

# Online Doctor Consultation App Integrated With AI

**Prof. Gurappa Kalyani<sup>1</sup>, Deeksha<sup>2</sup>, Arushi<sup>3</sup>, Aasiya<sup>4</sup>**

<sup>1</sup>Professor, Department of Information Science And Engineering, PDA College of Engineering, Kalaburagi, India

<sup>2,3,4</sup> Student, Department of Information Science And Engineering, PDA College of Engineering, Kalaburagi, India

---

## ABSTRACT

The Online Doctor Consultation Application is a digital healthcare platform developed to support remote interaction between patients and doctors through an internet-enabled interface. The project addresses barriers associated with travel, waiting time, specialist availability, and access to preliminary guidance, particularly for rural users, older adults, and people with limited time. The reported system uses Flask and Python for backend processing and HTML, CSS, and JavaScript for the frontend. Its principal functions include user and doctor authentication, appointment booking, symptom submission, AI-assisted preliminary guidance, consultation interaction, digital prescription handling, and administrative monitoring. A modular architecture links the presentation layer, Flask application programming interfaces, the chatbot component, consultation services, and record-management functions. The application workflow was demonstrated through interfaces for registration, specialist selection, symptom entry, AI preliminary analysis, doctor selection, payment, consultation, prescription display, and delivery-address entry. Functional testing covered user registration and login, doctor access, appointment booking, chatbot responses, prescription upload and download, the administrative panel, and logout/session handling. The thesis reports that each tested module achieved the expected functional outcome. The system demonstrates a practical patient-centred approach to digital consultation, while limitations remain concerning physical examination, internet dependency, user digital literacy, and the need for fuller validation of security, video integration, multilingual support, and clinical safety.

**Keywords:** Online Doctor Consultation, Telemedicine, AI Chatbot, Flask, Digital Prescription, Healthcare Accessibility

---

## INTRODUCTION

Digital health platforms have become increasingly important as patients seek timely medical advice without unnecessary travel or prolonged waiting. Conventional face-to-face consultation may be restricted by geographic distance, limited specialist availability, time constraints, and the difficulty of reaching hospitals from rural or remote locations. The Online Doctor Consultation Application was developed as a web-based platform through which patients can initiate a consultation, select a relevant specialist, describe symptoms, and communicate with a doctor from an internet-enabled device. The platform is intended to reduce routine hospital visits while maintaining a direct path to professional consultation.

The proposed application combines a patient-facing interface with doctor and administrative functions. Patients can register, log in, search for doctors, book appointments, submit symptoms, access consultation history, and receive digital prescriptions. Doctors can review patient information, manage appointments, communicate with patients, and upload prescriptions. An AI chatbot provides immediate general responses to symptom-related questions and offers preliminary guidance before the user connects with a doctor. The thesis explicitly presents this chatbot as an initial support mechanism rather than a replacement for qualified medical diagnosis.

The project also considers secure authentication, protected health records, reminders, recommendation functions, multilingual accessibility, and scalable deployment. However, the source report distinguishes between implemented functions and future enhancements in several places. For example, the interface contains a consultation video screen, while the Future Scope section states that complete live-video integration remains planned. Similarly, multilingual interfaces, voice support, e-pharmacy integration, Internet of Things monitoring, and advanced personalised AI are described primarily as future extensions. This article therefore reports the demonstrated application workflow and stated functional tests without treating planned capabilities as verified implementations.

## 1.1 PROBLEM STATEMENT

Existing online consultation systems can improve access, but the thesis identifies continuing gaps in AI-supported preliminary guidance, usability for older or less technically experienced users, multilingual communication, automated follow-up, reminders, and continuity of health records. Patients may also face information overload when choosing doctors or deciding whether a symptom requires professional care. The project problem is therefore to design a simple, secure, and scalable online consultation application that connects patients and doctors, provides early non-diagnostic guidance through an AI chatbot, supports appointment and prescription workflows, and remains accessible to diverse user groups. The design must also acknowledge that remote consultation cannot replace hands-on examination for all conditions.

## 1.2 OBJECTIVES

- Design a simple and intuitive interface suitable for users across different age groups.
- Develop a basic AI chatbot for symptom-related questions and general health guidance.
- Support appointment booking and patient-doctor communication through chat and consultation interfaces.
- Provide secure login functions and specify protection requirements for health-related data.
- Extend accessibility through multilingual support, with full multilingual implementation identified as future work in the thesis.
- Support prescription storage, appointment reminders, consultation history, and post-consultation follow-up functions.

## CHAPTER 2

### LITERATURE SURVEY

Shen's systematic review of online medical consultation research retrieved 4,072 English-language records and retained 75 articles after screening. The included studies addressed patient use of consultation platforms, doctor participation, patient choice of doctors, service provision, patient reviews, service quality, doctor rewards, and spillover between online and offline services. The review organised these themes around the starting point, process, and outcomes of online medical consultation, providing a broad framework for understanding platform use [1].

Jiang's review of online medical consultation service-oriented recommendation systems screened 611 articles and included 26. It highlighted features, algorithms, and evaluation metrics as central factors in recommendation success and argued that consultation platforms require two-sided personalisation for both patients and physicians rather than a direct transfer of conventional e-commerce recommendation models [2]. This finding is relevant to the proposed doctor recommendation function, which considers symptoms, location, and consultation history.

Xu examined patients' willingness to use online health consultation from the perspective of a web trust model. The study considered cognition-based, affect-based, and institution-based information as influences on online medical choice [3]. This emphasis on trust supports the project's attention to clear interfaces, secure authentication, protected health information, and transparent chatbot disclaimers.

The Virtual Online Consultations: Advantages and Limitations study investigated remote consultations across diabetes and cancer services using multimodal recordings of 45 consultations, organisational interviews and observations, and national stakeholder evidence [4]. Its sociotechnical orientation reinforces the need to evaluate remote consultation not only as software, but also as a clinical and organisational process. The World Health Organization report cited in the thesis similarly emphasises telemedicine's potential to extend care while noting challenges associated with infrastructure, skills, and security [5].

The thesis further refers to an IEEE telemedicine design study for rural healthcare and to research on artificial intelligence in healthcare [7], [11]. Across these sources, the project identifies four primary design gaps: limited AI support for basic questions, poor usability for elderly or low-literacy users, inadequate multilingual support, and insufficient real-time guidance and automated follow-up. The proposed application responds by combining a consultation portal, chatbot, digital prescription workflow, and planned reminder and localisation functions. Full bibliographic details for several surveyed papers were not supplied in the thesis; this article therefore retains only the titles and authors available in the source document.

## SYSTEM DESIGN

### 3.1 METHODOLOGY

The work is a design-and-implementation project using a modular web-application methodology. The system was organised around patient, doctor, and administrator interactions, with Flask handling backend requests and HTML, CSS, and JavaScript supporting the presentation layer. The development sequence comprised interface construction, authentication and portal functions, appointment and consultation workflows, chatbot interaction, prescription handling, administration, and functional testing. The thesis does not report a clinical trial, patient outcome study, or quantitative performance benchmark; its evidence is therefore limited to system features, workflow demonstrations, and functional test outcomes.

The application begins when a patient enters consultation details and selects an appropriate specialist. The patient then describes symptoms in the chatbot interface, which produces a preliminary non-diagnostic analysis and directs the user toward professional consultation. The user may select a doctor, complete the payment interface, communicate through the consultation screen, receive a digital prescription, and proceed to the delivery-address stage. Doctors use a separate portal to view appointments and provide prescription information, while administrators monitor users and appointments.

### 3.2 SYSTEM ARCHITECTURE

The system follows a layered and modular architecture intended to support maintainability and future scaling. The presentation layer provides registration, login, doctor search, appointment booking, chatbot, consultation, and prescription interfaces. User requests are passed to Flask application programming interfaces for processing. The chatbot layer receives health questions or symptom descriptions and returns basic guidance or a recommendation to consult an appropriate doctor. Record-related functions organise consultation history, prescription information, and user details.

The source report specifies token-based or two-factor authentication and encrypted health-data storage as security requirements. These requirements are included as design specifications; the thesis does not provide penetration-test results, cryptographic implementation details, or an independent compliance assessment. The architecture is described as suitable for deployment on cloud platforms such as Heroku, AWS, or Azure, with the possibility of adding load balancing and independently scaling the chatbot as a microservice when usage increases.

### 3.3 DATA FLOW AND SOFTWARE REQUIREMENTS

The principal data flow is: user interaction through a web or mobile browser; request transmission to Flask APIs; processing by authentication, appointment, chatbot, consultation, or prescription functions; and return of the relevant interface or stored information. For chatbot interactions, the symptom query is passed to the AI component before the application presents preliminary guidance. For consultations, patient details and appointment information are made available to the doctor portal, and the resulting prescription is stored for patient access.

**Table 1. Execution environment specified in the thesis**

| Requirement             | Components                                                  |
|-------------------------|-------------------------------------------------------------|
| Browser                 | Google Chrome, Mozilla Firefox, or Safari (latest versions) |
| Mobile operating system | Android 7.0+ or iOS 10+                                     |
| Media support           | WebRTC / HTML5 for video consultation                       |
| Internet connection     | Minimum 3G or stable Wi-Fi for video/audio communication    |

## IMPLEMENTATION

Frontend implementation used HTML, CSS, and JavaScript to create responsive pages for home access, registration and login, consultation initiation, specialist selection, symptom entry, doctor selection, payment, consultation, prescription display, and delivery information. Flask and Python were used for backend processing. The chatbot interface accepts a symptom description and duration, then displays a preliminary analysis with a disclaimer directing the user to a qualified doctor for diagnosis and treatment.

### 4.1 TOOLS AND TECHNOLOGIES USED

- Backend: Python with the Flask web framework [8].

- Frontend: HTML, CSS, and JavaScript.
- Consultation media requirement: WebRTC / HTML5; Twilio documentation was cited as a future integration reference [10].
- AI chatbot: an integrated preliminary-guidance interface; OpenAI API documentation was listed in the thesis, but the deployed model and configuration were not specified [9].
- Data and hosting references: MySQL hosting documentation from Clever Cloud was included, although detailed database deployment information was not supplied [12].
- Development and access environment: modern browser, supported mobile operating system, and stable internet connectivity.

## 4.2 MODULES DEVELOPED

The implemented or tested modules reported in the thesis were User Registration/Login, Doctor Registration/Login, Appointment Booking, AI Chatbot, Prescription Download/Upload, Admin Panel, and Logout/Session Handling. The broader design also describes patient and doctor dashboards, medical-history storage, reminders, recommendation functions, and multilingual support. Where the thesis places a capability in Future Scope, this article treats it as planned rather than completed.

## 4.3 APPLICATION WORKFLOW

Figure 1 presents the first stage of the application workflow. The patient begins by entering basic consultation details, selects a specialist category, describes symptoms and duration, and receives an AI-generated preliminary analysis. The interface includes a visible disclaimer that the output is not a medical diagnosis and that a qualified doctor should be consulted.

**(a) Consultation details**

Start Your Consultation  
Enter your details to begin.

Full Name  
John Doe

Email Address  
you@example.com

Age  
e.g. 35

Temperature (°F)  
e.g. 98.6

Start Consultation

**(b) Specialist selection**

Gastroenterology  
Digestive system disorders.

Nephrology  
Kidney care.

Rheumatology  
Joints, muscles, bones diseases.

**(c) Symptom description**

MediConsult AI

Describe Your Symptoms  
You've selected **Dermatology**. Please provide details about your condition.

Symptoms  
e.g., I have a persistent cough and a slight fever...

Duration  
e.g., For the last 3 days

Get AI-Powered Insight

**(d) AI preliminary analysis**

MediConsult AI

Describe Your Symptoms  
You've selected **General / Chest**. Please provide details about your condition.

AI Preliminary Analysis  
Based on the information you provided, here's a preliminary analysis.

Preliminary Diagnosis  
Acute Viral Respiratory Infection (e.g., Common Cold, early Flu)

Potential Causes  
Common viral infections (e.g., rhinovirus, influenza, parainfluenza virus), early stages of bacterial infections, or other respiratory pathogens.

Disclaimer  
This is an AI-generated analysis and not a medical diagnosis. Please consult with a qualified doctor for an accurate diagnosis and treatment plan.

Fig. 1. Consultation initiation, specialist selection, symptom description, and AI preliminary analysis.

After the preliminary stage, the user proceeds to doctor selection and payment. Figure 2 shows the doctor-list interface, the secure-payment form, and the consultation screen with chat functionality. The video-style interface demonstrates the intended consultation experience; however, the thesis's Future Scope section states that complete real-time video-call integration through WebRTC, Twilio, or Zoom remains an enhancement.

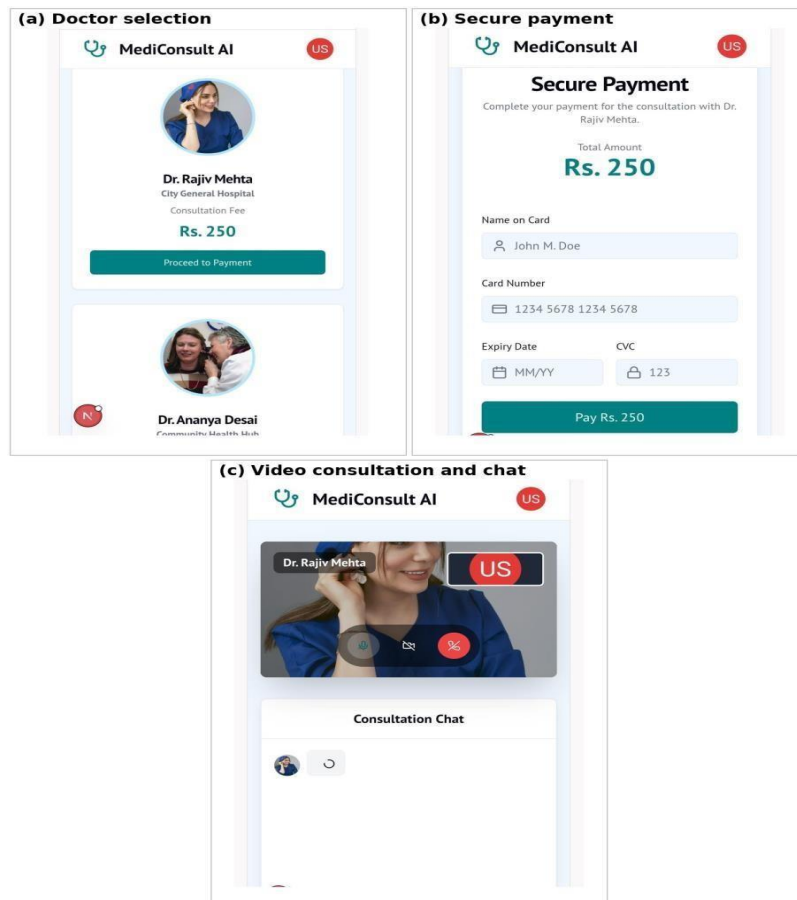


Fig. 2. Doctor selection, payment, and consultation interface.

The post-consultation workflow displays a digital prescription and medication details, followed by a delivery-address form (Figure 3). These interfaces demonstrate the intended continuity from consultation to prescription access and medicine delivery. Full integration with external e-pharmacy services is identified in the thesis as future work.

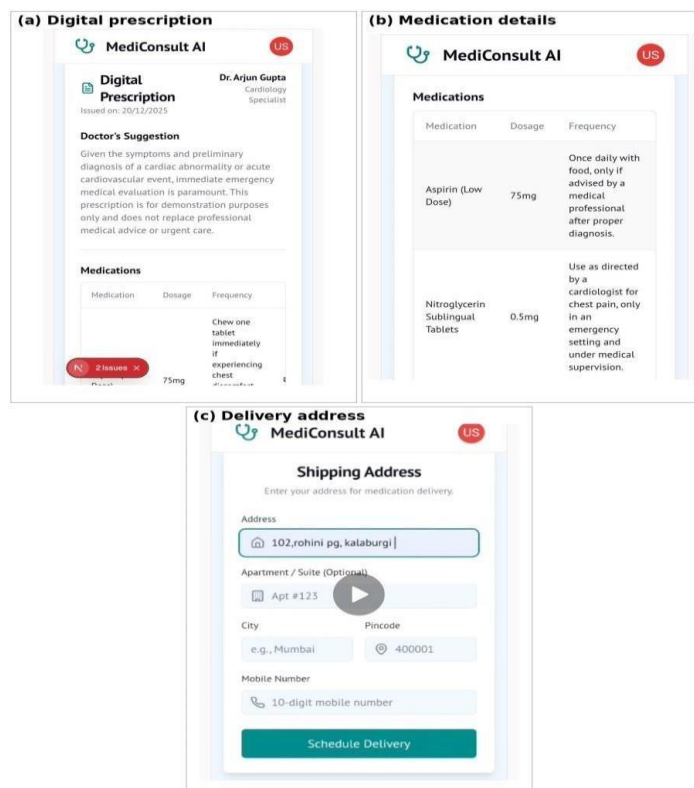


Fig. 3. Digital prescription, medication information, and delivery-address workflow.

## RESULT AND DISCUSSION

## 5.1 FUNCTIONAL TESTING

Each major module was tested independently and in combination with the overall application. The User Registration/Login module successfully accepted valid credentials. The Doctor Registration/Login module provided access to the doctor portal and appointment-management functions. The Appointment Booking module stored the selected doctor and time information. The AI Chatbot returned symptom-related suggestions, while the Prescription Download/Upload function supported prescription transfer in PDF form. The Admin Panel allowed users and appointments to be viewed and managed, and the Logout/Session Handling module performed secure logout and session timeout. The thesis records all seven modules as Passed.

These findings show that the principal workflow components operated according to their expected functional behaviour in the reported test setting. Nevertheless, the evidence is qualitative and pass/fail based. No sample size, test-case matrix, response-time measurement, chatbot accuracy metric, usability score, concurrent-user load test, security audit, or clinical validation result was reported. Accordingly, the testing supports functional feasibility but does not establish diagnostic accuracy, clinical effectiveness, scalability under heavy traffic, or regulatory compliance.

## 5.2 BENEFITS AND LIMITATIONS

For patients, the system offers rapid access to consultation functions, reduced travel and waiting, preliminary chatbot guidance, and digital prescription access. For doctors, it supports remote consultation, wider geographic reach, appointment control, and automated record handling. At the healthcare-system level, remote management of non-critical cases may help reduce hospital crowding and support continuity during outbreaks or other situations where contactless interaction is valuable.

The principal limitation is the absence of hands-on physical examination. Symptoms may be misunderstood or missed because of camera quality, poor lighting, audio problems, or incomplete text descriptions. The platform also depends on stable internet access, which may remain unreliable in the same rural communities the system intends to serve. Older adults and users with limited digital experience may require assistance. In addition, security mechanisms, multilingual support, reminder automation, and full live-video and e-pharmacy integration require more complete implementation and validation. The chatbot must remain clearly limited to preliminary guidance and should not be presented as a substitute for professional diagnosis.

## 5.3 FUTURE SCOPE

The thesis proposes ten directions for further development: complete live video consultation; integration with e-pharmacy services; connection to blood-pressure monitors, glucometers, pulse oximeters, and other Internet of Things devices; multilingual and voice interfaces; improved AI-supported symptom pattern analysis; secure electronic health records and cloud backup; health-insurance integration; personalised chatbot learning and emergency alerts; SMS, WhatsApp, and calendar reminders; and an administrative analytics dashboard. These enhancements would broaden the platform from a functional consultation prototype into a more comprehensive digital-health ecosystem, but each would require appropriate technical, security, usability, and clinical evaluation.

## CONCLUSION

The Online Doctor Consultation Application demonstrates a practical web-based approach to connecting patients, doctors, and administrators. Using Flask, Python, HTML, CSS, and JavaScript, the project implements a workflow that includes authentication, appointment booking, symptom entry, AI-assisted preliminary guidance, consultation interaction, prescription handling, and administrative monitoring. The supplied functional-testing narrative reports successful outcomes for all tested modules. The interface screenshots further document the proposed patient journey from consultation initiation to prescription and delivery details. The application can improve access and reduce travel and waiting for preliminary or non-emergency care, but its current evidence is limited to functional demonstration. Clinical validation, quantitative performance testing, security assessment, full live-video support, multilingual accessibility, and integration with external health services remain necessary before broader deployment. Within these limits, the project provides a scalable foundation for future patient-centred telemedicine development.

## REFERENCES

- [1] T. Shen, "A Systematic Review of Online Medical Consultation Research." Publication details were not provided in the

thesis.

- [2] H. Jiang, "Online Medical Consultation Service-Oriented Recommendations: Systematic Review." Publication details were not provided in the thesis.
- [3] Y. Xu, "Research on Patients' Willingness to Conduct Online Health Consultation from the Perspective of Web Trust Model." Publication details were not provided in the thesis.
- [4] "Virtual Online Consultations: Advantages and Limitations (VOCAL) Study." Publication details were not provided in the thesis.
- [5] World Health Organization, "Telemedicine: Opportunities and Developments," [https://www.who.int/goe/publications/goe\\_telemedicine\\_2010.pdf](https://www.who.int/goe/publications/goe_telemedicine_2010.pdf)
- [6] National Health Portal of India, "eHealth and Telemedicine Services," [https://www.nhp.gov.in/ehealth-and-telemedicine\\_pg](https://www.nhp.gov.in/ehealth-and-telemedicine_pg)
- [7] Jiang et al., "Artificial Intelligence in Healthcare," 2017, Nature Medicine, <https://www.nature.com/articles/nm.4393>. Reference details retained as supplied in the thesis.
- [8] Pallets Projects, "Flask Documentation - Python Web Framework," <https://flask.palletsprojects.com/>
- [9] OpenAI, "API Documentation - Chatbot Integration," <https://platform.openai.com/docs/>
- [10] Twilio, "Video API Documentation - Real-Time Video Calling," <https://www.twilio.com/docs/video>
- [11] IEEE Xplore Digital Library, "Telemedicine Implementation Studies," <https://ieeexplore.ieee.org/>
- [12] Clever Cloud, "Database Hosting for MySQL," <https://www.clever-cloud.com/doc/databases/mysql/>
- [13] Springer Research, "AI Chatbots for Health." Further publication details were not provided in the thesis.