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EFFICIENT CHATBOT DESIGNED TO PROVIDE HEALTH RELATED INFORMATION

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Abstract: An efficient chatbot designed to provide health related information is a system used to chat with the patient or for any user to provide health related information, which increases the health awareness of user. It works by providing a complete health related info & solution that helps one to self-diagnose their disease to some extent. The proposed system mainly focuses on the user's health problem and their symptoms and then provide necessary info about the disease and its solution. This paper illustrates the improvement of the chatbot enabled website with the features of appointment, and map location.

Keywords: Chatbot, Database, AI, Online platform, Rule-based

I. INTRODUCTION

Maintaining a healthy lifestyle is an important thing. Today, people are busy with their works at home, office, and more addicted to internet .They are concerned about their health but due to their busy schedule, they don't get enough free time to take care of their health . So they avoid to go to hospitals for small problems and this carelessness may lead to a major problem.

So we provided an idea to create a health care chatbot system using machine learning that can diagnose the disease and provide basic information about disease before consulting a doctor. Which helps the patient know more about their disease and improves their health.

Medical chatbots are AI-powered conversational solutions that help patients and healthcare providers . These bots can also play a critical role in making relevant healthcare information accessible to the right stakeholders, at the right time. From enhancing patient experience and helping medical professionals and patients, to improving healthcare processes and unlocking actionable insights, medical or healthcare chatbots can be used for achieving various objectives. Poised to change the way payers, medical care providers, and patients interact with each other, medical chatbots are one of the most matured and influential AI-powered healthcare solutions developed so far.

There are many chatbots available at the current time, there are mainly two categories of chatbot:

A. Rulebased Chatbots

Rule-based chatbots are also referred to as decision-tree bots. As the name suggests, they use a series of defined rules. These rules are the basis for the types of problems the chatbot is familiar with and can deliver solutions for. These chatbots do not learn through interactions. Also, they only perform and work with the scenarios you train them for.

B. AI Chatbots

AI chatbots that use machine learning understand the context and intent of a question before formulating a response.These chatbots generate their own answers to more complicated questions using natural-language responses. The more you use and train these bots, the more they learn and the better they operate with the user.

Chatbot provides instant conversational responses and make connecting simple for patients. And when implemented properly, they can help care providers to surpass patient expectations and improve patient outcomes. Patients can directly access this site and get the required information and can save their time. Scope of this project is very broad in terms of serving patients.

Few of them are:-.

- It can be used anywhere any time as it is a web based application.
- No restriction as patient simply write their problem and can interact with chatbot.

II. LITERATUR SURVEY

Several pieces of researches have been done to develop an Chabot enabled website System such as "LITERATURE SURVEY OF VARIOUS CHATBOTS", International Journal of Emerging Technologies and Innovative Research (www.jetir.org), ISSN:2349-5162, Vol.7, Issue 5, page no.1153-1159, May-2020, Available :http://www.jetir.org/papers/JETIR2005294.pdf.

Naeun Lee et al. [2], [17] proposed a system that needed to implement word segmentation (tokenization). Using NLTK package which involves inbuilt tokenizer. The result is easy to implement, as does not require any coding. Faster and more accurate.

Tao Jiang et al. [3], [11] proposed a system to implement word segmentation (tokenization).Method Used Conditional Random Fields. This algorithm proves to be more accurate and less complex than the first but less efficient as compared to NLTK.

Naganna Chetty et al. [11] ,[15] Implementing disease predictions. Method used Fuzzy approach. As a result it Provides high accuracy, but is not efficient to implement as it involves the scanning of the entire database for each iteration.Though the amount of data decreases on each iteration, but yet initially the data is quite large to be scanned.

III. PROBLEM STATEMENT

Being worried about your health is natural. Every day, people have many questions, both major and minor, concerning their health condition. It would be particularly useful if there was a healthcare consultant in their pocket who would provide all the answers. The first problem is that there are lots of common questions a patient want to ask to the doctor regarding to its health. Doctors try their best to be available to their patients, but sometimes, they might not be able to dedicate enough attention to each of their patients.

IV. OBJECTIVE

The main objective of this paper is to propose an chatbot System which is suitable for Healthcare industry. Helping people to aware about their problems and talk to chatbot to know about their problem is our main objectives. User is aware about their problem so that it helps doctor also and can easily consult with doctor. A platform where patient can book appointment and can easily chat to chatbot like a human to human conversation.

To build a system with perfection, requirement collection is a must. The study will gives a clearer idea of people's need and the system that we are planning to build as well as how much we are going to cover. The document will describe the whole process of chatbot and interaction with patient. Some of the aims are:

1. Saving time
2. Online appointment management
3. Consult with Chatbot
4. View Location of Hospital
5. Contact to Doctor

V. METHODOLOGY

This chatbot requires internet connection and laptop or Mobile by which user can interact with chatbot and visit the website. One of the key feature of chatbot is that internet connection is not required to consult with chatbot because the resposes of chatbot is already saved. To show the google map location internet is required by which user can see the location of hospital.

User can also book the appointment of itself by filling the appointment form. User can also contact to the hospital by filling the contact form and view the location of hospital which is shown by the Google Map. MySQL is used as a database to save the contact details and appointment details.

Chatbot uses the NLP functions like it uses tokenize function to split the sentence into the array of words or tokens. Chatbot also uses the stemming of words to find the root form of the word. Admin needs to train the chatbot when he/she add new patterns and its responses. After chatbot is trained it can easily respond to user's queries.

With the help of this system, Patients can self-diagnose their disease to some extent. It provides medical information to the patient. Chatbot algorithms are trained on massive healthcare data including disease symptoms, diagnostics, markers, and available treatments. This system proves to be more cost effective and reliable over other systems. It is very easy to use and has the least maintenance. It does not require any human intervention and thus can be called fully automated.

This diagram shows the admin and user operations or use-case diagram:

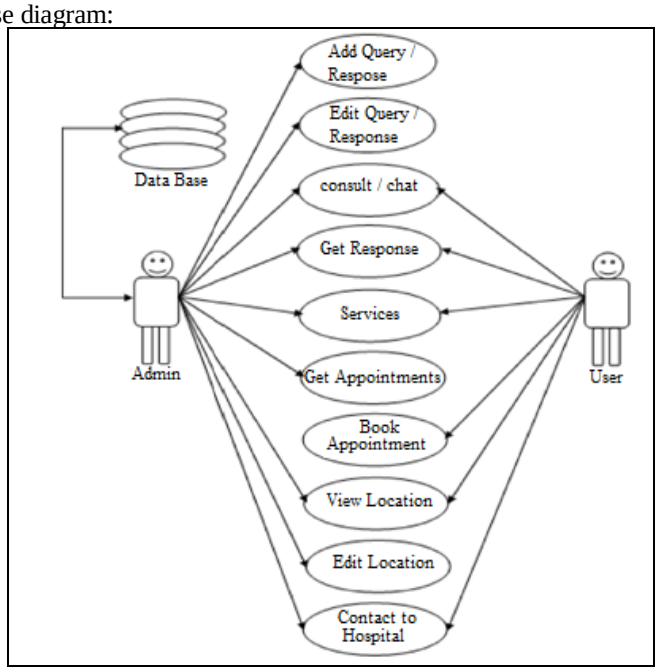

Figure 1. Use Case of Admi and user

VI. SOFTWARE DESIGN & IMPLEMENTATION

The system is developed by using the following software:

A. Front End

- HTML
- CSS
- Bootstrap

B. Back End

- Python
- Flask
- NLP
- Java Script
- MySQL

The design of this system involves series of phases in which the output of one phase provides the input to the next phase.

- In the first phase (requirement phase), the end-users, and administrators are interrogated to discover their

aim and objectives, requirements, and expectations from the Chatbot.

- In the second phase (design phase), the website is designed to meet the end-user's requirements. This entails the data flow diagram, context diagram, and use case diagrams.
- In the third phase (implementation phase), the graphical user interface of the system is designed with HTML, CSS, Bootstrap used as front-end tools, while Python, Flask, JavaScript, My SQL were employed as backend in addition with Google Maps for Location. The application interconnects with the database located on a local-host.
- In the fourth phase (testing phase), the work of each component of the website designed was tested and is integrated into a system.
- Finally, in the last phase (deployment phase), we deploy the chatbot enabled website we developed.

C. User Consulting with Chatbot

The User can interact with chatbot by go to the Consult page. When User comes to website it is on Home page there are 5 pages on the website. After clicking on chat icon user write his / her problem on text field after clicking on send button chatbot respond the appropriate result as previously defined in dictionary.

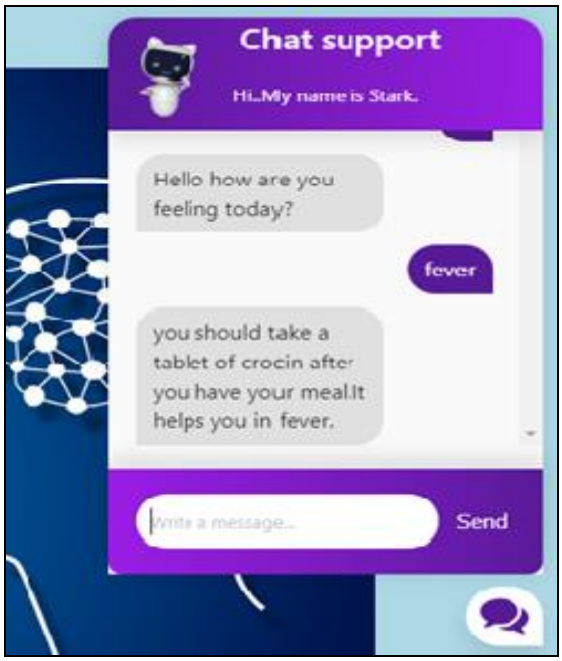

Figure 2. User consulting to chatbot

VII. CONCLUSION

The Healthcare Chatbot system is a very exciting topic to work. After going through the work, we faced many challenging tasks. Day by day healthcare system become an important part of our society. So we have decided to build this system.

We researched so many system that showed us the direction how to develop our system. We interact with the people that what type of problem they facing. They were very happy to take this system as it is give them some relief in modern age. Despite everything we achieved, we faced many challenges to finish this project. After all chatbot enabled website patient get the benefit and may aware for their health.

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