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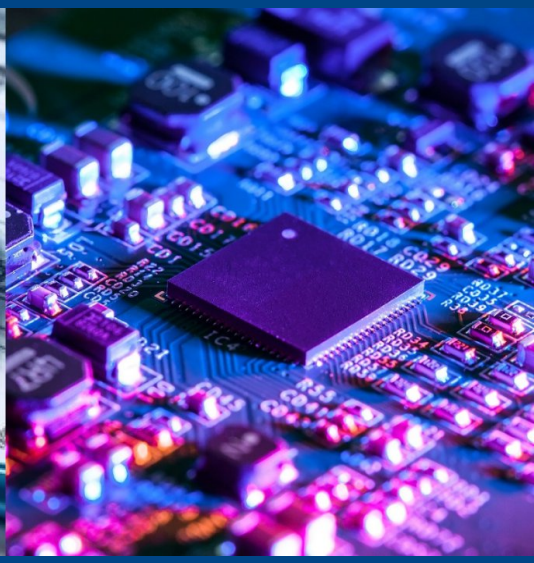

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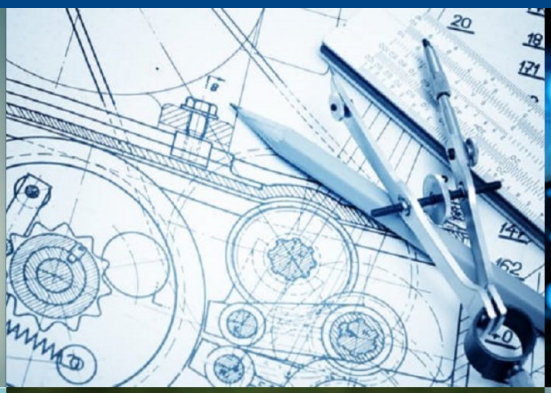

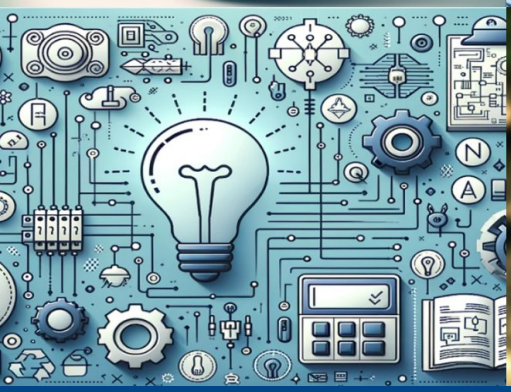

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HealthGuard AI - AI-Driven Public Health Chatbot for Disease Awareness

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ABSTRACT: HealthGuard AI is an advanced, native-style mobile application engineered to serve as an intelligent and proactive health companion in an era of increasing digital health dependency. In the current global landscape, individuals face significant challenges such as the rapid spread of medical misinformation, limited access to reliable health data, and delays in seeking professional medical intervention.

This research and development project addresses these issues by leveraging state-of-the-art Artificial Intelligence (AI) to provide a personalized and conversational interface that simplifies complex medical information for users. The system is designed to make healthcare knowledge more accessible and easier to understand for everyday use.

The architecture of HealthGuard AI integrates multiple high-utility modules for comprehensive health management. Key features include an AI-powered Symptom Checker that uses heuristic analysis to assess potential health risks, a curated Disease Encyclopedia for evidence-based learning, and advanced Health Risk Assessment tools. Additionally, the application supports users through automated Medication Reminders and provides safety features via integrated Emergency Information Services.

A major innovation of this project is its focus on inclusivity and reliability. With offline functionality and multilingual support, HealthGuard AI remains accessible in low-connectivity regions and usable by people from diverse linguistic backgrounds. This helps bridge the gap between urban and rural access to healthcare information.

Developed with a user-centric design approach, the application emphasizes data integrity and the use of verified medical knowledge. The primary objective of HealthGuard AI is to empower users to manage their health effectively and make informed decisions.

While the system offers strong preliminary guidance, it is built with strict ethical considerations. It consistently encourages users to consult qualified healthcare professionals for accurate diagnosis and treatment, positioning itself as a supportive tool rather than a replacement for professional medical care.

I. AN OVERVIEW

HealthGuard AI is a sophisticated, native-style mobile health ecosystem designed to function as an intelligent and proactive health companion in an increasingly digital medical environment. In today's world, where the spread of medical misinformation and health-related anxiety (cyberchondria) is growing rapidly, this project acts as a bridge between complex medical data and user-friendly guidance.

The application leverages the OpenRouter API to access a wide range of high-performance Large Language Models (LLMs). This enables a personalized, conversational interface that simplifies medical information for users. The API-driven architecture ensures flexibility, efficiency, and the ability to process complex health queries with high accuracy and clarity.

HealthGuard AI is specifically developed to address three major challenges: the lack of verified health information, limited accessibility in low-connectivity regions, and delays in seeking professional medical care. To overcome these issues, the system integrates multiple modules such as an AI-based Symptom Checker for initial risk assessment, a comprehensive Disease Encyclopedia for evidence-based learning, and advanced health risk assessment tools.

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In addition to diagnostic support, the application improves user compliance through automated and precise Medication Reminders. It also enhances user safety by offering integrated Emergency Information Services, which can be crucial during urgent situations.

A key innovation of HealthGuard AI is its focus on inclusivity. With strong offline functionality and multilingual support, the application ensures that reliable health information is accessible to users regardless of their location or internet availability, helping bridge the gap between urban and rural healthcare access.
Developed using a user-centric approach, HealthGuard AI empowers individuals to actively manage their health rather than passively consume information. It provides users with verified knowledge and tools to make informed decisions about their well-being.

Ultimately, HealthGuard AI serves as a preliminary support system for health concerns. While it provides valuable guidance, it is ethically designed to encourage users to seek professional medical advice from qualified healthcare providers for accurate diagnosis and treatment, ensuring it complements rather than replaces formal healthcare services.

II. MODULE DESCRIPTION

1. User Registration & Authentication
This module allows users to register in the application by providing basic details and accepting the terms and conditions. It includes a secure authentication system to ensure that only authorized users can access the application, thereby protecting personal and health-related data.
2. Splash Screen
The splash screen is displayed when the application is launched. It shows the HealthGuard AI logo or animation while the system loads required services in the background, enhancing branding and user experience.
3. AI Health Chatbot
This is the core module of the application. It enables users to interact with an AI-powered chatbot to ask health-related questions. The chatbot provides guidance and explains medical information in simple, easy-to-understand language.
4. Medicine Scanner
This module uses Optical Character Recognition (OCR) technology to scan medicine packaging through the device camera. It identifies the drug name and dosage, and provides information such as usage, side effects, and precautions by referencing an internal database.
5. Symptom Checker
The symptom checker guides users through a step-by-step process of entering their symptoms. Based on the input, the system analyzes possible health conditions and suggests whether medical consultation is necessary.
6. Disease Encyclopaedia
This module offers a searchable database of diseases. It includes details such as symptoms, causes, prevention methods, and general treatments, helping users improve their health awareness.
7. Medication Reminders
This feature allows users to set reminders for taking medicines. Notifications are sent at scheduled times, and users can mark medicines as taken, improving consistency and adherence to treatment.
8. Emergency Information
This module provides quick access to first-aid instructions, emergency guidelines, and important contact numbers. It is designed to work even in offline mode, ensuring availability during critical situations.
9. Multilingual Support
The application supports multiple languages, allowing users from different linguistic backgrounds to access health information easily. This enhances usability and inclusivity.
10. Offline Mode
Offline mode ensures that essential features such as emergency information and basic disease data are available without an internet connection, making the app reliable in low-connectivity areas.
11. Health News & Alerts
This module delivers verified health news, disease outbreak alerts, and public health updates from trusted sources. It helps users stay informed about current health issues and precautions.

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III. USE CASE DIAGRAM

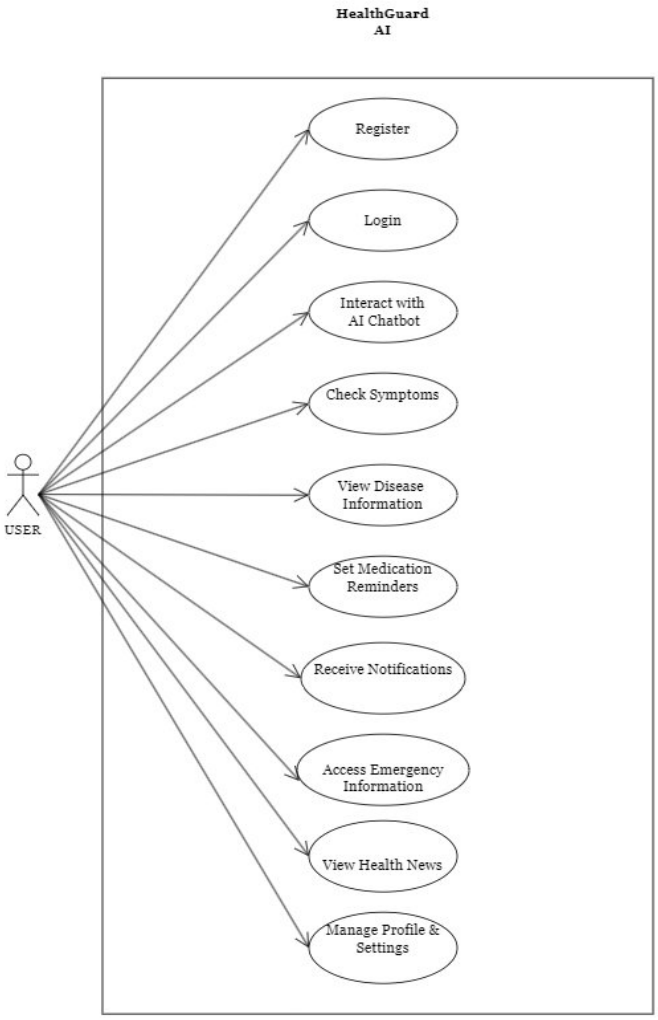

Fig. 1 Use case diagram

FLOWCHART:

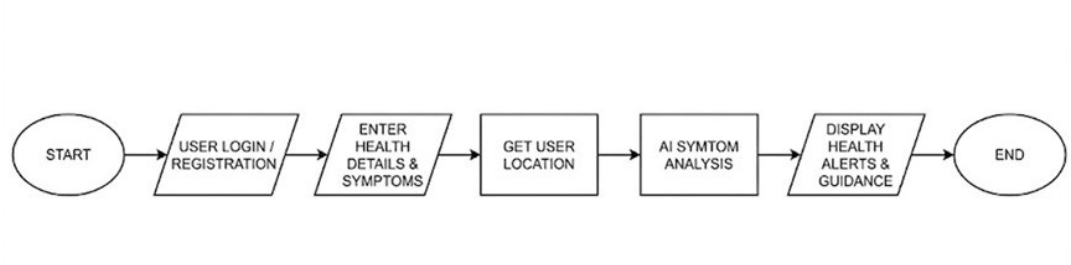

Fig. 2 Flowchart diagram

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E-R DIAGRAM

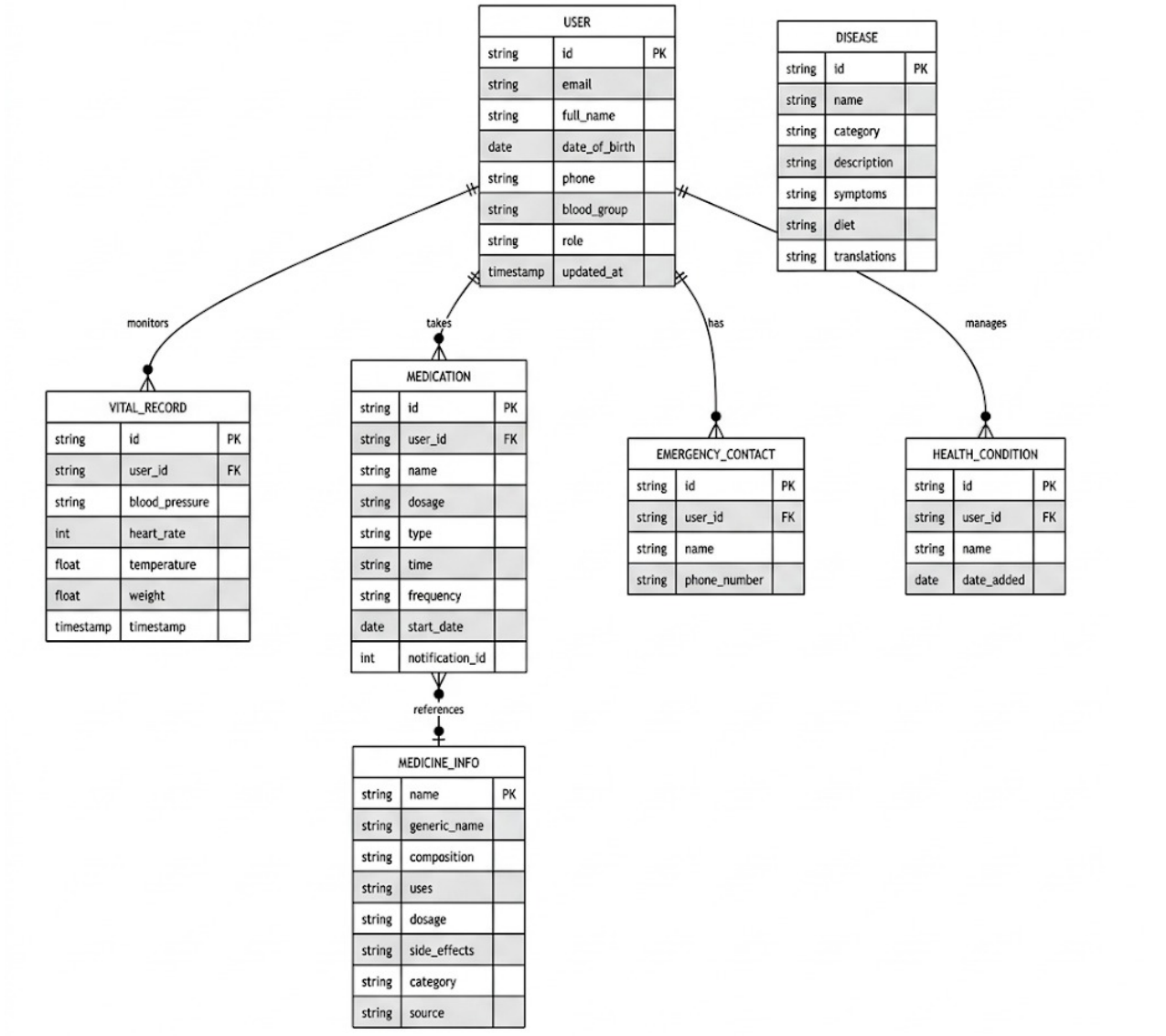

Fig. 3 E-R Diagram

IV. RESULTS

HealthGuard AI is a mobile health application designed to act as an intelligent health companion using AI-based conversational technology. It provides users with reliable health guidance by addressing issues such as medical misinformation, limited access to accurate information, and delays in seeking professional care. The application includes features like a symptom checker, disease encyclopedia, health risk assessment, medication scanner , medication reminders, and emergency information. With offline functionality and multilingual support, HealthGuard AI ensures accessibility for a wide range of users. The app aims to empower individuals with evidence-based health knowledge while strongly encouraging consultation with healthcare professionals.

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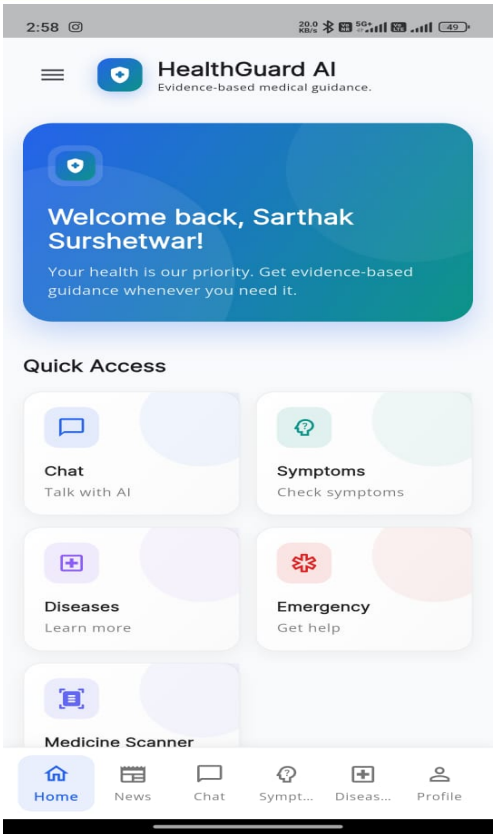

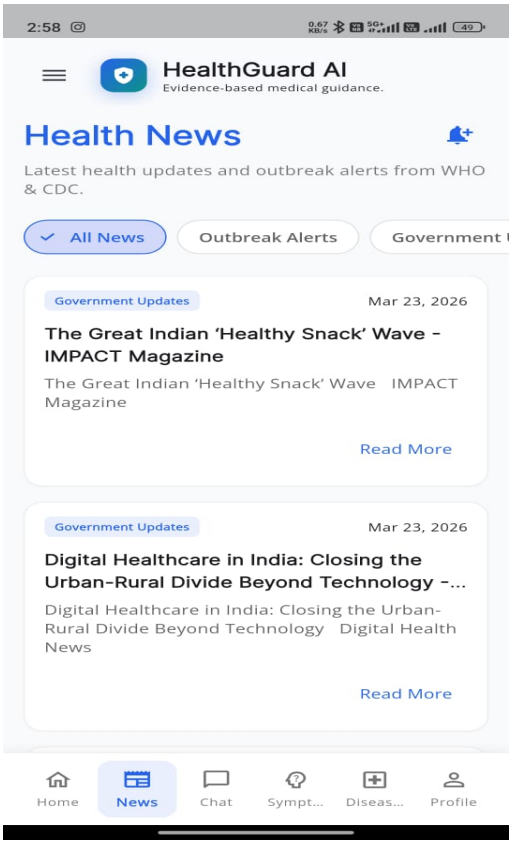

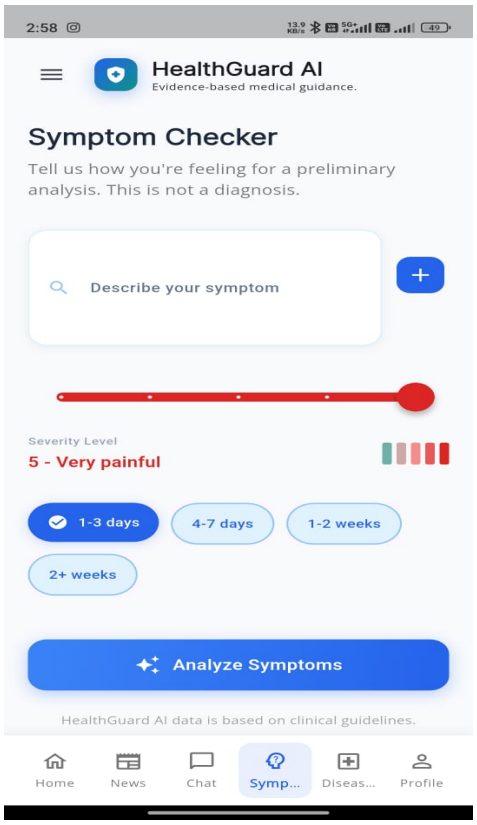

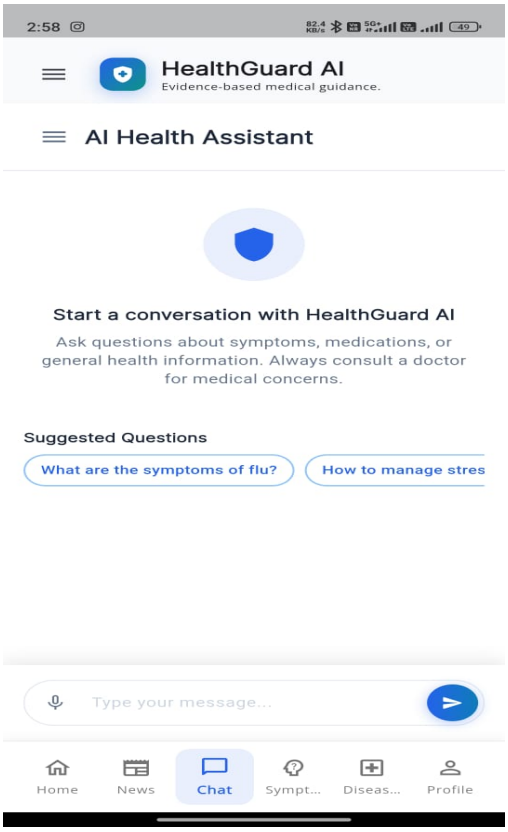

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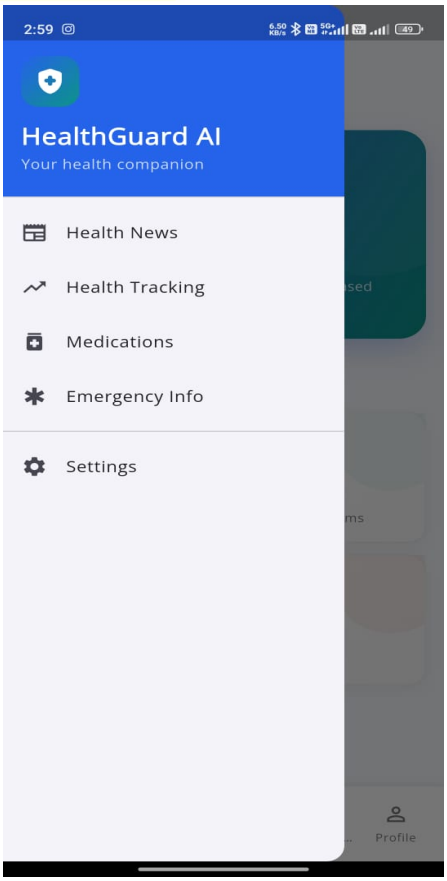

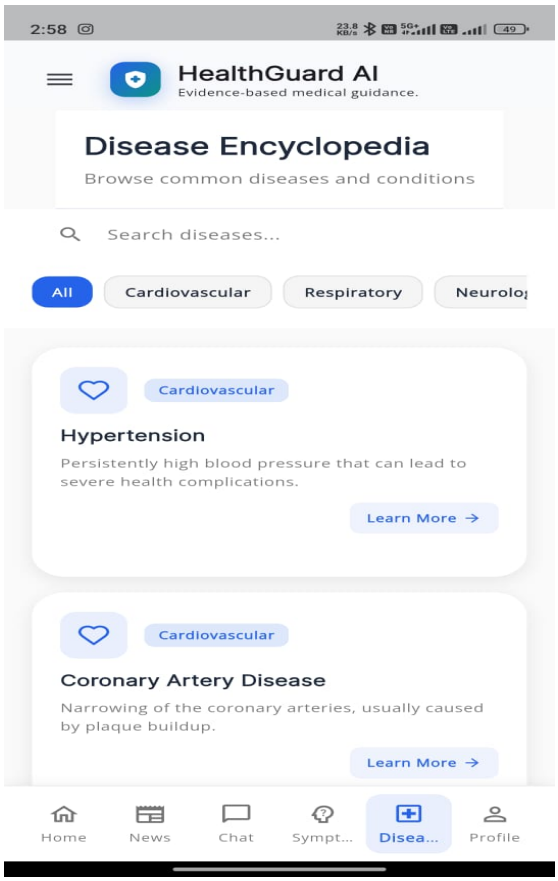

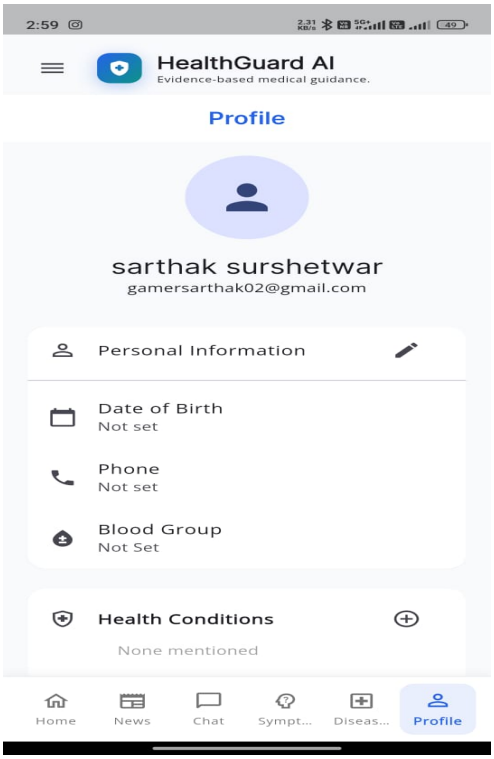

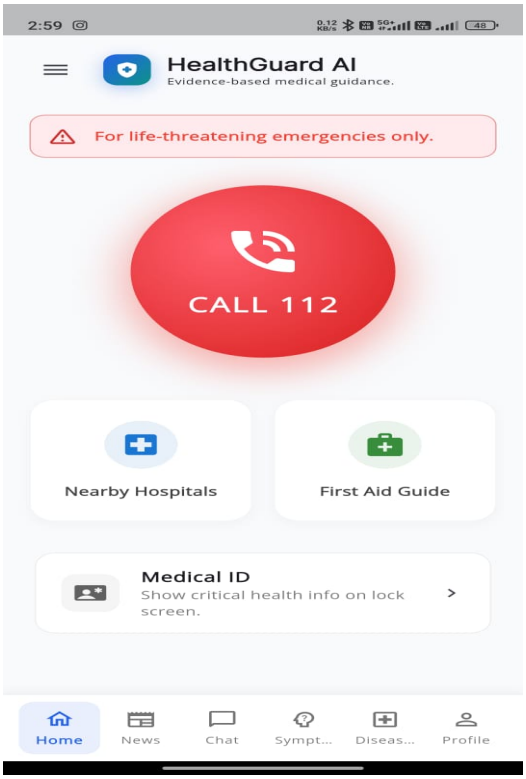

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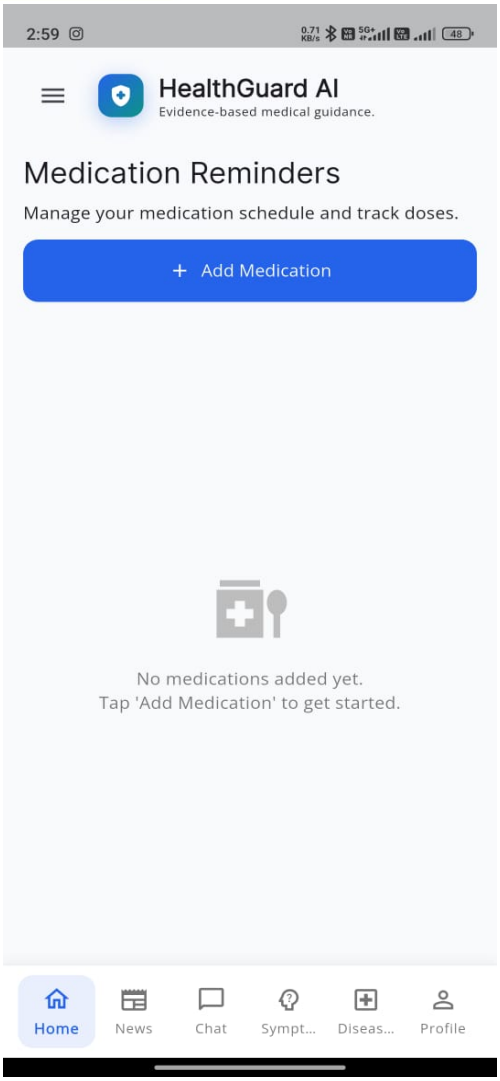

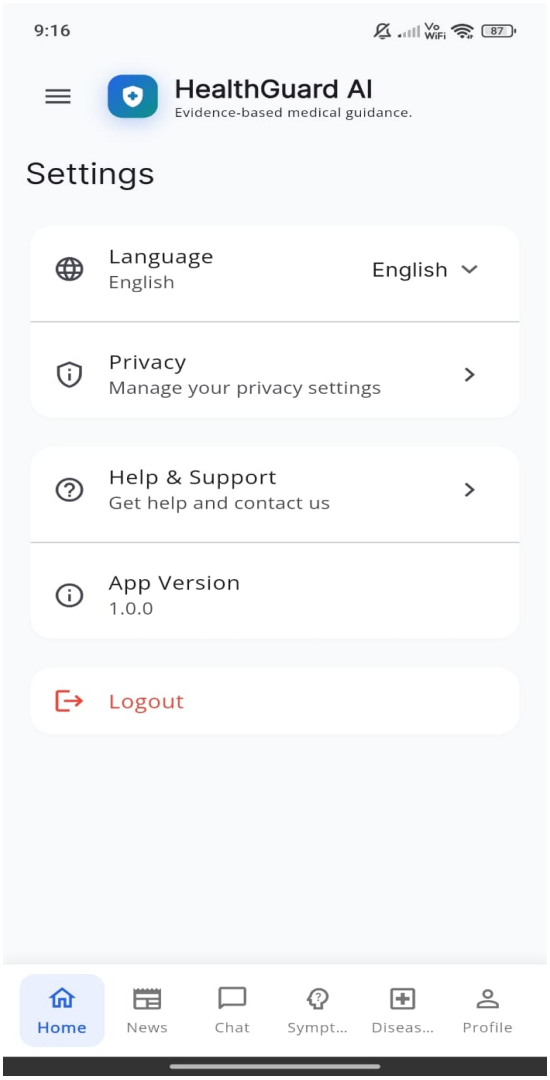

V. CONCLUSION

HealthGuard AI has been successfully developed as an intelligent and reliable digital health ecosystem, bridging the gap between complex medical data and user-centric health management. By integrating a sophisticated conversational interface via the OpenRouter API, the application simplifies the process of accessing verified health information, enabling users to make informed, first-level medical decisions. The synergy between the AI-powered chatbot, Symptom Checker, and Medicine Scanner creates a proactive environment where health awareness is no longer limited by medical jargon or information overload.

The project effectively addresses the critical challenge of accessibility in the healthcare sector. Through the implementation of Offline Mode and Multilingual Support, HealthGuard AI ensures that life-saving information and emergency guidance remain available to diverse populations, regardless of their geographic location or internet stability. The inclusion of Smart Medication Reminders further enhances the application's utility by directly improving patient adherence to prescribed treatments, thereby transforming the app from a simple information tool into a comprehensive health companion.

Furthermore, the application plays a vital role in promoting preventive healthcare and reducing the global "infodemic" of medical misinformation. By guiding users through early symptom recognition and providing data from verified sources like the CDC and WHO, the system encourages timely professional consultation before health conditions

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escalate. This not only empowers the individual user but also has the potential to reduce the overall burden on formal healthcare infrastructures by filtering minor concerns and prioritizing critical cases.

In summary, HealthGuard AI demonstrates the successful integration of modern AI frameworks with practical healthcare needs. The project achieves its primary objective of improving health literacy and fostering a culture of informed self-care. With its robust architecture and inclusive design, the application stands as a scalable solution with the potential to significantly improve public health outcomes and democratize access to high-quality health guidance.

REFERENCES

[1] “Flutter Documentation – Cross-Platform UI Toolkit for Building Natively Compiled Applications.” Online Available: https://flutter.dev/docs
[2] “Dart Programming Language – Official Language Guides and Asynchronous Programming.” Online Available: https://dart.dev/guides
[3] “Material Design 3 – Google's Open-Source Design System for UI Components.” Online Available: https://m3.material.io
B. Backend, Database & AI Services
[4] “Supabase Documentation – Open-Source Backend-as-a-Service for Authentication and PostgreSQL.” Online Available: https://supabase.com/docs
[5] “OpenRouter AI API Documentation – Unified Gateway for Large Language Model Integration.” Online Available: https://openrouter.ai/docs
[6] “PostgreSQL Documentation – Relational Database Management Systems.” Online Available: https://www.postgresql.org/docs
C. Medical Data & News APIs
[7] “CDC (Centers for Disease Control and Prevention) Content Services API – Health Data Services.” Online Available: https://tools.cdc.gov/api
[8] “WHO (World Health Organization) – Global Health News and Disease Outbreak Updates.” Online Available: https://www.who.int
[9] “Google News RSS – Localized Health News Aggregation Services.” Online Available: https://news.google.com
D. State Management & Navigation
[10] “Riverpod – Reactive State Management and Dependency Injection for Flutter.” Online Available: https://riverpod.dev
[11] “GoRouter – Declarative Routing and Navigation for Flutter Applications.” Online Available: https://pub.dev/packages/go_router
E. Specialized Functional Libraries
[12] “Flutter Local Notifications – Scheduling and Managing Medication Reminders.” Online Available: https://pub.dev/packages/flutter_local_notifications
[13] “Speech to Text & Flutter TTS – Voice Recognition and Synthesis for AI Interaction.” Online Available: https://pub.dev/packages/speech_to_text
[14] “Geolocator – GPS Location Services for Emergency Information Modules.” Online Available: https://pub.dev/packages/geolocator
[15] “Intl – Internationalization and Localization Support for Multi-Language Apps.” Online Available: https://pub.dev/packages/intl
F. Development & UI Utilities
[16] “Lucide Icons – Consistent Open-Source Medical and Functional Icon Sets.” Online Available: https://pub.dev/packages/lucide_icons
[17] “HTTP – Dart Package for Composable HTTP Client Requests to REST APIs.” Online Available: https://pub.dev/packages/http
[18] “Shared Preferences – Persistent Key-Value Local Storage for User Settings.” Online Available: https://pub.dev/packages/shared_preferences
[19] “Android SDK & Gradle – Build Tools for Android Application Compilation.” Online Available: https://developer.android.com/build
[20] “W3Schools – Mobile and Web Application Development Tutorials.” Online Available: https://www.w3schools.com

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