

WEB APPLICATION FOR WELLNESS MANAGEMENT

Dr. Latha P H¹, Mr. Hanumanth Gowda V², Mr. Gowrav R³, Ms. Thanushree C M⁴,
Ms.Dhanyashree L⁵

¹(Department of Information Science and Engineering, Sambhram Institute of Technology, Bangalore
Email: phdlatha2017@gmail.com)

²(Department of Information Science and Engineering, Sambhram Institute of Technology, Bangalore
Email: ghanumanth394@gmail.com)

³(Department of Information Science and Engineering, Sambhram Institute of Technology, Bangalore
Email: gowravgowda019@gmail.com)

⁴(Department of Information Science and Engineering, Sambhram Institute of Technology, Bangalore
Email: ttanushreecm@gmail.com)

⁵(Department of Information Science and Engineering, Sambhram Institute of Technology, Bangalore
Email: dhanyashree1608@gmail.com)

Abstract:

In Web application for Wellness Management leverages technology to provide efficient, accessible, and data-driven healthcare solutions. This system integrates multiple functionalities, including an AI-powered chatbot that offers real-time medical assistance for mental health, physical health, and first aid through advanced natural language processing using the OpenAI API key. The hospital consultation booking feature allows users to schedule appointments based on specific filters such as hospital type, specialization, and location, while maintaining a comprehensive record of past consultations. Additionally, machine learning models enhance predictive healthcare by assessing risks for conditions like heart disease, diabetes, and depression, aiding in early diagnosis and prevention.

I. INTRODUCTION

Healthcare is a fundamental pillar of human well-being, yet access to efficient and timely medical support remains a challenge for many. Wellness Management is designed to address critical issues in healthcare, including limited access to medical consultations, inefficient appointment scheduling, and a lack of real-time health monitoring. The traditional healthcare system often struggles with overburdened medical professionals, fragmented patient data, and delayed diagnoses, leading to suboptimal patient outcomes. These inefficiencies create barriers to quality healthcare, particularly in rapidly growing populations like India, where demand for medical services continues to rise. Despite the growing need for accessible and intelligent healthcare solutions, existing medical platforms lack AI-driven automation,

real-time

assistance, and predictive analytics. Many healthcare services still rely on manual data entry, outdated scheduling systems, and isolated communication channels, limiting their ability to provide instant and accurate medical guidance. The absence of an integrated system that connects patients, hospitals, and medical professionals further exacerbates these challenges. This project aims to bridge these gaps by leveraging advanced technologies to develop a comprehensive healthcare management system. By integrating Django for backend development, PostgreSQL for secure data storage, Open AI's API for intelligent chatbot interactions, and real-time analytics.

Wellness Management offers a scalable and efficient solution. The system provides AI-driven medical chat support, a streamlined hospital appointment booking platform, and predictive analytics for proactive health management. Through this intelligent and interactive healthcare platform, users can access instant medical guidance, easily schedule consultations, and receive data-driven health recommendations. The system is designed to benefit patients, doctors, hospitals, and researchers, ensuring that healthcare services are more accessible, efficient, and technology-driven. By aligning with global efforts to enhance digital healthcare infrastructure, this project contributes to the modernization of medical services, making healthcare more intelligent, personalized, and widely available.

II. LITERATURE REVIEW

The Our Wellness Management project is a comprehensive and innovative platform designed to address the health and wellness needs of individuals through a combination of cutting-edge technologies, including Django for the backend, PostgreSQL for robust data storage, and HTML, CSS, and JavaScript for a dynamic and user-friendly frontend. The platform aims to empower users by providing a holistic approach to managing their physical and mental health, along with offering tools for booking consultations, receiving medical advice, and engaging with health-related resources. At the core of the system is a Medical Chatbot that leverages the OpenAI API to provide personalized, real-time assistance. The chatbot is designed to offer support across multiple domains, including mental health, physical wellness, and first aid. Users can interact with the chatbot to receive advice, guidance, or emergency help on various health-related issues. Additionally, the chatbot stores the entire chat history in the database, enabling users to review and revisit past conversations. This feature not only helps track progress but also ensures that users have a reliable resource for information whenever needed. The Hospital Consultation Booking System is another key feature of the platform. It allows users to book consultations with medical professionals, filtering options by specialty (such as general practitioners or psychiatrists) and location. This system ensures that

users can easily find and schedule appointments with healthcare providers who meet their specific needs. The platform also saves consultation history, allowing users to track their past appointments and medical interactions. This functionality is crucial for continuity of care and allows users to maintain detailed records of their healthcare journey.

III. OBJECTIVES

The primary objective of this project is to create a holistic health platform that effectively integrates multiple healthcare services, offering users a seamless and comprehensive experience. Central to this platform is the incorporation of medical chatbot services, which will serve as an interactive tool to provide real-time health assistance, guiding users through common medical queries, and offering support for minor ailments. This chatbot service will leverage the latest advancements in natural language processing and machine learning to ensure accurate, context-sensitive, and personalized responses based on the user's individual health profile. In addition to chatbot services, the platform aims to integrate health prediction capabilities, using machine learning models to analyze users' health data and predict potential risks for conditions such as heart disease, diabetes, and mental health issues like depression. By assessing the user's health history, lifestyle choices, and genetic predispositions, the system can provide early alerts, enabling users to make informed decisions and take preventive actions that can improve their long-term health. Another key component of the platform is the ability to book consultations with healthcare professionals seamlessly. Users will have the option to schedule appointments with doctors, specialists, or mental health professionals based on availability, location, and the nature of their medical concern. This integration not only streamlines the process of booking consultations but also enhances accessibility, particularly for individuals in remote or underserved areas. The platform will also include secure user authentication, allowing users to create and manage profiles that track their medical history, past consultations, prescriptions, and other important health data. With these profiles, users can monitor their progress, receive reminders for appointments.

IV. PROBLEM STATEMENT

Despite advancements in digital healthcare solutions, existing wellness management systems still face significant challenges that limit their effectiveness. One of the key issues is the lack of real-time data integration, where systems fail to process real-time inputs from wearables and health monitoring devices, leading to delays in medical responses. Additionally, fragmented healthcare systems and poor interoperability prevent seamless data sharing across different platforms, making holistic patient care difficult. Our Wellness Management aims to bridge these gaps by providing a more integrated, personalized, and secure healthcare solution. Many existing solutions offer limited personalization, providing generic recommendations instead of adapting to individual user needs based on lifestyle, medical history, or genetics. User experience and engagement challenges further reduce the effectiveness of these systems, as many applications fail to provide intuitive interfaces or motivation mechanisms like gamification. Data privacy and security concerns also hinder the adoption of wellness management platforms, with many failing to comply with regulations like GDPR and HIPAA. Moreover, limited access to digital healthcare in rural and underserved areas remains a challenge due to technological and infrastructural constraints. Lastly, existing systems often lack effective, evidence-based health interventions and multidisciplinary support, failing to integrate various healthcare domains such as mental health, chronic disease management, and emergency first aid. Our Wellness Management seeks to address these gaps by leveraging AI, real-time monitoring, and seamless integration to enhance healthcare accessibility, patient engagement, and overall wellness.

V. METHODOLOGY

The development of the Our Wellness Management platform took a pragmatic and adaptive approach, without strictly following any formal development methodology.

The project was structured in a flexible and goal-driven manner, focusing on delivering the core functionalities without being constrained by rigid procedural frameworks. At the onset, the team carefully identified and documented the primary requirements, including the integration of a medical chatbot using the OpenAI API, the development of health prediction models, the creation of a hospital consultation booking system, and the management of user profiles and feedback. After defining the core functionalities, the team proceeded with a well-thought-out design phase. This phase involved creating a robust system architecture that could efficiently handle the varied features, along with designing the PostgreSQL database schema to ensure the secure storage and easy retrieval of user data, consultation records, health predictions, and chatbot history. The frontend design was another crucial aspect of this phase, with an emphasis on creating an intuitive and seamless user experience through the use of HTML, CSS, and JavaScript. Once the design was finalized, the development phase began. This phase was iterative, with each functionality being developed and integrated step by step. The backend was built using Django, providing a stable and secure framework for managing the platform's operations. Integration with OpenAI API enabled the medical chatbot to provide tailored responses for mental, physical, and first aid support. Additionally, machine learning models for heart disease, diabetes, and depression predictions were developed using Python libraries like scikit-learn for logistic regression and TensorFlow for neural networks. The frontend was developed in parallel using web technologies such as HTML, CSS, and JavaScript. The user interface was designed to be responsive and user-friendly, allowing users to interact with the chatbot, book consultations, view their profiles, and access health prediction tools with ease. The platform was designed to provide a cohesive experience across different devices, ensuring smooth navigation for users regardless of the device they were using. Testing was an ongoing process throughout the development lifecycle. The team conducted functional testing to ensure that each feature worked as expected, from the chatbot responses to the health predictions and consultation bookings.

VI. KEY ACTIVITIES

- I. User Login:** The user logs into the platform or registers a new account.
- II. Chatbot Interaction:** The user sends a query to the medical chatbot.
- III. Consultation Booking:** The user selects a specialist and books a consultation.
- IV. Profile Management:** The user views or updates their profile.
- V. Feedback Submission:** The user submits feedback on their experience
- VI. Login/Register:** When the user accesses the platform, they are either authenticated via login or can register if they are a new user.
- VII. Chatbot Interaction:** After logging in, the user can initiate a conversation with the chatbot. Their input is processed, and the system responds with a personalized message. The interaction history is stored in the database.
- VIII. Health Prediction Input:** The user provides data about their health (e.g., symptoms), which is sent to the machine learning model for prediction (such as heart disease or diabetes). The result is displayed to the user.
- IX. Consultation Booking:** The user selects a medical specialization and location, filters available specialists, and books an appointment. The system processes this and saves the consultation in the database.
- X. Profile Management:** The user can view or edit their profile information at any time. Any changes are updated in the database.
- XI. Feedback Submission:** After using the system, users can provide feedback, which is stored in the database for analysis and system improvement.

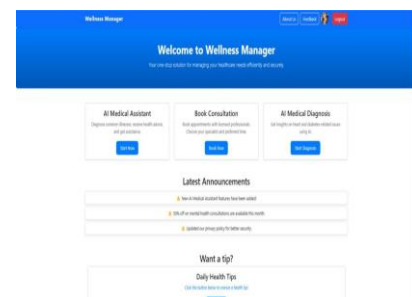
VII. RESULT

The "Our Wellness Management" web application was successfully developed and deployed to address key aspects of physical and mental health management. The following results were achieved through the implementation and testing phases:

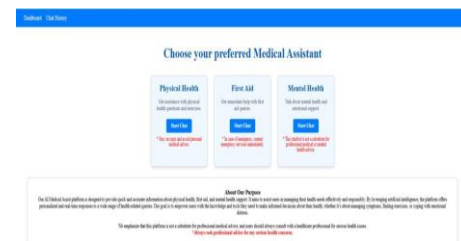
- **MedicalChatbot**
The AI-powered chatbot effectively responded to queries related to physical, mental health, and

first aid. It integrated OpenAI's API and provided real-time support, with chat history stored and retrievable for user convenience.

- **HealthPredictionModels**
Three machine learning models were integrated:
 - **Heart Disease and Diabetes:** Logistic Regression models achieved an accuracy of over 85% on test data.
 - **Depression Detection:** A neural network was used and showed promising results with around 80% accuracy on validation data.
- **Hospital Consultation Booking System**
Users were able to book consultations by filtering by specialization and location. Consultation history was recorded and viewable in user profiles.
- **Event and Announcement Pages**
Health awareness campaigns and events could be posted by admins and accessed by users, improving community engagement.
- **Authentication and Profile Management**
Secure login/registration was implemented. Users could update and view personal profiles and past activities within the app.
- **Feedback System**
Users provided valuable feedback on the services, which was stored in the database and reviewed for future improvements.



Dashboard page fig 1.1



Medical Assistant Page Fig-1.2

VIII. CONCLUSION

In conclusion, the Our Wellness Management platform has successfully combined cutting-edge technologies to offer a comprehensive and user-centric solution for health management. By integrating a sophisticated medical chatbot powered by OpenAI's API, the platform provides users with personalized assistance across multiple critical domains, including mental health, physical health, and first-aid support. This feature offers a level of accessibility to healthcare advice that is both immediate and relevant, making it an indispensable tool for users seeking timely, reliable information.

Furthermore, the health prediction tools based on machine learning algorithms play a crucial role in empowering users to take charge of their health. With predictive models for assessing risks related to heart disease, diabetes, and depression, users are provided with valuable insights into potential health concerns before they escalate. This proactive approach to health management helps users make more informed decisions, enhancing their overall well-being.

The hospital consultation booking system also adds significant value to the platform, enabling users to quickly find healthcare professionals based on specialization and location. By streamlining the process of scheduling consultations, the platform ensures that users can easily access the care they need. This, coupled with secure user authentication, profile management, and feedback collection, ensures a personalized, safe, and tailored experience for each user.

Moreover, the modular design of the platform allows for seamless scalability and flexibility. As user needs evolve and new technological advancements emerge, the system can adapt and expand without disrupting the current functionality. The incorporation of future enhancements is feasible, enabling the platform to stay relevant and continue improving the quality of service it offers to users.

IX. FUTURE ENHANCEMENT

Looking ahead, several key enhancements could further enrich the **Our Wellness Management** platform, ensuring it stays relevant and effective as healthcare needs continue to evolve. First, expanding the chatbot's capabilities to include advanced AI features, such as integrating speech recognition for voice-based interactions, could significantly enhance the user experience, making the platform more accessible and convenient for those who prefer voice commands over typing. This would especially benefit users with disabilities or those who find it easier to communicate verbally.

Additionally, incorporating real-time health monitoring tools that sync with wearable devices like fitness trackers and smartwatches could provide users with continuous, personalized health insights. This would not only enhance user engagement but also allow for more dynamic, up-to-date health data to be used for providing health predictions and recommendations, making the platform even more integrated with daily health management.

X. REFERENCES

1. **Django Documentation** - <https://docs.djangoproject.com> Official documentation for Django framework setup, ORM, and API development.
2. **Django REST Framework (DRF) Documentation** - <https://www.django-rest-framework.org> Guide for creating and managing REST APIs in Django.
3. OpenAI. (2023). GPT-3.5-Turbo Model. Retrieved from <https://openai.com>

Relevant Research Papers

- [1] S. Punjabi, V. Sethuram, V. Ramachandran, R. Boddu, and S. Ravi, "Chat bot using API: Human to machine conversation," in Proc. 2019 Global Conference for Advancement in Technology (GCAT), Bangalore, India, Oct. 2019.
- [2] R. Dharwadkar and N. A. Deshpande, "A medical chatbot," Int. J. Computer Trends Technol. (IJCTT), Jun. 2018.

