



AI-Powered Automated Job Application System

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KEYWORDS

Artificial Intelligence, Job Recommendation System, LinkedIn Jobs API, Automated Job Alerts, Intelligent Filtering, Personalized Job Matching.

ABSTRACT

The Job Alerts Agent is an AI-powered system that streamlines the job search process by automating the discovery, filtering, and delivery of opportunities tailored to students and early-career professionals. Unlike traditional job hunting, which requires navigating multiple platforms, repeating searches, and manually shortlisting irrelevant postings, this system leverages the LinkedIn Jobs API along with intelligent filtering techniques to analyze user profiles based on skills, interests, location preferences, and career aspirations. It then generates concise, actionable job and internship listings that are delivered as daily email alerts at a predefined time. By ensuring users consistently receive timely and personalized opportunities, the Job Alerts Agent saves effort, enhances efficiency and accuracy, improves accessibility, supports informed decision-making, and transforms career exploration into a seamless, proactive, and user-centric experience.

INTRODUCTION

Job searching in today's digital world has become quite competitive and cumbersome, especially for students and fresh entrants into the job market. To identify suitable employment opportunities, candidates are required to explore multiple job portals including linkedin, Naukri, Superset amongst other online recruitment platforms. This process often remains tedious, repetitive, and inefficient as continuous manual effort and monitoring are needed here [1]. Existing job search websites are mainly dependent on the user

performing keyword-based searches and using general alert systems that are not analyzed based on the specific needs of the user. Bulk job alerts are sent by most of these websites, which carry a significant amount of unnecessary jobs, thus creating information overload for the user. There are many difficulties faced by job seekers to find the appropriate jobs according to their skills, interests, and career goals [2]. Consequently, owing to the latest advancements in the field of Artificial Intelligence, analysis of user preference can be achieved in a more efficient way. This is because the newly

introduced AI-based techniques allow for the intelligent matching of job opportunities by analyzing parameters like skills, experience level, location, etc. [3].

The AI-Powered Automated Job Application System is developed with the objective of creating an efficient user interface by sending personalized and timely job alerts. In addition to that, the growth in online job search engines has increased the number of jobs, but this growth is accompanied by the problem of data overload in the search results. A significant problem for candidates is the time taken in filtering out unsuitable jobs while applying filters multiple times and keeping an eye on the deadline dates for submissions. Moreover, the repetition of these processes decreases the productivity level and increases the chances of missing crucial information due to delayed responses or notifications [4].

Automation plays an essential role in effectively handling these challenges through a job search solution. The proposed system will utilize automation along with AI-dependent decision-making processes, where the system will continually monitor different job portals, detect new job posts, and match the requirements using user-defined profiles. This approach ensures that users are liberated from the necessity of regularly checking job portals, and only relevant job posts and internships reach them through the system [5].

In addition to that, the proposed system will emphasize a more flexible and user-centric approach by taking into consideration the changing aspect of the job market. The utilization of Artificial Intelligence to enhance the system's job matching and automation to facilitate continuous processing will ensure that the users are provided with the latest job offers without any delay. The efficiency in transmitting the concise and clear job alerts to the users via automated messages will not only reduce the processing efforts but also increase the engagement and response towards the jobs. The incorporation of the job application process will result in a more efficient, reliable, and proactive approach to the traditional job searching scenario, making the AI-Powered Automated Job Application System very advantageous for the students and professionals to navigate the changing job market scenario effectively [6].

LITERATURE SURVEY

In the study provided in reference [1], the authors have discussed content-based recommendation systems that filter the users and their profile settings. The study demonstrates the significance of filtering the users based on their skills and interests to enhance the accuracy of the results. Such concepts will improve the basis for the development of intelligent job recommendation systems.

In reference [2], a detailed survey of recommender systems that are utilized within information filtering applications is offered. In this paper, the necessity of modeling users and learning their preferences in providing relevant recommendations is emphasized. It is revealed that intelligent filtering strategies can solve one of the biggest problems confronting online job search sites—the problem of information overload.

The study presented in reference [3] discusses methods of collaborative filtering techniques and their applicability in recommendation systems. The issue of improved prediction is addressed through incorporation of user behavior patterns by collaborative filtering methods. However, the authors identify some limitations in their applicability in cases of new users. These limitations form the basis of using content-based or hybrid methods in job recommendation systems.

In [4], the authors examine the concept of an automated job recommendation system that offers information gathered from multiple online sources. This paper clearly illustrates the need for automation, as job listing from different sources augments the supply of jobs but also creates the problem of job relevance and duplication.

A framework for an AI-based job matching system is proposed in [5]. Machine learning methods are employed for mapping candidate profiles with job descriptions. The results show an improvement in the accuracy of the matching process by considering skills, experiences, and location preferences altogether. This research validates the effectiveness of AI-based job filtering systems to improve recruitment efficiency. The research in [6] discusses the workflow automation systems for continuous data monitoring and notification. This paper discusses the importance of automation in workflow automation systems. This automation technique can be effectively applied to job alert systems. The monitoring of job portals has to be frequently done.

In [7], the authors have discussed the role of emails in enhancing the level of engagement via notification systems. The importance of emails is further underscored in that they prevent users from missing out on opportunities. This shows the importance of using emails in the job application platform.

The authors in [9] discuss the challenges of the information overload problem in the context of online systems and introduce the main idea of an intelligent filter. According to the paper, the artificial intelligence-based filter is of great importance for improving the relevance and reducing the user's efforts, a very important criterion in modern job searching systems.

Finally, in [10], a survey on intelligent career guidance systems is proposed. In the paper, the authors emphasize the potential benefits for users by using intelligent career guidance systems based on artificial intelligence. They also support the idea of developing an intelligent system for submitting job applications as a solution to the problem of inefficiencies in the traditional job search process.

PROBLEM STATEMENT

The rise in the use of online recruitment platforms has increased the number of job opportunities; however, it has also caused a great deal of information overload for the candidates. The candidates need to search manually for various job opportunities and apply filters based on certain keywords. The candidates also need to keep track of updates to find the right job opportunity. This process is not only time-consuming but also inefficient, as the candidates need to put in a lot of effort to track the right job opportunities on various platforms.

Furthermore, current job alert systems are only capable of producing generic alerts without thoroughly understanding individual user preferences, skills, and career objectives. Consequently, most job alerts are filled with irrelevant job postings, causing confusion and frustration among job seekers. The absence of intelligent personalization makes it impossible for job seekers to receive correct and up-to-date recommendations based on their profiles. Thus, there is an urgent need for an intelligent and automated job application system that constantly tracks recruitment platforms, screens job opportunities according to user-defined criteria, and provides job alerts in a systematic and timely fashion.

WORKING METHODOLOGY

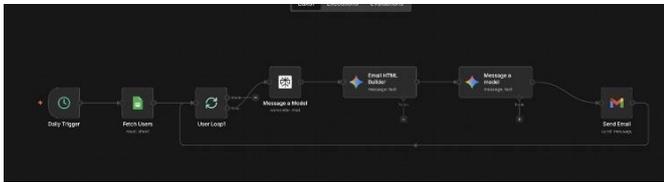
The AI-Powered Automated Job Application System is intended to automate the process of job search, intelligent filtering, and notification delivery in order to minimize manual intervention and maximize efficiency for job applicants. The proposed methodology combines web-based user interaction, backend automation processes, Artificial Intelligence-based filtering algorithms, and automated email notification systems to deliver a scalable and robust solution for students and early career professionals.

Firstly, the system is accessed through a web interface where users register and set up their profiles by entering relevant information such as skills, desired job roles, level of experience, and location preferences. This information is safely stored in the database and forms the primary input for the intelligent job matching process. After the user setup process is finished, the backend processes for job data retrieval, filtering, and notification start running in the background without any further manual intervention.

The system is designed to monitor various online recruitment platforms like LinkedIn, Naukri, Superset, and other recruitment websites. The system uses automated workflows and API-based integration to monitor these platforms. At predefined intervals, the system retrieves newly posted job listings and holds them temporarily for processing. During this phase, the system eliminates duplicate, outdated, or incomplete job postings to ensure that only valid and up-to-date job listings are allowed to proceed to the filtering phase. The automated monitoring system eliminates the need for users to check various job portals manually.

Once the job data is collected, the AI-powered filtering engine analyzes each job listing by matching it with the user profile details stored in the system. The system uses intelligent keyword matching and relevance analysis to assess skill matching, role matching, experience criteria, and location preferences. The system assigns a relevance score to each job listing and filters only those job listings that meet predefined matching criteria. The system removes irrelevant job listings to ensure that information overload is minimized and the accuracy of personalization is improved.

AI- powered filtering engine, which searches job postings based on descriptions and stored user profile information through keyword searches, relevance scoring, and preference checks. Only job postings that satisfy predetermined matching criteria are selected for notification.



Fig(c).n8n Work Flow

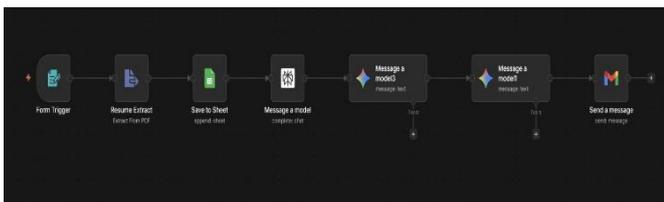


Fig (d).Daily Automation Trigger for Job Data Processing

Once the filtering process is complete, the system produces job alerts with structured information like job name, company name, location, and direct application link. These job alerts are automatically sent to the user’s registered email address at predetermined intervals. The entire process runs in a continuous loop, where job portals are scanned periodically, suitable job opportunities are shortlisted, and personalized job alerts are sent automatically without any human intervention. This ensures efficiency and a proactive job search experience with minimal information overload.

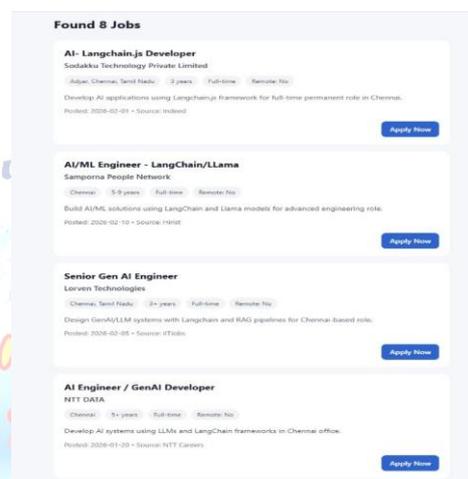
RESULTS & DISCUSSION

The performance of the AI-Powered Automated Job Application System was tested for relevance accuracy, notification timeliness, system reliability, and user convenience. Experimental testing was performed by creating multiple user accounts with varied skill sets and preferences to examine the efficiency of the AI-powered filtering engine. The outcome shows that the system was able to efficiently filter out non-relevant job notifications compared to the traditional keyword-based job search process on various portals.

The automated job data acquisition module performed efficiently by periodically acquiring newly posted job notifications without human intervention. Duplicate and stale entries were efficiently eliminated prior to processing, ensuring that users were provided with

genuine and up-to- date notifications only. The backend automation process functioned properly at predetermined intervals, validating the reliability and ruggedness of the workflow engine.

The AI-powered filtering engine was instrumental in enhancing the accuracy of personalization. By matching job notifications with user accounts using keyword relevance and preference matching methods, the system was able to shortlist relevant opportunities based on user-specified criteria. The relevance scoring engine substantially reduced information overload, leading to precise and structured job notifications for individual users.



Fig(e).Sample Output Showing AI-Filtered Job Listings

CONCLUSION

This paper has discussed the design and development of an AI-Powered Automated Job Application System that leverages Artificial Intelligence and workflow automation to improve the efficiency of the job search process. The system overcomes the issues of information overload, manual searching, and generic job alerts by constantly tracking multiple job portals and providing personalized job suggestions based on user preferences.

The proposed system leverages both frontend user interaction and backend automated data retrieval, along with AI-powered filtering techniques, to provide accurate and timely job alerts. The experimental outcome clearly shows that the system is effective in filtering out irrelevant notifications and improving the relevance of job suggestions. The automated workflow ensures that the system continuously monitors job portals without any human intervention, and the

structured email notifications allow users to quickly react to relevant job postings.

In summary, the AI-Powered Automated Job Application System is a scalable, reliable, and user-friendly solution that turns the traditional job search process into a proactive and optimized process. By reducing manual work and improving the accuracy of personalization, the system offers great benefits to students and young professionals in today's competitive job market. Future improvements to the system could include machine learning-based resume analysis, cloud analytics, and mobile app integration.

Conflict of interest statement

Authors declare that they do not have any conflict of interest.

REFERENCES

- [1] Pazzani, M. J., & Billsus, D. (2007). Content-based recommendation systems. In *The Adaptive Web* (pp. 473- 495). Springer.
- [2] Adomavicius, G., & Tuzhilin, A. (2005). Toward the next generation of recommender systems. *IEEE Transactions on Knowledge and Data Engineering*, 17(6), 734-749.
- [3] Schafer, J. B., et al. (2007). Collaborative filtering recommender systems. In *The Adaptive Web* (pp. 291-324). Springer.
- [4] Sarwar, B., et al. (2001). Item-based collaborative filtering recommendation algorithms. *Proceedings of WWW '01*, 285-295. ACM.
- [5] Gupta, J. (2003). World Health Organization, Evidence Organization, Geneva-Switzerland.
- [6] A. Gupta and S. Johar. (2020). Design and Implementation of smart pill dispenser using IoT. *International Journal of Research in Engineering, IT and Social Sciences*, 9(6), 116- 120.
- [7] S. Jabbar, F. Ullah, S. Kim, and K. Han. (2015). Acceptability and Feasibility of Self-Management Health Tracking System. *IEEE Access*, 5.
- [8] Gope, P., & Hwang, T. (2015). Untraceable Movement in Wireless Sensor Network. *Sensors Journal*.
- [9] S. Roy, S. Das, and G. L. J. (2016). IoT in Terms of Google, A. *Computer Science*, 100, 217-224.
- [10] N. Venkatesh et al. (2024). IoT framework for health monitoring. *Journal of Real-time Systems*, 12.
- [11] Amir, A. R., & Atif, S. M. (2026). Evaluating Workflow Automation Efficiency Using n8n. *arXiv preprint arXiv:2602.01311*.
- [12] Rahman, M., et al. (2025). n8n: Open-Source Workflow Automation Platform. *International Journal of Computer Applications*, 187(63).