Health Care System with Smart Assistant

Ms. Aishwarya Bhoj[1], Ms. Swaranjali Patil[2], Ms. Radhika Pande[3], Ms. Prajakta Modhave[4].
Prof. Amol Jagtap. [5]

Students, Department of Computer Engineering, AISSMS College Of Engineering, Pune, Maharashtra, India.[1,2,3,4.]
Faculty, Department Of Computer Engineering, AISSMS College Of Engineering, Pune, Maharashtra, India.[5]

---***---

Abstract – Due to Pandemic Situation or due to lack of time sometimes patients are not able to visit hospital for checkup or they are unable to confirm their appointments. To overcome this problem we have introduced a web portal who helps patients for booking appointment or virtual disease prediction with smart assistant. A Chatbot allows user to initiate a conversation with system. It is Artificial Intelligence (AI) based software that can be established as web applications. Normally users are not aware about all the symptoms regarding a particular disease. A Chatbot represents a question answering system that uses Natural Language Processing (NLP).

This project will analyze the existing e-healthcare system that involves a novel human – machine interaction and proposes an alternative system is the objective of this project. A Chat Interface that is designed and trained to act and interact with patients as a human being. Also, the Patient can book an appointment with the doctor.

*Key Words***:** Healthcare, Chatbot, Disease prediction, Artificial Intelligence, Smart Assistant

1. INTRODUCTION

Now-a-days most healthcare organizations have advanced their client communications systems. Often they have included a question-and-answer page on a website but that is very limiting and patients are not very satisfied with the results. We can overcome these with a Chabot, where the conversation goes back and forth, allowing the client to navigate towards information they want with great precision. Additionally, they can help in setting up an appointment with the doctor, predict health problems based on symptoms and provide daily health tips to improve the patient's lifestyle

1.1 Motivation

As COVID-19 has spread globally and as we are practicing social distancing the technologies like Chatbots are coming to rescue. Even it is important for a website to resolve user's queries or assist the user for help. Chatbots are also known as conversational agents. It don't get tired or sick, and they do not need to sleep; they are effective to operate and can run 24 hours a day, which is very useful for patients. Also with the help of Chatbot user can easily book appointment with the doctor and can have virtual check-up too.

1.2 Problem statement

In today's world of AI and Data Science, everyone is looking for the kind of system which is interactive. Sometimes in the hospital, it happens that there is a lack of human resources to attend to the patients. So, by considering all these things we have decided our problem definition as follows:

To design and develop web applications and integrate chatbot in it.
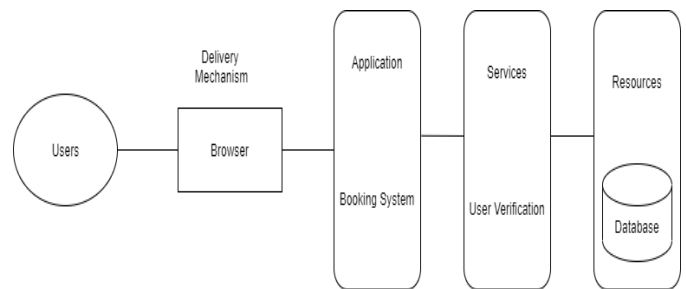
2. Methodology

Fig -1: System Architecture

In today's world of AI and Data Science, everyone is looking for the kind of system which is interactive. Sometimes in the hospital, it happens that there is a lack of human resources to attend to the patients. In the context of health care, Chatbot or health bots are intended to provide personalized health and therapy information to patients, provide relevant products and services to patients, as well as suggest diagnoses and recommend treatments based on patient symptoms.

3. Modules

There are various types of modules in the system, according to type of user, user can access them.

1) Registration module:

This module is used for registration purpose in the system.

2) Appointment Booking module:

Patient can book appointment by their convenient time. Patients can select doctor according to their problems. After receives the appointment doctor confirm the appointment.

3) Virtual Health check-up:

In this module we provide health-related functionalities like calculating B.M.I. , Diabetes status according to glucose level.

4) Admin Functionalities:

Admin can have different functionalities like

 View Doctor/patient:

Admin can see the doctor-patient details which are registered on the system

Approve Doctor:

Admin can approve the registered doctors by verifying their details like

Doctor registration number , Doctors Certificate.
Delete Doctor / Patients:
Admin can also delete the users from the system

5) Doctors Functionalities:

 Approve Appointment:

Doctor can approve the appointment which is booked by the patients.

Prescribe the medicine:

Doctor can prescribe the medicines after diagnosing the disease for particular patients.

View patient's history:

Doctor can view patient's history.

6) Patients Functionalities:

Book appointment:

Patients can book appointment by selecting particular doctor.

View Prescriptions:

Patient can view prescribed medicine after visiting to the doctor.

4. Algorithm

SVM Algorithm:

The Support vector machine (SVM) is a supervised machine learning Algorithm which employs classification techniques for two-group classification problems. After providing sets of labelled (training) data for each category, SVM model is capable of categorizing the new text. SVM has two important advantages over the newer algorithms like neural network: they are faster and they perform better with less data (in the thousands). This makes

approach appropriate for the text classification problems, which particularly requires a data set of a few thousand labelled samples. Hence, we trained and classified our data set using the SVM method.
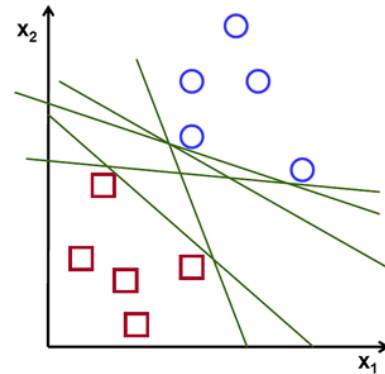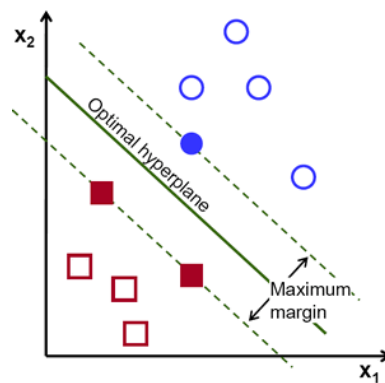

Fig. Support Vector Machine

Fig. Support Vector Machine

5. CONCLUSION

The main aim of the project is to develop an algorithm that will be used to find answers related to users' queries. The knowledge base stores information about the user queries, the system responses, customer feedback information keywords, reminders, and logs. The system offers many services, most of which are overly complex. So, as time passes each module can be perfected. So, the system must be designed in such a way that each module must be upgradable independently and the system must be able to improve the performance of every module. Thus, the capabilities of the system can also be improved. (We can scale the system to include more information that can predict increased diseases, as well as can describe more medicines) However, AI based chatbot does pose some challenges, such as the accuracy of results and these algorithms and machines could replace most of the jobs in future. Finally, a successful implementation of personalized medicine would save many lives and make the lives of individuals easier.

REFERENCES

[1] Jean-Emmanuel Bibault, Benjamin Chaix, Pierre Nectoux, Arthur Pienkowski, Arthur Guillemasé, Benoît Brouard, "Healthcare ex Machina: Are conversational agents ready for prime time in oncology?", Published in: Elsevier: Clinical and Translational Radiation Oncology 16 (2019)

[2] Ayah Atiyah, Shaidah Jusoh, Sufyan Almajali, "An Efficient Search for Context-Based Chatbots", Published in: 8th International Conference on Computer Science and Information Technology (CSIT), 2018.

[3] Hyo Jin Do and Wai-Tat Fu, Department of Computer Science: "Empathic Virtual Assistant for Healthcare Information with Positive Emotional Experience", Published in: IEEE International Conference on Healthcare Informatics, 2

[4] Ashay Argal; Siddharth Gupta; Ajay Modi; Pratik Pandey; Simon Shim; Chang Choo, "Intelligent travel chatbot for predictive recommendation in echo platform", Published in: IEEE 8th Annual Computing and Communication Workshop and Conference (CCWC), 2018