

## Interview Training Simulator

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### **Abstract**

*Augmented reality is a technology that combines the real world with a virtual world, be it a two dimensional and Machine learning is an application of artificial intelligence that provides systems the ability to automatically learn and improve from experience. Interview training simulator is training software which helps users to built on their technical skills and also create a interview experience to the user. Optical character recognition (OCR) is used for scanning the resume and extract the relevant data which is needed. This data is then matched with the skills dataset. The questions and answers with explanation regarding the matched skills is given to the user. There is a 2-D Human model to interact with user for a better experience.*

*Keywords— Interview Simulation, resume parsing, resume analyser, concept extraction, virtual environment, training system*

## **I. INTRODUCTION**

Getting a job or getting placed give an immense joy to an individual, but a lot of hard work and efforts are required for it. Interview may last for about an hour, and on basis of it, an individual is judged whether he/she is fit for the job or not. So presenting oneself as the best interviewee during interview process is very important. Various factors such as facial expression, way of speaking, and way of sitting, body gestures and postures speak a lot about an individual. Getting everything right is a must. In technical interviews, a lot of technical knowledge related to one's field is tested. The problem is that an individual may have some knowledge in a particular field, but his/her concepts need to be polished and cleared to ace the interview process. It is observed that interviewees are confused and do not know how to practice for the technical aptitude test and the interview.

## **II. MOTIVATION**

Motivation behind this is that some users are unable to search for jobs or cannot decide which field they should select for their career. So this Application helps them to prepare, before appearing for an Interview process.

## **III. LITERATURE SURVEY**

Before discussing about the interview process currently being followed at the time of recruitment, in this section, we will be covering first, how interviewees currently prepare for the interviews.

### *A.Preparing for technical interviews*

As a part of recruitment process, a company generally has an aptitude test and a face to face interview with the interviewee. To prepare for technical aptitude test, usually most of the interviewees refer various tutorials, websites and books. Technical aptitude test covers quantitative ability questions, verbal ability questions and technical questions. To prepare for technical questions, one should be clear about their basic concepts. This requires going through a lot of books, websites and other materials. The interviewee also visits a lot of websites for giving mock tests. There is no common source from where the interviewee can find all the information at one place.

### *B.Interview Process*

As everyone knows that the interviews are taken by persons, i.e., interviewers, a human being. There is no system exists, which simulates the process of interviews and help interviewees to practice for the same. Preparing for interview requires a lot of hard work and efforts. There has been a lot of cases where an individual may not get a job even though he/she has a required skillset just because he/she does not know how to speak and react on different circumstances and/or various question asked during interviews.

Authors have analysed the current interview process and the work done by the researchers in this area. Following are the key observations made by authors about the interview process.

- There may be discrepancies in score generated by different interviewers. For an interviewee, to evaluate himself/herself on different subject, he/she may take help of a number of interviewers. The score given by different interviewers are based on the judgments given by them. This leads to incorrect score generation. The score is not uniform and involves errors made by different interviewers.
- Visual appearance of applicant such as dressing style, cosmetics may bias the interviewer evaluations. Non-verbal cues such as eye contact, smiling, etc. may also bias interviewer ratings.
- It becomes very difficult for the interviewees to go through different websites in order to get the questions based on their skills. Due to this, time of the interviewee is wasted.
- A study conducted by Judge and etal. wherein they point out that the interviewers have poor recall. They also point out that applicants, who are similar to the interviewer with respect to race, gender, or other characteristics, receive higher ratings and also bias interviewer judgments [1].
- In interviews, interviewees will not be able to know what their facial emotions indicates, which may lead to miscommunication.

Considering the various issues in the existing interview process mentioned above, it is decided to develop a system, which will help the interviewees for preparing himself/herself for the interview process. The details of the proposed approach for the development of the said system are covered in the next section.

TABLE I  
SUMMARY

<b>Ref. No.</b>	<b>Highlights</b>	<b>Observations</b>
[1]	It presents VR Job, an application which proposes an innovative way of training for an interview.	Not enough information on the interview training process but gives us the base knowledge that how it should be.
[2]	It present a novel serious game prototype for the purpose of job interview skills training.	Implementation of various techniques for natural language processing.

[3]	It parse information from a resume using natural language processing, find the keywords, cluster them onto sectors based on their keywords.	Implementation of these techniques is not given and there is scope of optimization just the information.
[4]	The aim of this paper is to create an interactive interview simulation for the user.	Implementation of the model is not given and just the idol of the model is presented in it.
[5]	The aim of this paper is to analyze the resumes and scrape keywords from the user resume for interview process.	To take input as a voice from the user and how to present the questions in the interview.

#### IV. THE PROPOSED APPROACH

Resume is one of the document through which an interviewer judges the interviewee. In this application resume is the only input, which is required from the interviewee. The resume provides all the information of the interviewee. By viewing the resume, one can come to a conclusion that interviewee is a fresher or has moderate skills or he/she is an experienced person. The same is being inherited in the proposed system. The system processes the interviewees resume and finds all the relevant information. Based on this information, system decides first the category in which the interviewee falls. This categorization of interviewee helps in selecting the question of appropriate difficulty level.

Once the interviewee uploads the resume, system mines the resume and extracts the information such as skills, marks of various examinations, achievements and certifications, if any. It performs Text Mining along with Natural Language Processing on the resume to get the intricate details of the interviewee. To do so, it scans for the skills and experiences the interviewee has and stores them in the database. According to the category of the interviewee decided by the system earlier and the extracted skills, the system generates a test called as adaptive technical aptitude test. The name adaptive technical aptitude test indicates that the questions asked in the test are as per the category of the interviewee, wherein the questions are selected from the database, which has predefined difficulty level. Here the keyword adaptive also signifies that if a interviewee gives right answer to a question, the next question to be asked will be more difficult than the previous one. Adaptive technical aptitude test is the same kind of the aptitude test that any organization conducts for shortlisting interviewees for interviews. It contains different kind of questions from various domains. Figure 1 shows the overall process followed in the proposed approach.

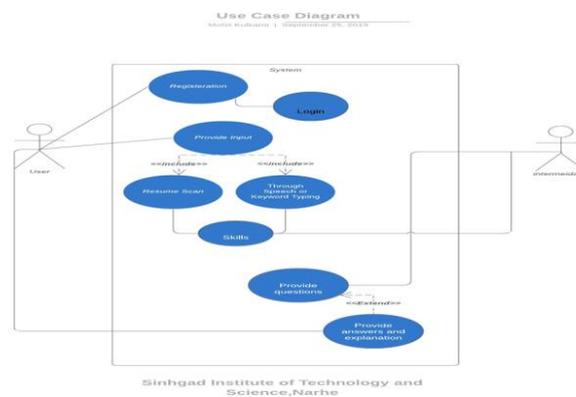


Figure 1 Proposed System Flow

The design and implementation details of the proposed approach are covered in the next section.

## V. DESIGN AND IMPLEMENTATION

The first aspect to take into consideration is the design of underlying structure of our implementation of Simulation of Technical Interview, which is modelled around the three tier architecture. An important reason for selecting this framework is that we needed a separate processing layer for processing the user's resume, understanding his/her speech response and detecting his/her confidence during interview through emotion recognition, all of which would be extremely difficult to be implemented at the client side. Figure 2 shows the architecture of the system.

The architecture of system is divided into three tiers, namely client tier, middle tier and database. Interviewee accesses the system using client tier. The client tier has two applications, namely, an aptitude test and face to face interview. The aptitude test application is based on android platform and face to face interview application is based on windows. Windows based application is developed using Unity. The unity application can further be extended to other platforms such as Android and IOS. Middle tier is the server, which is hosted on Amazon Web Services. The middle tier is responsible for performing major processing and handling interviewee requests. This tier contains various modules, which are resume extraction, crawler, speech to text conversion, syntactic and semantic analysis of interviewee's response, emotion recognition through interviewee's face. Database is on third tier. It is developed in MySQL and contains extracted skills and other relevant details of interviewees, questions to be asked to interviewee from various domains, score obtained by the interviewee after test and interview, etc.

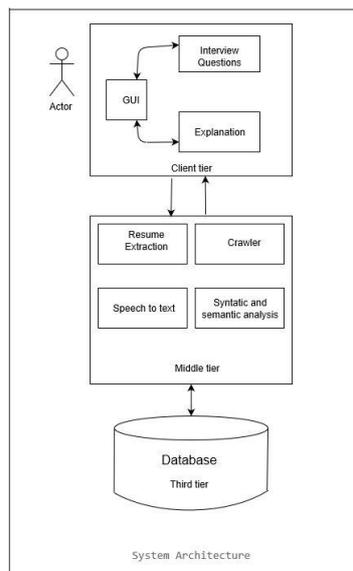


Figure 2 System Architecture

We now look at the major functional module in the system. We will discuss their functioning and the way they use the various knowledge bases in the system. In this the System flows with first the user is interacting with the model and then through GUI the user can interact with the Interview questions and there explanation after that the resume extraction with the help OCR Optical Character Recognition technology which is available in Tensorflow and after that text to speech recognition with the help of Natural Language Processing which helps to learn the symantics and semantics inside the Middle tier and at the last DataBase consists of all the questions and there explanation of the interview training.

## VI. CONCLUSIONS

From the results obtained, we can say that it is possible to simulate the interview process, which will be very helpful to interviewee practice an interview. The proposed model for resume mining shows fairly accurate results, which is bound to increase as the training datasets increases. Emotion detection model is very accurate, as seen in figure 8. The authors have thus tried to create the model of simulation, which will be beneficial for the interviewees for preparation. This will help them to enhance their present skills and also be able to analyze where their weaknesses lie.

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## REFERENCES

1. Iulia Stanica, Maria-Iuliana, Dascalu, “ VR Job Interview Simulator: Where Virtual Reality Meets Artificial Intelligence for Education” 2018.
2. Harrison Andrews, “A Serious Game for Interview Preparation” 2014.
3. Satyaki Sanyal, “Resume Parser with Natural Language Processing” 2017.
4. Vikas Salvi, “Virtual Simulation of Technical Interviews” 2017.
5. Vinaya R, “AnUnstructured Text analysis approach for qualitative evaluation of resumes” 2015.
6. Timothy A Judge et-al “The employment interview: a review of recent research and recommendations for future research” 2015.
7. Richard F. Lyon, “Human and Machine Hearing: Extracting Meaning from Sound”, Google, USA, 2017.
8. Chandrahas Gaikwad, Satish Akolkar, Reshma Khodade, “Generic PDF to Text Conversion using Machine Learning”, International Journal of Computer Applications (0975 – 8887).
9. G. C. Hartung. The job interview. Public Management, vol. 93, no. 10, pp. 25, 2011.
10. Winfred Phillips, “Introduction to Natural Language Processing”, Consortium of Cognitive Science Instruction, 2006.
11. Timothy A Judge et-al “The employment interview: a review of recent research and recommendations for future research” (2000).