



Medibot-Home Remedy Chatbot^s

¹Dr.Amol Dhakne, ²Samiksha Chimankar, ³Tanishka Kour

¹Associate Professor, ²Student, ³Student

Department of Computer Engineering,

¹Dr. D. Y. Patil Institute of Engineering Management and Research, Pune, India

Abstract : A chatbot is a software application designed to mimic textual or spoken communication between a user and a computer. These chatbots employ AI and NLP to understand user requests and provide automatic responses, simulating human contact. Nowadays, practically everyone makes regular use of a smartphone.

IndexTerms - Chatbot,NLP,healthcare.

1. INTRODUCTION

Having access to healthcare is essential to a good life. But getting a doctor's opinion for every health concern is not always easy. The idea is to create a medical chatbot using artificial intelligence that can recognize illnesses and provide basic details about them so patients can learn more before visiting a doctor. By using a medical chatbot to provide better access to medical information, this will help to reduce healthcare costs. Computer programmes known as chatbots converse with users in natural language. To identify the sentence keywords, select a query, and reply to the inquiry, the chatbot stores the data in the database. Ranking and sentence similarity are determined using the n-gram, TF-IDF, and cosine similarity. Each term in the provided input sentence will receive a score, and further similar sentences will be found for the specified query. When a question is given to the bot that it cannot understand or that is not in the database, it is handled by the expert software, a third party.

2. LIMITATIONS OF EXISTING SYSTEM

The shortcomings of the current healthcare systems such as difficult access to medical practitioners, protracted appointment wait times, and mounting strain on healthcare facilities underline the need for creative solutions, such as chatbots for medical home remedies. These chatbots could resolve these constraints in the following ways:

Availability Around-the-Clock: Chatbots' constant availability is one of their main benefits. There is no need for patients to wait for clinic hours or appointments because they can obtain medical advice and information whenever they choose.

Instant Answers: Chatbots enable consumers to get prompt answers to their questions and concerns regarding their health. This can reduce worry and offer prompt advice on how to manage symptoms or, if necessary, seek out more medical care.

Cost-effective: By lowering the number of non-urgent visits to medical facilities, the implementation of chatbots may lower healthcare expenses. By encouraging early intervention and better lifestyle choices, it can also support preventative care.

Health Education: By providing users with useful health education and preventive care advice, chatbots can enable people to take charge of their own health. By preventing the beginning of some disorders by early intervention, this can help lessen the strain on healthcare institutions.

Triage and Prioritization: Chatbots can help sort patients according to the intensity of their symptoms, directing those in urgent need to get help right away while giving others suggestions on self-care. This may aid in the healthcare system's resource allocation being optimized.

Personalized Recommendations: With the aid of machine learning algorithms, sophisticated chatbots are able to offer individualized advice to users according to their medical background, preferences, and presenting symptoms. This has the potential to raise patient happiness and improve the standard of care given.

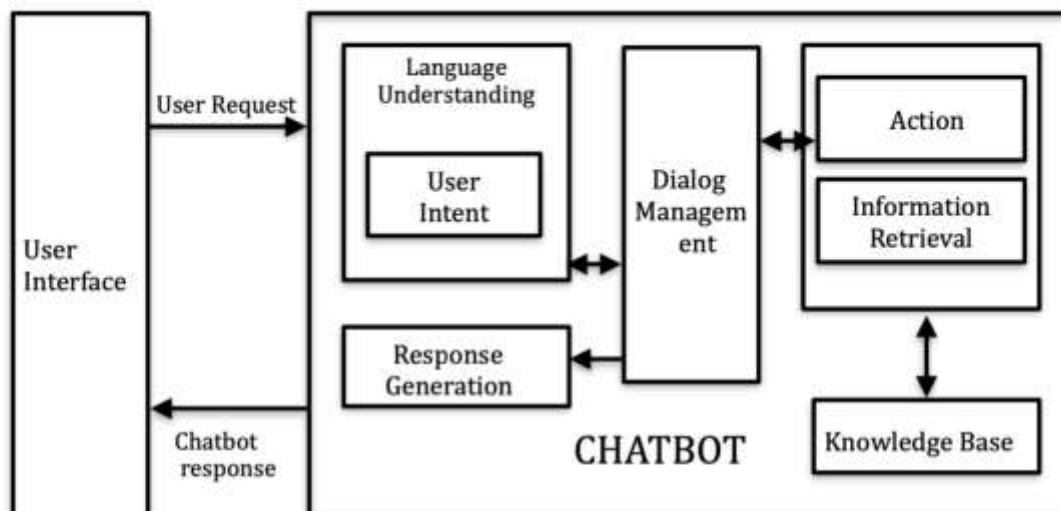
3. LITERATURE REVIEW

S no.	<u>Name of Chatbot</u>	<u>Methodology</u>	<u>Advantages</u>	<u>Disadvantages</u>	<u>Accuracy</u>
1	Pharmabot Pharmabot: A Pediatric Generic Medicine Consultant Chatbot	Rational and safe medication of generic drugs for children based on the description.	Factors like user-appropriateness of answer, speed of response and consistency of response was a major boon.	Further updates to make the process easier. Also, extending the reach and information of other ailments.	Not mentioned
2	MediBot Medibot, end to end <u>voice-based</u> AI medical chatbot	AIML, XML, AI	Helps in potentially reducing healthcare costs and improve access to healthcare services.	Accuracy and enhancements should be improved.	71%
3	kBOT KBot: A Knowledge Graph Based ChatBot for Natural Language Understanding Over Linked Data	NLP, System architecture, Dialogue processing, Google TTS API.	Interactive knowledge driven conversational approach for assessment and management of Asthma in children.	Level of severity of Asthma can be improved.	80%

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4	Medical Chatbot	SVM Classifier, NLP, Naïve Bayes, KNN	It predicts the accuracy of the disease.	-	SVM=92.33% Naïve Bayes=81% KNN=87.66%
5	Chatbot for Disease Prediction and Treatment Recommendation	KNN, NLP	KNN can classify the symptoms properly and map them to corresponding diseases.	-	Not mentioned.
6	Chatbot for Healthcare System	TF-IDF, N-Gram and cosine similarity, SVM algorithm.	It is well organized and simple algorithm to match words of the asked questions to documents that are applicable to the question. N-Gram is used for text compression.	TF-IDF is grounded on Bags of words that is BoW model that is why it does not show position of words. It is just convenient in the lexical phase level.	Not mentioned

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7	Bot to support Maternal Health care	It connects the system and information source for representation of the model. It makes use of multi-agent system tools to attain expected action in the dialog manager, and Reinforcement learning to ease learning.	Reliable and precise maternal health information can be accessed. It avoids the time to stand in queue in the hospital.	Combined health data systems are not present and might depend on another system.	Not mentioned
8	Chatbot to support Primary Healthcare Systems	Decision tree algorithm and NLP	Easy to understand. It matches the input inserted by end user with the symptoms by traversing at every level to obtain a solution.	Sometimes calculations can go complex, often involves higher time to train the model.	75%
9	Health Chatbots for Behavior Change.	SLR Guidelines	Mapping study of how a healthcare chatbot can help us tackle medical illnesses	Lack of adherence to case study reporting.	Not mentioned
10	<u>CureBot</u>	Bag-of-words algorithm, Sequential Model, NLTK, <u>Keras</u> , NumPy, TensorFlow, Flask.	Capable to understand the symptoms & communicate with patient through <u>WebUI</u>	Not mentioned	Not mentioned

4. SYSTEM ARCHITECTURE



General chatbot architecture

5. RESULTS AND DISCUSSION

4.1 ADVANTAGES

1. **Accessibility:** Users may obtain healthcare information and support at any time thanks to these chatbots, which are available around-the-clock, seven days a week.
2. Chatbots can provide immediate replies to user questions, saving users from having to wait for appointments or read through medical literature to find the answers to their health-related questions.
3. AI chatbots can enhance the user experience by offering personalized advice and natural remedies based on the user's particular medical history, preferences, and state of health.
4. **Data analysis:** By analyzing medical records, the chatbot may be able to provide users with health-related insights and help them better understand their illnesses and possible risk factors.
5. **Education:** By providing users with information about their medical records, health problems, and natural remedies, these chatbots may help people make informed decisions about their health.
6. **Early Intervention:** By analyzing medical data, the chatbot can detect potential health issues or problems. This enables users to seek medical attention earlier and may result in better health outcomes.

4.2 LIMITATIONS

1. Lack of Personalized Care: AI chatbots are unable to provide completely individualized medical advice since they are dependent on general algorithms and data. They could make incorrect suggestions if they don't take into account a person's particular medical history, genetics, allergies, or other health issues.

1. Misdiagnosis: Chatbots have the potential to misdiagnose or misinterpret symptoms, leading to the recommendation of erroneous natural remedies. Because some natural therapies may not be appropriate for some ailments, this could have serious health consequences.

2. Ethical and Legal Issues: The application of artificial intelligence chatbots in healthcare environments raises a number of ethical and legal issues. If a chatbot provides harmfully erroneous advice, who bears the responsibility? Additionally, it is challenging to guarantee that the chatbot conforms with all relevant healthcare regulations.

3. User Dependence: 4. User Dependence: Using AI chatbots to provide health advice may encourage users to become overly reliant on them and less likely to seek medical assistance from professionals when needed.

4.3 CONCLUSION

Lastly, a medical chatbot driven by AI that offers natural remedies and analysis of medical reports may be able to augment current healthcare offerings. It should, however, be used in addition to medical professionals, not as a substitute. It is imperative to thoroughly assess technology limitations, privacy, and regulatory compliance. Such a chatbot's implementation ought to be a component of a more comprehensive healthcare strategy to enhance patients' access to information and advance their wellbeing.

5. References

1. International Journal of Innovative Research in Computer Science & Technology (IJIRCST) ISSN: 2347-5552, Volume-6, Issue-3, May 2018 DOI: 10.21276/ijircst.2018.6.3.2An Introduction to Indian Stock Market. Accessed: Jul. 2018. [Online]. Available: <https://www.selfgrowth.com/articles/an-introduction-to-the-indian-stock-market>
2. AI BASED HEALTHCARE CHATBOT //International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056//Volume: 10 Issue: 02 | Feb 2023
3. AI Based Healthcare Chatbot System using Natural Language Processing//International Journal of Scientific Research and Engineering Development//Volume 4 Issue 2 mar-april 2021
4. A review of ai based medical assistant chatbot-https://www.researchgate.net/publication/342888058_A_Review_of_AI_Based_Medical_Assistant_Chatbot
5. CHATBOT:DESIGN ,ARCHITECTURE AND APPLICATIONS -<https://www.cis.upenn.edu/wp-content/uploads/2021/10/Xufei-Huang-thesis.pdf>
6. Dynamic NLP enabled chatbot for rural health care in India -Ashwini s ,Rajalakshmi n.r,vVicterv Paul,Jayakumar L-978-1-6654-5834-4/22/\$31.00 ©2022 IEEE
7. 2022 3rd International Conference on Intelligent Engineering and Management (ICIEM) Healthcare Chatbot System: A Survey
8. <https://ieeexplore.ieee.org/document/10039548>-Artificial Intelligence Powered Chatbot for Mental Healthcare based on Sentiment Analysis
9. <https://ieeexplore.ieee.org/document/10183584>-Revitalizing Traditional Health Practices with HealingHands: An AI powered Chatbot