

Smart Hire AI Based MultiRound Hiring Proctoring System

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Abstract- The project develops a cloud-based interview management system which uses artificial intelligence to improve recruitment processes for both candidates and recruiters. The system provides automated hiring processes which begin from application submission and continue through evaluation while using webcam interviews and AI-powered question creation. The portal allows candidates to register and upload their resumes while they can also control their profiles and take MCQ and coding and HR interviews which the system secures through locked tabs during testing to stop cheating. The recruiters can examine resumes and coordinate interview times while they create intelligent questions through the Gemini AI API and distribute invitation links through email. The system provides automatic response assessment together with instant selection outcome delivery. The platform uses Spring boot with java for backend processing ReactJS for frontend development and MySQL for secure data storage to maintain efficient and accurate and fair hiring processes.

Keywords: AI Interview System, Recruitment Automation, Webcam Proctoring, Gemini API, Candidate Evaluation, Cloud-based Hiring.

I. INTRODUCTION

The AI-Based Multi-Process Hiring and Recruitment Platform uses artificial intelligence and cloud technologies to create an efficient recruitment process. The system controls the complete hiring process which starts from candidate registration and resume submission and interview attendance and ends at final assessment and selection. The platform uses webcam-based proctoring and monitoring system to protect online assessments from security breaches while stopping cheating activities.

Through one system candidates can take multiple-choice questions (MCQs) and complete coding assessments and participate in HR interviews. The Gemini API provides recruiters and HR professionals with tools to create candidate profiles track application status and set up interviews while generating customized interview questions for specific job positions. The system uses AI-powered analytics to provide real-time assessment which produces instant feedback and performance score

calculations to enhance decision-making processes with higher speed and improved accuracy.

Organizations can reduce their manual operations and administrative work through the platform which simultaneously decreases human bias during the hiring process. The system achieves fairness and transparency and consistent candidate assessment through its automated screening process and intelligent evaluation methods. The system uses Spring Boot for backend operations and ReactJS for frontend development and MySQL for data handling to offer a system that meets security requirements while maintaining efficient performance and scalability. The platform streamlines recruitment operations to enhance hiring experiences for candidates and recruiters while it improves talent acquisition process.

A. Objective

The main goal of this project is to create an AI-powered multi-process recruitment platform which enhances the hiring process for both job applicants and hiring personnel. The system will use AI technologies together with webcam-based interview monitoring to automate all stages of the recruitment

process starting from initial application through to final assessment. The system enables candidates to register upload their resumes and control their personal information while taking part in several interview sessions which consist of multiple choice questions and programming assessments and human resources interviews protected by anti-cheating systems. Recruiters use the Gemini AI API to evaluate resumes and schedule interviews while the system generates tailored questions that match each applicant's skills. The automatic response evaluation system of the platform permits recruiters to access instant information about how candidates performed. The platform uses Spring Boot for backend operations and ReactJS for frontend development and MySQL secure data storage to achieve operational efficiency and accurate results and fair outcomes which will reduce the time needed for candidate recruitment while enhancing the complete recruitment process.

B. Scope

The system provides an online recruitment platform that allows users to conduct interviews through any device which has internet access. The system lets candidates create an account and submit their resumes while they complete multiple interview stages which consist of Multiple Choice Questions (MCQ) and coding tests and HR interviews which take place in a protected environment. The system gives recruiters the ability to manage candidate data while they schedule interviews and use AI technology to generate interview questions that match different job requirements. The automatic assessment systems of the system produce results which provide unbiased and transparent results. The system can develop its functionalities because it combines intelligent automation with cloud solutions to enhance recruitment methods for businesses from small startups to large corporations.

II. LITERATURE SURVEY

[1]The development of artificial intelligence recruitment systems has been studied by multiple research projects which demonstrate progress in developing automated solutions for multiple hiring process steps. [2]Lee and Kim (Year) developed a

deep learning interview system which operates with more than 400000 interview image datasets and 100000 evaluation records to achieve a Pearson reliability score of 0.88. [3]The system operated in several public enterprises where 85 percent of users considered its performance to evaluate job suitability and organizational [4]compatibility as both fair and efficient which demonstrated system trustworthiness and user acceptance. [5]Sudheer Devaraju (2022) studied how Natural Language Processing [6](NLP) technology enables organizations to automate essential recruitment processes [7]which include resume parsing and candidate screening and chat bot-based initial interview simulations. The BERT and GPT models enable NLP systems to enhance their speed and accuracy which makes these systems suitable for creating efficient hiring processes that can handle large-scale operations. [8]Patel et al. (2025) studied AI-powered recruitment systems which use automated talent assessment and interview processes to achieve higher operational efficiency and precise outcomes and expanded operational capacities compared to conventional recruitment techniques. [9]The researchers examined ethical issues which included fairness and transparency and privacy protection, thus demonstrating that effective design needs human assessment to control bias throughout the system. [10]Your training includes information which extends until the month of October in the year 2023.

[11]The system uses AI technology to evaluate answers which examines both the answer content and the facial and voice elements of communication. [12]The platform provides special assessments which test both technical skills and social abilities to display crucial information that shows what interview training needs and study purposes require. [13]The multimodal AI system known as Hire Net developed by Hemamou et al. in 2019 uses verbal and audio and video input for assessing candidate suitability during asynchronous video interviews. [14]The hierarchical attention model outperformed single-modal methods by producing better F1 scores which proved that automated multimodal candidate evaluation could work. [15]The multi-agent AI recruitment system which Bhattacharya and Verbert

studied in 2025 showed job seekers how hiring decisions depend on both transparent processes and understandable AI technologies. Research showed that people considered explainable AI systems to be more trustworthy and fairer than traditional systems because users required understanding of AI recruitment systems to evaluate their ethical compliance.

III. PROPOSEDSYSTEM

The AI-powered recruitment platform changes the hiring process through its automated and intelligent recruitment system. The system creates an organized process that allows candidates to apply and upload their resumes and complete webcam-verified tests while providing recruiters with tools to design and conduct interviews. The Gemini API creates personalized questions which it uses to evaluate user answers. The system uses tab-locking and webcam monitoring to protect exam security while it provides immediate evaluation results. The cloud-based system provides scalable recruitment solutions which enhance operational flexibility and user accessibility to the system.

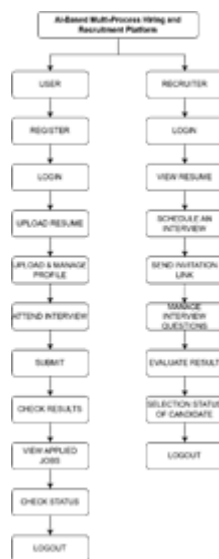


Fig1:Block diagram for proposed system

IV. METHODOLOGY

The project establishes an interview management system which uses artificial intelligence and cloud

solutions to conduct recruitment operations for job seekers and employers. The platform employs advanced AI technologies to operate its automated recruitment system which handles the complete hiring process starting from job application submission until candidate selection. The system uses webcam monitoring together with intelligent algorithms to develop an evaluation system which ensures both fairness and transparency during the assessment process.

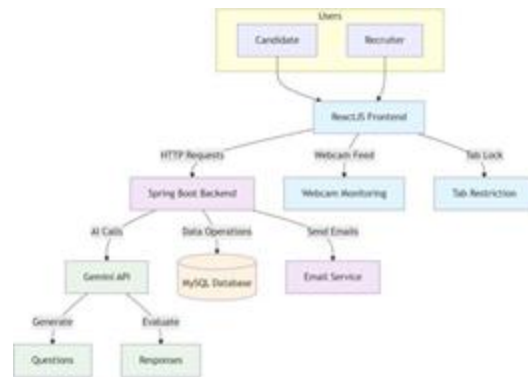


Fig2: Architecture

A. Working Principle

The recruitment platform enables candidates to interact securely through its protected system which operates according to established procedures. The platform requires candidates to complete registration before they can upload their resumes and control their personal information. The system allows candidates to participate in multiple interview rounds which include MCQ assessments and coding tests and HR evaluations. The system uses two security methods which protect against cheating through tab locking and webcam monitoring during the testing process. Recruiters use the Gemini AI API to develop custom questions which they create based on the candidate's profile and the job requirements. The system ensures that these questions serve an appropriate purpose because they evaluate the candidate's skills through proper assessment methods. The system evaluates all candidate responses after each interview round the system uses intelligent algorithms to evaluate answer quality and deliver real-time performance assessments to recruiters about candidate abilities. Recruiters use the system to arrange interviews and create interview questions.

B. Technical Tools and Frameworks:

The platform uses modern technology stacks which fulfill existing needs while providing options for future system development. The platform builds user interfaces through ReactJS which creates interactive components that adjust their visual appearance based on various screen dimensions. The React interface provides a seamless system experience which enables both recruiters and candidates to operate the platform without encountering problems.

The backend system uses Spring Boot (Java) to deliver users a secure API system which authenticates their interviews and manages real-time assessment evaluation processes. The system uses Spring Boot as its main framework because it enables fast processing and database handling and third-party integration with Gemini AI services. The MySQL database system provides secure data storage which enables proper storage of user profiles and resumes and interview records and assessment results. The Gemini AI API generates interview questions which evaluate candidate abilities through automatic evaluation of their answers. The AI system develops customized evaluation techniques which remove all prejudices from candidate assessments through their competency evaluation and their actual job requirements.

The platform uses webcam monitoring technology to protect interview security because it stops candidates from using forbidden methods and changing their screen display during the examination.

C. Methods

The recruitment platform needs various technological solutions that will satisfy its business requirements while ensuring efficiency in its operations and the security of the systems. The Gemini AI API applies artificial intelligence technology to create customized questions that fit the capabilities of the candidates to create personalized questions that preserve their basic relevance to the candidate's skills. The dynamic set

of questions allows assessors to assess candidates in the course of their testing process by offering them tools that provide them with accurate assessments and fair judgments. The interview process applies webcam monitoring and tab-locking systems to ensure the security of the examination process. The platform applies a Webcam Monitoring System to monitor the candidates' movements and confirm that the candidates do not get assistance from outside sources throughout the entire examination process.

The system assesses all the candidates' responses by applying predetermined assessment criteria to judge their responses. The recruiters will get immediate results of the assessment from the AI system, which displays the performance of the candidates based on their accuracy of response and work efficiency. The candidates will get automated email invitations that contain their interview schedule and information on how to access the interview links.

The system enhances communication between the two parties and eliminates the possibility of creating conflict. The system provides automatic feedback that helps the recruiters in assessing the performance of the candidates after the interview process is completed. The system provides results that contain assessment scores, suggestions, and information on the suitability of the candidate for the job. The methodology provides a safe and efficient system that maintains its functionality to facilitate recruitment processes in small businesses and large corporations. The system reduces human resource management processes while it enhances accuracy and transparency.

V. MODULES AND ITS IMPLEMENTATION

1. User Module Description:

The User Module permits candidates to manage their personal information throughout their entire job application process and

interview session. The recruitment process starts when candidates finish their registration and ends when they finish their last assessment. The platform allows recruiterst oviewall candidate activities which

occur during the recruitment assessment time while maintaining secure access:

Features:

- Register & Login: Candidates can create accounts which allows them to log into the platform using a secured email and password. The system provides candidates with a safe platform to submit their applications and conduct their interviews.
- Upload Resume: The system allows candidates to upload their resumes so recruiters can assess their qualifications. Throughout the entire recruitment procedure candidates possess the ability to modify their resumes.
- Profile Management: Candidates need to update their personal details and work history and any extra information that recruiters require to assess their qualifications. The system maintains continuous operation of candidate profiles which enables recruiters to complete their evaluation process.
- Interview Participation (MCQ, Coding, HR): Candidates can take part in interview that include multiple-choice questions coding tests and human resources interview. The system employs webcam monitoring and tab-locking technology to maintain interview integrity by preventing all forms of cheating.
- Real-Time Evaluation & Feedback: Candidates receive immediate performance assessment after they complete each interview. The AI-driven analysis system produces evaluation results which provide impartial assessments.

2. RecruiterModule Description:

The Recruiter Module equips recruiters with tools to manage the entire recruitment process, from reviewing resumes to scheduling interviews and evaluating candidates. The system uses AI technology to improve its interview process through automated things while delivering immediate answers, which supports efficient decision-making and protects fairness in decision-making.

Features:

- The recruitment system grants authorized recruiters access to the recruiter dashboard

which enables them to perform recruitment tasks and monitor candidate assessment activities. The system provides users with complete access to all recruitment processes through advanced security protection systems.

- The system enables recruiters to access candidate resumes which they can filter using specific criteria that includes skills and experience and education. The system enables recruiters to identify suitable candidates who match job specifications which leads to improved hiring outcomes.
- The system allows recruiters to set interview times with candidates while sending the interview invitations through email. The system allows users to control all interview stages which include MCQ and coding and HR interviews to achieve adequate interview management.
- The system uses Gemini AI API to develop personalized interview questions which are designed to fit both the candidate's background and the job requirements. The system creates interview questions which evaluate candidate abilities during each interview session.

VI. DISCUSSION AND RESULTS

D. Homepage:

This is home page of project after the execution is started.



Fig3:Home page functionality

E. Register Page

This is registration page candidate can register here by providing required details.

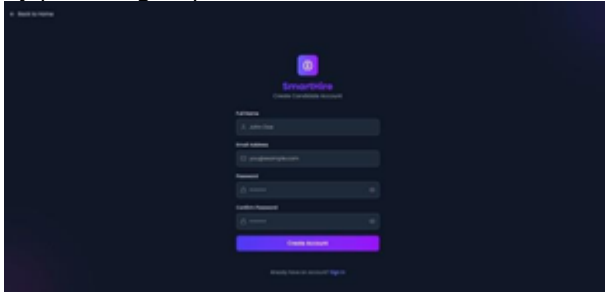


Fig4: Register page functionality

H. Upload Resume

Can upload their resume.

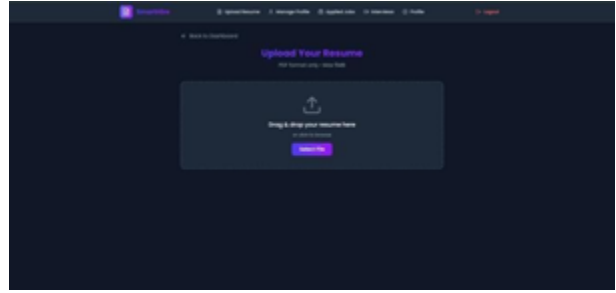


Fig7: Upload resume page functionality

F. LoginPage:

Candidate can login here by providing registered required details.



Fig 5: Login page functionality

I. Manage Profile:

Here candidate can manage their profile

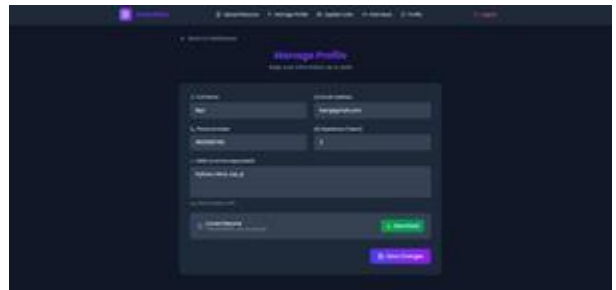


Fig8: Manage Profile functionality

G. User Dashboard

After candidate successful login.



Fig6: User Dashboard functionality

J. Job Applications:

Here candidate can view all available jobs and apply for them.



Fig9: Job Applications functionality

K. My Assessment Results:

Here, candidate can view their assessment results.



Fig 10: MyAssessment functionality

L. Profile:

Here candidate can view their profile.

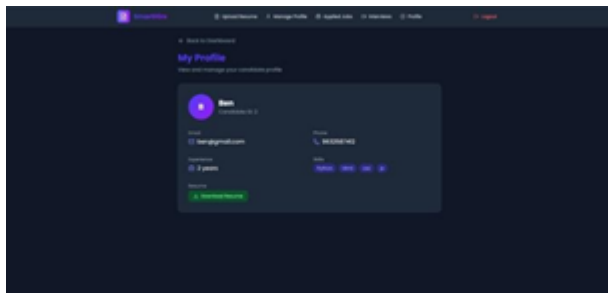


Fig11: Profile functionality

M. Recruiter Login:

Here recruiter can login by proving required details.

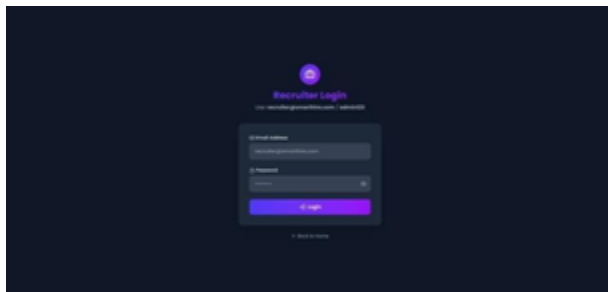


Fig12: Recruiter Login functionality

N. Recruiter Dashboard:

After the successful login of recruiter this dashboard will be displayed.

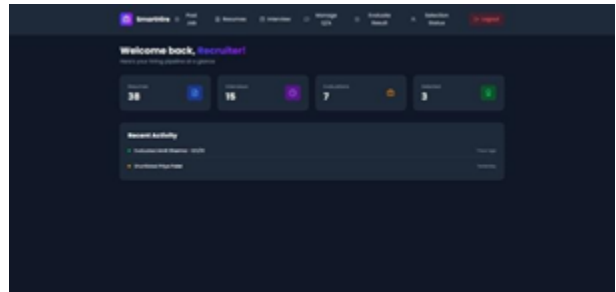


Fig13: Recruiter Dashboard functionality

O. Post a Job:

Here recruiter can post a new job

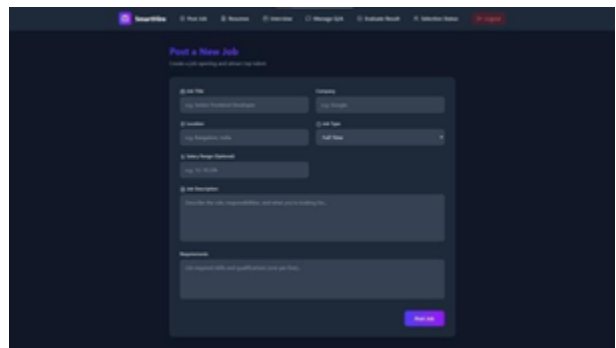


Fig14: Post a Job functionality

P. Candidate Resumes:

Here recruiter can view all candidate resumes

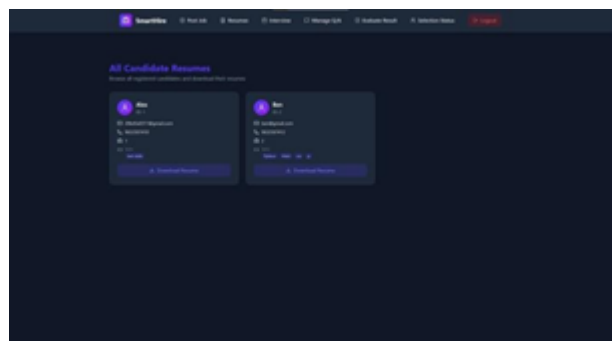


Fig 15: Candidate Resumes functionality

Q. Schedule Interview:

Here recruiter will schedule the interview.

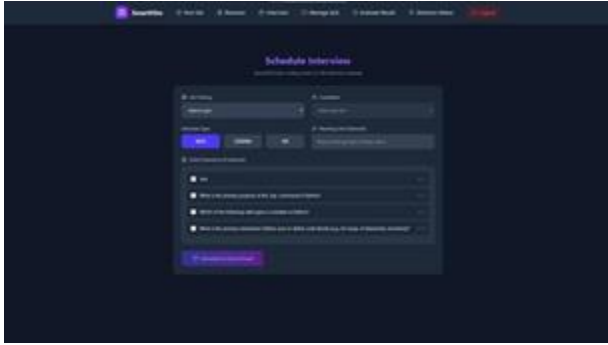


Fig16: Schedule Interview page functionality



Fig 19: Selection Status functionality

R . Manage Questions:

Here recruiter can generate new questions using Gemini - api.

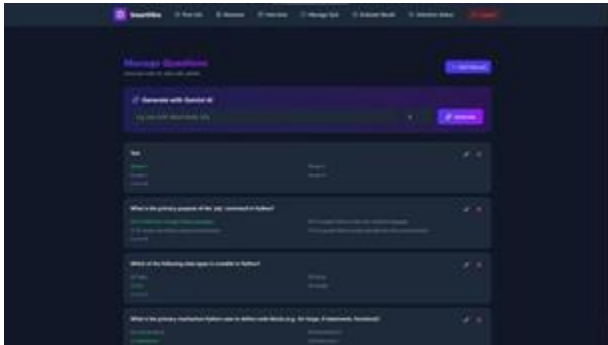


Fig17:Manage Questions page functionality

S. Evaluate Candidates:

Here recruiter can evaluate the candidates.



Fig 18: Evaluate Candidates functionality

T. Selection Status:

Here recruiter can short list the candidates.

VII. CONCLUSION

The AI-Based Multi-Process Hiring and Recruitment Platform provides organizations with a complete solution which enables them to conduct recruitment activities in a more effective and automatic manner. The system achieves its goal of providing an efficient and transparent and unbiased hiring process through its use of AI-driven question generation and real-time evaluation and secure webcam monitoring. Candidates can create their profiles and attend interviews while recruiters use a simple system which lets them interview and assess candidates through data-based decision making. The integration of Gemini API for dynamic question generation and automated results evaluation significantly reduces manual effort and improves hiring accuracy. The platform provides organizations of all sizes with a cloud-based system which delivers both scalability and flexibility and accessibility. The platform establishes fairness and integrity in remote hiring situations through its advanced security features which include tab-locking and real-time feedback mechanisms. The solution meets the increasing demand for recruitment systems which provide efficient and transparent and secure hiring processes which current job market requires.

VIII. FUTURE ENHANCEMENTS

The AI-Based Multi-Process Hiring and Recruitment Platform requires multiple system upgrades which will enhance operational efficiency and increase system capabilities and improve user satisfaction. The system requires Natural Language Processing (NLP) technology because this technology enables

staff members to assess candidate qualifications through document analysis. The system needs AI-based personality assessments which will evaluate candidates' soft skills and cultural fit to create a complete assessment of their abilities. Advanced AI models will allow remote interviewers to perform simultaneous analysis of user conduct which will improve security by detecting both abnormal activities and differences in response patterns. The platform could also be expanded to support multi-language capabilities which would enable recruiters to access talent from around the world. The system will allow more candidate sourcing through its ability to connect with multiple job boards and social media networks. The implementation of block chain technology will establish Secure storage systems for candidate data which will enhance recruitment process transparency while generating trust with stakeholders.

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