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AI Health Care Chatbot System

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Abstract: ***The main purpose of the healthcare chatbot system is to provide services in rural areas and government hospital for those people who are not able to take appointment or medical information from the doctors. They can solve their problem with the help of chatbot. With increasing population of India, increasing birth rate and decreasing death rate due to advancement in the medical field it has been observed that number of doctors are less to serve the need of the increasing population. This scenario can be better understood while walking through the cities government hospitals where the less availability of the doctors is the major cause behind the improper treatment of the patients and in certain scenario the resultant death so to encounter such cases there is a need of the smart and intelligent chatbot who can provide advice to the doctor and sometimes even to patient about what to do in such cases which ultimately results in the saving the life of hundreds of people. The AI based medical chatbot on which this project is based deals with providing medical advice in such scenario because sometimes doctors can even make mistake while observing the symptoms but the machine which is specifically developed for it cannot make such mistake. This AI based healthcare chatbot can take decision as per request of the patient. For this it uses its own database and in certain scenario where something is not available in its database as per request of the user, it collect the information from the search engine like google and give it to the user.***

Index Terms: Chatbot, Health care, Artificial Intelligence, Natural Language Processing, Python, Symptoms, Google Collab.

I. INTRODUCTION

A chatbot is an artificial intelligence software that can simulate a conversation with a user through messaging applications, website, mobile apps or through the telephone. It only represented the natural evolution of a question answering system leveraging Natural Language Processing.

The evolution of chatbots-

The Turing test was developed in the 1950s by a person called Alan Turing and the idea was a test that would evaluate whether a computer can be indistinguishable from a human being. And after the first chatbot came in 1960 named as ELIZA, it was made by Professor Joseph Weizenbaum.

Why are chatbots important?

A chatbot is often described as one of the most advanced and promising expressions of interaction between humans and machines Interaction between human and machines marks the advancement of technology in the form of a chatbot. Chatbots are applied in health education, diagnostics and mental state. A survey of conversational agents from 40 articles outlines chatbot taxonomy, specifies the main challenges and defines the types and contexts related to chatbots in health.

The proposed idea is to create a health care chatbot system using Artificial Intelligence that can diagnose the disease and provide basic details about the disease before consulting a doctor. The system provides text assistance; you can communicate with bot-like user friendly. The bot will provide that which type of disease you have based on the user's symptoms and clarify all the user's doubts.

II. LITERATURE REVIEW

A literature review is an exploration and evaluation of the available literature in your given subject or chosen topic area. It provides the state of the art concerning the subject or topic you are writing about. A literature review has four main objectives: It analyzes the literature in your chosen area of study. The goal of a literature review is to increase awareness of the existing research and discussions relevant to a specific topic or area of study and to present that knowledge in the form of a written report. Conducting a literature review helps you build your knowledge in your field.

Flora Amato supported the construct of the deep machine learning and Artificial intelligence; it permits the applying to move with patient in an exceedingly manner that doctor does. For making such powerful application research worker has used Watson language service that is meant and trained by the blue combine platform.

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PriyasankariM projected a plan during which it uses user dialogue. User dialogue may be a linear style that issue from symptom extraction to symptom mapping, wherever it defines the corresponding symptom then designation the patient wherever it is a serious or minor unwellness.

Benilda Eleonor introduced a Pharma Bot: A pediatric Generic medication advisor Chatbot. Pharma Bot, that may be an informal chatbot that is designed to bring down, counsel and provides info on generic medicines for youngsters. Human machine as a technology integrates totally different areas and therefore the process. The researchers used descriptive methodology within the study. The researchers use Left and Right Parsing formula.

III. PROBLEM STATEMENT

Healthcare systems face increasing challenges such as limited accessibility, long waiting times, and overburdened medical staff. Patients often struggle to receive timely guidance for basic health concerns, especially in rural or underserved areas, leading to delays in treatment and reliance on unreliable sources of information. This gap between patient needs and available healthcare resources highlights the necessity for an efficient, scalable solution.

An AI Health Care Chatbot System addresses these issues by providing 24/7 automated support for routine queries, preliminary symptom checking, appointment scheduling, and wellness guidance. By handling first-level interactions, the chatbot reduces the workload on healthcare professionals, improves accessibility for patients, and ensures consistent delivery of reliable information, ultimately enhancing the efficiency and effectiveness of healthcare delivery.

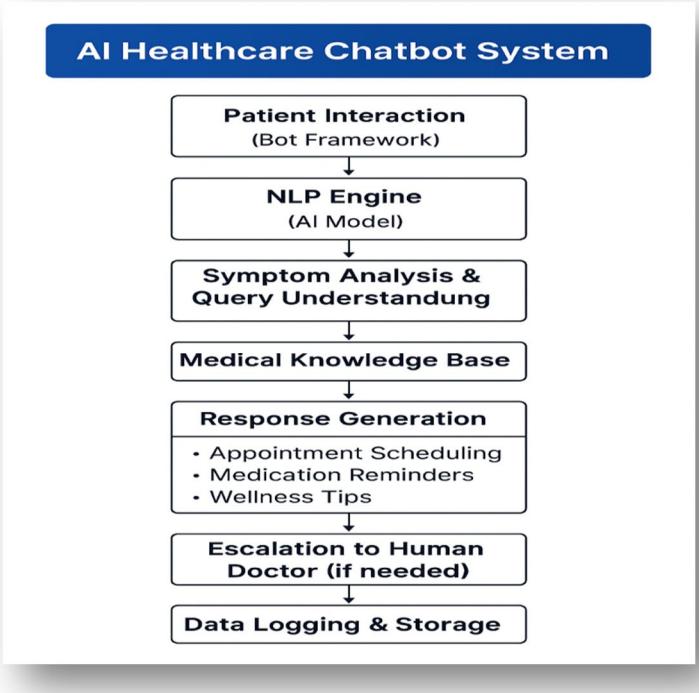
IV. METHODOLOGY

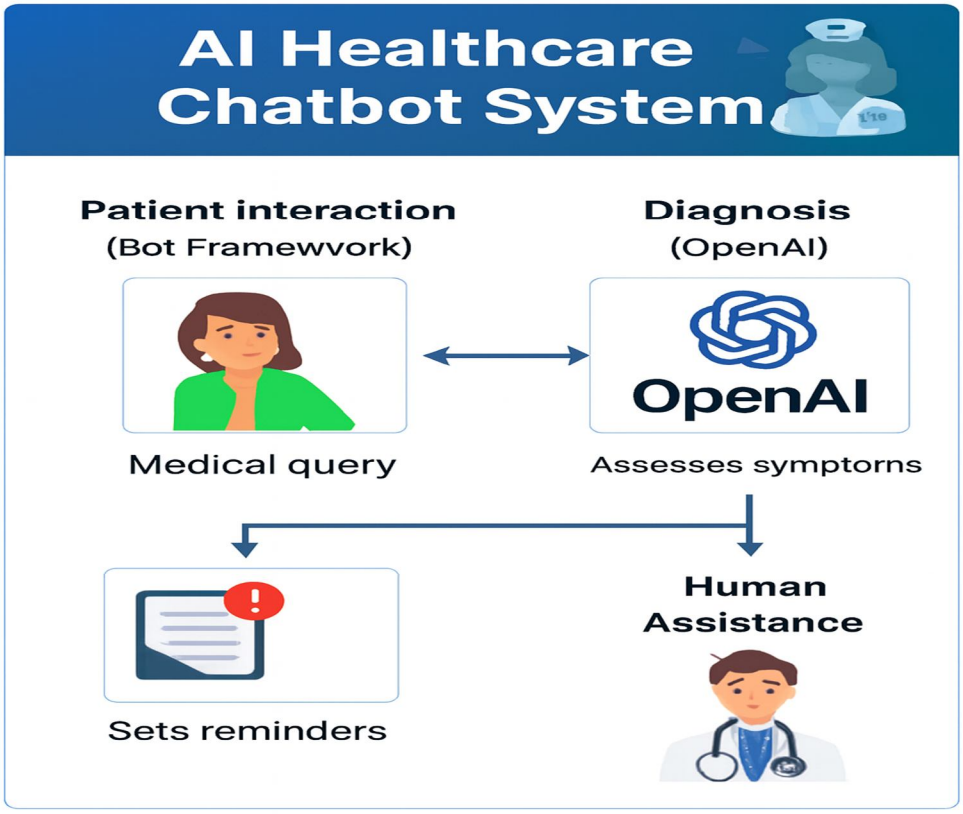
1) Python Libraries- A python library is a collection of functions for specific operations. They are especially effective for accessing the pre-written frequently used codes, instead of writing them from scratch every single time. Below flowchart Fig.1, depicts about the libraries of Python.

2) Pandas - It delivers fast, expressive, and flexible data structures to easily serve with structured and time-series data. Pandas make it possible to carry these operations like data analysis and modelling.

3) NumPy- It is one of the important packages for python contributing support for huge multidimensional arrays and matrices along with a variety of high-level mathematics functions to execute these functions swiftly.

4) Scikit Learn - It is effectively used for a variety of applications which include classification, regression, clustering, model selection, naive Bayes', grade boosting, K means and preprocessing.





V. DATASET DESCRIPTION

A. Dataset Name

The effectiveness of the proposed AI Healthcare Chatbot System depends on the quality of medical queries and dialogue data used for training. This dataset combines publicly available medical FAQs, symptom descriptions, and custom patient–doctor conversation samples to ensure realistic and reliable chatbot performance.

B. Number of Records

Total queries: ~5,000–10,000 patient queries and responses.
Data format: Text-based dialogues (plain text/JSON).

C. Labels/Classes

- Symptom Inquiry – Queries describing health issues (e.g., “I have a headache”).
- Medication Information – Queries about drugs, dosages, or side effects.
- Appointment/Reminder – Requests for scheduling or reminders.
- Wellness Guidance – Lifestyle, diet, and mental health queries.
- Escalation Needed – Cases requiring referral to a human doctor.

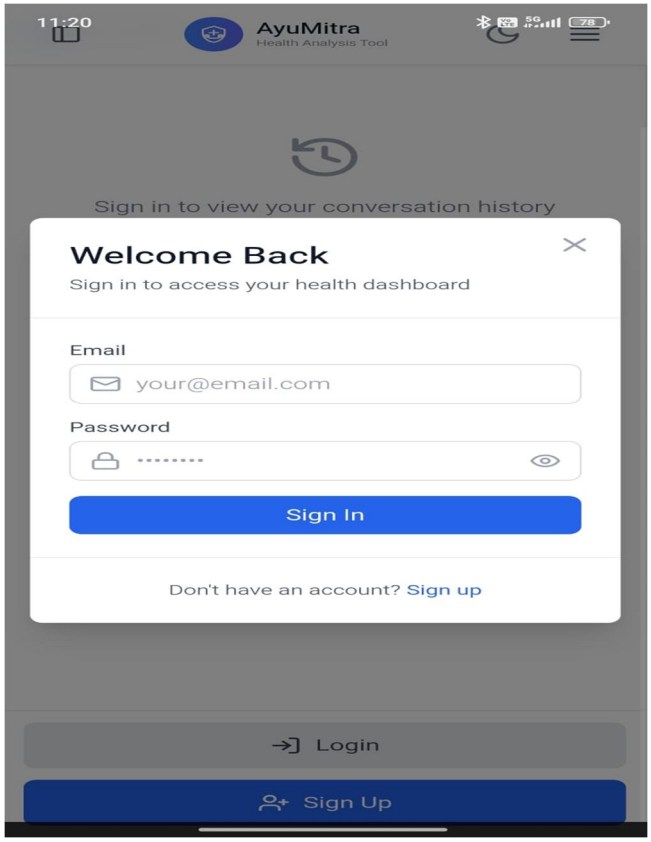
D. Train–Test Split

The dataset is divided as follows:

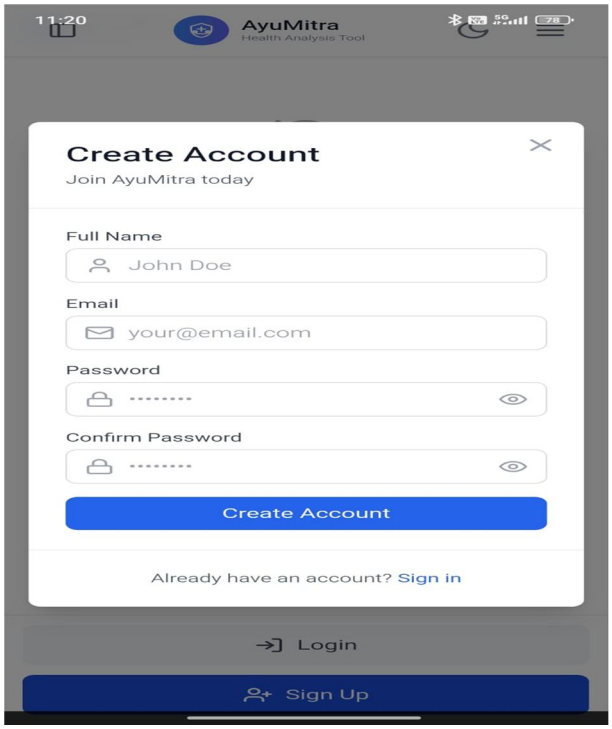
- Training set: 70% of total queries
- Testing set: 30% of total queries

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VI. EXPERIMENTAL RESULT/ANALYSIS

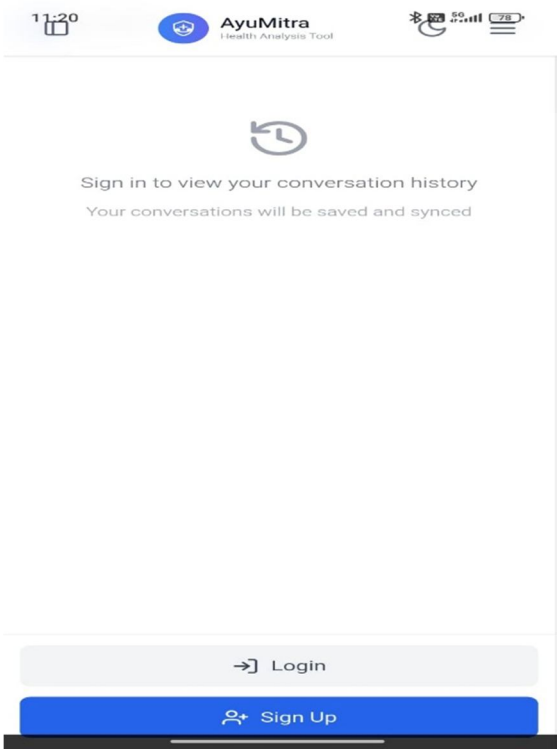


(1)

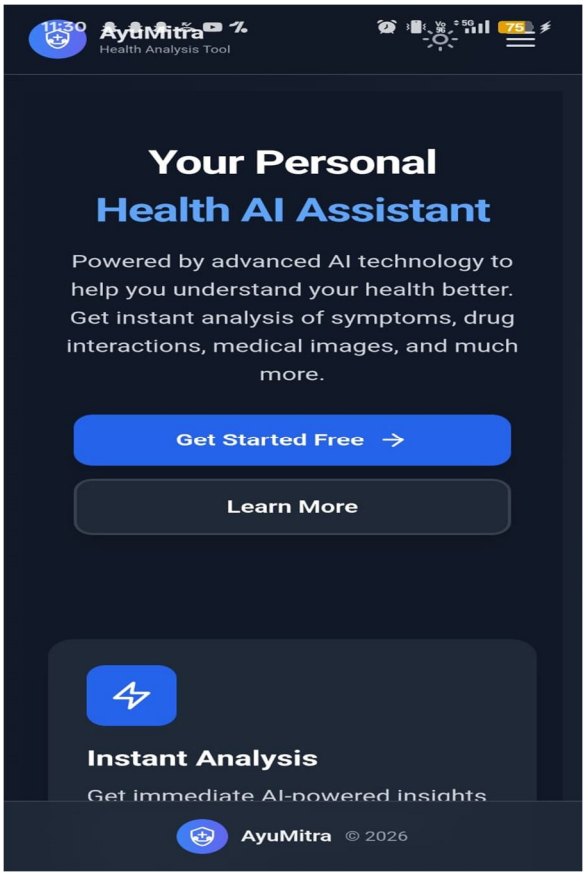


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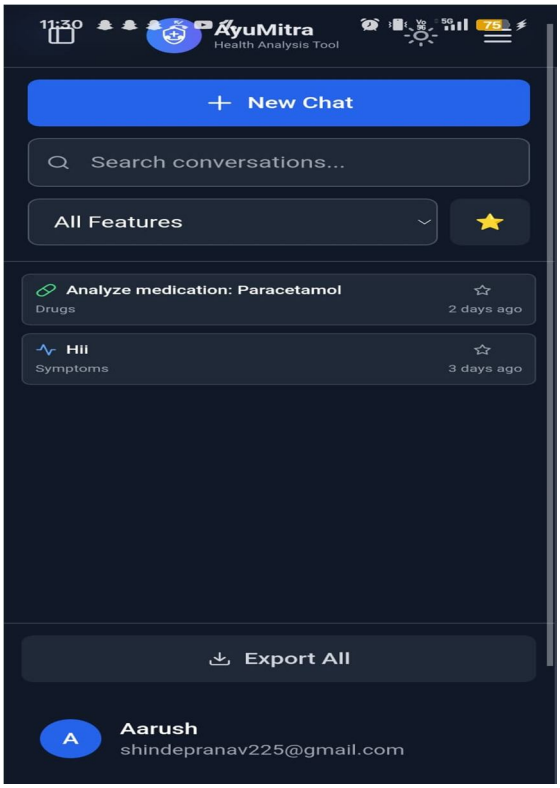
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Health Analysis Tool
Sign in to view your conversation history
Your conversations will be saved and synced
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Sign Up

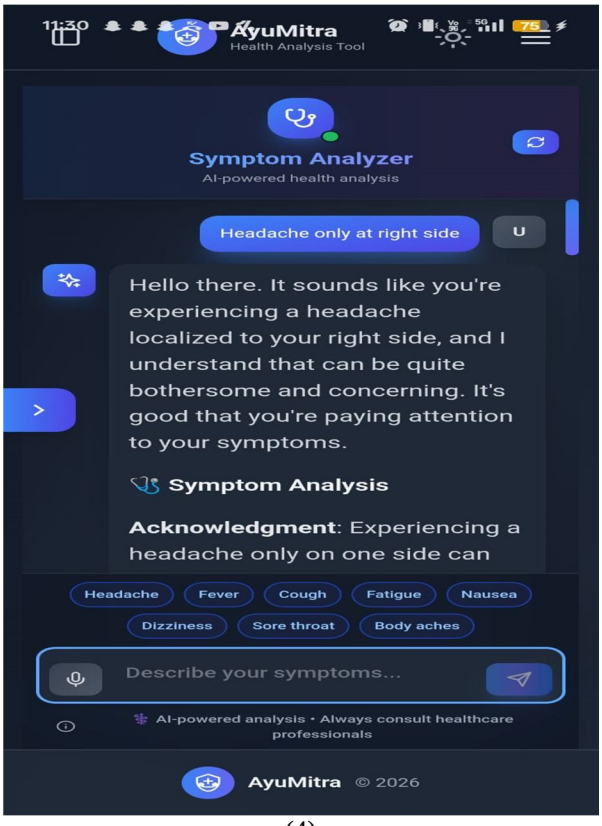
(3)


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Your Personal
Health AI Assistant
Powered by advanced AI technology to help you understand your health better. Get instant analysis of symptoms, drug interactions, medical images, and much more.
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Learn More
Instant Analysis
Get immediate AI-powered insights
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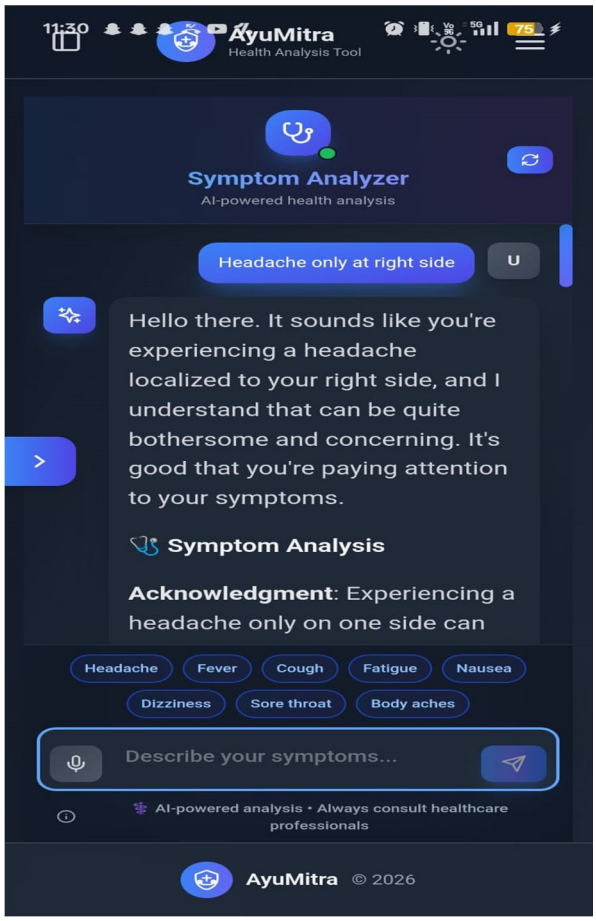
(a)


11:30
AyuMitra
Health Analysis Tool
New Chat
Search conversations...
All Features
Analyze medication: Paracetamol
Drugs
2 days ago
Hii
Symptoms
3 days ago
Export All
A
Aarush
shindepranav225@gmail.com

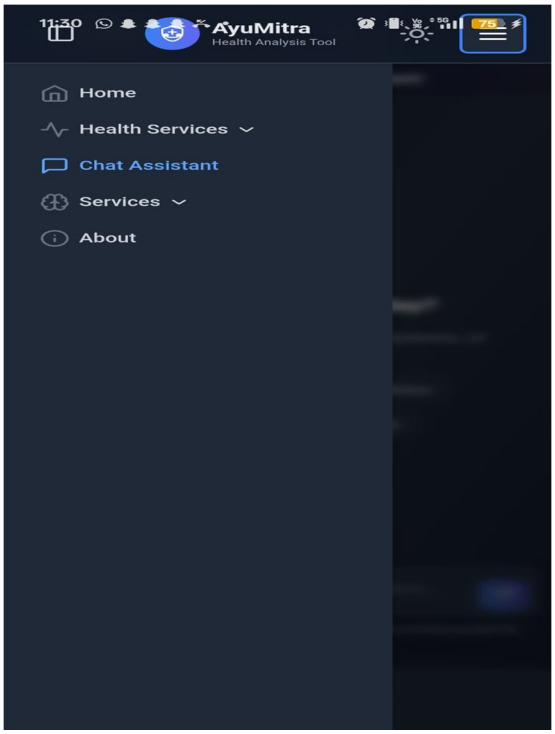
(b)


11:30
AyuMitra
Health Analysis Tool
Symptom Analyzer
AI-powered health analysis
Headache only at right side
U
Hello there. It sounds like you're experiencing a headache localized to your right side, and I understand that can be quite bothersome and concerning. It's good that you're paying attention to your symptoms.
Symptom Analysis
Acknowledgment: Experiencing a headache only on one side can
Headache
Fever
Cough
Fatigue
Nausea
Dizziness
Sore throat
Body aches
Describe your symptoms...
AI-powered analysis • Always consult healthcare professionals
AyuMitra © 2026

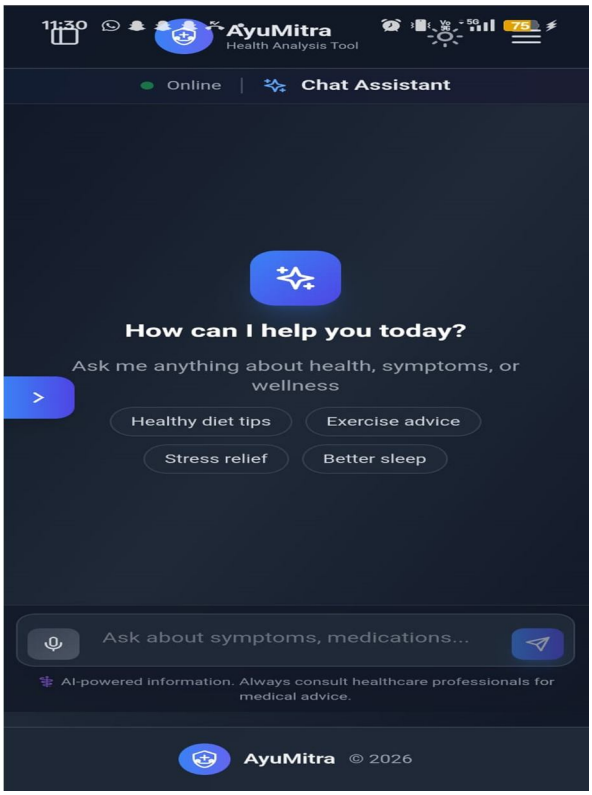
(4)


11:30
AyuMitra
Health Analysis Tool
Symptom Analyzer
AI-powered health analysis
Headache only at right side
U
Hello there. It sounds like you're experiencing a headache localized to your right side, and I understand that can be quite bothersome and concerning. It's good that you're paying attention to your symptoms.
Symptom Analysis
Acknowledgment: Experiencing a headache only on one side can
Headache
Fever
Cough
Fatigue
Nausea
Dizziness
Sore throat
Body aches
Describe your symptoms...
AI-powered analysis • Always consult healthcare professionals
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(5)


11:30
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Health Analysis Tool
Home
Health Services
Chat Assistant
Services
About

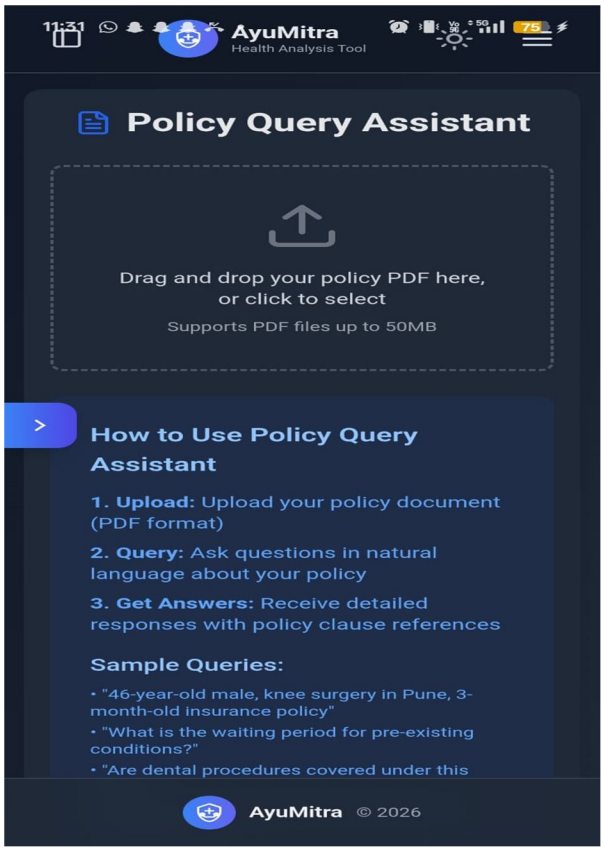
(6)


11:30
AyuMitra
Health Analysis Tool
Online
Chat Assistant
How can I help you today?
Ask me anything about health, symptoms, or wellness
Healthy diet tips
Exercise advice
Stress relief
Better sleep
Ask about symptoms, medications...
AI-powered information. Always consult healthcare professionals for medical advice.
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(7)


11:31
AyuMitra
Health Analysis Tool
Medical Report Assistant
Drag and drop your medical report PDF here, or click to select
Supports PDF files up to 50MB
How to Use Medical Report Assistant
1. Upload: Upload your medical report (PDF format)
2. Chat: Ask questions in natural language about your report
3. Get Answers: Receive detailed, easy-to-understand explanations
4. New Session: Click "New Session" to clear and start fresh
Sample Questions:
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(8)


AyuMitra
Health Analysis Tool
Policy Query Assistant
Drag and drop your policy PDF here,
or click to select
Supports PDF files up to 50MB
How to Use Policy Query Assistant
1. Upload: Upload your policy document (PDF format)
2. Query: Ask questions in natural language about your policy
3. Get Answers: Receive detailed responses with policy clause references
Sample Queries:
• "46-year-old male, knee surgery in Pune, 3-month-old insurance policy"
• "What is the waiting period for pre-existing conditions?"
• "Are dental procedures covered under this
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(9)


AyuMitra
Health Analysis Tool
About AyuMitra
Our Mission
AyuMitra is dedicated to making healthcare information more accessible and understandable for everyone. We leverage advanced artificial intelligence to provide instant, accurate health insights that empower you to make informed decisions about your well-being.
8+
Health Tools
24/7
Availability
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(10)

VII. FUTURE SCOPE

The Field of healthcare and medicine has evolved and branched out thanks to influence of technology. When you investigate the future Artificial intelligence in healthcare industry chatbot form a vital element. As most of the doctors know their patients' medical history the moment they glance through the medical file .But the use of chatbot would make it simpler. Once the doctor is notified of the upcoming appointment for a patient the doctor can immediately skim through the patient's records to be able to interact better. For those patients that are on the strict diet routines, chatbot can help suggest diet charts, menus to suit their medical condition. The doctor could also choose to manually feed in the diet chart suitable or it could also be programmed.

There are chatbot that can converse with people who are in a state of depression or anxiety. The best part is that with superior language processing algorithms at their core, these bots give more empathetic and human like answers which can make the person feel better, instead of sounding like a machine talking..

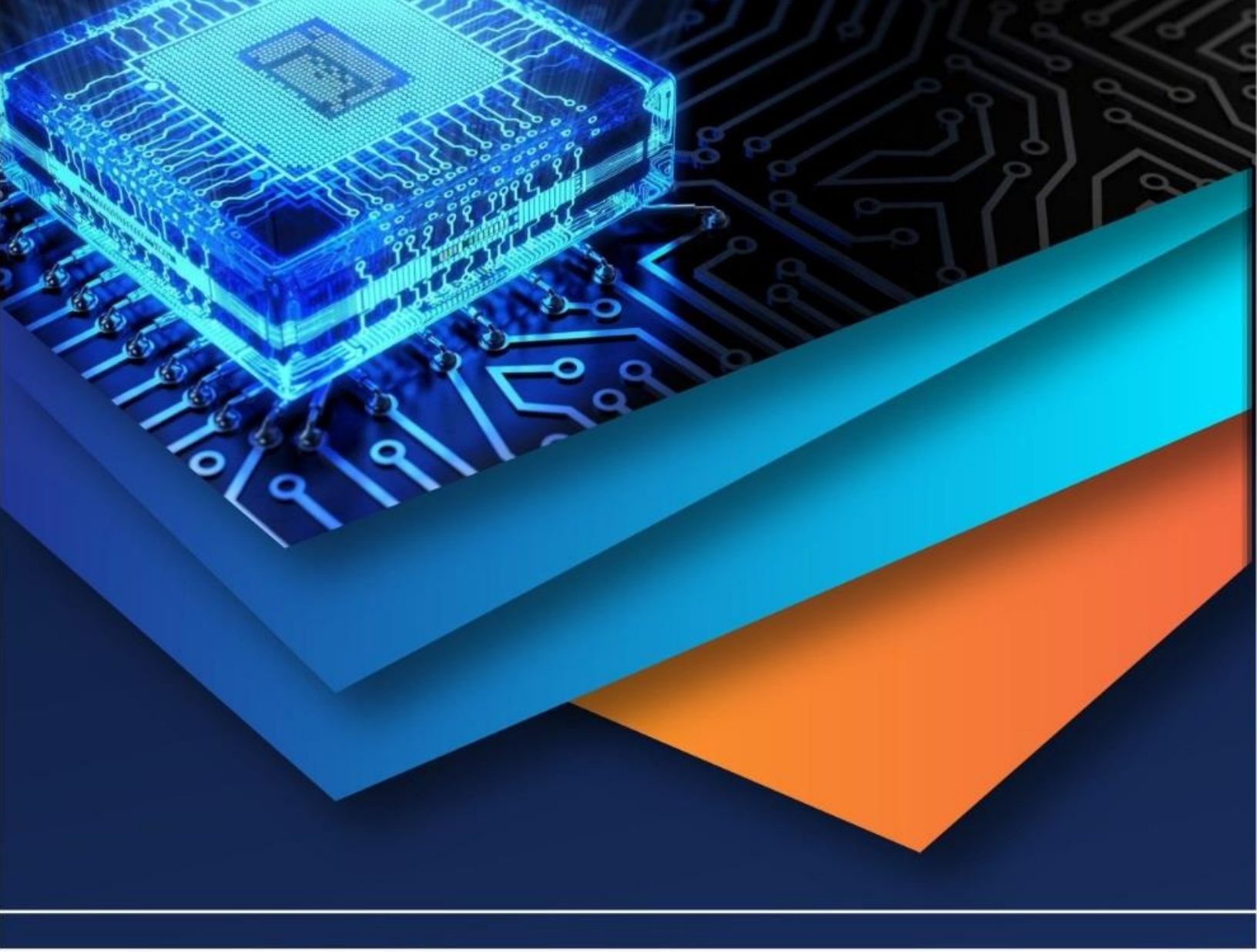
VIII. CONCLUSION

Currently artificial intelligent has developed to a point where programs can learn and effectively mimic human conversation. Chat bots have been around since 1966, but their popularity did not grow much until siri appeared in 2011 and then FB bot messenger. The market is constantly growing with many startups that recognize the potential for using chatbots in health care to support patients and providers. Just as cars measure getting down to drive themselves, care higher cognitive process is facing its own automation build, shortly patients are ready to enter their current symptoms through a portal, with the assistance of associate degree intelligent agent and find associate of degree correct designation or prescription while not involving a person's doctor.

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