AUTOMATED HR WITH HIRING INTELLIGENCE: A DIGITAL RECRUITING SOFTWARE DEDICATED TOIND THE BEST TALENTS FOR THEIR CLIENT USING

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Abstract:- Automated HR is a digital recruiting software dedicated to finding the simplest talents using AI for interviews. During this proposed method, we aim to make a tool for assessing candidate qualification supported AI techniques. HR interviews are a hurdle for many of the job-seekers as they have to travel an extended distance to require the interview and it's seen that by the top of the day because the recruiters get tired, this results in an unbiased selection. This software is meant to enhance productivity through quick processing and data-sharing. Through HR automation, organisations can design, integrate and deploy necessary services at a considerably lower cost. This platform professionalises the recruitment process and a biased selection of the deserving candidates. Through our platform, we mainly specialise in bridging the gap between the recruiters and job-seekers.

This software deals with two main actors, job-seekers and therefore the HR recruiters. The recruiters are given access to post the work, schedule the interview, and an analysis of the interview from the job-seeker is given to the recruiter for evaluation through which they will filter the candidates. The work seeker can see various jobs posted that support their eligibility. Our platform uses CNN based deep learning algorithms for video and audio analysis; the attention and face detection is completed using the hard cascade classifier algorithm. We have a questionnaire during which the recruiter can set questions, and therefore the candidates are going to be evaluated and supported by the responses given. Indeed, at the top of the interview, the candidate's skills are evaluated and are subjected to different algorithms to define the profile and affinity of the candidate with the client's needs. This method aims to extend the immersion level of the candidate and thus the involvement.

Keywords:-AI, HR, Recruiter, Job-seeker, Interview, Online recruitment, Deep learning.

I.   INTRODUCTION

HR interview is one of the traditional ways through which interviews are conducted. Unlike the technical interview, HR interview is designed to analyse the candidate's posture, body language and their interest. The interview is mainly conducted by a senior-level employee of the company. HR interview is considered as the last step of the whole job-cull process. In most of the times to attend the interview candidates need to peregrine long distances. In most of the time, it is quite sumptuous to bring the hr, and for that, the organisers need to arrange an extravagant stay, an alignment which may not be affordable to everyone.

Due to this scenario, many organisers will endeavour to eschew conducting the HR interviews which is a loss for the candidates and most of the time; this may lead to the cull of the candidates with lower potential. In addition to that, most of the job seekers are nescient of job opportunities as of high package. So to solve these countless quandaries in a job recruitment domain, we came up with a solution - Automated HR. Automated HR is an online recruitment video software. Through this platform, it provides sundry accommodations and implements so that we can uplift most of the drawbacks in a traditional way of recruitment system[3].

With the avail of this Automated HR software, we provide an interface to both job seekers and recruitment companies. The company can post sundry job apertures along with the description. Upon visually perceiving by job-seekers, they can apply according to their predilection in that domain. Once the candidate gets shortlisted for a particular job, they need to be seated for a Video interview. The video interview is mainly in 10-20 minutes. When the interview is over, the video is being analysed on sundry factors such as Positive posture, flexibility, confidence, quandary-solving skills and many more. We use CNN predicated deep learning algorithms and machine learning algorithms to solve the quandaries. The video is being clustered into audio and video frames for further non-verbal analysis. Finally, the best-matched profiles are culled and will be sent to the opportune company officials.

Our major goal is to surmount the cost and time factors in conducting an interview. In addition to that, to decrement the workload of Human Resource Managers and to cull out the most efficient candidates. Throughout this document, we are going to explore the sundry under related software modules and the design approach that we opt for.

II.BACKGROUND   RESEARCH

The human resources team is usually one among the foremost overworked and underemployed divisions in a corporation. Each day, they need to answer many benefit-related questions, handle new employees, manage paperwork and with a lot of their own papers to be mapped out. The typical job search strategy first allows a hiring manager to declare to the general public that an employee is required through a billboard or recruitment agency, then the work-seeker responds. Non-traditional job hunting strategies have given job seekers responsibility. Instead of waiting around for employment to be reported, they're building connections and seeking work opportunities before being reported to everyone else. Recruiters want to recruit candidates to satisfy the upper management as soon as possible, but at an equivalent time, they have to ensure the very best results. This is often why they also face new recruitment pace barriers[2]. Another concern is that recruiting approaches are ineffective for several modern companies. If recruiters struggle to stay up-to-date with current business demands, their final outcome will fail. An outsized number of individuals apply daily for various jobs. The most important issue is that recruiters fail to seek out the proper candidates. Balancing quality and pace, Obsolete recruitment methods, retention issues, Overloaded hiring processes, talent wars, Scarce resources are just a couple of the biggest recruitment problems. Recruiters got to stay informed of the new industry trends. It isn't enough nowadays to only put work ads and keep hoping they will fill vacancies, which is why there needs to be more constructive participation[3].

Modern recruiters got to be more involved so as to achieve success since they face a spread of challenges. One can't afford to relapse for job seekers, should one lose out on a chance. Application processes are a riddle for the candidates in their own rights, with very specific criteria. Having employment that suits your expertise, pays you to match your expertise, and knowledge proves to be a high order. These have rendered job search into an uncomfortable, stressful experience. Once they make it within the application process, much of the time they expect work applicants to urge no input and they are left to wonder where they've gone wrong. Therefore, as technology progresses, the recruiting and selection process must be modernized; it not only encourages job seekers to pursue more career opportunities; it also allows organizations to streamline their hiring processes.

III. EXISTING SYSTEMS

In the paper 'Automated Prediction and Analysis of Employment interview Performance', the author explains that the common perception surrounding job interviews is that the content of the interviewee's answers is the most vital determinant for fulfilment. However, empirical studies show that nonverbal behaviour is as important as the verbal response in job interviews[1]. Supporting these inputs, few software were created each with its own features and disadvantages. One

among the highest three is Mya Systems, a conversational AI recruiting platform that supports businesses and agencies. In 2012 EyalGrayevsky and James Maddox co-founded Mya Systems, formerly mentioned as FirstJob.

In July 2016, the San Francisco-based organization released its conversational AI-recruiter, Mya, to repair significant inefficiencies in hiring and optimizing the tactic for both career seekers and recruiters. Mya rapidly acquired an A-list of clients and became a variety one AI. Provider of solutions within the recruitment industry. Network performance is that the primary explanation for slow-speed dropped connections which can cause accuracy and reliability is called into question. The other is Gecko, a video interview bot that leverages AI for deeper insight into candidates. This accelerates the recruiting process and makes recruiting on a scale simple, whilst it improves applicant experience. The video interview bot activated by AI will remove the first-round interviews, enabling recruiters to think about more important tasks. Gecko is the ideal solution for recruiters and company owners looking to expand operations, expand into new goods or territories or speed up the interview process. Gecko Uses video intelligence, NLP and an interpretation of sentiments; Gecko can help recruiters identify the right candidate faster. It offers detailed screening, list jobs for open interviews, performance-based leaderboard sorting of applicants. Gecko helps in limiting human contact within the recruiting process. The last one is Zoho Recruit, an applicant tracking program that caters to various hurdles that recruiters face. With full solutions for both in-house recruiters and staffing firms, Zoho Recruit helps to seek out, monitor and use the only applicants, without having to try to do any juggling through different media. Zoho Optimize every part of your working day and automate activities like sending emails, updating the status of an interview and more. Get reports and data at your disposal, and prepare to recruit strategies easier.

IV. PROPOSED METHOD

The main purpose of this AI-based web application is to help recruiters to seek out the best contender for a company's job position using AI via online interviews. During this proposed method, we aim to make a tool for assessing candidate qualification supported AI techniques. The goal of this recruitment software tool is to eradicate the boundary between the recruitment company and therefore the job seeker.

The aim of this Automated HR is to alleviate the task of an HR, which is the main hurdle for a candidate to acquire employment. It also helps interviewees be tension-free by conducting an indirect interview where the interviewee only has got to face the webcam, thereby favouring him to precise her thoughts freely without anxiety. Automated HR can aid in conducting remote interviews which saves both the company's and candidate's time and money. Oftentimes the HR gets exhausted after interviewing a myriad of candidates, which can cause erroneous assumptions and selections. The proposed method can improve productivity thanks to quick processing and data-sharing. Through HR automation, organizations can design, integrate and deploy necessary services swiftly at a

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significantly lower cost[4]. This platform professionalizes the recruitment process by specializing in bridging the gap between the recruiters and job-seekers.

The web portal has three access levels, namely, Admin, HR, and job-seeker. Both HR and job-seekers can create their account and log in to their portal. The admin has the authority to validate the authenticity of the corporate to make sure that the corporate isn't fake.

ADMIN

The recruiters are given the freedom to post job notifications, and job-seekers can look for job openings by filtering the roles that suit them adhering to the qualifications the latter has.
HRs can schedule the interviews, whereas the interviewees can hook up with the AI platform to record the interview video. Once the interview has been over, the video clip is broadcasted to the recruiter at the top of the interview. An in-depth analysis of the interview given by the candidate is shipped to the recruiter for evaluation.

JOB SEEKER

AI techniques alongside deep learning algorithms are used for candidate assessment. It can rate the candidate's communication, facial expressions and voice emotions during the interview and assess with none bias. At the top of the interview, the candidate's skills are evaluated and subjected to different algorithms to define the profile and affinity of the candidate with the client's needs.
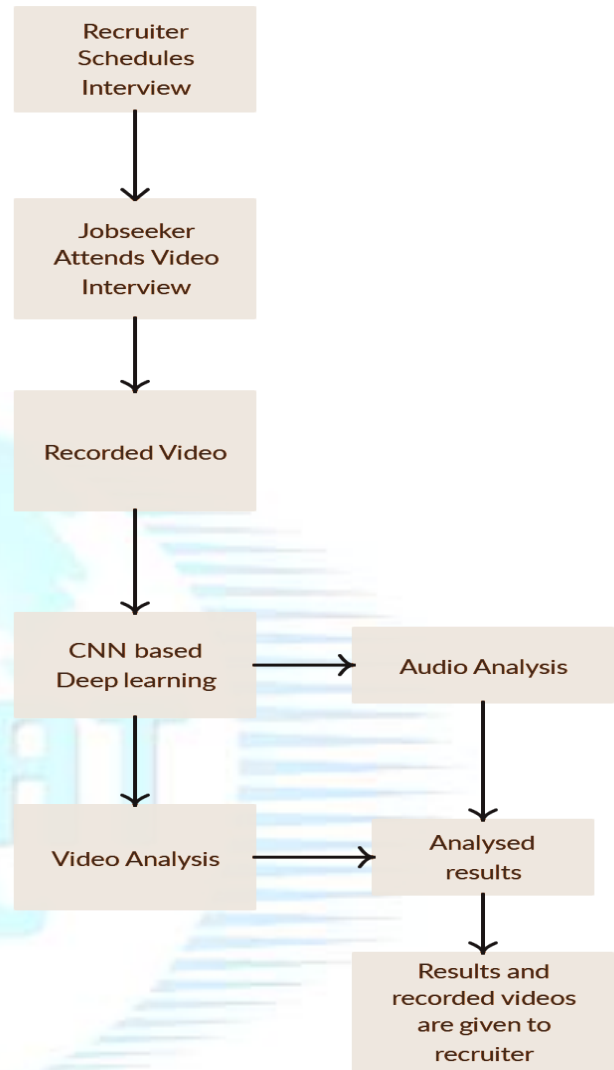

Figure 1 : System design

RECRUITER

The recruiter can set questions and keywords for answers that ought to be matched for checking answers; the candidates are going to be evaluated and supported by the keywords given by the recruiter. Indeed, at the top of the interview, the candidate's skills are evaluated and are subjected to different algorithms to define the profile and affinity of the candidate with the client's needs. This method aims to extend the immersion level of the candidate and thus the involvement. Similar to many online aptitude testing websites, the Automated HR portal also conducts online assessment tests before the HR interview, which may filter incompetent applicants. Therefore, it succours the recruiters to recruit competent candidates besides favouring job-seekers to take a seat in their place of comfort to attend the interview.

V. SOFTWARE IMPLEMENTATION

CODING

a) Django framework

For the development of front-end, we have utilized the django framework and python as the implementation language. The version of django that we utilize here is 2.1. The HTML pages, obligatory CSS, Bootstrap codes, Events codes and codes linking all the obligatory modules in django are all been indicted and make obligatory changes to folders and files.

b) dbsqllite3

For the software database, dbsqlite3 is utilized. It availed to engender and compact database files for the Recruiter, Admin and Job-seeker. We have engendered several relational tables in the form of rows and columns each representing a particular entity such as job seeker information, recruiters information, migration information, sanction information, test videos, utilizer marks, admin information, users log information etc.

Figure 2. DBsqllite3 tables

c) Anaconda framework

The programming and scientific computing for the software is done by Anaconda framework. For email notification, database connectivity, video analyzing, we utilize anaconda framework. The video is being analyzed utilizing Hascade eye and face detection algorithm and then given the obligatory facial dimensions to emotion detection algorithm; meanwhile, we analyzed audio frames and video frames with the avail of CNN algorithms.

training and implementing the product.

IMPLEMENTATION

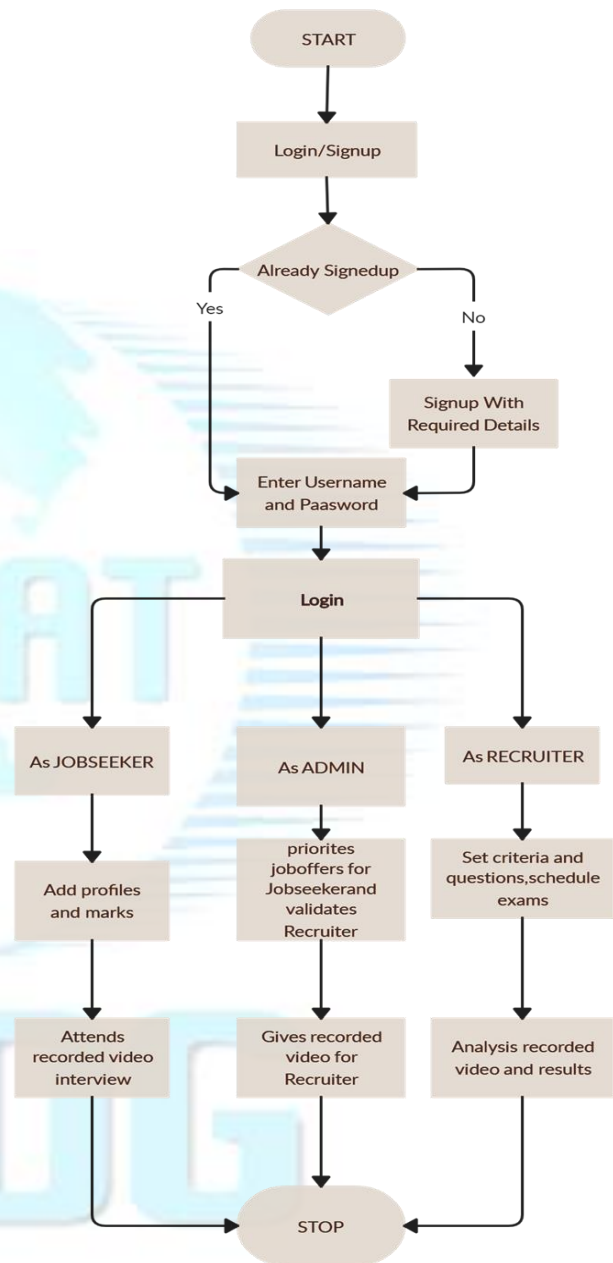The overall implementation /flow diagram is given below:

Figure 3: Flow diagram

The Recruiter and Jobseeker, both are required to register first with their Name, Valid Email ID, Mobile number, username and password.

We engendered a virtual environment which includes sundry modules such as tensorflow, tensorboard, numpy, keras, matplotlib, imutils, opencv, moviepy python packages for
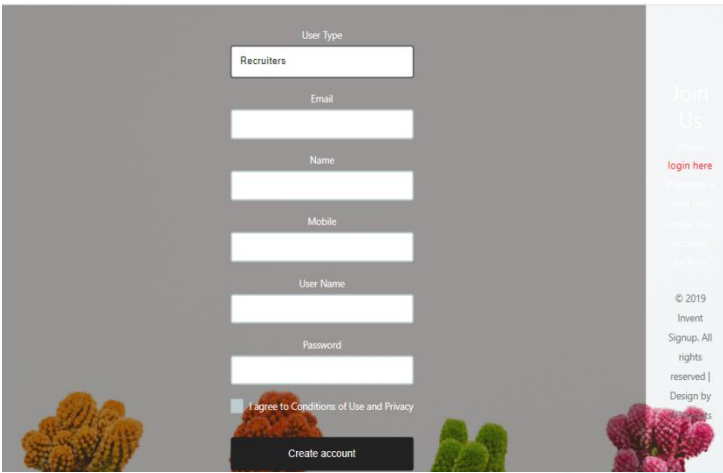
Figure 4 : Register page

Admin can login directly. Once the recruiter is registered, the admin will approve the recruiter based on the data and after gaining the approval, the recruiter can login into their page. For the JobSeekers, once they are registered, they can directly login.
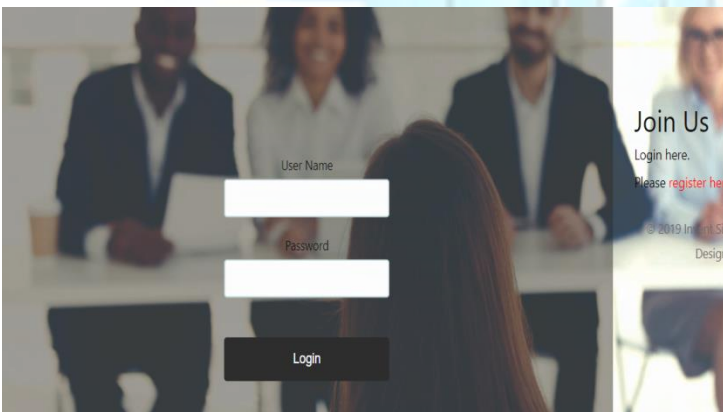

Figure 6 : Login page

The Recruiters will post about the job openings on their respective organization in the page with compulsory mark cutoff predicated on which applicants are opted for. The Admin can prioritize job offers for the job seekers predicated on their eligibility criteria and the former can apply for sundry job offers as per their interest. After getting a job request from a job seeker, the recruiter can verify the job seeker predicated on their applicant details and schedule interviews for them.

Figure 5 : Job Posting

Once job seekers are logged in, they need to complete their profile with school and current mark percentage. After which they can start applying for jobs. Filtered results are shown for them based on their marks, and once they have applied they need to wait for the confirmation from recruiters.

Figure 7 : Job applying

Recruiters can view the number of applicants applied for the job they have posted and once they approve the applicants an email is sent to the applicant's mail with further details. The mail is sent with further details regarding the interview. Using this mail, the jobseeker can access the questions and the link for attending the video interview.
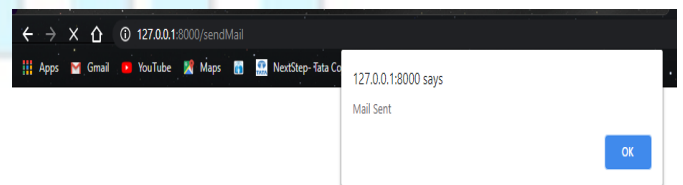

Figure 8 : Mail sent

TESTING

Many datasets were collected, and the testing was done based on that. Audio and video files were collected, and the system was trained with those. When the Recruiter interview video is obtained, it's analyzed based on the audio and video

part of that interview file. Emotions were taken and analyzed. In the end, a rating is given based on the result of that processed interview video. Accuracy is an issue that comes with it since it depends on the audio and video part to analyze and get results. It requires not just a few datasets but thousands of them to perfect the accuracy with time.

VI. RESULTS

This system gives an analyzed result based on the requirements of implementation and shows it in a rating format.
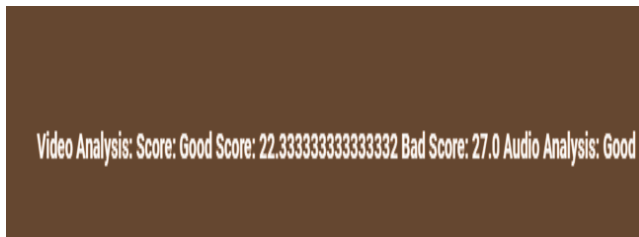

Video Analysis: Score: Good Score: 22.333333333333332 Bad Score: 27.0 Audio Analysis: Good

Figure 9 : Result after analysis

VII. CONCLUSION

The suggested approach helps the job seekers to get a job easily without any favouritism of the recruiter and also helps and reduces the workload of the recruiter. It's a cost-effective and less time-consuming approach for both the recruiter and the job seeker.

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