

APPLICANT RECRUITING CHATBOT*

BY

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The aim of this paper is to evaluate the impact of artificial intelligence chatbots on the recruiting process. The study investigated how chatbots can be used to draw and involve applicants in the recruiting process. The study's aim is to determine how chatbots affect the recruiting process. Artificial intelligence chatbots are very productive tools in the recruiting process, according to the paper, and they can be useful in developing a recruitment policy for the industry. Furthermore, it relies on resolving difficult problems in the recruiting process. About the fact that the artificial intelligence recruiting process is gaining traction among researchers, there is still room for exploration in the area. Future research directions in the field of chatbots and recruiters were presented in the study. Human resource management and staffing, in particular, are undergoing relentless transition, owing to the growing digitalization of the workplace. Automating workflow phases with emerging technology is one way to increase productivity in automated recruitment. A chatbot, when used in the field of recruitment, will open up a new line of contact between an organization and prospective candidates. Using IBM Watson, this paper explores the motivators and obstacles to using a chatbot for recruitment, as well as the candidates' aspirations and preferences for chatbot architecture.

KEYWORDS

Artificial Intelligence; Chatbots; Recruitment Process; Candidates Experiences; IBM Watson.

1Introduction

Human Resource (HR) experts have been able to simplify and streamline corporate functions around hiring potential hires for an enterprise in recent years, including candidate monitoring, on

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boarding, performance evaluations, salary administration, and job growth, thanks to the development of new technology. Despite the fact that recruitment systems have improved significantly, many HR practitioners still find the end-to-end loop to be a boring aspect of their everyday tasks. Recruiters, for example, are in charge of evaluating incoming resumes and applications and arranging phone interviews to see whether a candidate is available for an onsite interview. This process alone could take up to two weeks, depending on how many applicants a recruiter gets. Automated systems enable recruiters to concentrate on bringing in quality applicants rather than time-consuming logistical activities by eliminating some of the manual labor involved. Other technological innovations are now on the business to support HR professionals minimize even more manual labor by tracking received applications, screening potential candidates' applications, handing out automated emails and notifications, organizing interviews, monitoring a candidate's status as they progress through the recruitment process, mailing out offers, closing the role, and finalizing the process. Companies would be able to use Artificial Intelligence (AI) technologies for recruiting in the near future, thanks to data analytics. Through the development of the "Resume Scorer," a ground-breaking method that analyzes key material from a work

posting, such as needed qualifications or experience, and compares it to a candidate's resume. With that detail, HR professionals will concentrate our attention on instantly engaging with the highest-scoring applicant rather than trying to sit and study

resumes. A bot is a type of communication device that can be used by employees and consumers to execute certain communication-related tasks within an enterprise without the need for human interaction. Chatbots not only affect corporate decision-making, but they also help workers gain a greater understanding of artificial intelligence. As a result, we encapsulated the capabilities of chatbots in a real-time

environment to verify their utility in a human resource management system.

In recent years, students who are looking for work have been misled by different organizations' recruiting processes. There are few websites that have even a smidgeon of information about recruiting drives. This application chatbot would provide a wealth of knowledge about companies' recruiting processes, business feedback, and interview questions sent by people on the insight, making it simple to apply for the position that is right for you. Students would be able to quickly work through the different rounds of recruiting. So that you will fully comprehend the procedure and plan accordingly. This chatbot technology is being developed to familiarize users with the recruiting screening process in different companies. In addition, the framework would study and analyze the different organizations' recruiting and hiring processes. This system

would benefit all students who are applying for jobs and the college's recruitment and placement department. This system would assess how satisfied students are with a given company's recruiting papers and selection process.

2 Literature Review

2.1 Summary of Literature and Future Scope

Balachandar, A. and Kulkarni, A.D [6] Paper stated that The service providers had vast numbers of resumes in their Application Tracking Systems (ATS) and Customer Relationship Management (CRM) Systems, but manually screening such resumes and mapping applicants to job opportunities from these systems was a time-consuming process for recruiters. The trick to effective recruitment is finding eligible applicants from a vast applicant pool and engaging them. This is where technologies can be able to assist recruiters in making their jobs easier.

Schildknecht, L., Eißer, J. and Böhm, S.,[2] examines at the drivers and challenges to using chatbots in recruitment, as well as the candidates' aspirations and preferences for chatbot architecture. Furthermore, factors affecting the experience of hiring chatbots were studied using the principle of social presence. The methodological research was conducted using a quantitative online questionnaire.

In Germany, a total of 213 people were polled. As a result, the research shows that there is widespread curiosity in the use of recruitment.

From the viewpoint of the elector, chatbots are powerful motivators, obstacles, and design expectations.

Majumder, S. and Mondal, A[3] In this paper, a summary of HRM chatbots, also known as HR-bots, is examined in order to emphasize their utility in real time while taking into account related challenges such as expense, diverse business domains, restricted responsiveness, and so on.

GS, D., [4] mentioned that the aim of this study is to see if these chatbots will be able to completely replace HR managers in the near future. All of the results, responses, blogs, and journals suggest that chatbots only respond to what is programmed into them. It can't take the role of an HR boss because it lacks individual qualities such as thoughts and emotions. Questionnaires were used to learn about the respondents' perceptions in a descriptive study style. The questionnaire was built using a variety of tried-and-true instruments created by different researchers. A demographic profile and comments about the need for the chatbot, technological problems with the chatbot, chatbot assessment, and chatbot implementation are prepared in a Likert style questionnaire. Employees and administrators from various organizations that have knowledge of artificial intelligence, HR procurement, and chatbots were

the demographic targeted for data collection in this study. The questionnaire is distributed to a sample size of approximately 113 participants. Frequency analysis, mean analysis, T-test, and ANOVA were used to evaluate the results.

Laurim, V., Arpaci, S., Prommegger, B. and Krcmar, H[5] This paper aims to classify personal and contextual factors that affect AI-based technologies' adoption in the recruiting process. We present that clarity, complementary aspects of AI tools, and a sense of autonomy play key roles in the adoption of AI-driven technologies when used for hiring, based on interviews with recruiters, supervisors, and candidates participating in the recruitment process.

Nawaz, N. and Gomes,[1] A.M has studied various research paper and concluded that AI Technology has been effective in simplifying work and collecting related knowledge in applicant experience, developing relationships, answering questions, identifying the best applicants, onboarding, increasing submissions, arranging interviews, and so on. Recruiters would be aligned with technology to ensure a smooth running of operation and ensure market results. The current research is entirely focused on surveys of the literature. The literature gathered offered a basic explanation of artificial intelligence chatbots and how they function in the real world procedure for hiring

Rajkumar, E. and Mohan, N., [7] stated the aim of this analysis is to discover the various technologies and preferences of digital recruitment techniques across various age groups, as well as how beneficial these innovations are to an applicant or job seeker.

De, D. and Baby, A.T [8], discussed the advantages of using a recommendation engine to match candidates like Contextual Evaluation will help you avoid the pitfalls of keyword searches, reduce bias, and improve the quality of the hiring process. Attract the Best Candidates and Get Less Inappropriate Applications

Oswal, N., Khaleeli, M. and Alarmoti, A [9], Discussed about various Top AI Recruitment Platforms like Fetcher which Creates an internal team to track the database and offers a source of varied and skilled candidates by combining AI with humans in the circle candidates in a short period of time. Seekout acts as an intelligent talent competition solution, which can be integrated into a firm's ATS scheme.

Cavaliere, L.P.L., Nath, K., Wisetsri, W., Villalba-Condori, K.O., Arias-Chavez, D., Setiawan, R., Koti, K. and Regin, R[10], The research theory, theories, research methodology, research strategy, research option, and time horizon will all be addressed in this paper. Artificial intelligence aids in the identification of an employee's competency and a characteristic that are relevant to the work being worked for.

Kshetri, N [11] they've come up with some ideas that could be used as a starting point for potential studies on the use of AI in HRM in GS economies. AI-based HRM tools are effective in a variety of ways, including reducing the time it takes to recruit a recruit, lowering prices, and maximizing the use of other services. AI will expand the number and range of metrics used in recruiting. AI is likely to become a powerful tool for achieving HRM objectives such as recruiting top players, retaining them, and enhancing leadership skills. And stated that With AI deployment in HRM, subjective criteria such as nepotism and favoritism are less likely to come into play in recruitment, selection and promotion of employees in GS economies.

Nikolaevna, K.I. [12] proposes a methodology for organizations to use to incorporate automated recruiting; a technique for assessing candidates' resumes; a methodology for conducting preliminary interviews using intelligent conversation systems built on machine learning principles; and an example of using a chat bot in the selection and assessment of candidates. The benefits of modern recruitment over traditional personnel procurement approaches are discussed.

2.2 Summary of literature

Sr . No.	Title(Year)	Author	Methodology	Strength	Drawback	Future Scope
1	RECRUITMENT CHATBOT (2018)	Balachandar, A. and Kulkarni, A.D	Neural nets	Via their intelligent assistant, the Recruiter Bot ,they will automate the selection and initial contact process, as well as applicant interaction.	Risks of Delay in Growth, Customer input is taken into account b professional personnel.	Scope for improvement is As extended to the world of economics, it may offer useful ideas and solutions.

2	<p>Motivators and Barriers of Chatbot Usage in Recruiting: An Empirical Study on the Job Candidates Perspective in Germany. (2019)</p>	<p>L Schildknecht, J Eißer, SBöhm</p>	<p>statistical analyses</p>	<p>A total of 451 people took part in the online study, with a participation rate of about 47%. There are a total of 213 participants as a result of this.</p>	<p>The use of closed questions is a restriction. Respondents were not given the chance to list any reasons that were not included in the survey. As a result, there's a chance that important inspiration boosters or obstacles will go unnoticed.</p>	<p>examines at the drivers and challenges to using chatbots in recruitment, as well as the candidates' aspirations and preferences for chatbot architecture.</p>
3	<p>Are chatbots really useful for human resource management? (2021)</p>	<p>Majumder, S. and Mondal, A</p>	<p>Artificial Intelligence</p>	<p>a summary of HRM chatbots, also known as HR-bots, is examined in order to emphasize their utility in real time</p>	<p>technology was unable to assess human characteristics.</p>	<p>HR-bots are examined in order to emphasize their utility in real time while taking into account related challenges such as a sexpense, diverse business domains, restricted responsiveness, and so on.</p>

4	HR Recruitment Through Chatbot- An Innovative Approach (2020)	DR. GIGI G.S1 , MS. PRISCILLA GUNASEELI . S	Frequency analysis, mean analysis, T-test, and ANOVA	For professional and busy HR recruiters, a chatbot makes life a lot easier.	Since it may not conduct face-to-face recruiting, an automated chatbot can reduce the risk of fraudulence arising as a result of incorrect details or a candidate's resume.	this study is to see if these chatbots will be able to completely replace HR managers in the near future.
5	Computer, Whom Should I Hire? – Acceptance Criteria for Artificial Intelligence in the Recruitment Process	Laurim, V., Arpaci, S., Prommegger, B. and Krcmar, H	Research Analysis	This study further refers to the approval criterion for AI as well as the method for overcoming the issues that arise with machine learning.	Article 22 stipulates that the final decision on applicants must be taken by a human being. Anything that is an infraction.	when used for hiring, based on interviews with recruiters, supervisors, and candidates participating in the recruitment process.
6	Artificial Intelligence Chatbots are New Recruiters (2019)	Nawaz, N. and Gomes, A.M	The entire thesis is focused on literature reviews.	The technology ensures a smooth running of operations and ensures market results.	The current research is entirely focused on surveys of the literature	Artificial Intelligence Chatbots are New Recruiters (2019)

7	AN INNOVATION IN DIGITAL RECRUITING STRATEGIES – Job Seeker's Perspective	Rajkumar, E. and Mohan, N	hypotheses	Video Interviewing is the most common digital recruiting innovation, and most respondents believe that the organization's portal website is simple to use for recruitment purposes.	it may not conduct face-to-face recruiting, and fraudulence can arise as a result of incorrect details or a candidate's resume.	stated the aim of this analysis is to discover the various technologies and preferences of digital recruitment techniques across various age groups, as well as how beneficial these innovations are to an applicant or job seeker.
8	HUMAN RESOURCE RE-ENGINEERING: AN EMPIRICAL APPROACH THROUGH AI IN RECRUITMENT (2021)	Durlabh De, Annie ThomasBaby	Recommendation Engine	Matching Candidates With Recommendation Engine	AI's long-term sustainability is contingent on the opportunity to make the necessary structural and operational changes to make them compliant with intelligent systems and solutions.	Artificial intelligence aids in the identification of an employee's competency and a characteristic that are relevant to the work being worked for.

9	RECRUITMENT IN THE ERA OF INDUSTRY 4.0: USE OF ARTIFICIAL INTELLIGENCE IN RECRUITMENT AND ITS IMPACT. (2020)	Oswal, N., Khal eeli, M. and Alarmoti	AI	comparison of various Top AI Recruitment Platforms	it may not conduct face-to-face recruiting, an y fraudulence can arise as a result of incorrect details or a candidate's resume.	
10	<i>The Impact of E-Recruitment and Artificial Intelligence (AI) Tools on HR Effectiveness: The Case of High Schools</i> (2021)	.Cavaliere, L.P.L., Nath, K., Wisetsri, W., Villalba-Condori, K.O., Arias-Chavez, D., Setiawan, R., Koti, K. and Regin, R.	Descriptive Statistic	stated that Artificial intelligence is likely to be 95 percent accurate.	Artificial intelligence aid in the identification of an employee's competency and a characteristic that are relevant to the work being worked for.	E-recruitment help managers save money by reducing wasting time.
11	Artificial intelligence in human resource management in the Global South. (2020)	Kshetri, N	Research	Values, perceptions, and individual desires are minimized.	it's worth noting that AI's long-term sustainability is contingent on the opportunity to make the necessary cultural and operational changes to make them compliant with intelligent systems and solutions.	Artificial intelligence can also be a powerful weapon in the war against inequality, such as nepotism, cronyism, and favoritism.

12	RECRUITMENT BASED ON ARTIFICIAL INTELLIGENCE TECHNOLOGIES. (2020)	Nikolaevna, K.I.	ARS, machine learning	The technology was put to the test by the Vitebsk IT firm, which employs 120 employees. Graduate students of	technology was unable to assess human characteristics.	Firms should be encouraged to implement an integrated hiring method that uses artificial intelligence
				Vitebsk's higher educational institutions are eligible to apply.		capabilities to reduce the time and labour costs of HR professionals, as well as the ease of gathering, sorting, and storing information.

Table 01. summary of literature

3. Architecture

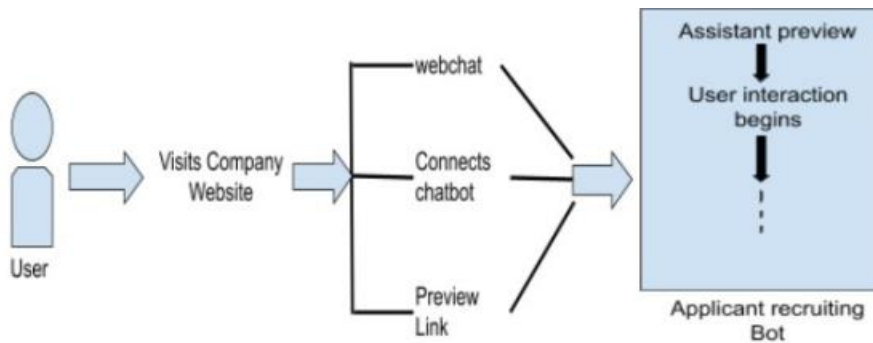


fig. 01 Sample architecture for chat-bot

3.1.Workflow Description:

This Bot is a small prototype of How chatbot will be used as Recruiting chatbot in various companies chatBot will - interact Personally with the user and have conversation and ask for personal details, education and qualifications with a The Bot will assess the details given by and will take further actions.

From the work flow diagram we can describe the workflow as follows:

- User visits the company website
- Connect to the chatbot
- Assistant will interact with user
- And the process will be carried on

4.Proposed System

4.1.Problem Statement:

There is no proper technology to give full insights of the recruitment processes happening at a company. Every website gives a vague idea about different companies' recruitment.

4.2Solution:

This chat bot will be used for many companies to recruit the candidates based on their conditions, for example any new startup has been set up they will be need of new candidates for their company so, they can simply use this chatbot to communicate with the new candidates without any human efforts and will also save the time of the company to hire their employees.

4.3Scope:

Chatbots can save businesses a lot of money when it comes to HR operations. According to Juniper, these figures are worth around \$8 billion dollars.

- Like humans, chatbots are not constrained by time. They are not bound by working hours or strict work schedules. You can talk to a Chatbot at any time of day, from anywhere on the planet.
- When discussing time control, the subject of quicker turnaround times comes up. While it would take a person a long time and effort to respond to an employee's query, a chatbot could do so in a matter of seconds, due to a massive database of data stored in its system.
- Recruitment procedures are an important aspect of Human Resource Management, and since many people are nervous about going on work interviews and they are afraid of being judged by a mental human, Chatbots may be a good substitute. They have a welcoming and informative

interface that can aid in better engagements by asking questions that can be answered from the safety of their own homes and then evaluated by human recruiters.

- Often relevant to recruiting procedures is the relative lightening of a human recruiter's load, since they will no longer be required to wait through endless interviews and applicants.
- Feedback gathering is a necessary task for every organization, but it can be tedious and uninteresting for the workers who are responsible for it. Chatbots come to the rescue here by gathering employee reviews on a daily basis.
- No matter how well-trained a human recruiter is, there will still be the possibility of unprofessional bias mistakes, which Chatbots avoid.

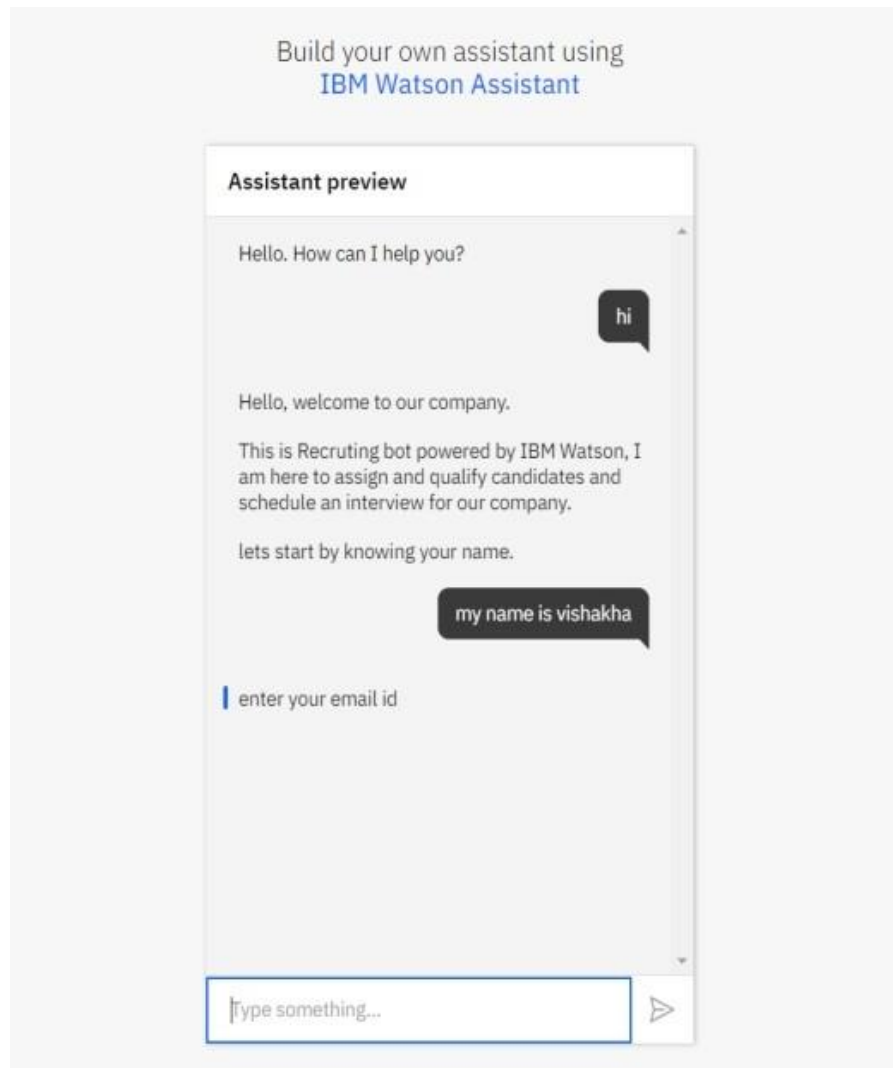
4.4. Technology Used:

Watson Assistant is an IBM artificial intelligence product that allows you to create, practice, and deploy conversational experiences in any software, device, or channel. When a confusion occurs, most chatbots attempt to imitate human conversations, which can frustrate users. Watson Assistant is a lot more than that. It recognizes when it needs to look for a response.

4.5. Implementation

Here we have used IBM Watson for making the chat bot. The following is the screen shot of the chatbot. Click on the link below, the chat bot will open and then you can interact with the bot. preview link:

<https://web-chat.global.assistant.watson.cloud.ibm.com/preview.html?region=eu-gb&integrationID=19a129f0-c3f7-40e7-9c4a-10c76be6fdf8&serviceInstanceID=9a777e36-c7f0-4f43-a11f-c47711499c7b>



5. Conclusion

HR innovation has a number of benefits, so it's no wonder that spotters adore it. At this time, an HR system is not being purchased to increase HR efficacy. Organizations now buy these frameworks to help them adjust their skill procedures and, as a result, increase staff commitment and recruitment capability. The device is designed to make your enrollment process more efficient and objective. It would save money and resources by automating different procedures and allowing for more accurate and responsive decision-making. AI would increase the overall efficiency of the recruiting process, including recruitment. Recruitment procedures are an important aspect of Human Resource Management, and since many people are nervous about going on work interviews and they are afraid of being judged by a mental human, Chatbots may be a good substitute. They have a welcoming and informative interface

that can aid in better engagements by asking questions that can be answered from the safety of their own homes and then evaluated by human recruiters.

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