

PrepTalk AI – AI-Powered Mock Interview & Communication Coaching Platform

1. Project Overview

PrepTalk AI is an AI-powered mock interview and communication coaching platform designed to help students, freshers, and early professionals improve their interview performance, communication skills, and confidence.

Unlike traditional mock interview platforms that focus only on technical questions or one-time assessments, PrepTalk AI provides resume-driven, domain-specific, and role-aware interviews with both scripted and AI-based interview modes. It supports text-based and voice-based interviews and delivers actionable feedback, communication analysis, and personalized improvement paths.

The platform acts as a virtual interview coach, enabling unlimited, judgment-free practice and structured skill improvement.

2. Problem Statement

Many candidates fail interviews not because of lack of technical knowledge, but due to:

- Poor communication and explanation skills
- Lack of structured interview practice
- Anxiety and low confidence during real interviews
- Generic interview preparation that does not match resumes or roles
- Absence of clear feedback on what exactly went wrong
- Existing mock interview platforms have major limitations:
- Generic, non-personalized questions
- Heavy focus on coding tests instead of communication
- Expensive human-based mock interviews
- No improvement loop or skill tracking
- Limited voice-based speaking practice

PrepTalk AI addresses these gaps by providing personalized, resume-aware interviews with real-time feedback and continuous improvement tracking.

3. Proposed Solution

PrepTalk AI provides a complete AI-driven interview preparation environment where:

- Users practice domain-specific interviews
- Interviews adapt based on resume, role, and company type
- Users can choose scripted or AI-driven interviews
- Interviews can be conducted via text or voice
- Users receive detailed feedback on communication, clarity, and technical explanation
- Performance is tracked through dashboards and profiles

The platform focuses on communication-first interview preparation, making it especially useful for candidates who struggle with speaking, presentation, and confidence.

4. Project Objectives

- Improve interview communication and confidence
- Provide resume-based and role-specific mock interviews
- Offer safe, judgment-free interview practice
- Deliver actionable and explainable feedback
- Track user improvement over time
- Support unlimited practice at low cost
- Simulate real interview scenarios using AI

5. System Workflow Overview

User Signup/Login



Domain & Experience Selection



(Optional) Resume Upload



(Optional) Company Type & Role Selection



Interview Mode Selection

 └ Scripted Interview

 └ AI Interview

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Interaction Mode Selection

 └ Text Interview

 └ Voice Interview

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Interview Execution

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Evaluation & Feedback

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Dashboard & Profile Update

6. Modules – Full Detailed Breakdown

User Module

This module allows users to practice interviews, receive feedback, and track improvement.

1. Authentication & Profile Setup

- Secure signup and login using email and password
- JWT-based authentication
- Profile setup includes:
- Target domain (Frontend, Backend, MERN, etc.)
- Experience level (Student / Fresher / Intern)
- Interview goal (Internship / Job)

2. Resume Upload & Analysis (Optional)

- Users can upload resume (PDF format)
- Resume is parsed and analyzed using AI
- Extracted information:
- Skills

- Projects
- Experience level
- Domain alignment

This data is used to generate resume-specific interview questions.

3. Company & Role Selection (Optional)

Users may optionally select:

Company type:

- Startup
- Product company
- Service company

Target role:

- Frontend Intern
- Backend Intern
- MERN Intern
- Software Engineer (Entry-level)

This enables role-aware interview simulation.

4. Interview Mode Selection

Users can choose between:

a) Scripted Interview

- Predefined, structured interview flow
- Beginner-friendly and predictable
- Focuses on confidence building and answer structure

b) AI Dynamic Interview

- AI acts as a real interviewer
- Asks follow-up questions
- Adjusts difficulty based on responses
- Simulates real interview pressure

5. Interaction Mode

- Users can answer questions via:
- Text-based interview – improves answer structuring
- Voice-based interview – improves speaking confidence and clarity
- Voice interviews use the Web Speech API, which is free and browser-supported.

6. Interview Execution

During the interview:

- Questions are asked based on:
- Domain
- Resume data
- Selected role/company (if provided)
- User responses are recorded
- Time limits may be applied for realism

7. Evaluation & Feedback System

After interview completion, the system evaluates:

- Communication Skills
- Clarity
- Confidence
- Pauses and filler words (voice)
- Speaking speed
- Technical Explanation
- Relevance
- Depth
- Use of examples
- Answer Structure
- Logical flow
- Length control
- STAR method usage

8. Feedback Report (Actionable)

Users receive structured feedback such as:

Communication: 4.7 / 10

Technical Clarity: 7.2 / 10

Identified Issues:

- Answers too long
- Weak examples
- Frequent pauses

Suggestions:

- Use STAR method
- Limit answers to 60–90 seconds
- Practice project explanation

9. User Dashboard

- The dashboard displays:
- Total interviews attempted
- Communication score trend
- Skill-wise performance
- Weak areas and strengths
- Improvement over time

10. User Profile

Users can view:

- Selected domain and role
- Uploaded resume
- Interview history
- Past feedback reports
- Progress analytics

Admin Module

This module manages system configuration and interview content.

1. Domain & Role Configuration

- Create and manage domains
- Define role-specific interview difficulty
- Control scripted interview templates

2. Scripted Interview Management

- Create structured interview flows
- Define expected talking points
- Set time limits and difficulty levels

3. Analytics & Monitoring

- Interview usage statistics
- Popular domains and roles
- Platform engagement metrics

7. Automation Highlights

| Automation Feature | Benefit |
|-------------------------------------|---------------------------|
| Resume-based question generation | Realistic interviews |
| AI follow-up questioning | Real interview simulation |
| Communication analysis | Improves speaking skills |
| Auto feedback generation | Saves manual effort |
| Weakness-based interview suggestion | Continuous improvement |

8. Technology Stack

| Layer | Technology |
|------------------|----------------------|
| Frontend | React + Tailwind CSS |
| Backend | Node.js + Express |
| Database | MongoDB + Firebase |
| AI Engine | OpenAI / Gemini API |
| Voice Processing | Web Speech API |
| Authentication | JWT |
| Deployment | Vercel & Render |

9. Estimated Timeline – 8 Weeks

| Week | Deliverables |
|--------|---|
| Week 1 | Authentication, profile setup, DB schema |
| Week 2 | Domain selection & scripted interviews (text) |
| Week 3 | Resume upload & parsing |
| Week 4 | AI interview engine |
| Week 5 | Voice interviews & speech analysis |
| Week 6 | Feedback system & scoring |
| Week 7 | Dashboard & progress tracking |
| Week 8 | Testing, polishing & deployment |

10. Final Summary

PrepTalk AI is a **communication-first mock interview platform** designed to solve real interview challenges faced by students and freshers. By combining **resume-aware interviews, scripted and AI-driven modes, voice-based practice, and actionable feedback**, PrepTalk AI provides a complete interview preparation ecosystem.

It is scalable, affordable, and built with real-world interview dynamics in mind — making it a powerful tool for career preparation and a strong internship-level project.