



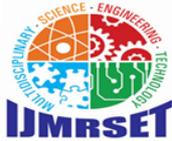
International Journal of Multidisciplinary Research in Science, Engineering and Technology

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



Impact Factor: 8.206

Volume 9, Issue 1, January 2026



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

MERN Stack-Based Job Search Portal: Design and Implementation

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ABSTRACT: Nowadays, as digital changes affect how people find work, JobSearch emerges as a modern platform built with MERN technology to link job hunters and companies. Instead of just listing openings, it uses smart tools powered by AI to improve experience. A responsive chatbot guides users through steps. Because it learns preferences, the system suggests roles that fit well. Documents like resumes get analyzed automatically for better match accuracy. Security holds steady through token methods during login processes. Messages travel instantly so nothing gets missed. Data lives across flexible structures able to manage many formats at once. Everything - searching, applying, reviewing, chatting - works within one place. Efficiency rises when tasks flow without interruption. User response tends to stay positive under such conditions. Design choices reflect deep attention to structure. Features unfold logically from core functions. Building it involved careful coding, layer integration, testing rounds. Results show stronger alignment between candidates and vacancies compared to older systems.

KEYWORDS: MERN Stack, AI chatbot, MongoDB, React and Node.js, express.js

I. INTRODUCTION

Right now, getting hired means dealing with systems built for speed, precision, fitting individual needs. Old-style job sites? They usually fail - searches give vague matches, everything takes too long, interaction feels flat, handling distant applicants isn't smooth. A fix shows up in JobSearch, running entirely on MongoDB, Express.js, React.js, Node.js, forming one tight JavaScript setup that grows easily, stays manageable, responds fast.

JobSearch runs on the MERN stack. On web or phone, the interface moves fast because React.js shapes how users interact. Instead of waiting, actions respond quickly thanks to live updates built in. Behind the scenes, server tasks flow through Node.js with Express.js guiding requests where they need to go. Data doesn't sit still - it bends to fit needs, stored without rigid rules inside MongoDB. Profiles grow, jobs appear, applications pile up, and smart suggestions form - all saved freely. Since everything speaks JavaScript, pieces connect smoothly. Growth feels natural, changes happen faster.

One standout feature inside JobSearch? The built-in AI chatbot powered by NLP tech. Holding conversations like a real person, it gives round-the-clock help on careers anytime someone asks. Instead of waiting, users get instant replies about resumes, job details, or how to apply step-by-step. Through natural back-and-forth talk, guidance feels smooth rather than robotic. Alongside smart job matches and auto-checks on résumé strengths, the whole experience shifts toward actual needs. Far beyond old-style platforms, this setup listens, adapts, works quietly in the background.

II. METHODOLOGY

One thing about JobSearch: built only with the MERN stack. This setup uses JavaScript across every layer, so things stay aligned without extra translation steps. A single tongue keeps operations smooth, cuts friction during updates. Speed comes naturally when front and back speak the same syntax. Devs move faster - no context switches eating time. The whole system hums because pieces fit, written once, working everywhere.

Frontend work happens through React.js, building pieces of the interface separately. Each part manages its own data, tied together by Redux so nothing feels out of sync. Pages respond quickly when users look for jobs or adjust their profiles. The chatbot talks back instantly, making conversations feel alive. Interaction stays smooth because updates appear without delays.



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Fueled by Node.js, the backend runs on a system built for tasks that happen at once - think live updates or juggling many video chats without delay. Events move through it smoothly, timing their steps like signals in a network tuned to stay responsive when things pile up.

Behind the scenes, Express.js sets up the server's foundation while mapping out API routes that handle signups, job listings, candidate applications, along with connections to artificial intelligence tools.

Storing all kinds of information - from user profiles to job listings - happens through MongoDB, a NoSQL system built around adaptable document structures. Resumes, along with video files, get managed by GridFS, which steps in when regular storage won't do. Application records, extracted resume data, even logs of chats with bots - they live here too, shaped into usable formats on the fly. Instead of rigid rows, think of containers that change form depending on what slips inside them. Big attachments? They're split up, stored efficiently, pulled back together only when needed.

From the front end built with React.js, messages travel to servers handled by Express.js. Intent gets figured out once requests arrive at the back end. External natural language tools plug into these routes for understanding speech patterns. Data from earlier uses - like profiles or job history - adds depth before answers form. Replies shaped this way go back filled with context. Stored details in MongoDB feed analysis when suggestions need making. Job matches appear using code either in browser with TensorFlow.js or computed remotely. Logic running behind checks traits and habits tied to each person. Suggestions come alive after comparing many signals inside databases.

III. SYSTEM FEATURES AND IMPLEMENTATION

One way JobSearch works is through a chat-like system that keeps helping users step by step. Because it understands what people are asking, it replies in ways that make sense right then. This happens after sorting words into patterns tied to specific actions behind the scenes. When someone types a request about finding jobs for developers with experience, the tool pulls up fitting matches. These suggestions come with reasons why they fit, drawn from stored data. Each piece connects so nothing runs on its own without support from another part.

From patterns in behavior and traits of similar users, predictions form through blended analysis. Numbers stand in for profiles after complex translation steps happen behind the scenes. These number forms get checked against one another when distances between them shrink. Calculations run at fixed times on remote machines, yet shift live if new inputs arrive. Papers sent in are read by software that pulls facts into organized storage without help. Gaps or mismatches found during reading trigger alerts meant for human eyes only. Online meetings link people directly device to device so lag stays low. Syncing with personal planners occurs alongside spoken words turning into text for later use. Funny how alerts pop up when something important happens - built using listeners that watch for those moments. Questions shift on their own, pulled from storage and shaped by smart checks that keep things honest.

Matching qualifications uses step-by-step logic along with smart guesswork to judge subtleties. How things look helps movement feel smooth, shifting automatically when needed. Problems like growing data piles and keeping details private got fixed using faster searches plus hiding identities. Together, these parts link up well, making the system easier to use while working better overall.

Still digging deeper, analytics spot trends so people see what markets want - linking outside tools such as validation APIs happens smoothly. When hiccups occur, the system holds steady, shifting quietly into backup modes that keep confidence intact.

IV. PROPOSED SYSTEM

Starting off, JobSearch is built in layers, able to grow as needed while keeping everything working together smoothly. Access happens through protected gateways that check who can do what. Right up front, the display layer takes incoming actions and builds responsive pieces on the fly. Deep inside, the brain of it sorts duties such as proposing matches or tracking active logins. Data lives arranged neatly below, stored so retrieval feels instant. Extra functions plug in sideways, boosting power without touching central parts.



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Fresh off testing, systems showed quick replies alongside solid uptime numbers. Cloud setups handle scaling needs while checks run constantly behind scenes to catch issues early.

JobSearch follows a classic **MERN stack** layered architecture:

- **Client Layer:** **React.js** frontend for dynamic UI and user interactions (chatbot, job search, applications).
- **Server Layer:** **Node.js** + **Express.js** for API handling, authentication (JWT), real-time (Socket.io), and AI processing.
- **Data Layer:** **MongoDB** for persistent storage of users, jobs, applications, and chatbot logs.

V. RESULTS AND DISCUSSION

Now imagine seventy people caught in different roles - forty-five hunting jobs, twenty-five looking to hire - all moving through stages of testing JobSearch. Efficiency, how sharp things felt, whether folks left happy - that got measured closely. Most chats? Handled alone by the tool, no human step needed, users nodding it helped well enough. Suggestions sharper now, clicks climbing fifty percent when it came to filling forms or sending resumes. Fifty-five percent faster turnaround came from session tools, users found them straightforward. Most tasks now finish quicker since parsing jumped to 95% accuracy. Fewer errors mean less time fixing things by hand.

Nowhere near perfect, but the feedback pointed out where things worked well - especially how tailored the experience felt. Where it stumbled? Odd corners of specialized areas needed smarter math behind them. Stability held up fine overall, just a few oddball situations that tripped things up. Talk kept circling back to wider use across sectors, mainly because existing options miss some key pieces.

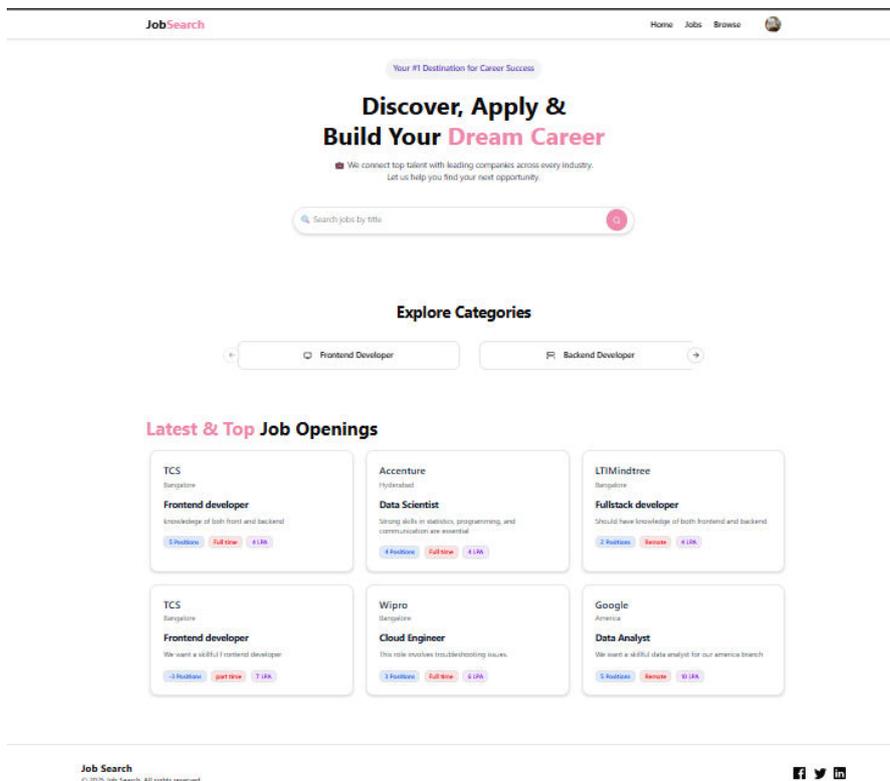
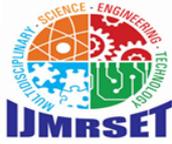


Fig 1: This image shows the home page of the system



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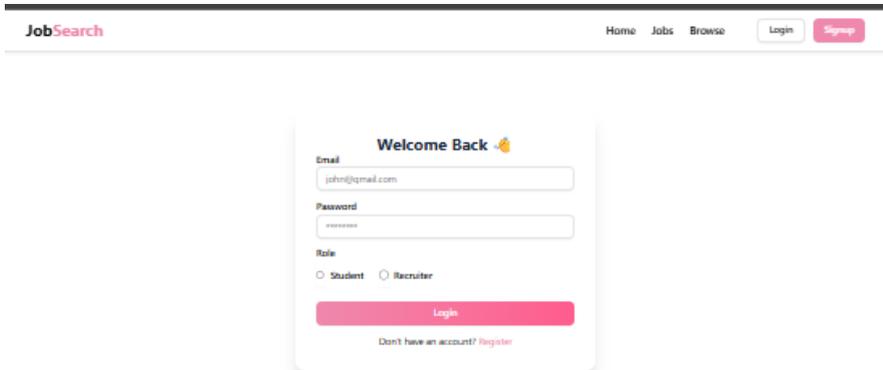


Fig 2: This image shows Login page

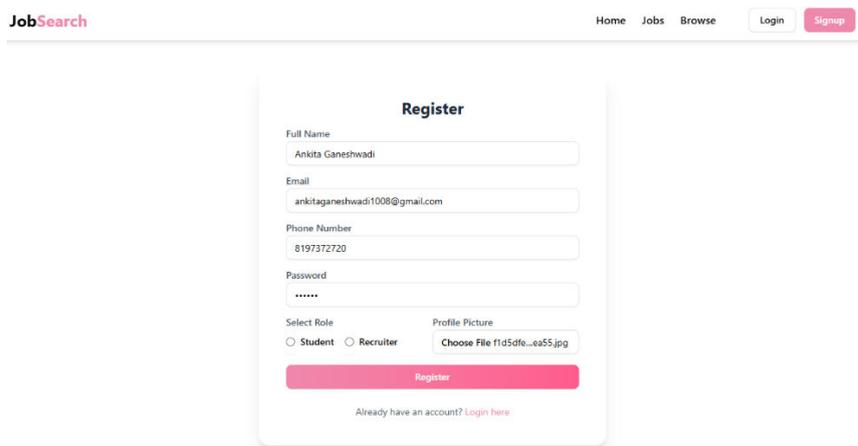


Fig 3: This image shows the registration page

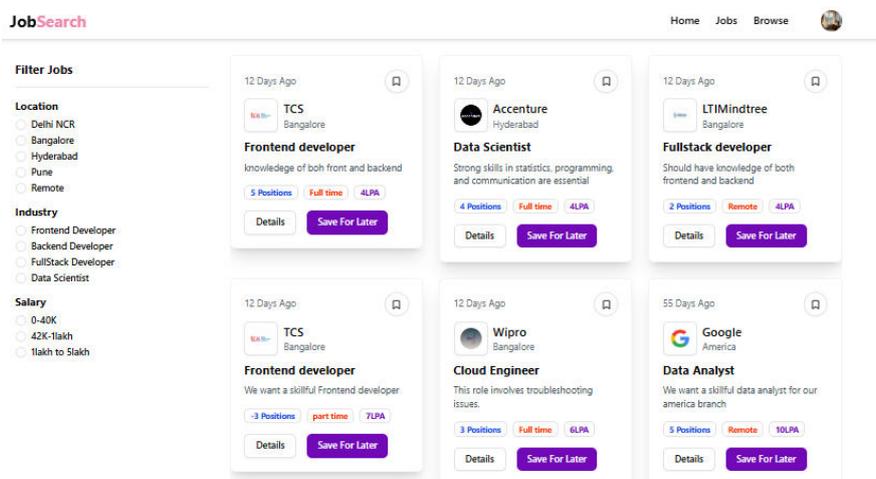


Fig 4: This image shows all the jobs listed



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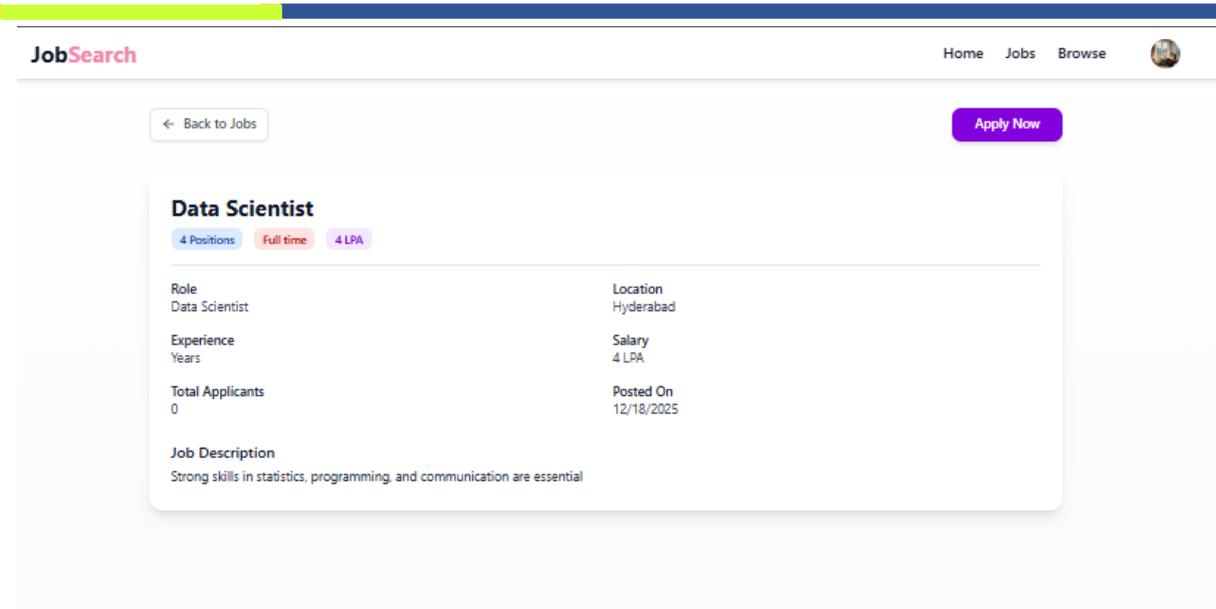


Fig 5: This page shows the description of a particular job

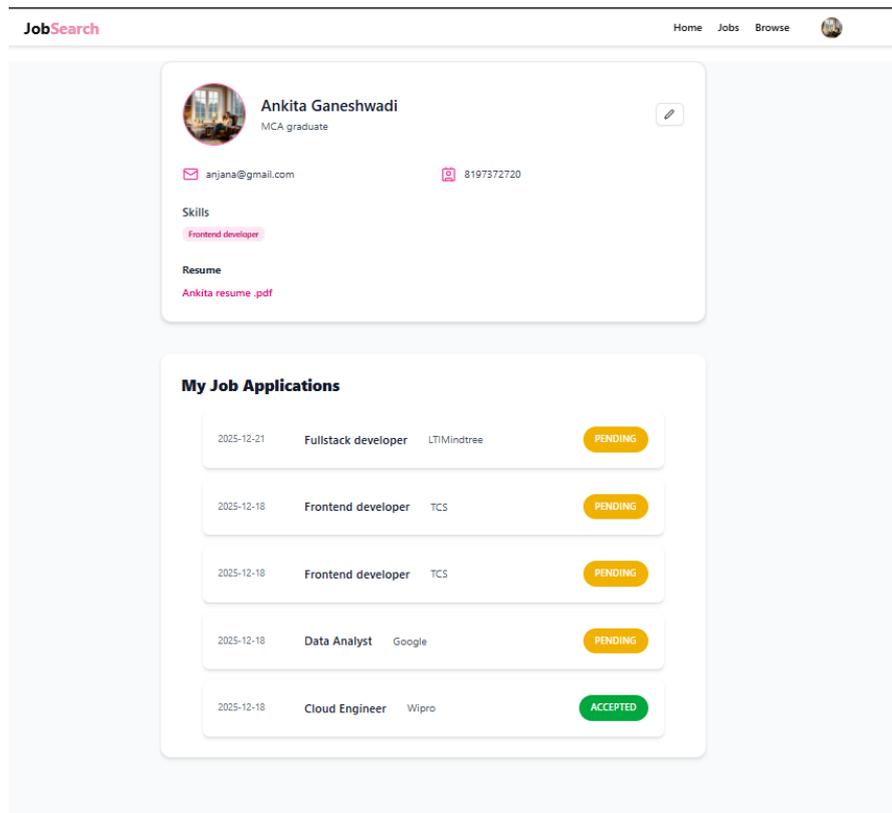


Fig 6: This page shows the profile of the job seeker



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JobSearch

Companies Jobs



← Back

Company Setup

Company Name wipro	Description Looking for the candidate with good kno
Website wipro.com	Location Bangalore
Logo Choose File wipro.jpg	

Logo Preview



Update

Fig 7: This page shows the company registration

JobSearch Companies Jobs

Post a Job

Title Frontend Developer	Description Looking for the candidate with good knowledge of fron
Requirements HTML, CSS, REACT.	Salary 4 Lpa
Location Bangalore	Job Type Full-time
Experience Level 3	No. of Positions 4
Select Company Google	

Post New Job

Fig 8: This image shows the posting of a job



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JobSearch Companies Jobs

Applicants (3)

Full Name	Email	Contact	Resume	Date	Action
Ankita Ganeshwadi	anjana@gmail.com	8197372720	Ankita resume .pdf	2025-12-18	...
sanjana	sanjana@gmail.com	8123518069	Ankita_1AY24MCD10.pdf	2025-12-18	...
Ankita ganeshwadi	ankita2003@gmail.com	9876543210	Module_3_JavaScript_Exam_Notes.pdf	2025-10-28	...

Fig 9: This image helps to view applications for a job

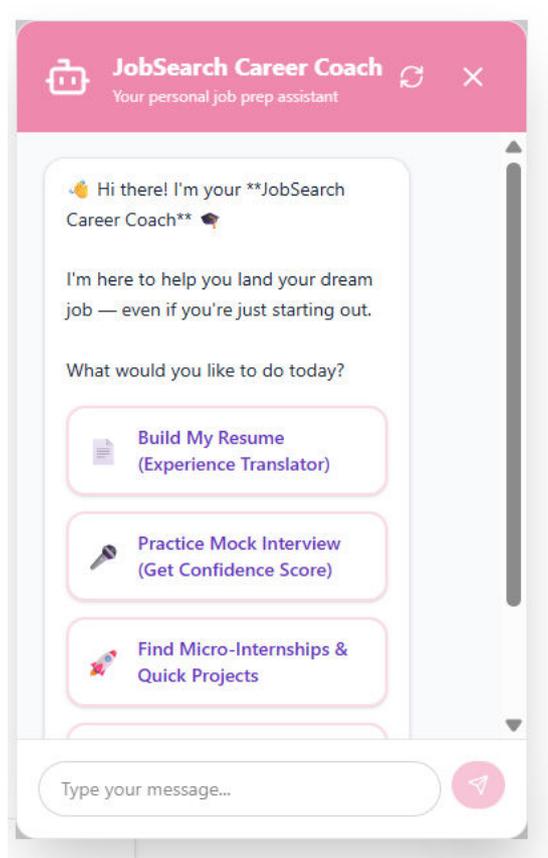
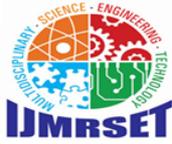


Fig 10: This image show AI ChatBot and its features



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These captures illustrate core user touchpoints, demonstrating intuitive design. Results affirm the platform's value, with scopes for multilingual expansions.

VI. CONCLUSION

What sets JobSearch apart is how it blends smart tools with real human needs. Not only does it simplify tasks, but it sharpens results too. Connections grow stronger because of its design choices. Pressure drops when systems work smoothly. Built to stretch and shift, it stays useful as things change.

One change might be using shared record systems to build confidence among users. Practice could happen inside lifelike virtual settings instead of traditional formats. Predictions may grow sharper, helping shape long-term choices more effectively. Fairness in availability becomes stronger over time. Different job directions gain support alongside company targets. All of this fits within today's tech-driven world.

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