



International Journal of Engineering Research and Science & Technology

www.ijerst.org

ISSN : 2319-5991

Vol. 22 No. 1 (2026)



**ijerst.editor@gmail.com
editor@ijerst.com**

Research Paper

SMART JOB SEARCH SYSTEM USING INTELLIGENT AGENTS

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ABSTRACT

Job seekers sometimes face a daunting process when it comes to finding employment opportunities that align well with their interests and skill set. The challenges stem from a lack of adequate understanding of the organization's goals, its work environment, and existing employment vacancies. Summer employment is increasingly transitioning into year-round supplementary labor. Currently, I am actively engaging in discovering the most effective applications that may be used to do activities, occupations, and chores during one's free time. We choose the duration and the specific allocation of time you want to dedicate to this supplementary employment. An application designed to locate and secure short-term paid employment opportunities within your immediate vicinity. This platform caters to those seeking immediate financial assistance and are prepared to do little chores such as computer repairs, childcare, lawn mowing, and similar activities.

Index Terms: Job Search, Employment Opportunities, Supplementary Labor, Short-Term Employment, Financial Assistance

Received: 29-12-2025

Accepted: 31-01-2026

Published: 09-02-2026

1.INTRODUCTION

In the global economy of today, the difficulties of obtaining suitable work are exacerbated by the complexities of the job search process, as observed through personal experience [1]. Typically, while seeking employment, individuals often rely on traditional methods such as searching newspapers, listening to radio and television advertisements, and registering on job site portals like Academickeys.com, Monster.com, and Careerbuilder.com [2]. However, businesses frequently do not use these platforms to publish comprehensive job descriptions. Instead, they simply post

essential facts on their own websites [3]. Furthermore, with the proliferation of internet job search engines, it has become increasingly difficult for job seekers to have a comprehensive understanding of all pertinent job opportunities [4]. Consequently, we are not always informed about all available employment positions, the characteristics, and standing of the company, which hinders our ability to determine if it aligns with our desired job criteria [5]. Occasionally, we may be impressed by the job provider's profile, but lack information on the company's rating

from current or former employees regarding pay and other aspects [6].

Considering these factors, our proposal is to create an artificial intelligence agent, rather than a human agent, to carry out the same search tasks via interaction with employer and job search coordinator agents [7]. We suggest using an agent-based utility concept to provide suitability profiling based on adjustable parameters such as proximity to the workplace, schedule and shift demands, job conditions, safety and risk factors, compensation, and skillset [8].

The motivation for creating an Online Job Search System stems from the desire to enhance the efficiency and convenience of job searching [9]. This system facilitates job seekers in locating current job openings in one centralized location. Thus, it can be said that an Online Job Search Portal serves as an intermediary for communication between employers and job seekers [10]. Due to technological advancements and the internet's role as the primary information source for job seekers, job systems have become an effective means of reaching a large audience. Initially, when I was unfamiliar with these employment portals or platforms, I would research firms and their technological stack by visiting their websites. If the job duties aligned with my interests, I would then submit an application. This task required a substantial amount of effort and a significant investment of time. Subsequently, upon recognizing the significance of job search engines, I gained the ability to discover employment opportunities in desired areas that would have otherwise remained unknown to me [9].

2.LITERATURE SURVEY

- Z. Y. Liu proposed a decision strategy algorithm for the vector space model of web crawlers based on Schmidt orthogonal optimization. The algorithm uses the Schmidt method to orthogonally optimize the classified vectors in the vector space model. It corrects the base coordinate axis of small angle projections through orthogonal optimization, facilitates the rotation of vectors in the coordinate axis, and removes the document vector. This approach enhances retrieval accuracy by mitigating the influence of relevance on classification. The KNN algorithm is employed to classify the orthogonally optimized document vectors. Experiments demonstrate that this method significantly reduces the influence of correlation on retrieval results in web crawler document classification and improves classification accuracy.
- Yi Ding, Baoshan Luo, Yao Feng, and Xiao Mei explain that a web crawler is an automated and methodical tool for traversing and indexing web pages, assembling web content locally for subsequent search purposes. This paper aims to improve the employment rate and teaching quality in Higher Vocational Colleges by developing a web crawler specifically designed to gather recruitment information from recruitment websites. The collected data not only assists students in finding jobs but also provides a rich data source for applications such as career recommendation, career prediction, and

the extraction of enterprise demand for professional skills. This innovation creates a new way to enhance employment rates and teaching quality in Higher Vocational Colleges.

- Lianpeng Zhao and Hao Sun describe how extracting effective information from massive data and mining potentially valuable relationships has become a significant research topic. Web crawlers, which can automatically obtain and analyze web page content, are an effective means of extracting valuable information from large datasets. This paper explores web crawlers based on Python technology, including Requests, Scrapy, and Selenium. The study involves implementing and analyzing these three types of web crawlers. The results suggest that Scrapy technology is recommended for practical applications due to its support for asynchronous crawling, flexible concurrency, and ease of use for simple crawling tasks.
- Mohammad Haddad Soleymani and Mehdi Yaseri propose that, with the increasing incidence of various types of fraud in health insurance—such as phantom billing, up-coding, and identity theft—detecting such fraud is crucial for reducing financial losses. They implemented an unsupervised data mining algorithm and an outlier detection model to assist experts in detecting potentially fraudulent medical prescriptions. The model processes variables such as medicine code, patient sex, and patient age through three successive screening steps. The

proposed model can detect 25% to 100% of cases where certain medicines are not supposed to be prescribed simultaneously in one prescription. It achieves a sensitivity of 62.16%, specificity of 55.11%, and accuracy of 57.2%. This model helps in detecting potential fraud cases more quickly and accurately than manual inspection, reducing the number of prescriptions needing review and decreasing investigators' workload. The results can also aid policymakers in planning anti-fraud measures.

- Li Li explains that with the explosive growth of network information and the era of big data, analyzing and processing employment data using web crawler technology is of great significance. This article uses Lagou.com as an example, applying crawler technology based on Python and MySQL to collect employment data. The collected data is analyzed from various perspectives to assist college students with employment and career planning, providing a reference basis and objective insights.

3.SYSTEM ANALYSIS

3.1 EXISTING SYSTEM:

Nowadays, the job recruitment system typically relies on strategies such as employment agencies, advertising through print media, television, and radio, and participating in college fairs. These methods are often slow and stressful for job seekers. With the advent of the internet, individuals have increasingly turned to online job portals, which have significantly improved the efficiency of job searches. However,

many of these portals are limited to web and desktop applications, requiring job seekers to have access to a laptop or desktop computer with internet connectivity. This dependence on specific devices reduces the convenience and accessibility of the process for some users.

3.1.1 DISADVANTAGES OF EXISTING SYSTEM:

- ❖ Time-consuming and requires significant time investment.
- ❖ Stressful, causing mental or emotional strain.
- ❖ Challenging, demanding effort and skill.

3.2 PROPOSED SYSTEM:

The Job Search System is a Python application designed to facilitate e-recruitment through a website. This application operates without requiring an internet connection to perform its desired functionalities.

3.2.1 ADVANTAGES OF PROPOSED SYSTEM:

- Ensures accuracy.
- Facilitates classification.

4.SYSTEM DESIGN

4.1 SYSTEM ARCHITECTURE:

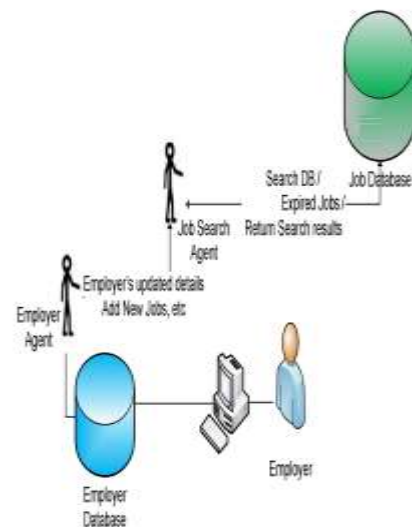


Figure.1 System Architecture

4.3 IMPLEMENTATION:

MODULES:

- Signup Here : link to get below signup screen
- Submit : button to get below output
- Login Here : link to login as company
- Post Jobs : Jobs' link to post the new JOB
- Activate/Deactivate Job : link to get list of jobs posted by company and then activate or deactivate
- Click Here : link to either activate or deactivate JOB. Now logout and login as 'job applicant'.

5.SCREENSHOTS

To run project first create database in MYSQL by copying content from DB.txt file and then paste in MYSQL console
Now double click on 'runServer.bat' file to start python DJANGO server and get below screen



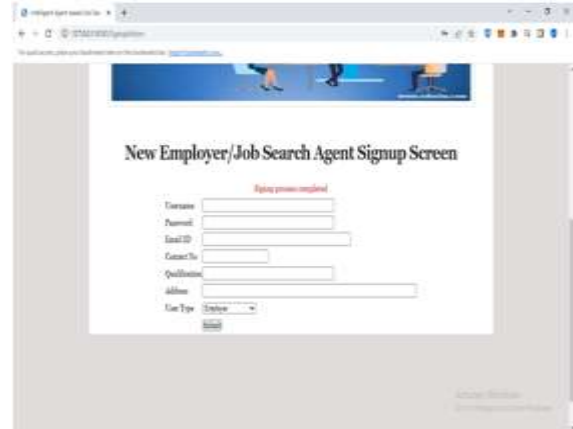
In above screen DJANGO server started and now open browser and enter URL as <http://127.0.0.1:8000/index.html> and press enter key to get below page



In above screen click on 'Signup Here' link to get below signup screen



In above screen company is entering signup details and press button to get below screen



In above Screen Company signup process completed and now signup one application like below screen



In above screen job applicant is signing up and then click on 'Submit' button to get below output



In above screen applicant signup completed and now click on 'Login Here' link to login as company



In above screen company is login and after login will get below screen



In above screen company can click on 'Post Jobs' link to post the new JOB



In above screen company is posting the job and now press button to get below output



In above screen job details added and now click on 'Activate/Deactivate Job' link to get list of jobs posted by company and then activate or deactivate



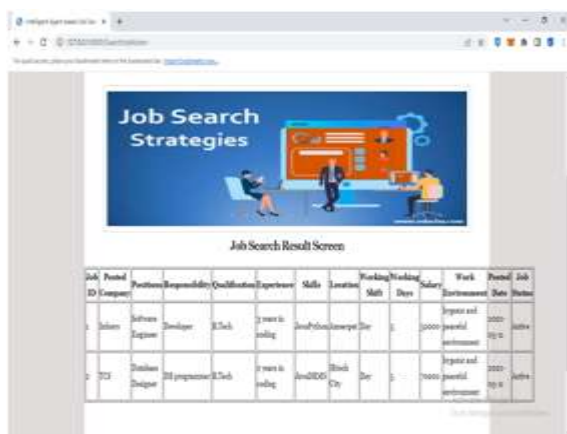
In above screen company can click on 'Click Here' link to either activate or deactivate JOB. Now logout and login as 'job applicant'



In above screen job applicant is login and after login will get below screen



For above search we got below fuzzy search result



Similarly company will post JOBS and job seekers will search jobs

6.CONCLUSION

The job searching process is often complex and involves extensive engagement with various search platforms, applications, human representatives, and other resources. The advanced system employs fuzzy preference criteria to intelligently anticipate user needs and make informed decisions regarding location, salary adjustments, and benefits, which are advantageous to the user. This capability is illustrated through scenarios and accompanying screenshots. The system could be expanded to include a secure application process that verifies the applicant's skills and education by

integrating publicly available data with the job application information. Additionally, incorporating risk factors associated with success could enhance the evaluation of job opportunities, helping candidates choose positions that are highly suited to them on multiple levels.

This initiative addresses the essential needs of both job seekers and employers.

7.FUTURE ENHANCEMENTS

Future enhancements could include offering suggestions and sending email notifications about new job opportunities aligned with the job seeker's search history. To support job seekers in creating a strong resume, the system could provide guidance, information, and templates for resume construction. Furthermore, the mobile application could be developed to include features for employers, meeting their needs as well.

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