SMART APPLICATION TRACKING SYSTEM

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Abstract— **The traditional ATS platforms have issues with parsing resumes, matching the candidates to the job description, and keeping candidates engaged. Using the Generative AI models from Google, our system has much better performance in these aspects.**

The proposed Smart ATS enables users to upload their resumes in PDF format and the PyPDF2 library is used to extract data from the PDF resumes. Generative AI models compare the extracted information with the job descriptions and determine the percentage match to find the best suited candidates. Also, the system identifies the absence of some keywords and offers recommendations on how to optimize the resume to match the job description better. Historically, ATS solutions have some issues with resume parsing, candidate matching to the job description, and candidate engagement. With the help of Generative AI models from Google, our system provides a vast improvement in these aspects. Statistical analysis has been used to prove the there is significant relationship between e recruitment and overall recruitment .There is moderate relationship between these 2 variables and job seekers feel convenient to search potential jobs for their phosphorus carrier . So that the it is recommended that the organization should use e ecruitment and online sources for hiring people.

Keywords— Digitalization, Recruitment, Applicant Tracking System.

INTRODUCTION

This project mainly focuses on to explain how digitalization has bolstered the recruitment process of an organization by the implementation of “Applicant tracking system” and how it is useful in the recruitment process and selection of a right individual of an organization. To work with individuals viably, a comprehension of both human conduct, disposition and different practices accessible to enable us to assemble a talented and spurred workforce must be obtained. Digital recruitment occurs when hiring managers and human resources professionals use technology as a tool to attract and hire the best talent for an open job listing. Human Beings are the most valuable assets of any organization and considered as vital for the success and failure of the organization. If these resources are properly acquired and managed, the concerned business will achieve the best and gain more competitive advantages in the Industry

The aim of digital recruitment is to make the processes more efficient, effective and less expensive. E recruitment will reach a stupendous pool of potential employees and facilitate the choice process. In order to understand the relationship between digitalization and recruiting we need to understand what kind of digital tools can be used in recruiting. We are using React.js to build the frontend of the website. It gives the best user experience. React.js uses component based architecture. This architecture is used to break down the complex user interface into reusable components.

The most common example are the different job sites that can be found online. Other tools are different social media sites, such as LinkedIn, Facebook and Twitter that can be utilized in recruiting processes as well. Furthermore, video interviews via Skype or video applications made by specified programs are all part of the revolution of digital recruiting tools.In simple words, Increase in utilizing the digital or computer technology by the company in an organization is referred as Digitalization. This saves both time and money of the concern. .

Streamlit is a versatile and open-source tool that can be used to build web applications in Python within a short span of time. In the context of an Applicant Tracking System (ATS) connected to Generative AI, Streamlit is the key to improving the interface and making the system user-friendly for both recruiters and applicants. Google Generative AI can be employed to accurately parse resumes and extract relevant information such as skills, experience, education, and other key attributes.

LITERATURE SURVEY

[1] Automated Resume Screening: A Review of Existing Methods and Technologies, this paper[1] provides an overview of automated resume screening methods, including keyword matching and machine learning algorithms, highlighting their effectiveness and limitations.

[2] This paper[2] Enhancing Applicant Tracking Systems with Natural Language Processing Techniques Focuses on the integration of NLP techniques into ATS for improved resume parsing and matching, discussing recent advancements and future directions.
Deep Learning Approaches for Resume Analysis and Candidate Ranking, the paper [3], Explores the application of deep learning models for resume analysis and candidate ranking within ATS.3. Semantic Matching in Applicant Tracking Systems: A Survey [4] provides an overview of semantic matching techniques used in ATS for better alignment between job requirements and candidate qualifications.

[3] This Paper [5] Ethical Considerations in AI-Powered ATS Development Discusses ethical issues related to bias, fairness, and privacy in the development and deployment of AI-powered ATS, proposing strategies for mitigating potential risks.

[4] Continuous Learning and Adaptation in Smart ATS Systems [7] Investigates methods for enabling continuous learning and adaptation in smart ATS systems to improve performance and relevance over time.

[5] Interoperability Standards for ATS Integration with HR Systems This paper[8] Discusses interoperability standards and protocols for seamless integration of ATS with other HR systems and tools, enabling data exchange.

[6] This paper [9] Predictive Analytics for Candidate Success Prediction in ATS Explores the use of predictive analytics models within ATS for identifying candidates with the highest likelihood of success in specific roles, discussing their implementation and effectiveness.

[7] This paper [10] Data Security and Compliance Challenges in ATS Addresses the challenges of data security and compliance with regulations such as GDPR in the context of ATS systems, proposing strategies for ensuring data protection and regulatory compliance.

[8] Social Media Integration in ATS for Candidate Sourcing This paper[11] Explores the integration of social media data into ATS for sourcing and evaluating candidates, discussing its potential to expand candidate pools .

[9] Keyword Extraction Techniques for Resume Analysis This paper[12] Discusses techniques for extracting relevant keywords and phrases from resumes to enhance search and matching capabilities within ATS, highlighting recent advancements and challenges.

[10] This paper[13] Automated Candidate Screening Strategies in ATS Investigates automated screening strategies and algorithms for efficiently processing candidate applications within ATS, discussing their impact on recruitment efficiency and accuracy.

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[14] Evaluation Metrics for ATS Performance This paper[16] Discusses evaluation metrics used to assess the performance and effectiveness of ATS systems, highlighting key metrics and their significance in measuring system performance and user satisfaction.

[15] Knowledge Representation and Reasoning in Smart ATS This paper[17] Explores knowledge representation and reasoning techniques used in smart ATS systems, discussing their role in enhancing decision-making processes and improving system intelligence.

[16] Robustness and Bias Mitigation in Smart ATS This paper[18] Investigates techniques for enhancing the robustness of smart ATS systems and mitigating bias in candidate selection, discussing approaches for ensuring fair and equitable recruitment outcomes.

[17] This paper[19] Personalization Strategies in ATS for Candidate Engagement Discusses strategies for personalizing the candidate experience within ATS to improve engagement and satisfaction, highlighting the role of personalized recommendations and communication.

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III. Existing System

The current recruitment systems are often manual, time-consuming, and prone to errors. Recruiters spend significant time on tasks such as sorting resumes and scheduling interviews. These systems typically lack the capability to analyze large volumes of data, leading to less informed hiring decisions. Additionally, the manual nature of current processes results in higher operational costs and a risk of non-compliance with employment laws.

Resume Management: Current ATS systems enable the recruiters to capture, sort, and archive resumes submitted by the candidates. They can also contain functionalities for analyzing resumes to identify relevant information like skills, experience, and education. Synchronizing the system on the cloud platform. A program to train the HR staff for continuous support and encouragement.

Job Posting and Distribution: Recruiters can post jobs within the ATS and then broadcast the job to various job boards and social media sites. This feature is useful in that it enables organizations to tap a large pool of candidates. Employers are also able to post jobs directly on

the ATS and have the ability to advertise them on multiple job sites and social networking sites. This feature assists organizations in finding a larger talent pool of candidates.This feature assists organizations to tap a larger pool of talents.This feature is useful in ensuring that organizations get a large number of qualified candidates.

Integration with Other HR Systems: Some of the ATS platforms available in the market today have features that allow for interoperability with other HR solutions such as the HRIS and onboarding tools to enhance the general talent management process. Most ATS comes with the capability to interface with other HR applications, including HRIS and onboarding tools for efficiency in talent management.

IV. Proposed System

ATS looks for improvement on the current systems by providing resume screening feature, data analytics, improve communication and interconnectivity and a centralised area to organize all the recruiting processes. The program also incorporates management of compliance and varied workflows for adequate correspondence in the company's needs and accommodations for growth in the future. ATS overcomes the drawbacks of traditional ATSs owing to resume filtering based on the gathered data, better communication means, and the ability to integrate into a single platform dealing with all the stages of the recruitment process. It has capability for compliance management and is also able to be customized for carrying out specific work flows needed by an organization as it grows in functionality.

A. Objectives:

- An ATS can help organizations save a lot of time and money by eliminating the need for manual processes.
- Incorporate a real-time processing feature in order to enable immediate analysis and decision-making.
- This will allow constant supervision and enhancement of the system to meet the required standards.
- This should allow for easy integration with existing systems so as to facilitate transfer and analysis of data.

B. Approach:

- *Research and analysis*

  Investigate, analyze and compare current available ATS solutions and their capabilities, employed technologies, advantages, and limitations.

If possible, assess the current recruitment process in the organization to determine critical issues and opportunities for enhancement Evaluate the current state of the recruitment process in the company (if any) and determine its strengths and weaknesses

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- Technology selection

Assess various technologies and tools that can be utilized to create or improve the ATS, including programming languages, frameworks, databases, and third-party APIs. When choosing between various technologies, it is also important to take into account their scalability, security, and ability to integrate with other systems. Compare various technologies and tools that can be used to build or improve the ATS, including programming languages, frameworks, databases, and third-party APIs.

- Define project Scope and objective :

  Identify the aims and objectives of the project in a precise manner. Find out what specific features or improvements the ATS should have. Determine who the stakeholders are and what their needs and expectations are so that they can be met.,

- Pre- processing :

  Pre-processing is a critical step in the development of a Smart Applicant Tracking System (ATS) to ensure data is clean, structured, and ready for analysis or machine learning tasks. The process begins with data collection, where resumes and job descriptions are gathered in various formats, such as PDF, Word, and plain text. Next, data parsing is performed using libraries like PyPDF2 for PDF resumes, python-docx for Word documents, and standard text processing for plain text files.

AI Model:

The AI model utilized is ChatGoogleGenerativeAI with the identifier generative api model as the model.

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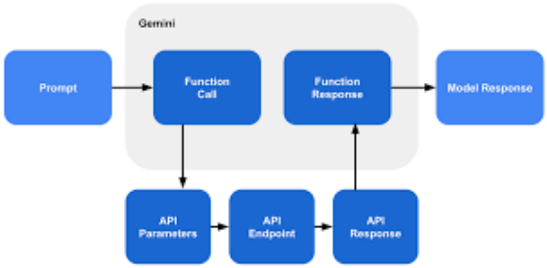

V. Working

- Interactive frontend:
  The frontend is built using React Js to give the best user experience. The user interface is easy to navigate and explore.

- Home Page:
  The home page features the navigation to the various parts of the website and it also provides details of the website.

VI MODULE DESCCRIPTION

1. Job lListing module

This module is responsible for creating, editing, and publishing job listings. It allows companies to create job listings with detailed job requirements, descriptions, and other relevant information. The module may also include features such as job category tagging, search and filtering options, and integration with third-party job boards.

2.Resume submission module

This module is responsible for handling the resume submission process. It provides a way for candidates to upload their resumes and other relevant information through the web application

3.Resume scoring module

This module is responsible for evaluating each resume based on job requirements and scoring each candidate based on their fit for the job. The algorithm could use a variety of factors to score each candidate, such as education level, years of experience, specific skills or certifications, and more. The module may also include features such as customizable scoring criteria, weightage adjustment , and real-time candidate ranking.So scorce can be obatnied. ..

VII PURPOSE OF INTEGRATING WITH GOOGLE GENERATIVE AI AND APPLICATION TRACKING SYSTEM

Application of generative AI in an ATS means using advanced technologies of AI in combination with conventional methods of work in the sphere of recruitment in terms of the system's optimization, improving reliability, and the convenience of its functions for the user. However, this integration also has potential issues that need to be addressed appropriately while reaping all the advantages from the process. The desired skill set and

experiences, as well as other information like education and achievements, can be easily and efficiently obtained through generative AI from resumes. AI can predict based on the available candidate data and similar patterns that could be likely to occur. The desired skill set and experiences, as well as other information like education and achievements, can be easily and efficiently obtained through generative AI from resumes. AI can predict based on the available candidate data and similar patterns that could be likely to occur.

VI . Conclusion

ATSs can make the frequently dreary routine with regards to hiring more sensible, reasonable and effective. While potential hiring may incidentally feel uneasy about the computerized procedure, ATS can make it less demanding for those candidates who have figured out how to deal with the robotized framework. Obviously, similarly as with numerous innovatively based frameworks, evacuating a portion of the human judgment and leaving complex choices to be made mechanically can result in blunder. The choice on regardless of whether to receive an ATS rests with the particular needs, wants, and requests of the organization..

There is a positive impact of digitalization on recruitment and selection process as there is a huge competition for job and ATS helps in smooth recruiting process. .Not all organization's and candidates are following this system. Hence there is a need to create awareness among the prospective employees as well as employers which could act as a boon for both since it reduces the cost and connects employee and employer as per their exact requirement.

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It helps in saving time and leads to an error free selection process. ATS act as a great boon for organization for the candidate search. The current recruitment system will overcome the drawbacks of previous recruitment system. The inclusion of Artificial Intelligence can lead to further improvement of Applicaton Tracking S. Overall, this project demonstrates ystem a comprehensive approach to collecting, processing, and utilizing data for an interactive user experience. The integration of modern technologies like React JS, LangChain, and Google Generative AI, coupled with secure data management practices, provides a reliable and efficient platform for users seeking interview preparation insights.

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