that doctor regularly practices her medical diagnosis in actual situations and environments.[5]

We want to conclude from this literature survey that we have overcome the demerits of the existing systems by introducing types of medicinal solutions for a better approach to cure and prevention. The nearby medical centres on this application are an added advantage for easy access to medical services solutions. We have combined and mixed the dataset from various sources to make a vast dataset that contains Allopathic, Ayurvedic, and Homemade remedies for every disease.

3 Dataset

3.1 Dataset

The dataset used for this research is acquired through the 1mg website [6] and Princeton University Health Services website [5]. There were few individual datasets available for each chatbot and the diseases, and we merged the datasets from all the sources to have an all-in-one dataset for our research. Tata 1mg [6], previously 1mg, is a healthcare platform based in Gurgaon, India. It provides e-pharmacy, diagnostics, e-consultation, medicines and health content.

The dataset contains three subcategories which are Ayurvedic, Allopathic and Home remedies. There are more than 1000 diseases in this dataset and their allopathic solutions. We have combined and mixed the dataset from various sources to make a large dataset containing Allopathic, Ayurvedic, and Homemade remedies for each disease.

3.2 Data sorting, validation, linking and making the final dataset

3.2.1 Data Sorting and validation

First, the raw data from multiple datasets is taken and stored in one place. After that, we removed and eliminated the excess data that were vague and not relevant to the project's goal. We have ensured that we provide the most accurate data using this method.

3.2.2 Data linking and making the final dataset

Preparing the flow of the data and the communication model of the chatbot to preprocess the entire data takes place in two parts for two chatbots, respectively. The first chatbot is based on AI and NLP to take the input from the user and provide them with the necessary options to communicate further. This takes place in the following manner - There are multiple modules involved in the working of the chatbot, and every module is linked to the previous and the next one.

Once the linking of the data is done to its respective modules, we have the final data and the bot's flow, which is as follows -

With reference to Figure 1, the user clicks on the chatbot and selects the disease for which they would like to get the necessary information.

Figure. 1. Flow of the data

This module where the disease is displayed is called the main module. After choosing the main module and selecting the disease, the user can choose and view the symptoms, medicines/cures, and prevention of that particular disease. This section is called the sub-module.

This module is linked to the dataset, where the data from the dataset is fetched and displayed to the user. The dataset contains the symptoms, prevention, and cures for the particular disease. In this module, the user is given the option to choose if they would like to view the symptoms, cure, or prevention of the particular disease.

The next module is known as the Data from the dataset. Here, the dataset data is fetched and displayed to the user and gives the necessary information.

4 Algorithm:

The entire chatbot is a bot-driven chatbot that works on the principle of quick responses. The algorithm works by splitting the user's message into letters and converting it into an array. Here the converted array is taken, all the special characters are eliminated from it, and the message is in the simple text form.

Once the message is in the simple text format, it becomes easy for the algorithm to recognise the text separately. As python is a case-sensitive language, the input from the user is always taken in the lower case.

The algorithm behind the chatbot recognises and gives the response specifically based on the
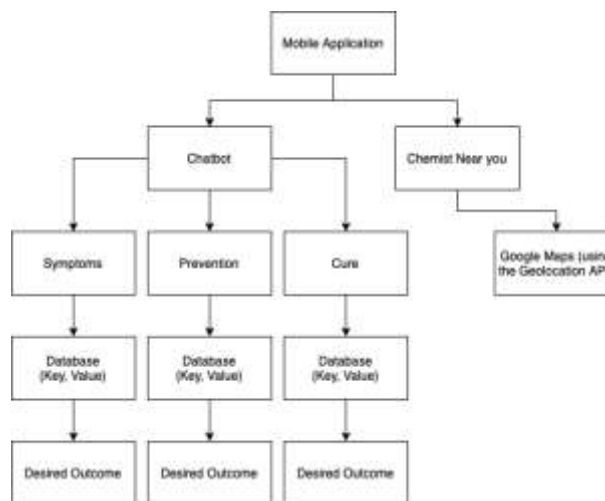
it is from the original dataset and gives vague responses. To remove such problems, we use the hashing functions to improve the accuracy.

5 About the Chatbot (UI/UX)

The entire UI/UX of the chatbot is made using Flutter. Figure 2 shows users' various options when they open

probability percentage of the user message. By counting the percentage probability of the user input, we require message certainty and length of the recognised word.

To recognise the words in the algorithm, we need a predefined set of words that will have the keywords for the user's message to be recognised.

If, after splitting the user's message and comparing it with the dataset, the input keyword is not found in the dataset, then the count or the probability of the message certainty will be below, and the algorithm will ask the user for the valid input again. Initially, the count or the probability of the message will be zero. If the required word is present in the user's message, then the count of the message certainty will increase, and the user will get the appropriate response.

After counting the message certainty, the algorithm will calculate the percentage of the recognised word in the user's message and compare it with the keyword present in the dataset.

The percentage of the message count is calculated from the below formula -

Percentage = Count of the message certainty / Length of the recognised word.

To check and compare the words accurately from the data set and prevent wrongly matched words.

If the word is not present in the message, the flow of the message will cause the words to compare

the application. The chatbot section opens the chatbot, where the main function of the chatbot takes place. The records section of the application has the records of all the past chat sessions. The chemist near you section shows the nearby chemists and hospitals in case of any emergency. The account settings options have the option to change the account settings.
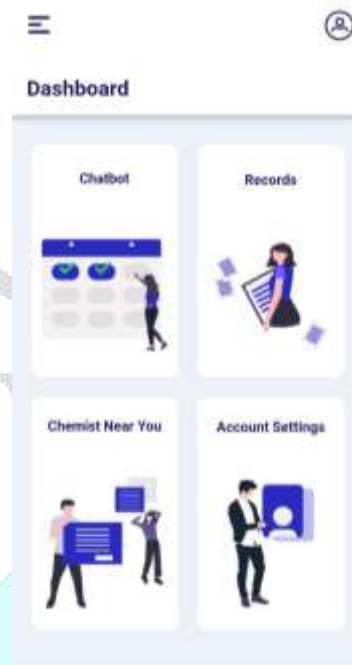

Figure 2 - Chatbot Dashboard

With reference to figure 3, the chatbot provides a quick response to the user to navigate and scroll through the previous chat. This is where the user interacts with the bot and can get all the necessary information. their queries.

The nearby chemist and hospital is a handy feature in the case of an emergency. Suppose the user is facing any discomfort and needs medical attention. In that case, this feature will come to use and can connect to any nearby chemist and any hospital.

6.1 Chatbot Features

Accessibility of the chatbot is most important for any user. If people cannot understand the chatbot, it will be useless. Hence, we have made the bot multi-lingual to extend the support to many users. This allows users who don't understand English to view the chatbot and benefit from it in their native language.

The bot provides the user with the symptoms, cure, medicine, and prevention for any disease from which a

Figure 3 - Chat

Figure 4 - Nearby chemist and hospitals

This improves the bot's accuracy in capturing and storing the user data for the record and can help track the diseases related to the age factor. This feature also allows the medical practitioner to view the patient's basic information without interaction with them in any emergency.

6.4 Ayurvedic Chatbot

Due to the growing demand and awareness of Ayurveda in various parts of the world, we are providing ayurvedic solutions to diseases. This will make the chatbot accessible to multiple users who have different preferences for selecting the medicines to cure the diseases. Some people have an allergic reaction to allopathic drugs and can develop severe complications while healing the conditions through modern medical methods; hence, allopathic solutions come in handy. The ayurvedic solution and the remedies are taken from trusted organisations. Medical practitioners have verified them to ensure all safety.

7 Conclusion,

This method of using NLP to make a smart Health care chatbot effectively, provides basic medical help for free.

user selects and wishes to get help.

Apart from the primary diseases, they also provide the information and necessary resources for the COVID-19 like their symptoms, prevention, medical centres, etc. These resources also give the current stats on COVID-19 cases, which get updated on a real-time basis from the government authorised sites.

6.2 Chemist Near You

The 'Chemist near you' feature is a real-time map that uses the geolocation API to display the chemists and hospitals near the user in case of any emergency. This feature is best for emergency cases if a user wants immediate medical attention and would like to visit a doctor immediately. We have integrated Google Maps and geolocation API to enable this feature. This feature is beneficial for saving lives and preventing any serious injuries.

6.3 Account Setting

In account settings, the user can update their profile, including their profile picture, phone number, and other essential metrics like age, weight, height, etc.

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This chatbot is free, but it is also efficient in providing valid data. This type of bot prevents the user from going out of the house and meeting the doctor during the time of pandemic and also saves time and cost by providing the basic treatment for free of cost. This is not created to replace doctors' jobs but rather to help them save more time for the patients. By adding different diseases with more symptoms, prevention, and cure, people can identify the type of disease the patient may be diagnosed with as early as possible from the comfort of their home. Doing so would benefit both the medical organization/doctors and the patients. Our proposed model achieved an accuracy, precision, and recall score of over 92%.

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[5] Princeton - https://uhs.princeton.edu/health-resources/common-illnesses

[6] 1MG - https://www.1mg.com/