

# MERN-Based Remote Technical Interview Platform

## Abstract

The rapid growth of remote hiring has increased the demand for efficient and secure technical interview platforms. Conventional video conferencing tools lack real-time collaborative coding and automated evaluation features. This project presents a MERN-based remote technical interview platform that integrates live coding, video interviews, real-time chat, and automated code assessment in a single system.

## Problem Statement

Existing interview tools do not provide a unified environment for conducting technical interviews. Interviewers face challenges such as lack of collaborative coding, absence of automated feedback, and security risks during code execution. This project aims to address these issues by building a dedicated interview platform.

## Objectives

- Develop a secure remote technical interview platform
- Enable real-time collaborative coding
- Provide automated code evaluation using test cases
- Support one-on-one video interviews and chat
- Ensure secure authentication and access control

## System Architecture

The system follows a client-server architecture. The frontend is built using React and Tailwind CSS, while the backend uses Node.js and Express.js. MongoDB is used for data storage. Third-party services such as Clerk, Stream, and Inngest are integrated for authentication, video communication, and background processing.

## Technologies Used

- Frontend: React.js, Tailwind CSS, TanStack Query
- Backend: Node.js, Express.js
- Database: MongoDB
- Tools & Services: Clerk, Stream, Inngest, GitHub

## Key Features

- VSCode-powered live code editor
- One-on-one video interview rooms
- Real-time chat messaging
- Secure code execution environment
- Automated success/failure feedback
- Practice problems module

## Future Enhancements

Future improvements include multi-language code execution, AI-based code analysis, interview recordings, and company-level interview management.

## Conclusion

This project provides a comprehensive solution for conducting remote technical interviews. It demonstrates the practical application of the MERN stack and modern web technologies in solving real-world problems, making it a strong final-year academic project.