

Online Auditioning Using Facial Expression Recognition in Real-Time

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ABSTRACT

The issue of merit is very profound in any field of work. If a person gets a role that is best for them according to their skills and interest then the work can be a masterpiece. So, is the job of casting directors but we know for a fact that "To err is human". In this paper, we have used a video emotion recognition system which may revolutionize the field of Film and TV. Finding the right man for the right job has never been an easy task but We aim to develop an online casting system in which anyone who needs an artist for a role can post the ad involving the script and then people interested in that work can post a video audition of 15 to 60 seconds.

Their clip will be trending based on their skills. The most accurate video according to the emotion recognition will be listed on top and hence be for the applicant to be shortlisted.

Keywords: EMOTION RECOGNITION ,
FACIAL EXPRESSION RECOGNITION,
REAL TIME AUDITION

1. INTRODUCTION

Emotions play a major role when it comes to human interaction. In fact, human beings display emotions mostly through facial expressions. Charles Darwin was the first scientist to propose that Facial expression recognition is one of the most natural way of human beings to communicate their emotions and intentions. Emotions increase the level of effective communication. In addition, facial expressions also provide information about cognitive states i.e interest , confusion , stress, boredom. For the future of human computer interfaces (HCI), Computers must interact with humans the way humans interact with each other. This would take robotics and human-computer interfaces to a whole new level. Facial Expression/Emotion recognition (FER) has attracted significant attention from computing communities over the last decade as it is being used as an important front-end task in many applications such as virtual reality (VR) [2 , 3] and augmented reality (AR) [4] and advance driver assistant system (ADASs) [7]. Darwin proposed that facial expressions are universal, i.e most emotions are expressed in the same way on the human face regardless of race or culture. [8] Interpreting facial expressions can alter the interpretation of what is spoken. Emotions are responses or feelings to a particular situation or environment. The advancements in the field of

artificial intelligence has led Emotion recognition to be an active topic of research and is being implemented in various applications. In the medical field, it's applications are used in pain detection, psychological distress. It can also help physically disabled people (deaf, dumb and bedridden) to identify their current feelings. [10] Artificial Intelligence has flourished in the entertainment industry in animation and computer generated graphics (CGI). Trained neural network models are being used in Auto Desk Maya to provide an edge to Technical Directors and Artists doing 3D animation.

In this paper, we proposed an idea that can give a major breakthrough in the entertainment industry. People always complain how some artist was not fit for such a role but to cope with this problem through an (FER) model takes things to another level which is not being proposed before or made. We have used a Face API of Java Scripts which focuses on classifying seven basic expressions: anger, disgust, fear, happiness, neutral sadness and surprise which is also the classification model of facial expression proposed by Paul Ekman. [9]

A casting director may take a live audition through our web app, using real-time facial expression recognition to analyze If that actor/actress is fit for that role. This will take Online Casting to another level globally.

1.1 EXISTING SYSTEM

There are many websites/webapps for casting in the entertainment industry for roles in Film , TV , Theater , Modeling , Kids , Voiceover. Their main purpose is to connect an applicant to an employer. Following are some renowned websites and applications.

- **Backstage**

In this app, casting directors post their ad and talent is applied to them and get hired. Talents can be of crew, actors, photographers and when they see the post they apply to them, if they are good enough they get hired. Before creating an account backstage, there is a concept subscription too whether it's quarterly, monthly or yearly.

- **Star Now**

It's a talent agency app where there are some open jobs about music, singers, actors and photographers, and people apply for that job to get hired. It does not have a

subscription initially.

FirstCut

FirstCut is a revolutionary application that digitally connects aspiring Actors, Models & Singers to the production houses or casting agencies via the same old hiring method.

2. PROPOSED SYSTEM

Unlike conventional websites or applications, our system will provide real-time video emotion recognition to ease the job of casting directors. It will be a Progressive Web app (PWA). PWA is a Web Application capable of not only working as a Web app on a browser but also as an installable app on our Mobile, tablets like any other native or cross platform app. There are three types of users that interact with the system.

1. Talent

Talent can register, update profile, deactivate account, look for an Ad, apply on ad and can give feedback.

2. Talent Hunter

Talent Hunter/recruiter can post/del/update ad, update profile, deactivate account, contact talent and can give feedback.

3. Admin

Admin can update, delete, modify the details of the users and have full control of the system.

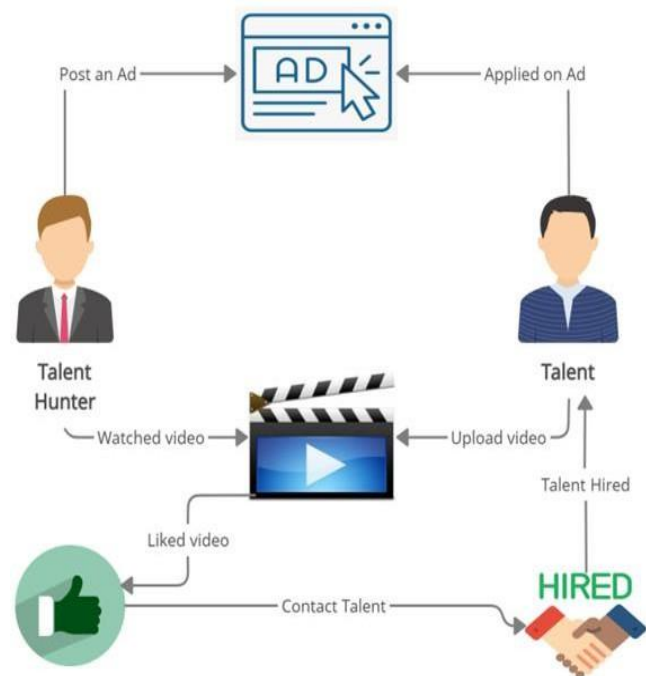
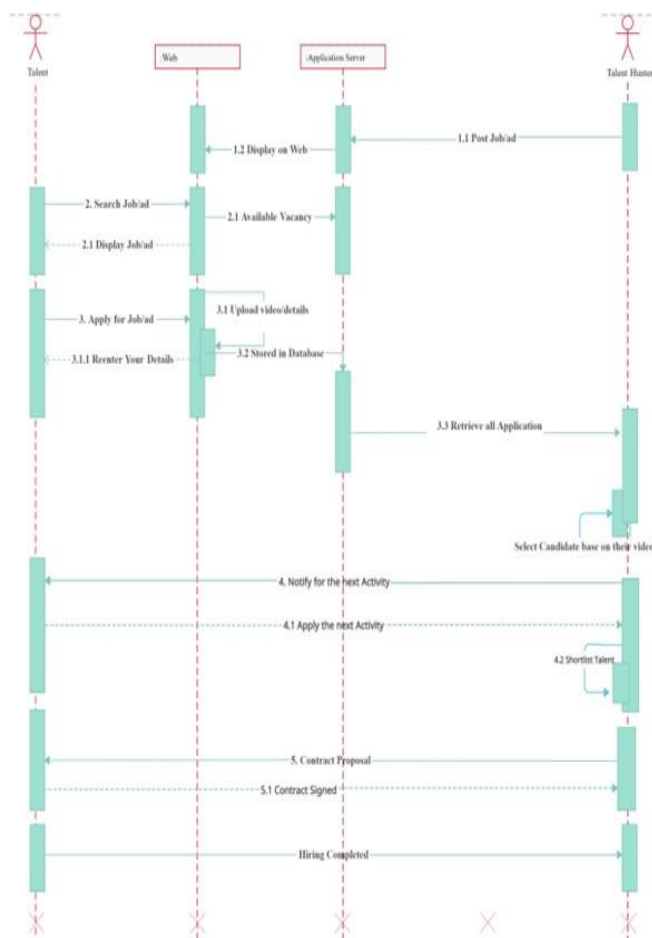


Figure 1: Architecture Design for Talnt

4. UML CASE DIAGRAM



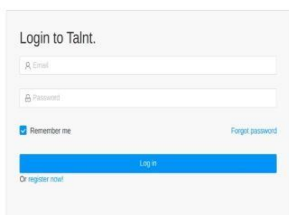
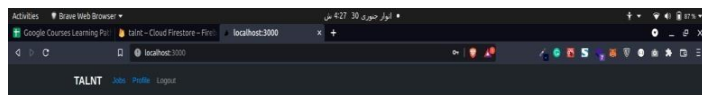
5. COMPARATIVE ANALYSIS

Features	Backstage	Star Now	First Cut	TALNT
Post Add	✓	✓	✓	✓
Upload audition	✓	✗	✗	✓
Facial Expression Recognition	✗	✗	✗	✓
Audition videos can be viewed and upvoted	✓	✗	✗	✓
Real time Audition	✗	✓	✗	✓

6. RESULT

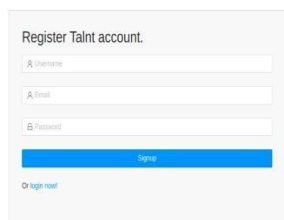
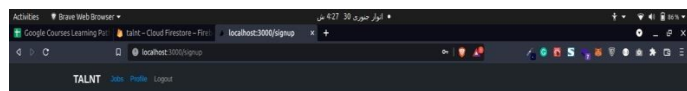
By comparing with other existing systems, our system provides more unique features for the users. Some of the snapshots are given below.

- **Logi**

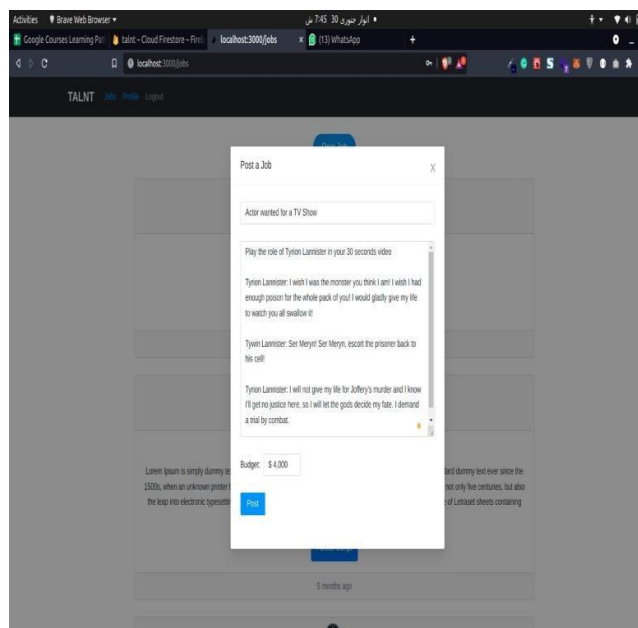
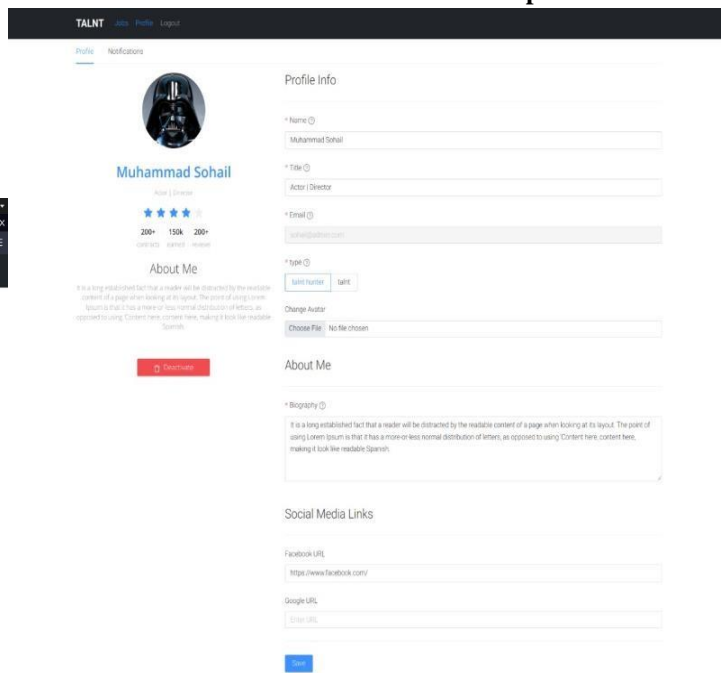


- **Post Jobs**

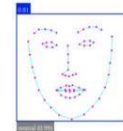
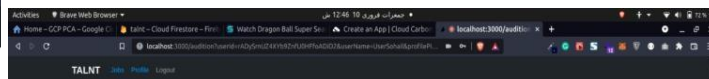
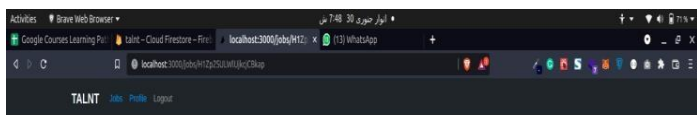
- **Register**



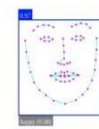
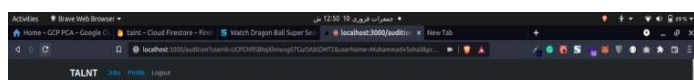
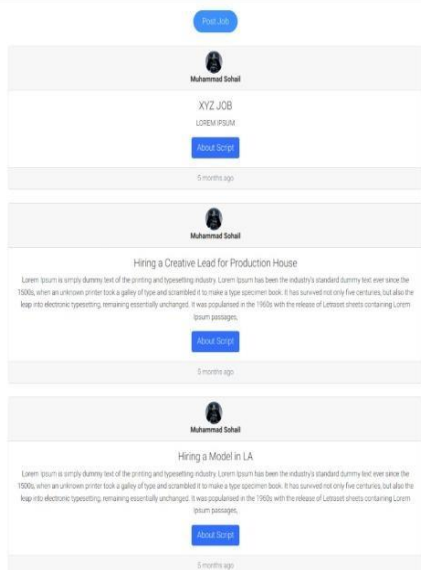
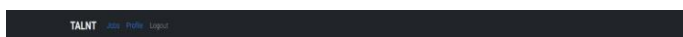
- **Edit your profile**



• Facial Expression



• Job



Results List

<p>• Muhammad Sohail</p> <p>Following are the result of the auction we got from judging your emotions.</p>	<p>Angry: 31.62 %</p> <p>Disappointed: 3.77 %</p> <p>Fearful: 0.24 %</p> <p>Happy: 0.10 %</p> <p>Neutral: 0.39 %</p> <p>Sad: 37.00 %</p> <p>Surprised: 14.78 %</p>
<p>• Muhammad Sohail</p> <p>Following are the result of the auction we got from judging your emotions.</p>	<p>Angry: 40.71 %</p> <p>Disappointed: 0.02 %</p> <p>Fearful: 0.08 %</p> <p>Happy: 25.31 %</p> <p>Neutral: 31.74 %</p> <p>Sad: 2.07 %</p> <p>Surprised: 0.07 %</p>
<p>• Muhammad Sohail</p> <p>Following are the result of the auction we got from judging your emotions.</p>	<p>Angry: 0.02 %</p> <p>Disappointed: 0.02 %</p> <p>Fearful: 0.19 %</p> <p>Happy: 0.39 %</p> <p>Neutral: 20.32 %</p> <p>Sad: 76.07 %</p> <p>Surprised: 0.02 %</p>

7. CONCLUSION AND FUTURE WORK

In this proposed work, facial expression recognition from video is taken as the main research topic. In different fields, video based emotion recognition is gaining huge significance. Our Proposed model overcomes the previous work by recognizing facial expressions in real time auditions. To our knowledge there isn't any system yet developed in the casting field that can capture real time facial expressions. The study and project included in the paper would be most helpful in the entertainment industry.

IN THE FUTURE, THE SYSTEM'S ACCURACY CAN BE IMPROVED BY CREATING OUR OWN FACIAL EXPRESSION MODEL USING ENHANCED DEEP 3D CONVOLUTIONAL NEURAL NETWORKS. WE WOULD ALSO LIKE TO TAKE OUR WEB APP TO ANOTHER LEVEL BY INTRODUCING CROWDSOURCING WHERE COMMON PEOPLE WILL BE ABLE TO UPVOTE THE AUDITION VIDEOS OF ARTISTS.

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