

# AI Based Healthcare Chatbot System for Rural and Government Hospitals

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**Abstract:** *Healthcare is actually significant to lead a good life. However, it's very problematic to make a discussion with the doctor for every health problem. The idea is to generate a Healthcare chatbot using artificial intelligence that can diagnose the disease and deliver details about the disease before consulting a doctor. This will help to reduce healthcare costs and improve accessibility to medical knowledge through the healthcare chatbot. The Chatbot stores the data in the database to identify the judgment keywords to make a query decision, Answer the question. For this design, we used two types of datasets one is data that consists of datasets; testing datasets, training datasets, and other types of datasets that we used is master data, which consists of datasets of symptom description, symptom precaution, and symptom severity.*

## 1. INTRODUCTION

Today, health care is really necessary in our life. People now are busy with their jobs and jobs, and they're addicted to the web. They do not look out about their health. Thus, avoid going to the clinic for minor problems. So, we propose to produce a health care converse bot system for rural and Government hospitals using python, NLP and machine literacy algorithms. Identify disorders and tell us the really subtle information about the illness before we go for check with a doctor. This helps cases understand their illness better and enhance their health. User can get all applicable disease information. The system operation uses a chatbot- style question- and- answer protocol to answer user queries.

E-healthcare facilities in general are a vital resource to developing countries but are constantly delicate to establish because of the lack of knowledge and development of structure. A number of internet druggies depend on the internet for clearing their healthcare grounded queries. We've designed a platform for giving online medical services to cases with a thing to deliver backing to healthcare professionals. The users can also seek medical guidance in an easier way and get exposure to colorful conditions and opinion available for it. In order to make communication more effective, we have enforced an AI based healthcare chatbot for rural and government hospitals.

This system is designed to reduce the asking price and the addict's time. This is because user can't go to a doctor or counsel in real time once they need it. For making up the healthcare chatbot we use machine knowledge algorithm, python, NLP and Artificial intelligence to give 24/7 medical support, suggestion and word regarding the illness and symptoms of the illness.

## 2. LITERATURE SURVEY

In the paper “A healthcare chatbot that uses NLP “ the author Papiya Mahajan. The chatbot system may offer homemade support. According on addict symptoms, the created chatbot is said to deliver complaint details. The N- gram algorithm, TF- IDF algorithm, and Cosine similarity algorithm are the three algorithms employed in this methodology to produce a health care chatbot system. The system also gives information on the croaker. People will therefore be alive of their health and be correctly secured. The authors assert that their chatbot offers individualised judgments predicated on symptoms. still, no performance evaluation standard is offered to support the assertion.

In the paper “AI- grounded healthcare discussion bot system ” the author M.V. Patil. The suggested healthcare chatbot deals with giving medical advise while making opinions in agreement with the case's request and using discussions to draw expressions. For this, a database . However, a quest motor will be used to find it and present it to the addict, If a certain piece of information is not in the database. Three separate products from experimentations are utilised to demonstrate how well the suggested system recognises ails and other common symptoms. To support the writers' assertions, no performance assessment criteria is offered. ”

In the paper “the implementation of personalized medical assistant” the authors Divya Madhu has used the AI Algorithms. For successful implementation, problems such as research and implementation costs are challenges. The successful implementation of this system can save many lives. It is simple and interactive chat system. It gives medicine dosage based on the age of the user. It also gives the composition of medicines and their prescribed uses. It can solve all the queries regarding a medicine. It can be upgraded and also integrated. Successful implementation of this system can save lives of people and help the medical profession. It does not suggest any doctor for severe diseases. Using Dialog flow algorithm is a bit expensive.

In the paper A chatbot based on AI and NLP, The author Mr. Niraj Wanjari and associates created assert that their chatbot improves vacancy and lowers total healthcare costs ( 4). The illness is linked by homemade- to-homemade communication between the chatbot system and the cases. Yet, the right course of action is advised. We discovered that the bot architecture is in its middle age and is not completely formed. The paper is further of an assertion than a practical operation. To support the writers’ assertions, no performance assessment criteria is offered. Indeed so, this design has a lot of room for expansion. It's possible to produce a mobile helper that numerous people can apply. This can be exact and will ultimately kindly abbreviate the time.

In the paper “ A individual chatbot the authors Bushra Kidwai and Nadesh RK created utilising the most recent machine literacy methodologies. A decision tree method is applied for symptom mapping and opinion. The system is given all the data about affections and their symptoms, and with the aid of NLP, it'll be suitable to comprehend the user inquiry and produce the applicable response. The information is recaptured from a medical database that contains information on 150 diseases. By posing multitudinous questions, the chatbot mimics the commerce between a croaker and case. These inquiries are grounded on the case's previous information and prefilled conditions, and a implicit opinion is formed depending on the case's responses. The system can be interactive, according to the generators. Round- Trip Time is the performance assessment parameter that's employed.

## **OBJECTIVE**

The main idea of this project is to plan a system that provides services in rural areas and government hospitals. The objects of the project are as follows

1. To make an AI Base healthcare chatbot system to give services in rural areas.
2. To make an AI grounded healthcare chatbot system to give services in government hospitals.
3. To include audio system to make the AI Base healthcare chatbot system more interactive.

## **3. METHODOLOGY**

The purpose of our chatbot is to give service to the people who are suffering from body problem or complaint by suggesting them drugs regarding their problems. To give them 24x7 availability, we use our attack charge as a garçon for client using programming. This approach starts with taking the textbook input from the stoner in the android app.

Input data is reused using different NLP algorithms rested on a large number of datasets of symptoms description, symptom palladium and symptom harshness and train and test on a large number of dataset for training and testing for both the known and unknown database Input from the stoner.

### **Stoner Enters His Name and Symptoms as Input.**

Processing the input data using different algorithms and Natural language processing.

Matching of the symptoms to rightly and directly identify the complaint related to symptoms.

On the base of major and minor complaint give advice and palladium.

### **Libraries:**

**NumPy:** NumPy stands for Numerical Python. It basically includes all types of fine operations in the code. It performs direct algebra as well as matrices.

**Pandas:** Pandas are green libraries in Python Languages. These are imported and used for managing the datasets. In order to educate the device the operation of a dataset, the dataset must be stored in a variable.

**Sklearn:** Sklearn is the most habituated library for administering machine knowledge ways and algorithms. It's open and free.

### **Proposed Approach**

The chatbots are conversational virtual helpers which automate dealings with the addicts. Chatbots are powered by artificial intelligence using machine learnedness manners to understand natural language. The main motive of the paper is to help the addicts regarding minor health information. Originally when the addict's visits the website first registers themselves and after the addict can login, latterly can ask the bot their queries.

In our system the addict can interact with the chatbot through manual and converse bot will interact using voice and handbook manner. With respect to the addicts queries, the bot identifies the complaint if addict chattering with the chatbot. According to the conditions of

the stoner, bot gives suggestions for the complaint and also specify specialist croakers. This system can be used by multiple addicts at a time without any lagging.

Our proposed idea is to produce an AI predicated healthcare chatbot system for rural and government hospitals that meet all our demands and can help the healthcare assiduity. This system connects with cases and attendants them with technical croaker The perpetration of this system relies on nlp algorithms and testing and training data. This chatbot uses Support vector classifier and arbitrary timber classifier algorithms.

The chatbot will be asking a set of questions to the user to get clear and proper user symptoms. Then comparing and matching of symptoms with the database takes place. The system then categorizes the disease into major disease and minor disease.

If the impact of symptoms is high, the chatbot system will recommend the Doctor. If the impact of the disease low, then the system will prescribe medicines to the user.

The flowchart of AI based healthcare chatbot system is shown in Figure.

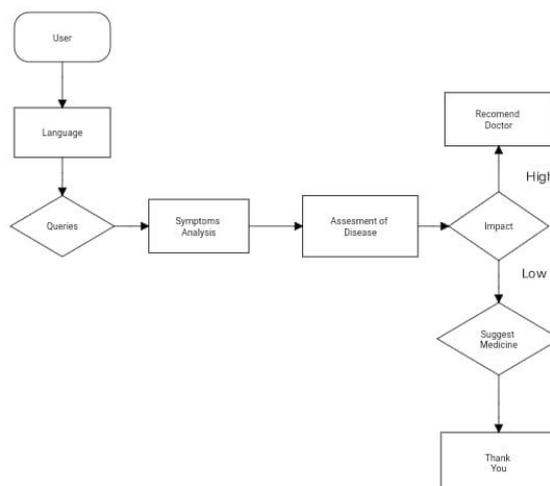


Fig. 1 Flowchart of AI Based Healthcare Chatbot System

### Implementation

Our Health- Care Chatbot is executed as a web operation. Health- Care Chatbot uses Artificial Intelligence and Machine Learning mi. The vognish programming language for administering the AI and ML technologies is Python. The chatbot uses a dataset with roughly 130 different symptoms and 40 different types of conditions. This dataset was also eviscerated, and the string fields were decrypted to numerical form. After that the data is now used to train the machine knowledge model.

The Algorithms and machine knowledge models that are used to train the dataset are Support Vector Classifier (SVC), Gaussian Naive Bayes and Random Forest Classifier. The models are executed in Python using SVC, GaussianNB and RandomForest Classifier modules from sklearn library. After training the three models we will be predicting the complaint for the input symptoms by combining the prognostications of all three models.

This makes our overall prophecy more robust and accurate. The input symptoms will be

matched to the symptoms in the dataset and the complaint will be predicted accordingly. We have also used another dataset that includes the list of some croakers of Mumbai and the web link to their web runner. So according to the complaint that is predicted the web link of the croaker that is specialized for that particular complaint treatment is handed.

### Classifier Algorithms:

Support Vector Classifier:

The ideal of a Linear SVC (Support Vector Classifier) is to fit to the data you give, returning a "vaguish fit" hyperplane that divides, or categorizes, your data. From there, after getting the hyperplane, you can also feedsome features to your classifier to see what the " prognosticated" class is.

### Gaussian Naive Bayes:

In Gaussian Naive Bayes, continuous values associated with each point are assumed to be distributed according to a Gaussian distribution. . It's for nonstop- valued arbitrary variables.

### Random Forest Classifier:

A arbitrary timber is a meta estimator that fits a number of decision tree classifiers on colorful sub-samples of the dataset and uses comprising to meliorate the predictive delicacy and control over- fitting.

## 4. RESULTS AND DISCUSSION

The proposed system is an effective, easy and a quick way to help cases to have a one to one discussion with the Chatbot that helps and assists them to take care of their health effectively. With the converse bot help of Chatbot addicts can post their symptoms and get the answers from the bot. The system can be entered from anywhere and at any time accessibly. The chatbot is available24/7.

Firstly the user can register themselves and after that they can login yourself.



Fig 2. Registration Page



Fig 3. Login Page

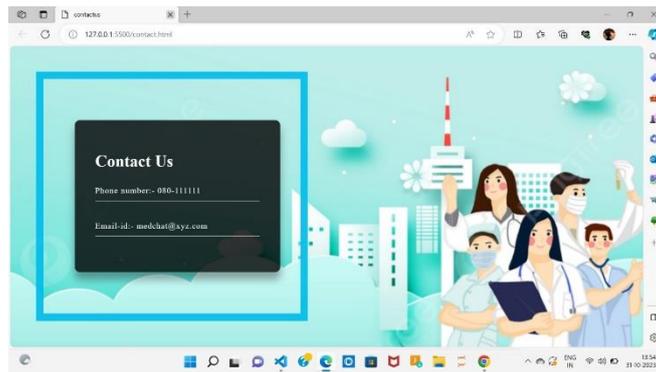


Fig 4. Contact Us

This design result is as follows, the addict will have to be in a primer to homemade communication with the chatbot and get the particular complaint and stoners can also get their former converse history through their details which are stored in the database.

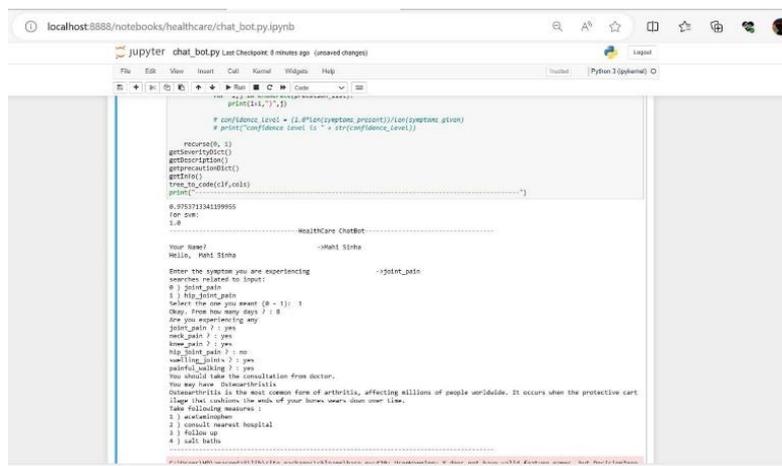


Fig 5. Chatbot System

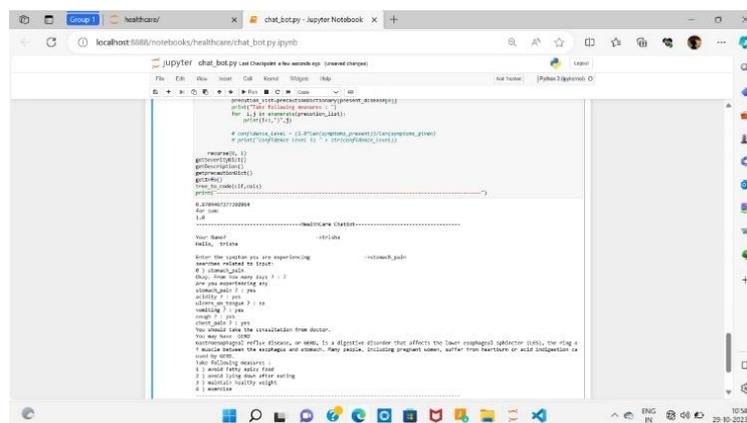


Fig 6. Chatbot System

The figure shows how the stoner textbook with the chatbot and the accurate result will be shown to the stoner at the end of symptom explanation. And the stoner have been consulted to a croaker.

## 5. CONCLUSION

This paper designed a healthcare chatbot provides personified judgments base on symptoms. The execution of customized Medical helper heavily relies on AI algorithms as well as the training data. At the end, the execution of customized drug would successfully save numerous lives and produce a medical mindfulness among people. As mentioned ahead, the unborn period is the period of messaging app because people going to spend further time in messaging app than any other apps. No matter how far they are, people can have this medical discussion. The only demand they would need is a simple desktop or smartphone with internet connection.

## 6. REFERENCES

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