



MedBot: A Powered Medical Advice and Symptom Checker Using AI

Shivani Wange¹, Riya Sawwalakhe², Ankesha Uthkede³, Poonam Satao⁴, Saloni Deshmukh⁵, Prof. T. R. Mahore⁶

^{1,2,3,4,5}Undergraduate Student, Sipna College of Engineering and Technology, Amravati, (MS), India

⁶Assistant Professor, Sipna College of Engineering and Technology, Amravati, (MS), India

Abstract: MedBot is a cutting-edge AI-powered platform for symptom checking and medical guidance that helps consumers find trustworthy and accurate healthcare information. MedBot wants to close the gap between patients and medical experts by providing a thorough and easily accessible virtual medical consultation service in response to the growing demand for virtual healthcare solutions. By utilizing cutting-edge artificial intelligence algorithms, MedBot effectively evaluates medical history and user-reported symptoms to offer individualized recommendations and possible diagnoses. The system guarantees a user-friendly experience while guaranteeing the highest privacy and security of sensitive medical information by simulating the experience of seasoned medical practitioners. With the platform's intuitive interface, users may input their symptoms and receive prompt recommendations for likely causes and next steps. The AI-powered decision-making process of MedBot is constantly.

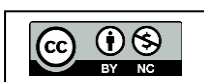
Keywords: Medbot, AI, Security, etc.

I. INTRODUCTION

It is now essential to incorporate state-of-the-art technology into healthcare to meet the rising need for dependable and easily available medical treatment. As a trailblazing solution, MedBot embodies the union of artificial intelligence and medical knowledge to offer consumers unmatched symptom screening and medical guidance. By providing a virtual environment where users may obtain individualized insights into their health concerns, this cutting-edge technology aims to close the gap between patients and medical providers.

As the need for virtual healthcare solutions grows, MedBot is leading the way in innovation, imagining a time when medical information is not only easily accessible but also customized to each patient's needs. MedBot guarantees a user-friendly experience by utilizing cutting-edge AI algorithms, enabling users to enter symptoms and get immediate, tailored recommendations. MedBot redefines the dynamics of healthcare encounters by providing a virtual consultation experience, going beyond simple symptom assessment.

The MedBot ecosystem places a high priority on privacy and security, ensuring that private medical data is always kept private. The platform is always able to deliver the most recent medical knowledge since it incorporates insights from healthcare specialists and large medical databases to continuously improve its decision-making processes. MedBot is more than just a new technology; it is a sign of a movement toward giving people more control over their healthcare experience. An overview explores the nuances of MedBot, demonstrating how an AI-driven marvel has the potential to transform healthcare accessibility and improve public health globally.





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II. LITERATURE REVIEW

Medical conversational agents, or virtual health assistants, are other names for medical chatbots, and their origins date back to the early days of artificial intelligence and natural language processing. A MedBot is a conversational assistant driven by artificial intelligence that offers users support, help, and information on health-related issues. Typically, MedBots have a chat-based interface that lets users communicate with them naturally.

An outline of significant turning points in the creation of medical chatbots is shown below:

1. Emergence of Rule-Based Systems (1960s-1980s):

Rule-based systems that interacted with users and offered guidance or support using pre-defined decision trees are the origins of the first medical chatbot attempts.

2. Expert Systems and Knowledge-Based Chatbots(1980s-1990s):

Expert systems became popular in the 1980s and 90s as a method in AI with applications in many fields, including health. Knowledge-based chatbots that can reason about medical diseases and offer diagnostic support were made possible by medical expert systems such as MYCIN, which were established in the 1970s.

3. Internet Era and Online Health Portals(1990s-2000s):

Online health portals and websites with medical information have proliferated since the 1990s due to the growth of the internet. Some of these platforms have integrated chatbots and virtual assistants to help with basic healthcare chores, answer user inquiries, and deliver personalized health information.

4. Modern Era of AI-Powered Chatbots (2010s-Present):

Medical chatbots have advanced significantly since machine learning and natural language processing technology became available in the 2010s. Businesses and academic organizations have created AI-powered chatbots that can comprehend natural language input, decipher medical questions, and provide pertinent answers.

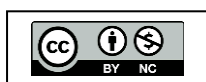
5. Integration with Electronic Health Records (EHRs) and Telemedicine (2020s and beyond):

The integration of medical chatbots with electronic health record (EHR) systems and telemedicine platforms has gained prominence in the past few years. In healthcare businesses, chatbots are being utilized to expedite administrative chores including booking appointments, refilling prescriptions, and answering billing questions.

III. METHODOLOGY

Determining the scope and goals of the MedBot using the ChatGPT API entails collecting and preprocessing medical data, choosing, and optimizing the ChatGPT model, integrating with external medical APIs, creating natural language processing (NLP) components for query comprehension, creating an easy-to-use user interface, guaranteeing ethical compliance, rigorous testing, and continuous deployment and maintenance. Through constant updates and improvements, this procedure guarantees that MedBot fulfils its objectives, delivers precise medical information, protects user privacy, and complies with all applicable laws.

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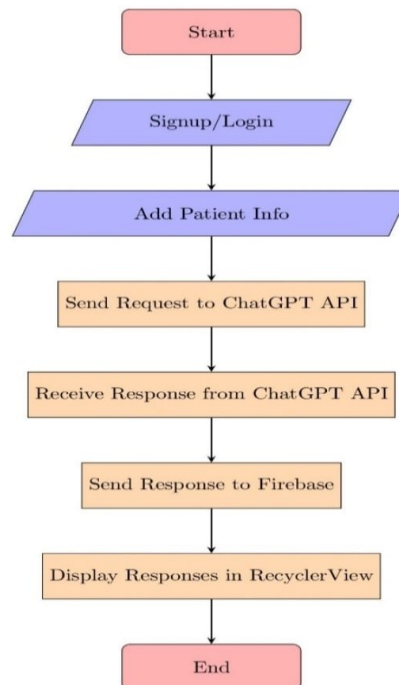


Figure 1: Control Flow Diagram

1. Signup and Login System:

A login and registration process so users can safely access the MedBot app. To protect user data, utilize the proper authentication techniques.

2. Add Patient information:

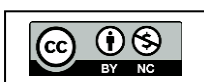
Make a user interface layout so that the patient's name and symptoms can be added. Provide an "Add" button that will cause patient data to be submitted.

3. Send Request to ChatGPT API:

Create the Recycler View with the patient displayed. Permit users to enter patient data, including name and symptoms. Verify the input and get the data ready to be transmitted over API after clicking the "Save" button.

4. Receive Response from ChatGPT API:

Incorporate the ChatGPT API to produce responses according to the symptoms of the patient. Send a request to the ChatGPT API with the patient's information (name and symptoms) after selecting the "Save" button. Respond to the API with information about illness detection, safety measures, standard medication, emergencies, and recommendations for consultation.





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5. Send Response to Firebase:

To store the patient's replies and generated data, set up a Firebase Realtime Database or Fire Store. Deliver the response you get from the ChatGpt API to Firebase so it can be stored there. To protect user data, make sure the right security measures are put in place.

6. Text Font of Entire Document:

Times New Roman or Times typeface should be used throughout the entire document. Fonts of type 3 are not to be used. If necessary for applications, different font styles may be utilized.

7. Display Response on Recycler View:

Get the Firebase answers and add the patient's name and the matching response to the Recycle View. Make sure that the Recycle View is updated in real-time so that any new responses are seen right away.

8. Testing and Debugging:

Make that the Firebase integration, API integration, sign-up/login system, and Recycler View capabilities all perform properly by thoroughly testing them. Debugge any problems that surface during testing to enhance user experience and overall reliability.

9. User Interface Enhancement:

Improve the Android app's UI to make it more aesthetically pleasing and easier to use. Take user comments into account to improve the functionality and design of the app.

10. Documentation and Deployment:

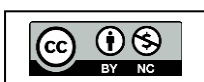
Record every step of the procedure, including the setup directions and the rules for using the API. Create signed APKs for the app and submit them to the appropriate stores, such as the Google Play Store, to get it ready for launch.

IV. IMPLEMENTATION

To put a MedBot into use using the ChatGPT API, specify its features, compile medical information, and refine a ChatGPT model utilizing this information. Create a chat interface that allows users to communicate with each other. Utilize the ChatGPT API to process user input and provide answers. Check the accuracy of the MedBot extensively and collect input for future iterations and enhancements.

1. Signup/Login Interface:

Create the login and signup user interfaces. Use Firebase Authentication to implement personalized email and password authentication. Make sure user input is validated and errors are handled appropriately.





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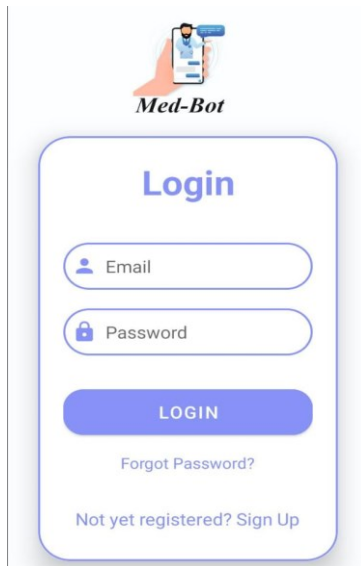


Figure 2: Signup/Login Interface

2. Create Response:

Create a Recycler View that shows patient details like name and symptoms. To start, fill the Recycler View with fictitious data for testing. Incorporate the ChatGPT API to produce responses according to the symptoms of the patient. Send a request to the ChatGPT API with the patient's information (name and symptoms) after selecting the "Save" button. Respond to the API with information about disease detection, safety measures, standard prescriptions, emergencies, and recommendations for consultation.

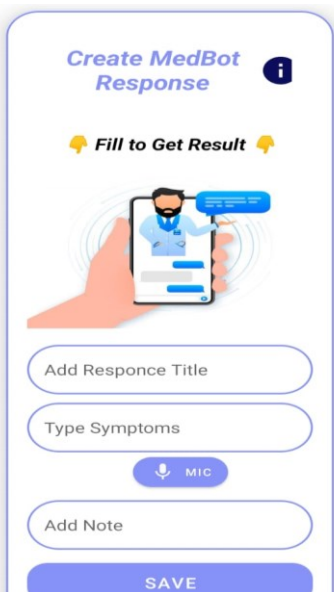
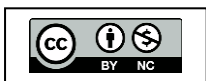


Figure 3: Signup/Login Interface





V. RESULT

The MedBot should evaluate user inputs pertaining to conditions such as chest discomfort, comprehend the context, and provide relevant responses. Giving generic information on chest pain and its potential causes is one way to respond to this. Together, ask follow-up questions to get more information about the user's symptoms. suggesting potential medical disorders linked to the symptoms that have been recorded. giving guidance on when to see a healthcare provider or seek medical assistance. Obtain pertinent medical information about respiratory disorders, gastrointestinal disorders, heart-related symptoms, typical causes of chest pain, and other pertinent medical illnesses. To accurately respond to customer requests, this data will be utilised.



Response 1

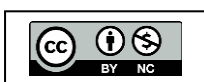
1. **Type of Disease Detected:** Possible heart condition, such as angina or heart attack.
2. **Basic Precautions:** Seek immediate medical attention. Avoid strenuous activity and try to stay calm.
3. **Duration of Precautions:** Until a doctor can properly diagnose and treat the condition.
4. **Emergency Situation Precautions:** Call for an ambulance or go to the nearest hospital immediately. In India, call 108 for emergency medical services.
5. **Consulting Doctor Designation:** Cardiologist.
6. **Basic Medicine Prescription:** Aspirin (if not allergic) to help with chest pain. Nitroglycerin may also be prescribed to help with chest pain and improve blood flow to the heart.

Response 2

1. **Possible medical condition:** Angina or heart attack
2. **Possible medical condition:** Pulmonary embolism
3. **Possible medical condition:** Costochondritis
4. **Possible medical condition:** Gastroesophageal reflux disease (GERD)
5. **Possible medical condition:** Panic attack
6. **Possible medical condition:** Pneumonia

Figure 4: Result

Examine and contrast the features and functionalities of various MedBots. This covers their capacity to identify problems, suggest courses of action for therapy, give medical advice, and work with other healthcare systems. Analyze each MedBot's diagnosis and suggestions for accuracy. Examining clinical trials, customer reviews, and expert assessments may be part of this. Evaluate each MedBot's user interface and ease of use. A few things to think about are the accessibility features, communication clarity, and general user pleasure.





V. CONCLUSION

The MedBot project is a major advancement in the use of technology to enhance the accessibility and support of healthcare. We have developed a platform that allows customers to get prompt medical assistance and guidance from the convenience of their own devices by using the ChatGPT API to power this Android application. We successfully integrated elements like user authentication, user data storage in Firebase, and medical answer generation with the ChatGPT API throughout the project. Users of the application can input patient data, evaluate responses in a handy Recycler evaluate interface and obtain individualized medical advice. There will be plenty of chances in the future for the MedBot initiative to grow and improve. This entails enhancing machine learning models and enhancing natural language processing skills.

REFERENCES

- [1] X. Ren, G. Spina, S. De Vries, A. Bijkerk, B. Faber, and A. Geraedts, "Understanding Physician's Experience with Conversational Interfaces During Occupational Health Consultation," in IEEE Access, Vol. 8, pp. 119158-119169, 2020, DOI: 10.1109/ACCESS.2020.3005733.
- [2] B. Zhang, Z. Wei, J. Ren, Y. Cheng, and Z. Zheng, "An Empirical Study on Predicting Blood Pressure Using Classification and Regression Trees," in IEEE Access, vol. 6, 21758-21768, 2018, DOI: 10.1109/ACCESS.2017.2787980.
- [3] G. Mao, J. Su, S. Yu, and D. Luo, "Multi-Turn Response Selection for Chatbots with Hierarchical Aggregation Network of Multi-Representation," in IEEE Access, vol. 7, pp. 111736-111745, 2019, DOI: 10.1109/ACCESS.2019.2934149.
- [4] M. Polignano, F. Narducci, A. Iovine, C. Musto, M. De Gemmis and G. Semeraro, "Health Assistant Bot: A Personal Health Assistant for the Italian Language," in IEEE Access, vol. 8, pp. 107479-107497, 2020, DOI: 10.1109/ACCESS.2020.3000815.
- [5] R. Oruche et al., "Evidence-Based Recommender System for a COVID-19 Publication Analytics Service," in IEEE Access, vol. 9, pp. 79400-79415, 2021, DOI: 10.1109/ACCESS.2021.3083583.
- [6] G. N. Ahmad, S. Ullah, A. Algethami, H. Fatima, and S. M. H. Akhter, "Comparative Study of Optimum Medical Diagnosis of Human Heart Disease Using Machine Learning Technique with and Without Sequential Feature Selection," in IEEE Access, vol. 10, 23808-23828, 2022, DOI: 10.1109/ACCESS.2022.3153047.

