REAL LIFE HEALTH CARE CHATBOT USING PYTHON

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ABSTRACT:

With increasing population of India, increasing birth rate and decreasing death rate due to advancement inthe medical field it's found that numbers of doctors are less to serve the need of the increasing population. This scenario can be better understood while walking through the cities government hospitals where the less availability of the doctors is the major cause behind the improper treatment of the patients and in certain scenario the resultant death. To encounter such cases there is a need of the smart and Intelligent chatbot who can provide advice to the doctors and sometime even patients about what to do in such cases which ultimately results in the saving the life of hundreds of people. This AIbased medical chatbot can take decision as per the request of the patient. For this it uses an API called API Medic that provides all the information stored in the database server and the user can give voice input to the chatbot like google assistant.

KEYWORDS : Healthcare, AI, Chatbot, IBM Cloud, API Medic, Google, Voice recognition.

1. INTRODUCTION

Now a day's chatbots can be seen in every industry to guide the user as per their need. They are found in IRCTC with name of Dishachatbot, in banks and also in different online travel companies like MakeMyTrip. As we are moving toward the digitalization there demand in the market is keep on increasing day by day all the time.

The increasing population of the India and availability of the less doctors to serve the need of the increasing population is the major cause behind the need of the medical chatbot in the medical industry. Even sometime doctors can make mistake while making decision regarding the cause of symptoms in patient thus risking the life of patient. For example, during the decade of 90's Mohammed Benaziza who was also known by the name of the 'Giant killer' was one of the dominating bodybuilder in the bodybuilding industry. He has died because of Hypokalemia (means high potassium level) in his body. Because of this excess potassium level, he was getting thecramps on the body. The doctors were unable to understand what exactly is happening and they were came on conclusion that Mohammed is potassium deficient which creating the cramps on the body. Thus doctors have injected more potassium in his body result in spreading of the cramp toward his heart and ultimate death. There is even lot more cases where even doctors can have made mistake. Thus to avoid such scenario there is the need of medical chatbot who can guide the doctors about what to do in such critical cases. Its application is not only limited till the doctors but they can also be utilized by the normal human being as in the case of emergency where It can guide the user about the primary treatments which should be taken by the person under treatment along with the person is suffering with a certain disease then by simply giving the answer of few of the questions asked by chatbot, it can judge the kind of disease a person is suffering with. After this if a person wants to know about the precautions and the remedies that he/she should take then chatbot can also give the information regarding it.

2. LITERATURE REVIEWS

Flora Amato [1] paper was based on the concept of the Deep machine learning and Artificial intelligence; it allows the application to interact with patient in a manner that doctor does. For creating such powerful application researcher has used Watson conversation service which is designed and trained by the Blue mix platform.

PriyasankariM [2] proposed an idea in which it uses user dialogue. User dialogue is a linear design that proceeds from symptom extraction to symptom mapping, where it defines the corresponding symptom then diagnosis the patient where it's a major or minor disease.

BenildaEleonor [3] the paper introduces a Pharmabot: A Paediatric Generic Medicine Consultant Chatbot.Pharmabot, which is a conversational chatbot that is designed to prescribe, suggest and give information on generic medicines for children. Human machine

as a technology integrates different areas and the computational. The researchers used descriptive method in the study. The researchers use Left and Right Parsing Algorithm.

3. PROPOSED SYSTEM

The purpose of our chatbot is to give service to the people who are suffering from body problem or disease by suggesting them medicines regarding their problems. To give them 24x7 availability, we use our hardware boot as aserver for client using programming.

HARDWARE AND SOFTWARE

The backend of the chatbot has been developed using the python programming language along with the "ApiMedic API". API is called Application Programming Interface that acts as an interface between the chatbot and the database server. The database will be accessed through API by simple python codes.

The frontend of the chatbot is the user interface that can be created using the "IBM Watson cloud services". It has been used to design the user interface in a simple manner so that the user can access the bot easily.

IMPLEMENTATION

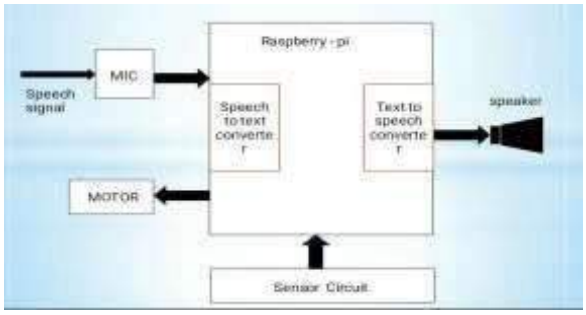

Fig1. Block diagram of chatbot

In this project the motion of robot is controlled via Bluetooth HC-05 through a Smartphone app. The app is developed in such a way that it converts a voice command to text and translates the text to the connected Bluetooth device. The Bluetooth connected on the audio board receives text from the android app as characters and stores them as string to the assigned string.

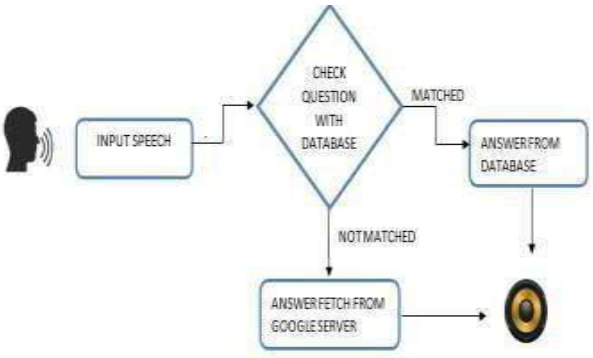

Fig2: flowchart of work

Mic is our input device and speaker is output device. A mic recognizes the input from patient. The input of patient is in speech format, and then this speech is converted into text format to verify it with database to give expected answer in speech format. We connect Google server with database so that if API Medic didn't find input in database it will fetch data from Google server.

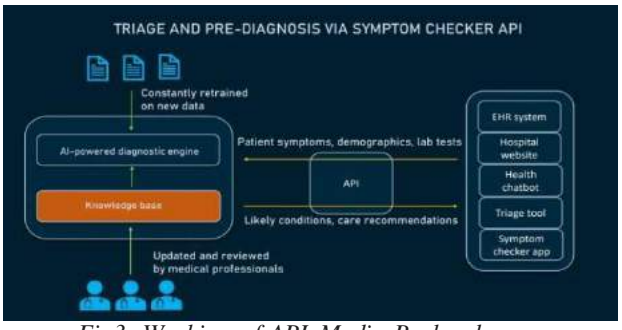

Fig3: Working of API Medic Backend

The API Medic is the Application Programming Interface that acts as an interface between the database server and the user interface. When the user inputs the symptoms then using the python code, a call to the API has been given and then the api acts as an interface then it searches for the appropriate description and health issues related to the symptoms on the database server in which all the data are taken from the doctors that are stored.

4. RESULT AND DISCUSSION

The project result is as follows:

The user will have voice to voice communication with the artificial intelligence healthcare chatbot and get the specific desired result in form of voice. The user can get answer deep as well as general questions which are stored in the database.

The performance of chatbot depends on API Medic and database. the main purpose of the healthcare chatbot system is provide services in rural areas and government hospital for those people who are not able to take appointment or medical information from the Doctor's. They can solve their problem with the help of chatbot.

AI based healthcare chatbot system provide suggestions for medicine or diseases and it is available for 24*7 hours.

Where we apply input speech signal through the mic and it compared with the database stored in the remote server and fetches the answer according to the symptom matched health issue. If problem statement or disease and medicine related information is not available in the database then, it will answer from the Google server.

The speech input signal first converted into voice to text and then convert from text to speech form, the output is taken from speaker.

5. CONCLUSIONS

Our medical chatbot provide medical assistance to the patients for some of the general diseases like fever, cold, typhoid, malaria, jaundice etc. We are inventing the system because of the need of the increasing population of our country. Such systems are available in foreign but not in our country. As we know well about it that the numbers of doctors are less to serve the need of the patient. This scenario can be better understood by walking through the city's government hospitals. Thus, the medical chatbot will give the medical assistance to the patients while the doctor is not available which will ultimately improve the efficiency & performance of the medical industry by decreasing the death rate.

The application of chatbot in the medical domain is quite way beyond then our imaginations. We have covered almost all the points which a medical chatbot should support to cater the need of the patient. In past few years there are lot of models of medical chatbot has been invented which were quite expensive for a normal person but we have tried to overcome this drawback in our health care chatbot system.

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