Smart Healthcare Platform: A Web-Based System for Patient Symptom Tracking and Doctor Recommendations

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***Abstract*—This paper offers a solution to improve patient-doctor interactions by creating a medical advice website that uses advanced automation to simplify laborious administrative tasks. The platform uses UI Path to provide secure sign-up, appointment booking, health record management, and automatic messages for a smooth and easy-to-use experience. Its main features include automatic user registration, real-time updates on doctor availability through Calendly integration, and secure access to health records stored in MongoDB. The system also supports digital prescription creation and management which cuts down on manual work and ensures proper document handling. An intelligent search tool helps patients find doctors based on their specialty and current availability while email alerts and reminder functionalities facilitate communication between patients and doctors. By handling forms, scheduling appointments, and managing documents, the system decreases the administrative burden placed upon healthcare professionals and increases the quality of patient care. This paper shows that adding automation to medical consultancy platforms enhances appointment scheduling and streamlines administrative tasks. It reduces human error, speeds up the booking process, and ensures that data is kept safe and compliant with healthcare standards.**

***Index Terms*—Medical consultancy platform, UI Path automation, User experience (UX) , Real-time appointment synchronization**

I. Introduction

Amid the exponential expansion of digital health technologies, medical services are now more accessible and effective. A significant part of this shift is the importance of patient-doctor interactions to ensure care delivery and outcomes are promptly and efficiently facilitated. The increasing demand for advanced health services has spurred the development of digital platforms that can simplify complex tasks like managing appointments, reviewing medical records and prescribing information, and communicating with physicians. Yet many systems today are still reliant on manual processes, which have a tendency to break down and struggle with repeatable tasks at large. This study centers on a medical consultancy platform that utilizes automation technologies, such as UI Path, to address these concerns. The platform is intended to simplify the process of patient-doctor interactions by providing user registration, appointment booking, medical record access, and prescription management features. A user-friendly interface is used to bring together all these services, delivering maximum advantages to both patients and medical professionals. The primary goal of this platform is to reduce administrative burdens on medical professionals, freeing them up to focus on providing quality care. In real time, the automated Consultation Booking System can be integrated with Calendly to guarantee precise scheduling and eliminate overlapping appointments. The workflow is further streamlined and optimized by incorporating automated notifications and reminders, which are beneficial for patients. The Medical Records Management system is another noteworthy feature that secures all past medical records and makes them available for doctors to review, update, and manage patient histories in real time. Data protection is a paramount priority for this system. The use of automation enables the careful handling of sensitive information, including medical records and patient details that may be mishandled. The platform is designed to maintain a consistent standard for the safeguarding of patient information. By focusing on automation, this paper highlights the potential benefits of optimizing medical consultancy plat-

forms for improved efficiency and ease of use. This will reduce the manual labour needed by many routine tasks, enabling healthcare workers to work more efficiently and ensure that patients are treated with greater care. This platform serves as a prototype for future digital healthcare solutions, emphasizing the ability of technology to enhance patient outcomes and drive improvement.

II. Literature Survey

The rapid digital transformation of healthcare has led to the emergence of online platforms that optimize medical consultation and appointment booking processes. While several research efforts have focused on improving doctor-patient interaction and appointment scheduling, limitations such as inefficient automation, lack of patient anonymity, and inadequate integration of AI-driven recommendations persist. This survey examines previous studies on healthcare management systems, compares their methodologies, and highlights the advancements introduced by the proposed system.

Sundas et al. (2024) [7] introduced a Smart Patient Monitoring and Recommendation (SPMR) system that leverages cloud analytics and deep learning for symptom tracking and personalized doctor recommendations. Their study underscores the importance of real-time analytics and scalable infrastructure in healthcare management. However, their system does not incorporate end-to-end automation, which is essential for seamless patient-doctor interaction

Suryavanshi et al. (2021) [3] developed an automated appointment booking model aimed at improving scheduling efficiency and reducing manual interventions. Their model significantly streamlined patient access to medical services but did not emphasize user anonymity or AI-powered symptom analysis. In contrast, Tamizharasi et al. (2024) [2] optimized doctor appointment scheduling using Next.js, Strapi, and REST APIs to ensure a fast, scalable, and user-friendly interface. While their system enhances usability, it does not integrate AI-based doctor recommendations or automated workflow optimization.

Recent advancements in healthcare technology also emphasize automation through robotic process automation (RPA). Mishra et al. (2022) [4] analyzed the role of UiPath in automating web scraping and data analysis, demonstrating the effectiveness of RPA in reducing manual workload. Their findings support the proposed system's adoption of UiPath for automating doctor assignments, appointment notifications, and database updates.

MongoDB has emerged as a key technology in handling unstructured healthcare data. Mok (2024) [5] proposed a conceptual model for MongoDB database design, focusing on optimizing data retrieval and scalability. This methodology aligns with the proposed system's use of MongoDB to efficiently store and manage patient records, consultation histories, and doctor availability.

Another significant area of research is AI-driven medical report analysis. Pandit et al. (2024) [6] developed an Optical Character Recognition (OCR) and Generative AI-based system for medical report interpretation and doctor recommendations. Their research validates the effectiveness of AI in automating clinical decision support and enhancing patient outcomes.

Health recommender systems (HRS) have become essential tools for personalizing healthcare services. Tran et al. (2021) [8] provided a systematic overview of existing research on HRS, categorizing recommendation scenarios such as food, drug, and healthcare professional recommendations. Their study highlights how AI and machine learning techniques enhance patient engagement by offering tailored healthcare recommendations.

Urban healthcare resilience is another critical area of study. Mulesa et al. (2025) [9] developed a semi-automated decision-making method for optimizing healthcare resource allocation during crisis situations. Their approach integrates fuzzy logic and Wald's sequential analysis to improve response times and ensure equitable access to medical resources, demonstrating the necessity of intelligent automation in urban healthcare management.

The proposed system builds upon these studies by integrating full-stack automation, AI-based decision-making, and real-time synchronization to address existing limitations. Unlike prior works that focus on standalone functionalities such as disease prediction or appointment booking, this platform combines symptom tracking, AI-powered doctor recommendations, and privacy-preserving medical consultations into a unified solution. Leveraging UiPath for automation, MongoDB for flexible data handling, and Calendly for real-time scheduling, the system ensures a seamless, efficient, and personalized healthcare experience. By addressing privacy concerns, optimizing resource allocation, and enhancing user engagement, the proposed solution represents a transformative approach to modern healthcare management.

III. Proposed Work

The proposed system introduces an innovative approach to medical consultancy and appointment scheduling by combining automation, artificial intelligence, and robust data management to address shortcomings identified in previous works. While existing systems have laid the groundwork for improving appointment booking and medical data management, the present solution extends these advancements by focusing on end-to-end automation, user anonymity, and personalized healthcare services. Unlike earlier systems that rely on user-driven scheduling processes, this work utilizes automation tools such as UiPath to dynamically assign doctors based on patient requirements and automatically notify them through email, thereby eliminating manual intervention, reducing errors, and streamlining the entire process; the integration of Calendly further ensures real-time synchronization of appointments, which enhances efficiency and communication between stakeholders. Previous systems have not adequately addressed privacy concerns, particularly regarding patient anonymity, but this proposed solution ensures that users can access medical consultancy services without disclosing personal details, thus fostering trust and encouraging open communication—an approach that is especially beneficial in sensitive healthcare

scenarios. Additionally, while existing works have largely focused on disease prediction or basic appointment booking without integrating AI for personalized doctor recommendations, the new system incorporates artificial intelligence to analyze patient symptoms and preferences, thereby recommending the most suitable medical professionals and ensuring tailored healthcare solutions that significantly enhance the user experience. In contrast to prior reliance on relational databases like MySQL, the proposed approach leverages MongoDB for its flexibility and scalability in handling unstructured data, allowing for the efficient storage and retrieval of patient medical histories, consultation records, and treatment plans, which ensures seamless access to critical information during subsequent visits. Moreover, while earlier works have employed machine learning techniques for disease prediction and test recommendations as standalone features, the current system integrates these functionalities with the doctor recommendation process, enabling a holistic approach to patient care by providing actionable insights and timely recommendations in a unified platform. The system also automates the management of a centralized database containing doctor profiles, specializations, and availability using UiPath and Excel, ensuring that data remains accurate and up-to-date without requiring manual updates—a limitation observed in earlier systems. To address challenges related to scalability and performance, the proposed solution utilizes Hostinger for domain and database hosting alongside APIs provided by UiPath for seamless integration, thereby ensuring that the platform is accessible across various devices and performs efficiently under high user loads. Unlike existing systems that focus primarily on functionality, this work emphasizes user experience with an intuitive, fully responsive interface designed to cater to diverse devices and ensure ease of use for both patients and healthcare providers. Overall, the proposed system offers a transformative approach to healthcare management by effectively addressing gaps in automation, privacy, and personalization identified in previous works, presenting a next-generation solution for medical consultancy and appointment scheduling through its comprehensive and scalable design that adapts to evolving healthcare needs while providing a seamless and efficient user experience.

IV. Methodology

The work was driven by a series of interlinked objectives and processes designed to create a modern, efficient, and user-friendly medical consultancy platform that meets the needs of both patients and doctors. Initially, the focus was on designing an intuitive interface by leveraging HTML, CSS, and JavaScript to develop responsive web pages that adapt seamlessly to various devices and screen sizes. Detailed wireframes and prototypes were created to map out essential functionalities—ranging from user registration and appointment booking to comprehensive medical records and virtual consultation modules—followed by the implementation of interactive elements and responsive layouts that were rigorously tested across multiple browsers and devices for compatibility and optimal performance. In parallel, the work aimed to automate a range of repetitive, time-intensive tasks to reduce manual workload and enhance overall operational efficiency. This phase involved automating critical processes such as user registration and email verification, scheduling appointments through real-time integration with Calendly, generating digital prescriptions that are dispatched via email, and implementing an intelligent search mechanism to match patients with the most appropriate doctors. These automation processes were seamlessly orchestrated using UI Path workflows integrated with the website's backend, ensuring that routine tasks were executed accurately and promptly. Efficient data management was also a cornerstone of the work; dynamic patient data—including medical histories, appointment details, and prescriptions—was securely stored in a MongoDB database, while Microsoft Excel was employed to manage and update vital doctor information, such as areas of specialization, availability, and contact details. Automated retrieval and updates via UI Path ensured that data across these platforms remained synchronized and easily accessible. To further enhance the platform's intelligence and functionality, AI-powered tools were integrated to classify doctors and medical cases, providing AI-based recommendations tailored to patient symptoms and conditions, and incorporating chatbots or voice assistants for initial consultations and frequently asked questions. This was achieved by identifying and integrating suitable APIs that facilitated a seamless data flow between the website and the AI systems. Additionally, the appointment booking experience was refined by linking Calendly to monitor real-time doctor availability and manage patient bookings, with automated schedule updates, email confirmations, and reminders enhancing user engagement and satisfaction. Critical backend processes were also automated to streamline interactions between MongoDB, Excel, and the overall system, ensuring that operations were both secure and efficient. Finally, the work adhered to rigorous guidelines for document layout, placing figures and tables at the top and bottom of columns to avoid disruption of the narrative, allowing large figures and tables to span across both columns when necessary, positioning figure captions below the figures and table heads above the tables, and inserting all visual elements only after they had been appropriately cited in the text.

As shown in Fig. 1, the overall system architecture integrates various components for patient and doctor interactions. The UI Path automation process, depicted in Fig. 2, handles task scheduling and data updates. Furthermore, the responsive design of the user interface is illustrated in Fig. 3, while the interactive page for resolving doubts is presented in Fig. 4.

V. Results and Discussion

The implementation of the Medical Consultancy System has yielded significant results in terms of user convenience, automation efficiency, and data management. This sophisticated system features a user-friendly and anonymous interface that empowers patients to seek medical consultations without disclosing personal details, thereby ensuring robust privacy

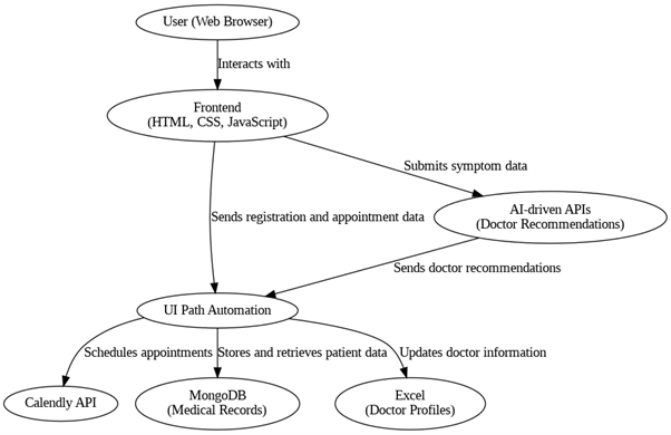

Fig. 1. System Architecture Flowchart of the Smart Healthcare Platform

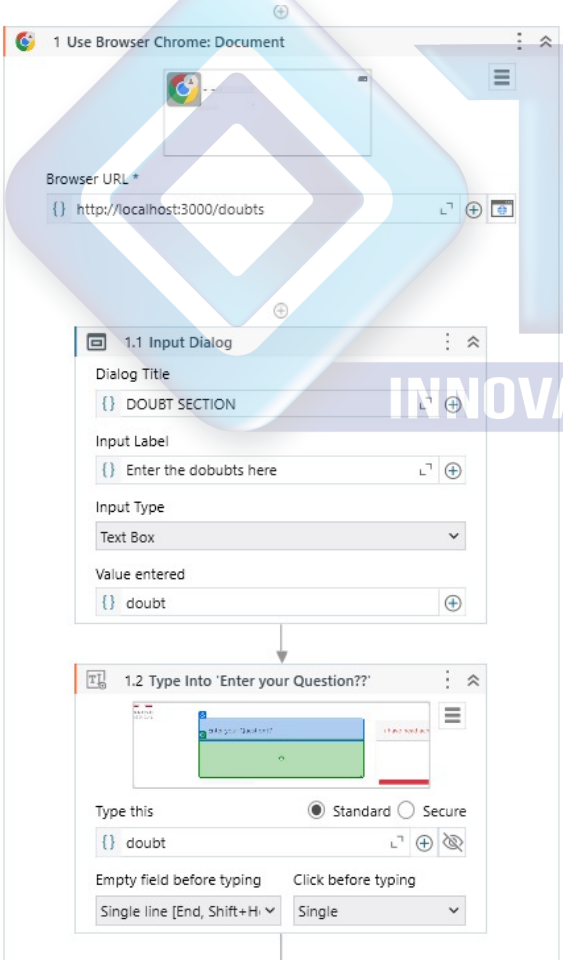

Fig. 2. UI Path Automation Workflow for Task Scheduling

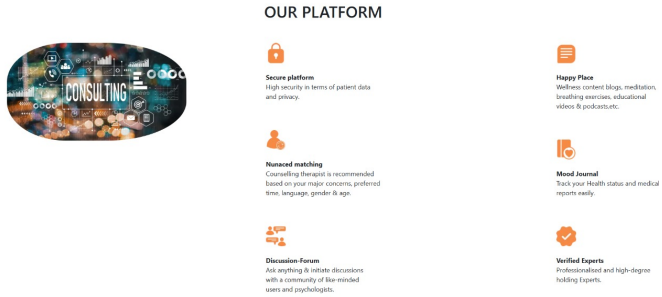

Fig. 3. Responsive User Interface Design for Patient and Doctor Interaction

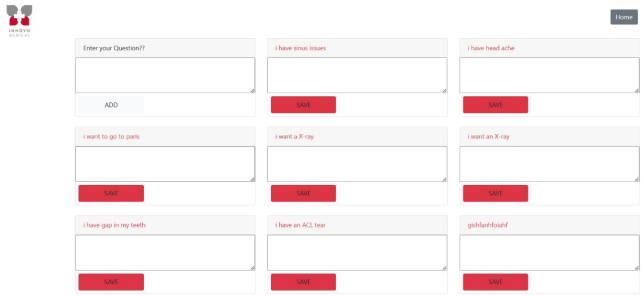

Fig. 4. Interactive FAQ/Doubt Resolution Page

protections and encouraging open, candid communication with healthcare providers. By leveraging cutting-edge automation, the system is capable of analyzing patient inputs in real time to efficiently recommend the most appropriate doctors based on individual medical needs, which not only ensures precision in matching but also significantly accelerates response times. Furthermore, the seamless integration of automation tools enables the system to automatically dispatch emails containing patient details to the recommended doctors and schedule appointments without manual intervention, thereby reducing errors and eliminating delays in the consultation process. Patient information—including records of previous

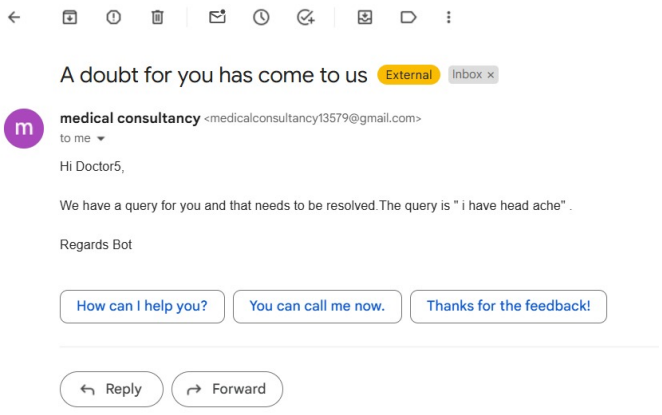

Fig. 5. An automated Email received by doctors

consultations, comprehensive medical histories, and follow-up details—is securely stored in a MongoDB database, ensuring continuity of care through easy and reliable data retrieval. In addition, the integration of advanced AI technologies enhances decision-making by dynamically determining suitable doctors and predicting potential health trends, which makes the system highly adaptable to a variety of clinical scenarios. Appointment schedules are managed through Calendly, which synchronizes the calendars of both patients and doctors to streamline time management, while detailed doctor profiles—encompassing specialization, availability, and contact information—are meticulously maintained and regularly updated in Microsoft Excel, providing an organized and accessible repository. The system's modular architecture further supports scalability and extensibility, allowing for the seamless incorporation of additional doctors, patients, and advanced features such as telemedicine integration to broaden its usability across larger healthcare networks. Moreover, real-time notifications about appointment confirmations and updates are sent to both patients and doctors, thereby enhancing communication and minimizing scheduling errors. Ultimately, the combination of anonymity, automation, and AI-driven solutions has dramatically improved the overall patient experience by reducing wait times, simplifying complex processes, and ensuring prompt access to quality medical consultations, demonstrating a robust and forward-thinking framework for modernizing medical consultancy services with an emphasis on privacy, efficiency, and effective resource utilization. In addition, the system has been designed with future regulatory compliance in mind. Although HIPAA standards have not been fully implemented in the current version, the platform's architecture allows for easy integration of additional security measures. Future enhancements can include advanced encryption protocols, rigorous access controls, and comprehensive auditing features to achieve full HIPAA compliance [10]. This approach will protect sensitive patient data and build trust among users and healthcare providers, aligning the platform with evolving industry standards and legal requirements. Furthermore, integrating privacy-preserving artificial intelligence techniques, such as federated learning, can enhance data security while maintaining the system's analytical capabilities [11].

VI. Conclusion

In today's fast-paced environment, where time is of the essence, convenience and quick access to essential services have become more crucial than ever. The healthcare sector, in particular, demands efficiency to ensure that patients receive timely medical attention. This research paper presents a solution aimed at enhancing doctor-patient interactions by addressing communication barriers and administrative inefficiencies.

This developed platform significantly improves communication by seamlessly integrating automation into the system. The key features include User Registration, which ensures a structured onboarding process; Appointment Booking, allowing patients to schedule visits with ease; Medical Record Management, enabling secure and efficient handling of patient histories; and Secure Communication, which fosters safe and private exchanges between doctors and patients.

These automated tasks play a pivotal role in simplifying processes that traditionally consume a significant amount of time and often result in errors due to manual handling. Real-time updates on doctor availability prevent scheduling conflicts, while automated email notifications serve as reminders, ensuring reliable and uninterrupted interactions between patients and healthcare providers. Additionally, the system minimizes the chances of miscommunication by maintaining accurate records and offering instant access to relevant medical information whenever needed.

Furthermore, this system not only reduces the administrative workload for healthcare professionals but also enhances the overall patient experience. By offering a user-friendly, intuitive, and secure platform, it ensures that both parties—doctors and patients—can focus on what truly matters: effective healthcare delivery. The integration of automation does not replace human involvement but rather complements it, making medical processes smoother, more reliable, and less stressful for everyone involved.

As technology continues to reshape various aspects of our lives, its role in healthcare innovation cannot be overlooked. This work demonstrates how automation has the potential to revolutionize healthcare communication, ultimately paving the way for a more connected, efficient, and patient-centric future. With continuous advancements, such platforms could evolve further, integrating artificial intelligence and predictive analytics to offer even more personalized and proactive healthcare solutions. The future of medical communication lies in the seamless blend of human expertise and technological support, ensuring better accessibility, improved outcomes, and an overall higher standard of care.

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