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HEALTHCARE CHATBOT

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Abstract: Healthcare is consequential for everyone in their life so when people have minor issues and can't go to hospital all that time here comes the healthcare chatbot. Healthcare chatbot is an emerging platform for medicos to dispense minor health issues by sitting at home. It avails them to get remedied from minor issues like pyrexia, arctic, etc. this even avails to dispense sizable voluminous consultation fees when liable to meet the medico. Here medicos will be available throughout the day which avails the patient not to get panic. To lead a better life healthcare is prodigiously much paramount. But it's very arduous to get the consultation with the medico just in case of any health issues. The proposed conception is to make a medical chatbot utilizing Artificial Perspicacity which will diagnose the disease and supply rudimentary details about the disease afore consulting a medico. To abbreviate healthcare costs and ameliorate accessibility to medical erudition the medical chatbot is made. Certain chatbots acts as a medical reference book, which avails the patient ken more about their disease and avails to enhance their health utilizer can achieve the authentic advantage of a chatbot only if it is able to diagnose all quite disease and produce obligatory information. A text-to-text diagnosis bot engages patients in conversation about their medical issues and provides a personal diagnosis fortified their symptoms. Hence, people will have a cerebrated about their health and have the correct aegis.

Keywords: Artificial Perspicacity, Prognostication, Pattern matching. Disease, Query processing

I. INTRODUCTION

Healthcare chatbot is computerized software that acts as a communicator between the medico and the patient. It offers an authentic time experience as of consulting a medico and it is predicated on machine learning and natural language processing. This particular chatbot will get acquainted with the symptoms through sequences of questions and makes a detailed report and sends to the medicos who are specialized in that particular point what patient has mentioned. The chatbot stores the patient data whatever they have mentioned for future purposes and if the patient has queries further it avails to connect automatically with the same medico the patient interacted with. The chatbot will be more efficient than the subsisting chatbot and will withal have a particular resource that avail chatbot to apperceive the recent patients so that it will be auxiliary to the medico to deal with patient. This chatbot can be more expeditious than the subsisting chatbots in the market as we will be storing the interaction session between the medico as well as patient. The chatbot in the medical market is yet to be explored with well-seasoned medical chatbots. We used chatbots only booking an appointment and stuffs related to that. The medical chatbots have huge potential to be successful and useful to the society which reduces the gap between the frontline workers and the patients / general public.

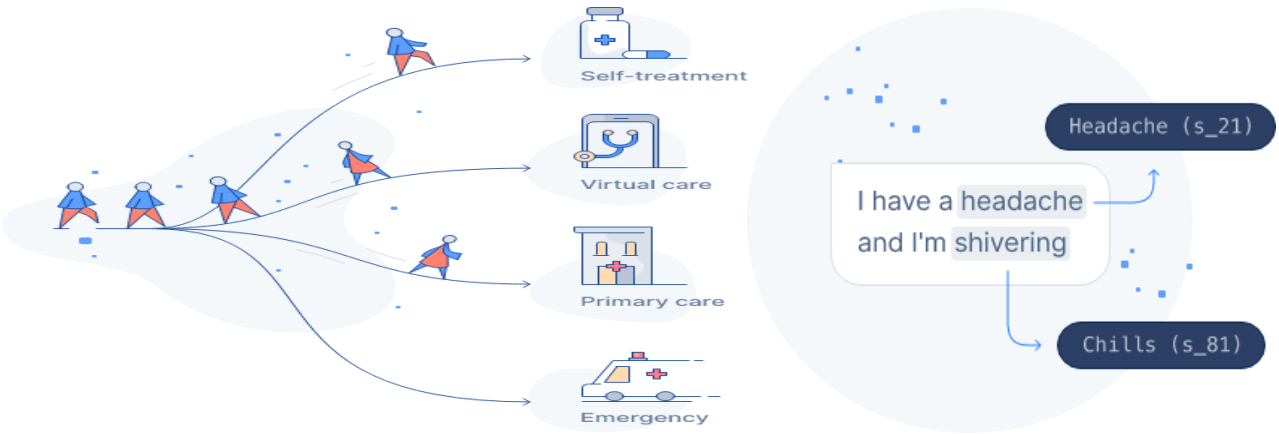

Fig: Future of chatbot & internal visualization of symptom checker.

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II. LITERATURE SURVEY

TABLE I:

Title	Year of Publication	Authors	Algorithms	Objective
Chatbot for Healthcare System Using Artificial Intelligence [1]	2020	Lekha Athota, Vinod Kumar Shukla, Nitin Pandey, Ajay Rana.	RNN, NLP, RDBMS	To provide diagnosis and query the results fast and accurate for the patients handling large amount of data.
Chatbots as conversational healthcare services [2]	2020	Mlađan Jovanović, Marcos Baez, Fabio Casati.	Analytical Framework, NLP	A personal assistant that provides healthcare through natural conversation, available with us anytime and anywhere.
AI-IoT based Healthcare Prognosis Interactive System [3]	2020	Joshua Ernest Pedi Reddy, C. Naga Bhuwaneshwar, Shiva Palakurthi, Ameet Chavan.	NLP, ML, Decision tree	To provide expertise in real-time medical diagnosis and support patients in the absence of healthcare workers.
Florence- A Health Care Chatbot [4]	2021	Jahnvi Gupta, Vinay Sing, Ish Kuma	RASA API	To design a healthcare chatbot which resolves the problems of visiting hospitals and reduce the time of users by asking them their symptoms and giving the most relevant disease.
Contextual Chatbot for Healthcare Purposes (DL) [5]	2020	Prathamesh Kandpal, Kapil Jasnani, Ritesh Raut, Dr. Siddharth Bhorge.	TensorFlow, TFLearn, NumPy, NLTK, Reinforcement Learning.	To build a chatbot that clarifies the patient with an accurate diagnosis without wasting time or money.
Implementation of interactive healthcare advisor model using chatbot and visualization [6]	2020	Tae-Ho Hwang, JuHui Lee, Se-Min Hyun, KangYoon Lee	NLP, NLU	Interactive Healthcare Advisor System to measure the basic biological information and check the individual user's health conditions using a chatbot.
Supervised Machine Learning Chatbots for Perinatal Mental Healthcare [7]	2020	Ruyi Wang, Jiankun Wang, Yuan Liao, Jinyu Wang	KNN, CNN, SVM, LDA	Chatbot monitors the mental health status of perinatal women in real time while collecting user health data.
Health Chatbot: Design, Implementation,	2021	Amela Softic, Aida Softic, Jasmina	ML, NLP	To create an application that allows to interact with chatbot to identify

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Acceptance and usage Motivation [8]		Barakovic Husic, Sbina Brakovic		symptoms through a series of queries and guides patients to decide whether or not to go to the doctor.
Automatized Medical Chatbot [9]	2020	Prakhar Srivastava, Nishant Singh	SVM, KNN, Naive	Chatbot that engages patients in the conversation for their medical query and problems to provides an individualized diagnosis based on their diagnosed manifestation and profile.
The Smart Healthcare Prediction Using Chatbot [10]	2020	K Jayashree, Monika K A, Preetha R, Piraisoodan S P	Java, AIML	Offers a text-text conversation that asks the consumer about their health difficulty and it's going to expect the diseases. T

III. COMPARATIVE ANALYSIS

TABLE II

Title	Functionality	Algorithm	Advantages	Disadvantages	Result
Chatbot for Healthcare System Using Artificial Intelligence [1]	To provide diagnosis and query the results fast and accurate for the patients handling large amount of data.	RNN, NLP, RDBMS	Here the application is developed to provide quality of answers in a short period of time.	If the disease is not cured, we have to consult a doctor.	Provides personalized diagnosis based on symptoms
Chatbots as conversation al healthcare services [2]	A personal assistant that provides healthcare through natural conversation, available with us anytime and anywhere	Analytical Framework, NLP	It can guide researchers in identifying and validating dialog patterns appropriate to the existing archetypes, and practitioners in understanding the emerging use cases of chatbots in healthcare provision.	It does not evaluate an exhaustive list of existing health chatbots, but a representative sample of the current landscape.	It instructs medicine intake during therapy, and provides information about a disease, for prevention

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AI-IoT based Healthcare Prognosis Interactive System [3]	To provide expertise in real-time medical diagnosis and support patients in the absence of healthcare workers.	NLP, ML, Decision tree	It overcomes the dependency on doctors via an AI based chatbot and an application interface by providing effective means of gathering information, answering general medical queries etc.	For a low confidence queries, the bot does not have relevant answers.	The Application Interface integrated with smart pill dispensers is also used to monitor and track the wellbeing of users thus enhancing medication adherence
Florence- A Health Care Chatbot [4]	To design a healthcare chatbot which resolves the problems of visiting hospitals and reduce the time of users by asking them their symptoms and giving the most relevant disease.	RASA API	It will help get a quick response for the query that the user has without and hassle.	Uses a lot of computer memory. It can slow down other processes	The chatbot can connect with people and take on the utilizer's symptoms. It will then identify the most likely disease and soothsay it along with the treatment recommended.
Contextual Chatbot for Healthcare Purposes (DL) [5]	To build a chatbot that clarifies the patient with an accurate diagnosis without wasting time or money.	TensorFlow , TFLearn, NumPy, NLTK, Reinforcement Learning.	Since reinforcement learning is used the app can gather all necessary data and learn by itself for some of the data and then give more accurate diagnosis.	It takes time for getting accurate diagnosis than the present after getting all the user data regarding the diseases.	In the long run the app can give better results compared to before.
Implementation of interactive healthcare advisor model using chatbot and visualization [6]	Interactive Healthcare Advisor System to measure the basic biological information and check the individual user's health conditions using a chatbot.	NLP, NLU	The accumulated biological information in the chatbot and the sensors are delivered to the users through the chatbot and further provides medical advices to promote the user's general health.	It takes time for gathering the user data for it to be able to promote the user's health.	After implementing, we will confirm the applicability of the health care advisor model in the future and present future research directions.

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Supervised Machine Learning Chatbots for Perinatal Mental Healthcare [7]	Chatbot monitors the mental health status of perinatal women in real time while collecting user health data.	KNN, CNN, SVM, LDA	It reduces the obstacles for subjects to seek help for mental health, and collect comprehensive data of patients.	Sometimes there may be patients who cannot be helped because their conditions have been very bad.	It helps users recognize their own mental health level and can help clinicians make diagnosis more accurately and in a timely manner.

IV. FUTURE DEVELOPMENTS

The traditional chatbots that are subsisting in the market today perform key functions such as intake of the patient medical data, scheduling appointments with the concerned medicos, and the rudimentary Q&A around those medications. However, healthcare chatbots have the potential to provide far more value than current alternatives. More advanced healthcare chatbots can be developed with use cases such as scheduling visits and procedures, answering targeted medical questions, interacting with the patient post-discharge in order to abbreviate readmissions, performing comprehensive medication review.

More medical features, such as location, duration, and vigour of symptoms, as well as more categorical symptom descriptions, could greatly ameliorate the bot's symptom detection and diagnostic performance and additionally will ascertain minimal time consumption and more precision in making the prescriptions in the future.

The performance of the chatbot can be incremented by integrating more word amalgamations and expanding the database, sanctioning the medical chatbot to manage a wider range of ailments. Voice communication can additionally be included to make the system more utilizer-convivial.

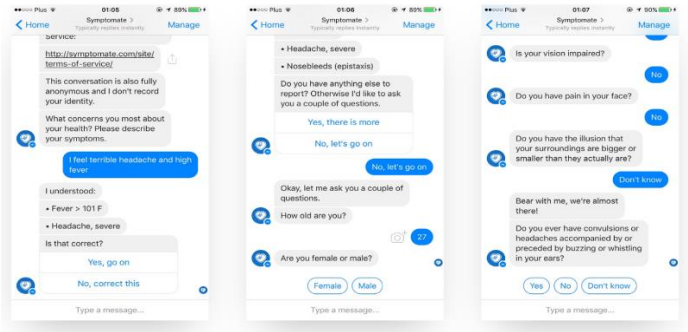

Fig: A healthcare chatbot checking the symptoms of the patients.

V. CONCLUSION

Chatbots are a facile-to-use way for any individual. Concurrently, it is economical for the healthcare organizations additionally. Medical chatbot has immensely colossal utilization and astronomical destiny scope. No matter how far humans are, they may have this medical communique. The sole requisite they have can be a facile computer or mobile with internet connection. Our paper discussed all the studies that cognate to a chatbot, especially medical chatbot. We learn and research the paper about how to make a chatbot, what kind algorithm the chatbot uses, and how to get the data set to train the chatbot.

We optically discern that there is an abundance of algorithms we can utilize to make a chatbot like natural language processing, machine learning, Braun and Clarke's algorithm, compare keyword, and data mining.

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