Health Diagobot: A Medical Chatbot For Diagnosing Disease And Prescribing Medicines.

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Abstract

The paper presents a medical ChatBot. This ChatBot is design for conversational purpose which will be use to give prescription, suggestion for basic medical aid for the patients. For a little complications' patient need to directly consult with doctor due to hectic schedules. So Medical ChatBot is a great solution to them. A medical ChatBot acts as a medical consultancy. The bot will diagnosis the disease by the inputted symptoms of the patients and suggest them with the general prevention for it. The Medical ChatBot operates with the help of natural language processing which will help the users to give in their symptoms of the disease faced. Through this ChatBot user can directly ask inquiry about personal health problem and get the medical consultancy without physically going to hospital. The ChatBot gets inquiry and send the related result to user or first necessary preventive measure.

Keywords: Medical ChatBot, Natural Language Processing, Medical Consultancy, Query

1. Introduction

For a healthy and long life our healthcare is important. But for a small common health problem, some people cannot be able to consult directly with doctor. So, to meet this requirement, the idea is proposed to create a system with Natural language processing. This ChatBot is developed to reduce the cost of healthcare and for improving accessibility to medical knowledge.[2] This project implements a ChatBot which can be used in medical sector. The ChatBot is build using Machine Learning and the analysis in done using data mining. Machine learning helps to build a ChatBot which processes natural language of user and responds to the human input in human understandable format. This creates a conversational flow or a chat between a user and a ChatBot. ChatBot smartly analyses the given patterns as input and responds to these patterns. ChatBot also does all the information gathering and using data mining algorithms it does all the processing and prediction. The overall application of ChatBot is to minimize the hectic job tasks of humans or perform repetitive actions. In the same way Medical ChatBot can interact with user have a conversational flow, diagnose the symptoms of the user and then provide medical aid.

2. Motivation

In general, many people are not aware of symptoms for viral or common diseases and treatment for it. Unhealthy conditions of the patient may be assumed as serious disease without analyzing the symptoms. This panics the patient to confront the doctor physically in the hospital and waiting in the queue. To avoid all this chaos and to get medical aid and preventive measures for common diseases to improve health conditions this ChatBot is introduced. Our aim is to develop ChatBot which will be the text-to-text conversational bot with natural language processing. This bot diagnosis patients. In order to obtain a good diagnosis, the system backups the last responses and asks more specific questions. The three main parts of our system are (1) to get the symptoms for the disease (2) precise leveling of withdrawn symptoms to the dataset (3) Suggesting the disease and prescribing the medicines for it [2][3].
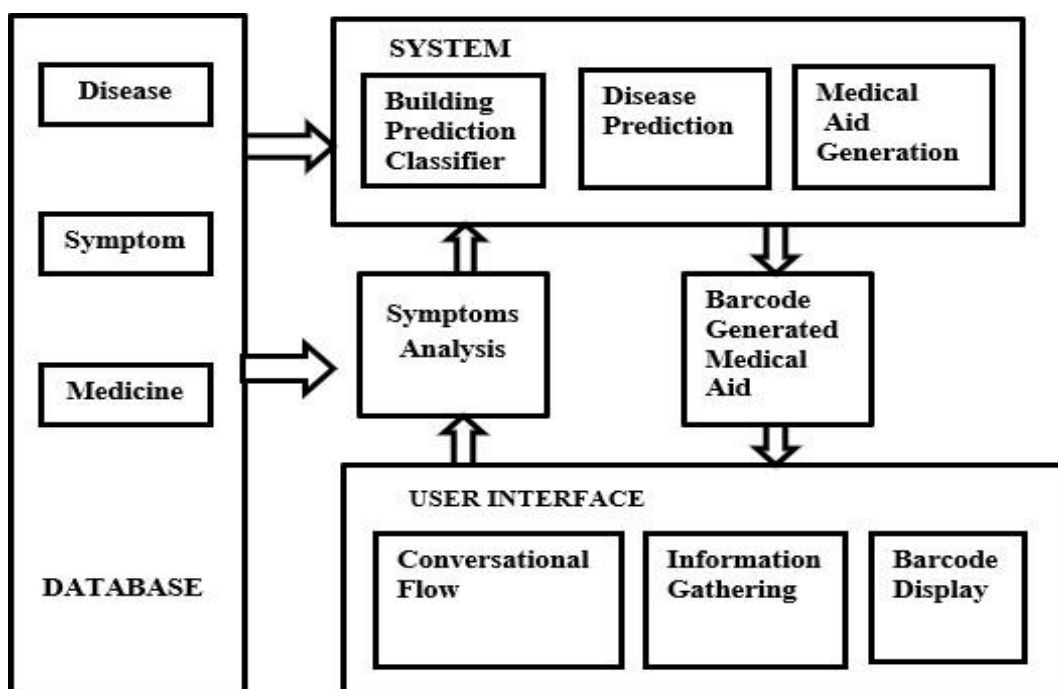
3. System Architecture

Figure.1. System Architecture

The system architecture consists of three main functionalities called User-Interface, System and Database.

User-Interface: This functionality contains features such as conversational flow, information gathering, barcode display. Conversational flow is responsible for having interactive communication with user. Information gathering is a phase of gathering and identifying entities such as symptoms from the conversation. Barcode display feature is used to provide the medicines in barcoded form as prescription under doctor's observation.
System: This functionality contains features such as Building Prediction classifier, Disease Prediction, Medicinal aid Generation.

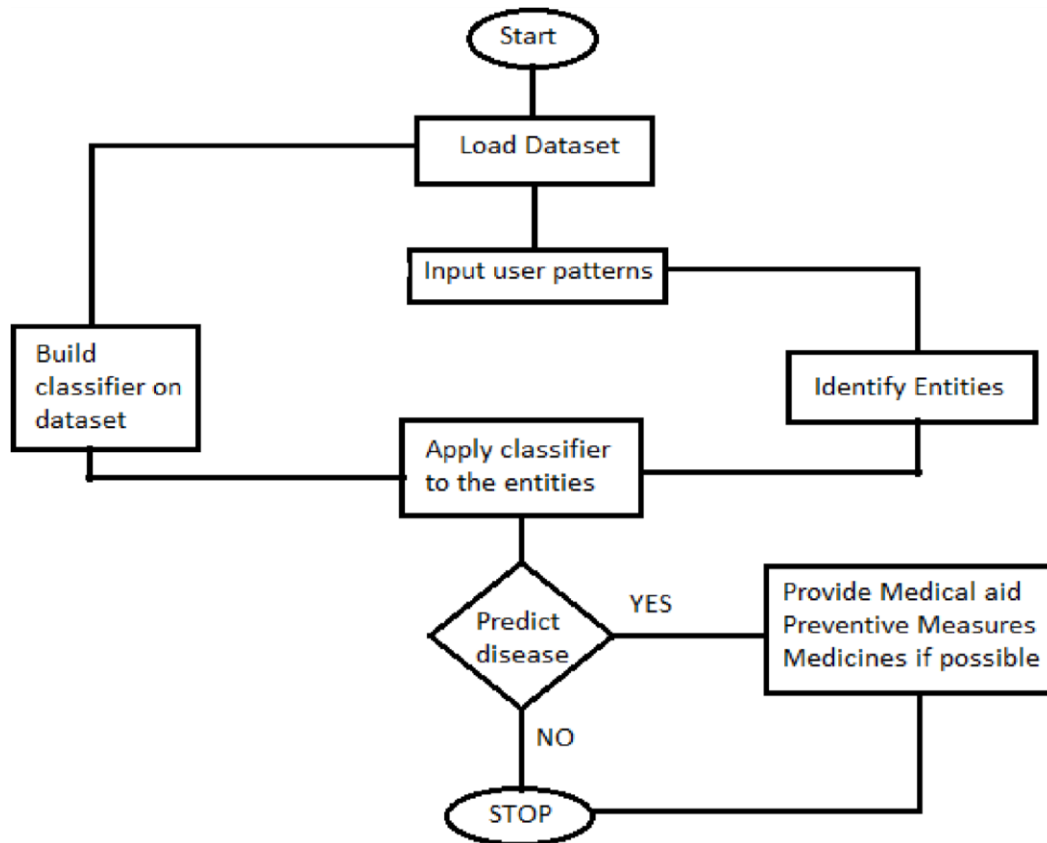*Database:* This dataset contains Disease, Symptoms, Medicines.

Figure.2. Activity Diagram

From the above fig.2, the functioning of the system can be understood. The system has proper processing of the input i.e. the symptoms and gives the output i.e. the prescription correctly.

4. Methodology

Medical chat bot is build using python with the help of following libraries NLTK, TFLEARN, TENSORFLOW and database library. NLTK also known as natural language toolkit is used for natural language processing to automatically interact with the natural language of human and process it [4]. TFLEARN and TENSORFLOW are used for experimental training and artificially creating intelligence of recognizing patterns in human inputs. This chat bot having intelligence to respond to natural language human patterns is integrated with Database to respond with the medicinal aids and prescriptions. Diseases are predicted using the given symptoms and medicines for these diseases are found in database. As per the disease dataset decision tree algorithm is most suited for classification of disease [3].

5. Results

As per the planned modules, after execution of first module successfully the ChatBot communicates with human, proceeds with an interactive chat. Once a conversational flow is established it gathers information and symptom necessary for data mining and defining label to the disease or prediction of disease. This is integrated with the database which gives results for disease labels after mining on datasets with the help of symptoms as entities. This is considered as result of second module i.e. integration of dataset with ChatBot. After integration the datasets are analyzed for corresponding symptoms and medicines and their prescriptions are generated (user expert observation if needed).

6. Conclusion and Future Scope

The results provided to the user is done with the help of machine learning algorithms which was the major area of study. This medical aid and effective treatment or cure are provided with the help of machine learning terms like pattern matching, data-mining etc. This ChatBot may be used for specialized diseases and analysis of complex diseases. With greater implementation of processing of the test samples and mining the test samples for complex and uncommon diseases this ChatBot can be implemented in hospitals to review the physical health of the patient and effective treatment of the complex diseases.

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