

**KARNATAKA STATE COUNCIL FOR SCIENCE AND
TECHNOLOGY**

SYNOPSIS

1) Project Reference Number: **46S_BE_2968**

2) Project title: **INTERVIEW BOT**

3) Name of the college and department: **JSS Academy of Technical Education, Bengaluru and Department of Computer Science And Engineering**

4) Name of the Students and Guide:

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5) Keywords: **Chatbot, Interview, Emotion Analysis, Human Computer Interaction, Neural Network, Speech To Text, Text To Speech**

INTRODUCTION/BACKGROUND

RELATED WORK

Review of integrated applications with AIML based chat bot:

The Author reviews the applications of chat bot which are based on AIML(Artificial Intelligence Markup Language). A chat bot can take conversation with humans.

In this paper, the author demonstrate how to learn a deep convolutional neural network (DCNN) from noisy labels, using facial expression recognition as an example. An enhanced FER+ data set with multiple labels for each face image is provided.

Automated Interview Evaluation using Rule based Chatbot:

The author discusses about a problem in interviews that interviews can be biased based on caste, creed, race, religion, color and so on. This should not be the case as the employer is looking for his requirements and this bias may lead to rejection of perfect candidate. Hence, they are proposing application which can also be a Software as a Service (SAAS) which could be accessed via web and evaluate candidates based on the answers they give, the sentiment of their answers and the emotion during the interview.

In our project, we are building a web based Interview bot which is voice based using speech recognition library for conversation between the bot and the user, facial expression recognition using built in datasets and libraries, and finally generate a transcript as a result.

OBJECTIVES

The objective is to develop a web application that can :

1. Offer a simple and effective method for conducting interviews:

Interviewers and candidates can both save time and effort by conducting interviews bot's user-friendly interface can be used to pose questions and assess candidates' answers.

2. Assess and restructure the procedure:

The bot can give interviewers a formal framework for evaluating prospects, allowing them to do so consistently and impartially.

3. Cut expenses:

The need for additional staff members to handle scheduling, coordination, and administrative responsibilities can be decreased with the help of the Interview Bot.

4. Increase the consistency and accuracy of decisions:

The Interview Bot can discover trends and traits of successful candidates using data-driven insights and algorithms, assisting interviewers in making decisions.

METHODOLOGY

AUDIO IDENTIFICATION AND SPEECH TO TEXT: For voice recognition and sounding the bot's responses, the SpeechRecognition library is used. After receiving a text response, it is converted into speech using Google speech recognition API.

SENTIMENT ANALYSIS: It may be used to examine candidates' reactions during the interviewing process in order to comprehend their emotional states and interview-related attitudes using VADER module from NLTK library.

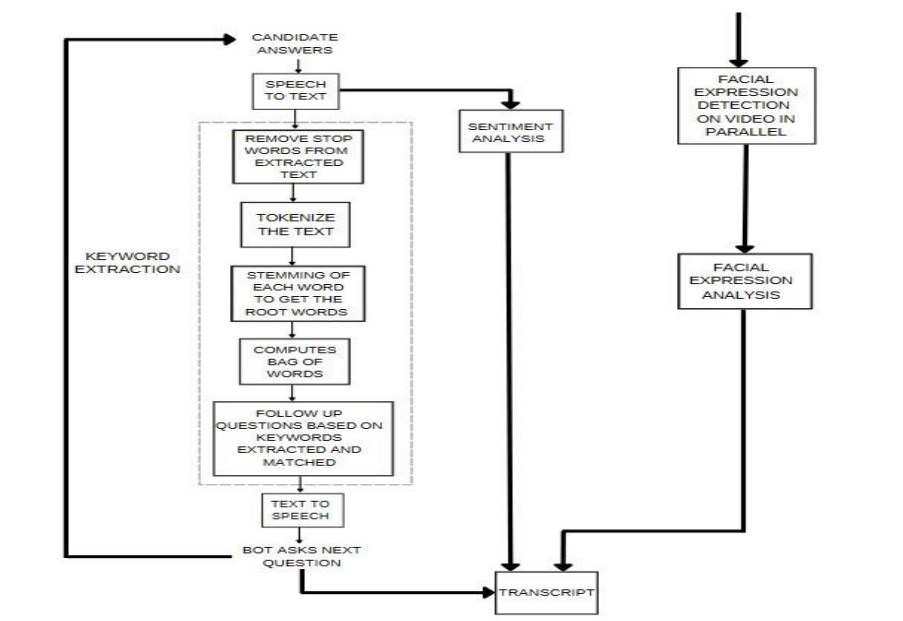
GRAMMAR CHECK SCORE: The implementation of a grammar check score for an interview bot, created specifically to evaluate the grammar competency of candidates' answers using language_tool_python library.

KEYWORD EXTRACTION FROM TEXT: From the candidate's answers, keywords are extracted to frame the follow up questions. It includes tokenization, Stemming, Bag-of-words

FOLLOW UP QUESTIONS: Based on the keywords or entities extracted from user's answer, the follow up question will be asked by the bot. If no follow up question is identified by the bot, then it asks a new question automatically picking from the dataset.

EMOTION DETECTION: While the candidate answers the questions, their camera will be ON. That video will be analyzed by an emotion detection algorithm to determine a set of facial expressions of the candidate for each answer using Haar Cascade model.

TRANSCRIPT GENERATION: The output of the application is a transcript of the interview. The transcript will be a .txt file that will contain the questions and answers given by candidate, followed by timestamps for each question-answer.



RESULT AND CONCLUSION

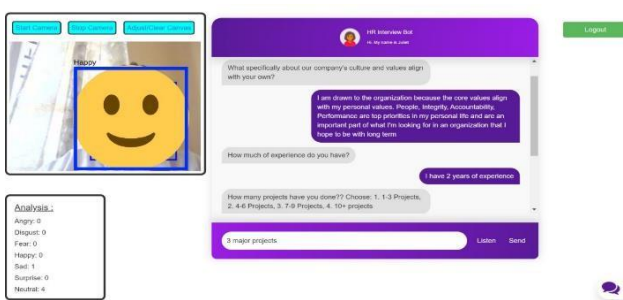


Fig: Chatbot

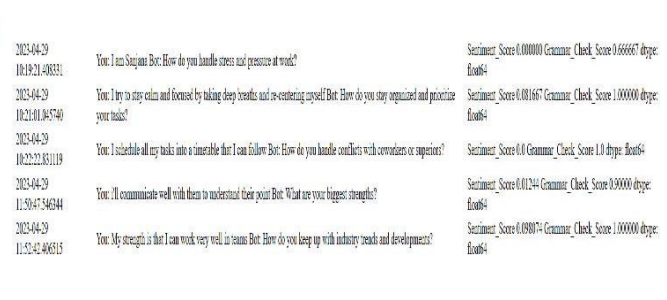


Fig: Transcript

The output of the interview bot is a transcript of the interview session that includes interview questions and answers, along with timestamps for each question-answer, a sentiment analysis and grammar check score which is inferred from their answers to the questions. This output can be used by an HR interviewer as a way to evaluate a candidate's suitability for a position without having to conduct an in-person interview. These results can provide valuable insights into a candidate's communication skills, critical thinking abilities, and cultural fit.

FUTURE SCOPES

In this project we earlier used FuzzyWuzzy model for keyword extraction which was way too slow and sensitivity to initial values. Hence we made use of Bag-Of-Words for this method. This Bot can be further enhanced by improving speed of response between the candidate and the Bot. Automated scheduling of the interview process can be done by introducing a timer that can be set for the duration of the interview which closes the interview once the timer stops. It can also provide a wider range of technical subject options for technical interviews which encompasses various concepts. The bot can be enhanced to support multiple languages making it accessible to the candidates in different regions of the world. The bot can be integrated with virtual reality technology to provide an immersive interview experience.

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