AI-Driven Healthcare Chatbot

Revolutionizing Access to Medical Information

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AI-Driven Healthcare Chatbot

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INTRODUCTION

Modern healthcare often faces challenges such as delayed diagnosis and inaccessible information.

The AI-Driven Healthcare Chatbot aims to bridge gaps between patients and healthcare providers.

Key features include disease prediction using Decision Tree algorithms and enhanced communication through NLP.

EXISTING WORK WITH LIMITATIONS

Challenges:

Lack of reliable online health information.

Overburdened healthcare professionals.

Limited access in rural or underserved areas.

Need: A reliable, accessible, and scalable solution for providing accurate health information and assistance.

PROPOSED WORK AND METHODOLOGY

Approach:

Develop an NLP-based chatbot for user interaction.

Use a Decision Tree algorithm for disease prediction.

Integrate with existing telemedicine platforms.

Steps :

Data collection and preprocessing.

Model training and evaluation.

Deployment and user testing.

Novelty of the Project

Combines AI and healthcare for real-time assistance.

Focuses on accurate symptom checking and triaging.

Prioritizes data security and user privacy.

Continuous availability (24/7).

REAL-TIME USAGE

01 Symptom Checking and Preliminary Diagnosis.

02 Appointment Scheduling and Medication Reminders.

03 Emergency Guidance and First Aid Support.

04 Post-operative Care Monitoring.

HARDWARE AND SOFTWARE REQUIREMENTS

Hardware:

Processor: Multi-core (Intel i5/i7, AMD Ryzen).

RAM: At least 16 GB.

Storage: SSD (256 GB or more).

GPU: NVIDIA GTX/RTX series (optional).

Software:

Programming Languages: Python, JavaScript.

Libraries: TensorFlow, NLTK, Flask.

Deployment: AWS, Azure, or Google Cloud.

OVERALL SYSTEM ARCHITECTURE

01 Architecture Diagram:

02 User interacts with chatbot.

03 NLP processes input.

04 AI engine predicts diseases.

05 Database manages user data and responses.

06 Feedback loop for continuous improvement.

LITERATURE REVIEW

Review of related work on disease prediction algorithms.

Analysis of existing chatbots in healthcare.

Key findings and gaps addressed by this project.

MODULE WORKFLOW EXPLANATION

Workflow:

User input is processed by the NLP module.

Relevant symptoms are extracted.

Prediction engine provides possible diagnoses.

Results are presented with next steps.

MODULE DESCRIPTION

Modules:

NLP Module: Analyzes and interprets user queries.

Prediction Engine: Uses Decision Tree for diagnosis.

Database: Stores and retrieves user interaction data.

IMPLEMENTATION AND CODING

01 Implementation Details:

02 Preprocessing user data with NLP.

03 Training Decision Tree model on medical datasets.

04 Developing APIs for seamless integration.

05 Sample code snippets for key functionalities.

TESTING

Testing Methodology:

Functional Testing: Ensures chatbot responses match queries.

Performance Testing: Measures speed and reliability under load.

User Testing: Feedback on usability and accuracy.

Results:

High accuracy in disease prediction.

Positive user feedback.

RESULTS AND DISCUSSION

Findings:

Enhanced accessibility to reliable health information.

Reduced waiting time for initial diagnosis.

Improved user satisfaction.

Discussion:

Impact on healthcare accessibility.

Potential for scalability and integration.

CONCLUSION

The chatbot bridges critical gaps in healthcare delivery.

Combines AI, NLP, and secure infrastructure for user benefit.

Future Scope:

Voice interaction.

Wearable device integration.

Expanded mental health support.

THANK YOU!