



IMPLEMENTATION OF CHATBOT FOR COMMUNICATION BETWEEN PHYSICIAN AND PATIENTS

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Abstract: Despite of being a very important part of human life, healthcare is lagging in the modern, or technological progress. Different sectors like food industry, e-commerce, etc. nowadays are quite up to date from the technology point of view. But if we observe carefully, healthcare sector is still implementing the traditional ways. We can order some food in just some seconds but have to wait for a medical appointment to a doctor. It is very important to draw an attention in the healthcare sector. If a chatbot is introduced in the healthcare industry, it can be proved as one of the best solutions and a big change. Healthcare chatbots will never replace the doctors. But they can provide a number of opportunities to facilitate their job or to improve their performance. The healthcare chatbot is based on the Natural Language Processing (NLP), which helps users to submit their problems about their health. People can ask any personal query related to their health care through the chatbot without being out physically available at the hospital. The major concern of a system behind developing this web-based platform is analysing the customers' sentiments.

Keywords: Chatbot, Healthcare, Artificial Intelligence, NLP.

I. INTRODUCTION

Since the past few decades, humans have been tirelessly working day and night that they fail to prioritize their health on a regular basis. In the longer run, this problem leads putting the quality of life at risk. Nevertheless, with the aid of Artificial Intelligence, we are now able to provide health care services to individuals at their convenience, and at reasonable prices. One of the biggest blessings we own is a healthy body. A healthy body and an enhanced quality of life is something each one of us is looking for. The primary focus of this paper is to provide these services to fulfill the above-mentioned motive. It is quite difficult to imagine our lives without high tech gadgets because they have now become an essential part of our lives. Therefore the field of Artificial Intelligence is flourishing due to the various applications of it in the research field. Disease prediction is one of the main objectives of the researchers based on the facts of big data analysis which in turn improves the accuracy of risk classification based on the data of a large volume. E-healthcare facilities in general, are an essential resource to developing countries but are often difficult to establish because of the lack of awareness and development of infrastructure. A number of internet users are dependent on the internet for clearing their healthcare-based queries. We have designed an online platform for providing medical services, and answers to the queries to patients with a goal to provide assistance to healthcare professionals.

The user can also seek medical guidance in an easier way and get exposure to various diseases and diagnosis available for it. We have implemented a chatbot for disease prediction, to make communication more effective. Chatbots are nothing but the human version of software that is based on Artificial Intelligence, and uses Natural language processing (NLP) to interpret and accordingly respond to the user. This study proposes the disease prediction, and relevant suggestions chatbot, using the concepts of NLP and machine learning algorithms. The prediction is conducted using the Decision tree algorithm.

II. LITERATURE REVIEW

Sometimes, the sufferers' patients have hesitance to proportion their issues in a comfortable way. That's why it may happen that the doctor fails to identify the disease and cannot provide satisfactory diagnosis. AI based healthcare system provides a very suitable and comfortable way for patients to communicate without any hesitation by text-to text



conversation. And this can be done by using natural language in which patient can share their symptoms so that based on their symptoms, our system will identify the disease and provide the necessary solution, and also day to day healthcare advice in order to avoid diseases and get more information about their health.

The Chatbot System will function as a digital medical doctor and allow patients to interact with the virtual doctor. For the development of this Chatbot, Natural Language Processing, and Pattern Matching Algorithm has been used. It is developed using the PyCharm. Our gadget focuses entirely on the evaluation of NLP to extract signs, that could make it less complicated for elderly, less technical users to communicate. [4] The Natural Language Processing allows users to ask a query. The machine understands the important elements, or keywords from the users input that may relate to particular features in a data set and provides an answer. Paper uses Artificial Intelligence for prediction of the disease based on the symptoms and gives the list of available treatments. [5] Pattern Matching strategy is utilized as a part of most Chatbot and it is very regularly being referred to as a replying framework, relying upon coordinating kinds. Patterns can be created by one self-using logical operators that are AND, OR, NOT.

III. METHODOLOGY

The health-Care Chat Bot System have to be written in Python and run in PyCharm. Our Healthcare Chatbot is implemented as a web application. Healthcare Chatbot uses Artificial Intelligence and Machine Learning technologies. The best programming language for implementing the AI and ML technologies is Python. The chatbot uses a dataset with approximately 130 different symptoms and 40 different types of diseases. This dataset was then cleaned, and the string fields were encoded to numerical form. After that the data is now used to train the machine learning model. This makes our overall prediction more robust and accurate. The input symptoms will be matched to the symptoms in the dataset and the disease will be predicted accordingly. We have also used another dataset that includes the list of some doctors of Nagpur and the web link to their web page. So according to the disease that is predicted the web link of the doctor that is specialized for that disease treatment is provided.

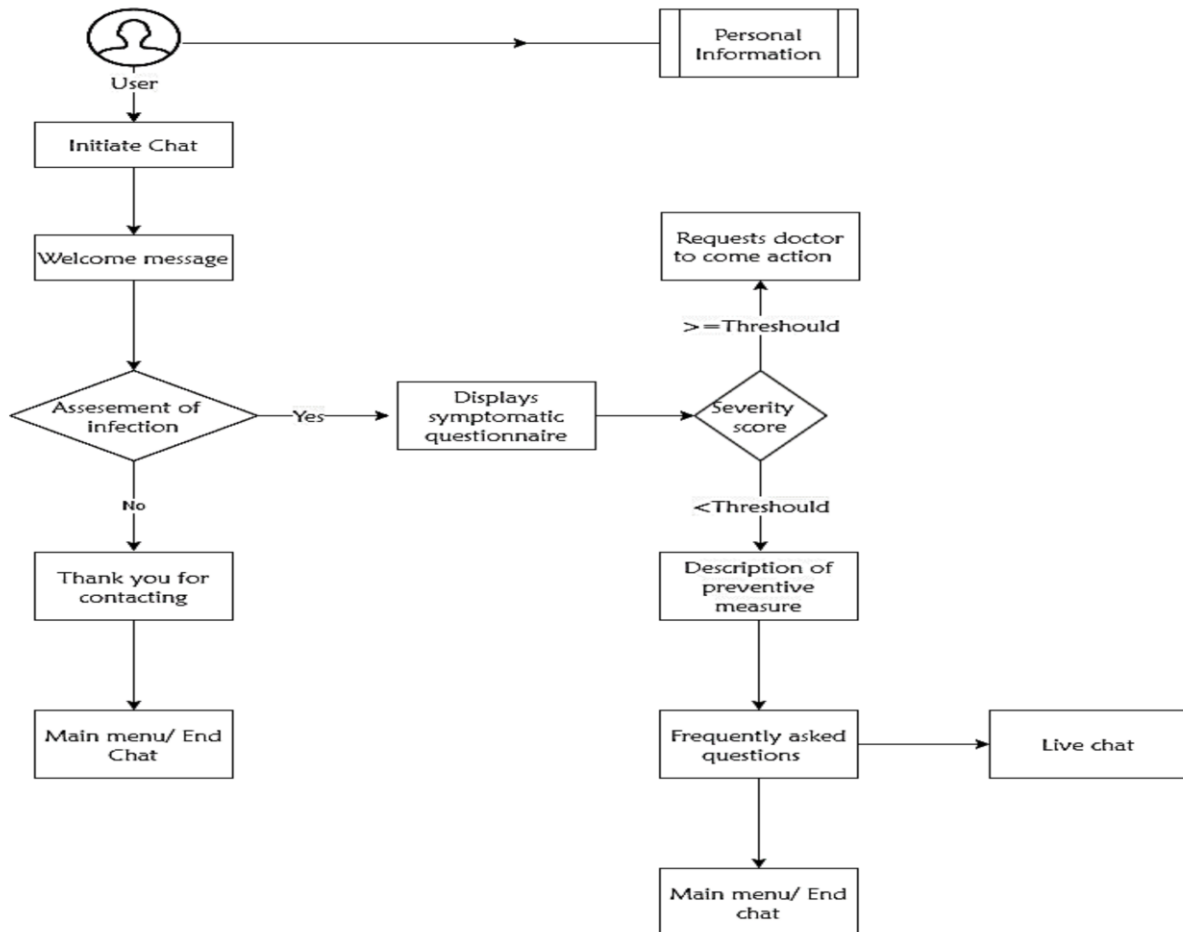


Fig. Flowchart of working of a chatbot.

**IV. LIMITATIONS AND FUTURE SCOPE**

As the programming is already fixed, the chatbot will not be able to answer the query asked beyond the present information. This can lead to customer frustration and result in loss. It is also the multiple messaging that can be challenging for users and collapse the overall experience on the website. Chat-bots are installed with the motive to speed-up the response and improve customer interaction. However, due to fix data-availability and time required for self-updating, this process appears more time-taking and costly. Therefore, in place to manage several customers at a time, chatbots appear unclear about how to communicate with individuals. Chat bots are a thing of the future which is yet to discover its potential but with it arise in popularity and craze among companies, they are bound to stay here for long. Machine learning has altered the way companies were communicating with their customers. With new platforms to build various types of chat bots being introduced, it is of great excitement to witness the growth of a new domain in technology while surpassing the previous threshold.

V. CONCLUSION

The proposed system is an efficient, cheap, easy and a quick way to help patients to have a one-to-one conversation with the Chatbot that helps and assists them to take care of their health effectively. With the chat bot help of Chat bot users can post their symptoms and get the solutions from the bot. The system can be accessed from anywhere and at any time conveniently. The chat bot is available 24/7.

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