

AI-Based Consultation Chatbot Web Application

Project Status Document

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Project Overview

This document provides a comprehensive overview of the AI-Based Consultation Chatbot Web Application, detailing the current implementation status, working features, and remaining tasks based on the Software Requirements Specification (SRS).

Technology Stack

Component	Technology
Frontend	React.js with Redux Toolkit
Backend	Firebase (Authentication, Firestore Database, Cloud Functions)
Authentication	Firebase Authentication
Database	Cloud Firestore
Styling	CSS Modules/Tailwind CSS

Current Implementation Status

1. Authentication & User Management

✔ Completed:

- User registration and login functionality
- User profile management
- Admin and user role separation
- Authentication state persistence

✖ Pending:

- Multilingual login/registration support

2. Dashboard Interfaces

✔ Completed:

- User Dashboard with appointment history
- Admin Dashboard with statistics (users, appointments, revenue)
- Expert specialization display in both dashboards

✗ Pending:

- Advanced analytics and revenue reporting
- Session logs and detailed user activity

3. Appointment System

✓ Completed:

- Expert listing and selection
- Appointment scheduling with date/time selection
- Appointment status management
- Meeting link generation for virtual consultations

✗ Pending:

- Calendar integration (Google Calendar)
- Notification system for upcoming appointments

4. Payment Integration

✓ Completed:

- Basic payment data structure

✗ Pending:

- Razorpay integration for processing payments
- Subscription vs. pay-per-call options
- Invoice generation and history

5. AI Chatbot Functionality

✗ Pending:

- Text-based consultations via AI
- Integration with Large Language Model (LLM)
- Chat history storage
- AI response quality control

6. Voice Capabilities

✗ Pending:

- Speech-to-Text integration (Deepgram Nova-3)
- Text-to-Speech integration (ElevenLabs Turbo v2.5)
- Voice input processing
- Voice output for AI responses

7. Multilingual Support

✗ Pending:

- Multiple language support for UI
- Language detection and switching
- Multilingual voice processing

8. Expert Management

✓ Completed:

- Basic expert profiles with specialization
- Expert availability management

✗ Pending:

- Expert rating and review system
- Expert dashboard for managing appointments

9. UI/UX

✓ Completed:

- Responsive layout
- Dark/light mode support
- User-friendly navigation

✗ Pending:

- Accessibility features (WCAG 2.1 compliance)
- Mobile optimization

Data Structure

User Schema

- User authentication details
- Profile information
- Payment history
- Appointment history

Expert Schema

```
``typescript
export interface Expert {
  id: string;
  name: string;
  specialization: string;
  experience: number;
  rating: number;
```

```
photoURL: string;
availability: {
  day: string;
  slots: string[];
}[];
}
...
```

Appointment Schema

```
``typescript
export interface Appointment {
  id: string;
  userId: string;
  expertId: string;
  expertName?: string;
  expertSpecialization?: string;
  date: string;
  time: string;
  status: 'scheduled' | 'completed' | 'cancelled';
  meetingLink?: string;
  notes?: string;
  createdAt: number;
}
...
```

Project Timeline & Progress

Week 1 (Feb 19 – Feb 25, 2025)

☑ Completed:

- Kickoff meeting & project planning
- Define project scope
- Initial market research & competitor analysis

Week 2 (Feb 26 – Mar 3, 2025)

☑ Completed:

- Gather requirements for chatbot features & consultation workflow
- Identify necessary APIs for AI, payments, voice, and scheduling
- Define data security & compliance requirements

Week 3 (Mar 4 – Mar 10, 2025)

☑ Completed:

- Finalize technical specifications
- Design chatbot architecture for multi-domain consultation
- Plan database structure & backend workflow

Week 4 (Mar 11 – Mar 17, 2025)

In Progress:

- Develop chatbot prototype (text-based consultation)

Completed:

- Begin UI/UX wireframing

Pending:

- Integrate first version of LLM API (OpenAI GPT/Gemini/LLaMA)

Week 5 (Mar 18 – Mar 24, 2025)

Completed:

- Continue UI/UX design work

Pending:

- Train chatbot to handle multiple domains
- Develop AI response accuracy testing framework

Week 6 (Mar 25 – Mar 31, 2025)

In Progress:

- Integrate secure payment system (Stripe/PayPal/Razorpay)

Pending:

- Implement backend for payment processing
- Gather user feedback on chatbot

Week 7 (Apr 1 – Apr 7, 2025)

Pending:

- Integrate AI voice capabilities
 - Speech recognition (Whisper/Deepgram)
 - Text-to-speech (Google TTS/Amazon Polly)
- Enhance chatbot response accuracy

Week 8 (Apr 8 – Apr 14, 2025)

Pending:

- Test and optimize voice-based consultations
- Conduct usability testing
- Implement chatbot conversation logging

Week 9-10 (Apr 15 – Apr 28, 2025)

✗ Pending:

- Develop audio call feature with AI model
- Continue development and optimization

Week 11 (Apr 29 – May 5, 2025)

✓ Completed:

- Develop admin panel for managing users, sessions, and payments
- Implement consultant dashboard

Week 12 (May 6 – May 12, 2025)

✗ Pending:

- Complete admin panel with analytics
- Full-system integration testing

Week 13 (May 13 – May 19, 2025)

✗ Pending:

- Final system testing & security audit
- Documentation and user guides
- Beta testing launch
- Feedback collection

Critical Components Remaining

1. AI Integration

- LLM integration for text consultations
- Speech-to-Text (STT) processing
- Text-to-Speech (TTS) integration
- Real-time voice processing pipeline

2. Payment System

- Razorpay integration
- Subscription model implementation
- Pay-per-call pricing options
- Secure payment processing

- Invoice generation

3. Multilingual Support

- UI language switching
- Content translation
- Voice processing in multiple languages

4. Calendar Integration

- Google Calendar API integration
- Calendar event creation and management
- Notification system for appointments

Technical Considerations

Performance Optimization

- Real-time voice processing optimization
- Database query optimization for scalability

Security Enhancements

- Payment security implementation
- Data encryption
- HIPAA compliance for medical consultations

API Integration

- API key management
- Integration testing with third-party services

Next Steps

Priority 1: Core AI Functionality

- LLM integration for text consultations
- Voice processing pipeline setup
- Chat interface development

Priority 2: Payment System

- Razorpay integration
- Subscription and pay-per-call implementation
- Payment flow security

Priority 3: Expert System

- Expert management system completion
- Expert dashboard implementation
- Rating and review system

Priority 4: Multilingual Support

- UI language switching
- Multilingual voice processing
- Language compatibility testing