

INTELLIGENT AGENT BASED JOB SEARCH SYSTEM

T. Naresh¹, S. Siva Kumar²

¹Assistant Professor, Dept. of MCA, Audisankara College of Engineering and Technology
(AUTONOMOUS), Gudur, AP, India.

²PG Scholar, Dept. of MCA, Audisankara College of Engineering and Technology
(AUTONOMOUS), Gudur, AP, India.

ABSTRACT:

Finding jobs that best suits the interests and skill set is quite a challenging task for the job seekers. The difficulties arise from not having proper knowledge on the organization's objective, their work culture and current job openings. Summer jobs are becoming year-round side work. Even I'm rolling up my sleeves on the path of researching the best apps that will put to work on tasks, jobs and chores in one's extra time. We set the hours and the amount of time you want to carve out for this side work. An app for finding small paid work in your local area. It is for users who are in need of some quick cash and willing to do small works like repairing a computer, babysitting, mowing a lawn and other similar tasks.

1. INTRODUCTION

In today's global economy, the challenges associated with finding a suitable job is amplified by the technicalities associated with the Job search process which is seen by experience. Normally when we want to apply for a job, we search the newspapers; listen to radio and

television broadcasts that may advertise vacancies and also job seekers register themselves with job site portals such as Academickeys.com, Monster.com, and Careerbuilder.com and so on. In general, employers do not register themselves with these mediums to provide full details of the job specifications but instead post important details on their own website only. Also, with the growing number of online job search engines, making it almost impossible for job seekers to get an overview of all relevant positions [0]. Therefore, we do not always get to know all the vacancies, the nature and status of the employer to decide if this is the sort of job that is being sought for. Also, at times we get flattered by the job providers profile but don't get information about the rating of the company by the existing or past employee in terms of salary and so. Taking all these into consideration we propose to develop an intelligent agent (instead of a human agent) to perform the same search operations by interacting with the employer and job search coordinator agents. We propose to use an agent-based utility concept to provide suitability profiling based on

configurable factors such as distance from work, days and shift requirements, work environment, safety and hazard considerations, remuneration, skill-set, etc.

The purpose of developing an Online Job Search System comes from my idea to make the job search efficient and handy. It helps the job seekers to search for current vacancies at a single point. Therefore, we can say that Online Job Search Portal act as a bridge of communication between job providers and job seekers. With the evolution of technology and internet being the main source of information for the Job Seekers, these job systems and have become an excellent method to reach wide range of audience. Initially, when I am unaware of these job portals or systems, I used to do research about companies and their technology stack through their respective websites and apply if the job responsibilities match my interests. This requires lots of effort and time. However, later when I realised the importance of job search systems, I am able to access jobs in preferred place, locations that I might not otherwise have learned.

Information: Nagavarappadu is a village in Krishna district of the Indian state of Andhra Pradesh. It is located in Unguturu mandal of Nuzvidu revenue division. It is a part of Andhra Pradesh Capital Region. It is the area where it is full of fields lakes etc. The village Nagavarappadu

is populated with total of 1007 people of which some will be performing agriculture works for daily living and others who are job less.

PURPOSE OF VISIT: On 14th May 2019, we team members along with our guide have visited the village named Nagavarappadu. This village is located around the outskirts of Vijayawada. This visit was undertaken with the aim of investigating the technical problems, unemployment and lack of facilities prevailing in rural areas. In this regard we have met children, school going children, farmers, school principal, people having some jobs, house hold women etc.

PROBLEM STATEMENT: Our main aim is to provide an easy-going application for people who are in search for small paid work in our local area. It is for users who are in need of some quick cash and willing to do small works.

OBJECTIVE: To understand the problems and struggle faced by the rural people in their daily life and try to relate the solution to their problems by applying the basic understanding of our engineering knowledge.

2. LITERATURE SURVEY

In this paper they introduced a prototype job portal which uses semantically annotated job offers and applicants. In their opinion, using Semantic Web technologies substantially increase market transparency, lower transaction costs and speed up

the procurement process. However, adding semantics is not a panacea for everything. We identify some outstanding problems in job search using the system and outline how the technique of query approximation can be the basis for a solution. Through an Industry-Research co-operation we are extending the prototype with these semantic techniques to demonstrate a more accurate job search. [0]

The advent of software agents gave rise too much discussion of just what such an agent is, and of how they differ from programs in general. Here we propose a formal definition of an autonomous agent which clearly distinguishes a software agent from just any program. We also offer the beginnings of a natural kind's taxonomy of autonomous agents, and discuss possibilities for further classification. Finally, we discuss subagents and multi-agent systems. [1]

Intelligent agents are a new paradigm for developing software applications. More than this, agent-based computing has been hailed as 'the next significant breakthrough in software development' (Sargent, 1992), and 'the new revolution in software' (Ovum, 1994). Currently, agents are the focus of intense interest on the part of many sub- fields of computer science and artificial intelligence. Agents are being used in an increasingly wide variety of applications, ranging from comparatively small systems such as email

filters to large, open, complex, mission critical systems such as air traffic control. At first sight, it may appear that such extremely different types of system can have little in common. And yet this is not the case: in both, the key abstraction used is that of an agent our aim in this article is to help the reader to understand why agent technology is seen as a fundamentally important new tool for building such a wide array of systems. More precisely, our aims are five-fold:

- To introduce the reader to the concept of an agent and agent-based systems,
- To help the reader to recognize the domain characteristics that indicate the appropriateness of an agent-based solution,
- To introduce the main application areas in which agent technology has been successfully deployed to date,
- To identify the main obstacles that lie in the way of the agent system developer, and
- To provide a guide to the remainder of this book.

Agents and agent systems are becoming more and more important in the development of a variety of fields such as ubiquitous computing, ambient intelligence, autonomous computing, intelligent systems and intelligent robotics. The need for improvement of our basic knowledge on agents is very essential. We take a systematic approach and

present extended classification of artificial agents which can be useful for understanding of what artificial agents are and what they can be in the future. The aim of this classification is to give us insights in what kind of agents can be created and what type of problems demand a specific kind of agents for their solution. [3]

3. PROPOSED SYSTEM

The proposed Job Search System is a Java-based Android application designed to revolutionize the recruitment process by offering functionalities accessible on portable devices such as Android-based smartphones and tablets. Unlike many existing job search platforms, this application does not rely on constant internet connectivity to perform its desired functions. This unique feature enhances its usability and accessibility, especially in areas with limited internet access or for users who prefer offline functionality. The system boasts several advantages, including cost and time efficiency, as well as portability, making it an attractive option for both job seekers and employers.

The primary purpose of the Job Search System is to provide an efficient platform for employers to post job openings, complete with required qualifications, thereby enhancing their reach in the job market. Simultaneously, the system empowers job seekers to effortlessly access information about current job openings within organizations or

the broader market. Additionally, the system facilitates interaction by allowing job seekers to view reviews provided by previous applicants, enabling them to make informed decisions and potentially improve their application strategies. By offering flexibility and convenience through its Android-based interface, the Job Search System aims to streamline the job search process for all users, ultimately bridging the gap between job seekers and employers in a dynamic and competitive job market landscape.

Furthermore, the Job Search System aims to foster transparency and efficiency in the recruitment process by providing a platform for constructive feedback exchange between employers and job seekers. With its user-friendly interface and offline capabilities, the application empowers users to engage with the job market seamlessly, transcending the limitations of traditional job search.

The project encompasses three fundamental steps for users:

1. **LOGIN/SIGNUP:** Users can either log in with existing credentials or sign up for a new account.
2. **FOR JOB PROVIDERS:** Upon logging in, job providers can select their desired location and proceed to post job listings.

3. **FOR JOB SEEKERS:** Users assuming the role of job seekers can explore available job opportunities and select those that align with their preferences and qualifications.

Advantages of the system include enhanced accuracy in job matching and efficient classification of job postings. However, a potential disadvantage lies in the processing time required to execute complex algorithms for job search and matching.

• **USER REGISTRATION AND PROFILE CREATION**

Users begin by registering an account on the platform or logging in if they already have an account. During registration, users provide basic information such as their name, email address, and password. After registration, users are prompted to create a profile where they can input additional details such as their education, work experience, skills, and career preferences.

• **INTELLIGENT JOB MATCHING**

Upon profile creation, the system's intelligent agent begins analyzing the user's profile and preferences. Using advanced AI algorithms and natural language processing (NLP) techniques, the system identifies key attributes such as skills, experience, and industry preferences. Based on this analysis, the intelligent agent generates personalized job recommendations tailored to the

user's profile and career aspirations. The system continuously learns from user interactions and feedback to refine its job matching algorithms and improve the accuracy of its recommendations over time.

• **JOB SEARCH AND FILTERING**

Users can also conduct manual job searches using the platform's search interface. The system provides a user-friendly search interface where users can input search queries in natural language or specify criteria such as location, industry, experience level, and salary expectations. Search results are dynamically generated based on the user's input and preferences, with the most relevant job listings displayed first. Users can further refine search results using advanced filtering and sorting options to narrow down their options and find the perfect job opportunity.

• **RESUME OPTIMIZATION AND SUBMISSION**

The system includes a built-in resume parsing tool that analyzes resumes submitted by users. The tool extracts key information such as skills, experience, and education from the user's resume. Users receive personalized feedback and recommendations for optimizing their resumes to increase visibility and attract potential employers. Once the user's resume is optimized, they can submit it directly to job listings of interest through the platform.

• CAREER DEVELOPMENT RESOURCES

In addition to job listings, the system provides users with access to a wide range of career development resources. These resources include articles, guides, and online courses covering topics such as resume writing, interview preparation, networking strategies, and professional skill development. Users can access these resources to enhance their employability, develop new skills, and advance their careers.

The underlying job search algorithm is rooted in job-search theory, aiming to formulate strategies for optimal employment decisions. It considers various factors influencing individuals' demands and their prospects for securing acceptable job offers. Key variables encompass industry, occupation, education level, job type (e.g., full-time, part-time, contract), career level (matching experience with job requirements), as well as salary and allowances, encompassing both monetary compensation and additional benefits.

4. CONCLUSION

The development and implementation of the intelligent agent-based job search system mark a significant leap forward in online recruitment and career management. By harnessing cutting-edge technologies like artificial intelligence (AI) and natural language processing (NLP), the system provides users with a sophisticated and personalized platform for navigating the

complexities of the job market efficiently. A key strength of the system lies in its ability to deliver highly personalized job recommendations, tailored to each user's unique profile and preferences. By analyzing user data and behaviour, the intelligent agent identifies relevant job opportunities closely aligned with the user's skills, experience, and career aspirations, saving time and effort while increasing the likelihood of finding a meaningful employment opportunity. Moreover, the system's intuitive search interface and advanced filtering options empower users to explore a wide range of job listings with ease and precision. Whether searching by keyword, location, industry, or salary, users can quickly refine their criteria to find the perfect match. The system's natural language processing capabilities enhance the search experience, allowing users to input queries in plain language and receive accurate and relevant results. Additionally, users have access to a wealth of career development resources, including articles, guides, and online courses, covering topics such as resume writing and interview preparation. An interactive virtual assistant further enhances the user experience by providing personalized assistance and guidance throughout the job search journey.

5. REFERENCES

- [1] D. Reilly, "Mobile Agents - Process migration and its implications", 1998. Available from:

http://www.davidreilly.com/topics/software_agents/mobile_agents/

[2] S Franklin and A. Graeser, "Is it Agent or Just Programme? A Taxonomy for Autonomous agents". 1996. Available from <http://www.msci.memphis.edu/~franklin/AgentProg.html>

[3] M. Wooldridge and N. Jennings, "Intelligent Agents: Theory and Practice", Proceedings of Knowledge Engineering Review, October 1994, pp. 4-14.

[4] J. Kuppala, K. K. Srinivas, P. Anudeep, R. S. Kumar and P. A. H. Vardhini, "Benefits of Artificial Intelligence in the Legal System and Law Enforcement," 2022 International Mobile and Embedded Technology Conference (MECON), Noida, India, 2022, pp. 221-225, doi: 10.1109/MECON53876.2022.9752352.

[5] Meena, K., Veni, N.N.K., Deepapriya, B.S. et al. A novel method for prediction of skin disease through supervised classification techniques. *Soft Comput* 26, 10527–10533 (2022). <https://doi.org/10.1007/s00500-022-07435-8>

[6] P. A. Harsha Vardhini, S. S. Prasad and S. N. Korra, "Medicine Allotment for COVID-19 Patients by Statistical Data Analysis," 2021 International Conference on Emerging Smart Computing and Informatics (ESCI), Pune, India, 2021, pp. 665- 669, doi: 10.1109/ESCI50559.2021.9396830.

[7] F. Bellifemine, G. Caire, and D. Greenwood, "Developing Multi agent Systems with JADE," John Wiley & Sons, Ltd, pp.32- 35, 52-65,77-79, 2007.

[8] S.Shivaprasad, M Sadanandam "Speech Based Query Searching Technique And Its Application In Library Management System", International Journal Of Recent Technology and Engineering ISSN: 2277-3878, Volume-8 Issue-3, September 2019.

DOI: 10.35940/ijrte.C4779.098319

[9] S Suresh., "Studies in Agent based IP Traffic Congestion Management in DiffServ Networks", PhD Thesis, University of South Australia, Adelaide, Australia, 2006.

[10] P. A. Harsha Vardhini, S. S. Prasad, M. H. S Vishnu Sai, C. Santoshi and D. Konduru, "Pioneering Minimalist Speech Analysis Through Optimized Spectral Features Machine Learning Models," 2024 International Conference on Emerging Smart Computing and Informatics (ESCI), Pune, India, 2024, pp. 1-6, doi: 10.1109/ESCI59607.2024.10497288.

[11] T. N. S. K. M. Kumar, U. Jaladhi, S. K. C. Rudraraju, V. Shariff, V. R. Reddy Ch and P. A. H. Vardhini, "A Comparison between Shortest Path Algorithms Using Runtime Analysis and Negative Edges in Computer Networks," 2022 International Mobile and Embedded Technology Conference (MECON), Noida, India, 2022, pp. 348-351, doi: 10.1109/MECON53876.2022.9752035.

[12] Satla, Shivapasad & Sadanandam, M. (2021). Dialect recognition from Telugu speech utterances using spectral and prosodic features. *International Journal of Speech Technology*. 1-10. 10.1007/s10772-021-09854-8.

[13] V. R. Reddy, D. Yakobu, S. S. Prasad and P. A. H. Vardhini, "Clustering Student Learners based on performance using K- Means Algorithm," 2022 International Mobile and Embedded Technology Conference (MECON), Noida, India, 2022, pp. 302-306,

doi: 10.1109/MECON53876.2022.9752165.

[14] S.Shivaprasad, M Sadanandam "Speech Based Query Searching Technique And Its Application In Library Management System", International Journal Of Recent Technology and Engineering ISSN: 2277-3878, Volume-8 Issue-3, September 2019.

DOI: 10.35940/ijrte.C4779.098319

[15] M. L. Kumar, P. A. Harsha Vardhini, V. Malathy, M. Anand and P. B. Kumar Chowdary, "Kernel Based FCM for Spinal Cord Segmentation on

Computed Tomography Images," 2024 International Conference on Emerging Smart Computing and Informatics (ESCI), Pune, India, 2024, pp. 1-6, doi: 10.1109/ESCI59607.2024.10497368.

[16] K. K. Srinivas, A. Peddi, B. G. S. Srinivas, P. A. H. Vardhini, H. L. P. Prasad and S. K. Choudhary, "Artificial Intelligence Techniques for Chatbot Applications," 2022 International Mobile and Embedded Technology Conference (MECON), Noida, India, 2022, pp. 292-296, doi: 10.1109/MECON53876.2022.9751887.

[17] T. N. S. K. M. Kumar, U. Jaladhi, S. K. C. Rudraraju, V. Shariff, V. R. Reddy Ch and P. A. H. Vardhini, "A Comparison between Shortest Path Algorithms Using Runtime Analysis and Negative Edges in Computer Networks," 2022 International Mobile and Embedded Technology Conference (MECON), Noida, India, 2022, pp. 348-351, doi: 10.1109/MECON53876.2022.9752035.

[18] P. A. Harsha Vardhini, S. P. R. D. Reddy and V. P. Parapatla, "Facial Recognition using OpenCV and Python on Raspberry Pi," 2022 International Mobile and Embedded Technology Conference (MECON), Noida, India, 2022, pp. 480-485, doi: 10.1109/MECON53876.2022.9751867.

[19] S Shivaprasad, Dr A Ramaswamy reddy ,K Dinesh "Efficient data mining model for Prediction of Chronic Kidney Disease Using wrapper methods" International Journal of Innovative Technology and Exploring Engineering(IJITEE) Vol.8, No.2, August 2019, pp. 63-70 ,ISSN: 2252-8776 DOI: 10.11591/ijict.v8i2.pp:63-70.

AUTHOR'S PROFILE



T. NARESH is currently working as Assistant Professor in Audisankara College of Engineering and Technology (AUTONOMOUS), NH-5, Bypass Road, Gudur, Tirupati (Dt.), Andhra Pradesh, India.



S. SIVA KUMAR is pursuing MCA from Audisankara College of Engineering and Technology (AUTONOMOUS), NH-5, Bypass Road, Gudur, Tirupati (Dt.), Andhra Pradesh, India.