FACIAL EMOTIONS RECOGNITION SYSTEM BY RECOMMENDING MUSIC AND VIDEO USING ML

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Abstract: Human face having the different emotions. The emotion has varied forms like Happy, Surprise, Angry, Neutral, Sad, Fearful. The emotions are taken as the input from the inbuilt camera. We have used the Convolutional Neural Networks for emotion detection of the image taken from inbuilt camera and for implementing CNN we use Python, HTML, CSS, Django. Automatically Music playlist as well as Video is generated by identifying the current emotion of the user. The user can choose either music or video for their capability. The Music is useful for the people having audible sense and video is useful for the deaf and dumb people. Here it works by using the Spotify dataset for song recommendation and animation video for the visible outcome.

Index Terms - Python, Django, CNN, HTML, CSS.

I. INTRODUCTION

By bridging the gap between facial emotion recognition and content recommendation, our project holds the potential to revolutionize the way users interact with multimedia content. Imagine a scenario where, upon detecting signs of stress or fatigue, the system recommends calming music or uplifting videos to improve the user's mood. Conversely, during moments of excitement or celebration, the system might suggest energetic music or entertaining videos to amplify the user's positive experience.

The core idea is simple yet powerful, by analyzing facial expressions in real-time, our system aims to detect and interpret the user's emotions, subsequently leveraging this information to provide personalized recommendations aligned with their mood and preferences. Through the application of machine learning techniques, we seek to create an intelligent system capable of accurately identifying a range of emotions, including happiness, sadness, anger, surprise, fearful and neutrality.

In summary, the Facial Emotions Recognition System by Recommending Music and Video using Machine Learning project represents an innovative fusion of emotion recognition technology and content recommendation systems, with the potential to significantly enhance user experiences in the realm of multimedia consumption. Through this endeavor, we aim to not only advance the state-of-the-art in machine learning applications but also to create tangible benefits for users seeking personalized and emotionally resonant content recommendations.

II. OVERVIEW

The main objective of our project is to detect the facial emotion of the person and recommending music and Video which matches the user current emotion.

Our system detects user emotions and based upon those emotions, it recommends some video and music. Figure 1 shows some of the emotions we work with.
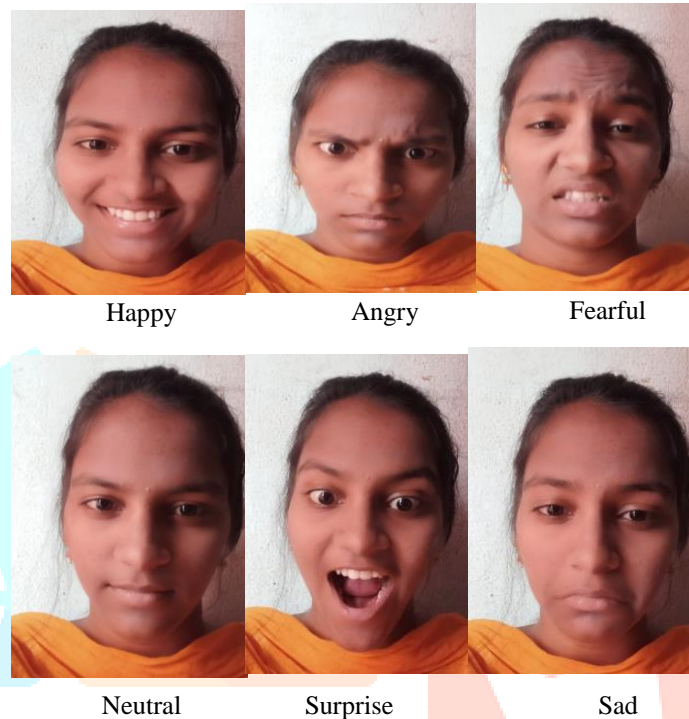

| Happy | Angry | Fearful |

| Neutral | Surprise | Sad |

Fig-1 Emotions

III. LITERATURE SURVEY

The review is done to get perceptions into the methods, their shortcoming which we can overcome. A literature survey is a text of report, which involves the current understanding along with great findings to a particular topic.

Title	Authors	Database
Music Recommendation Based on Face Recognition	1. Madhuri Athavle 2. Deepali Mudale 3. Upasana Shrivastav 4. Megha Gupta	NA
Music Recommendation system Based on Facial Emotions	1. Nilesh Pralhad Mankale	NA
Music Recommendation Based on Facial Expression Using Deep Learning	1. Tanushree Gorasiya 2. Anushka Gore 3. Dimple Ingale 4. Megha Trivedi	NA

Music Recommendation System Using Facial Expression Recognition Using Machine Learning	1. B. Nareen Sai 2. D. Sai Vamshi 3. Piyush Pogakwar 4. V. Seetharama Rao 5. Y. Srinivasulu	NA

- Madhuri Athavle, Deepali Mudale, Upasana Shrivastav, Megha Gupta "*Music Recommendation Based on Face Recognition*"
  In this paper Authors describes the music recommendation only for five emotions like happy, sad, angry, surprise and neutral.
- B. Nareen Sai, D. Sai Vamshi, Piyush Pogakwar, V. Seetharama Rao, Y. Srinivasulu*"Music Recommendation System Using Facial Expression Recognition Using Machine Learning"*
  In this paper authors describes the music recommendation for facial expressions, the input is taken from the gallery in the form of photos it may takes a more time to give output

IV. PROBLEM STATEMENT

Nowadays Software and other employees even every person suffering a lot from work pressure. It puts strain on a person both physically and mentally. These can leads to suicides, strokes and health issues. It is essential to detect at the initial state for further.

V. PROPOSED SYSTEM

In our proposed system, it detects the current emotion of the user by using Face cascade, Grayscale and CNN model. After refining the data, for this problem statement, we determine the solution which is also useful for the Deaf and Dumb people to identify their emotions in the form of Videos and for the normal people to enjoy Audio and Video as well.

VI. ARCHITECTURE

Figure 2 shows the Architecture of the project. In some cases it is a bidirectional, if it have some issues and in other, it is unidirectional if the process running successfully.
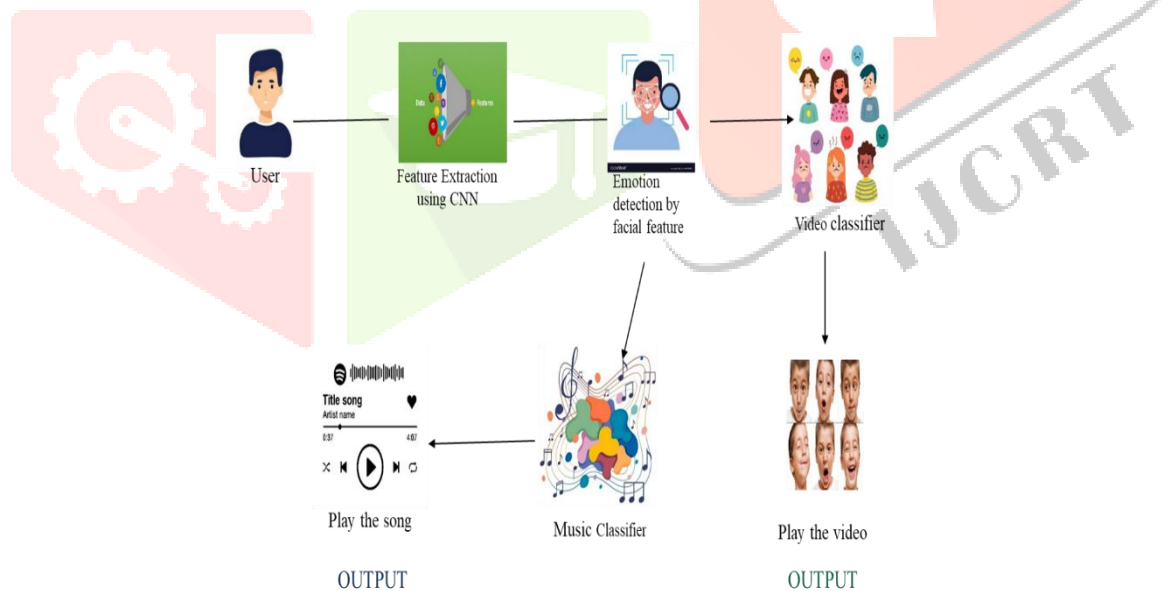

Fig-2 Architecture

Firstly, it scans the face, by using CNN and Face Cascade and Grayscale algorithm. Then after detection of emotion it recommends two outcomes. Music classifier and Video classifier. If the user choose music classifier then audio is the output. If the user choose video classifier then anime video and YouTube videos are the output.

VII. REQUIREMENTS

For software

Operating System	:	Windows 10 or above
Languages	:	Python
Frontend	:	HTML, CSS
Database	:	MySQL
Framework	:	Django

For Hardware

System	:	CORE i3 Processor
Hard Disk	:	100GB
RAM	:	4GB
Input Device	:	Keyboard, Mouse and Camera

VIII. OUTPUT

The below are the outcome of our project.

After Execution of the code, it shows Registration as well as login page. After that it starts capturing face using inbuilt camera.
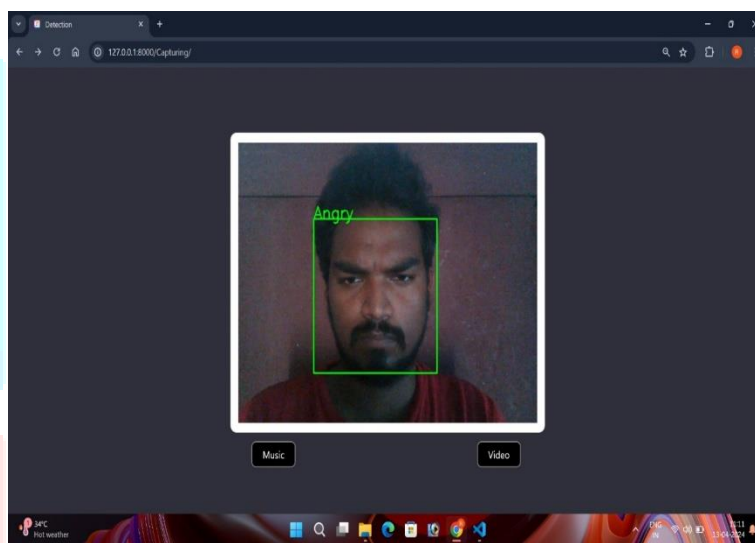
Fig-3 Emotion Detected

After detection of the emotion the system recommends both video and audio classifiers . User can choose either music or video based upon their situation.
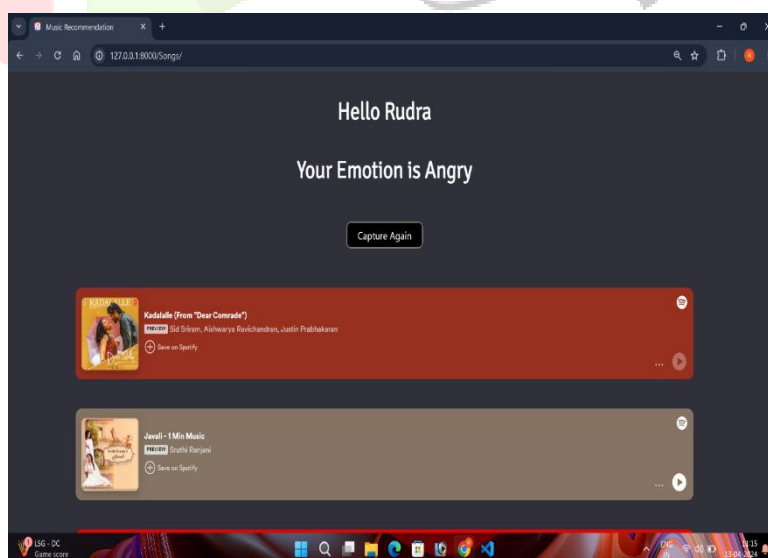

Fig-4 Music Classifier

Figure 4 shows the Music classifier. This music classifier is useful for the people who have audible sense. This is for every person except deaf and dumb.
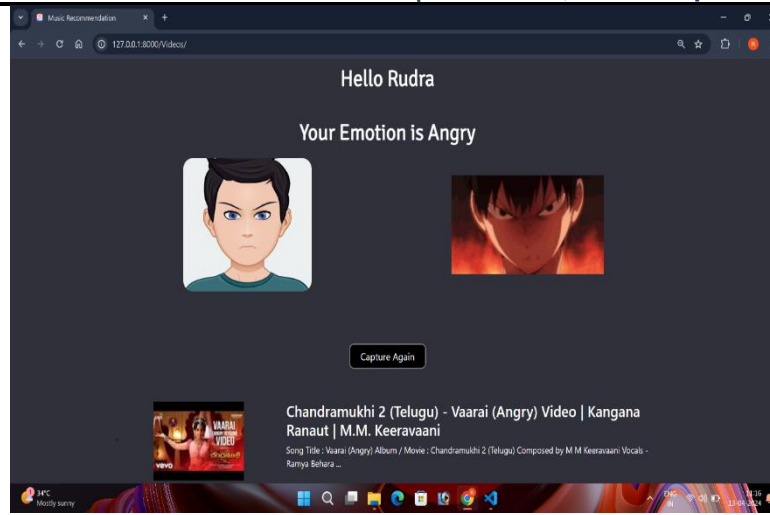
Fig-5 Video classifier

Figure 5 shows the video classifier. In this video classifier, it has two anime and YouTube videos for the visible outcome. Deaf people can't hear audio, this video classifier is best suited for Deaf and Dumb people.
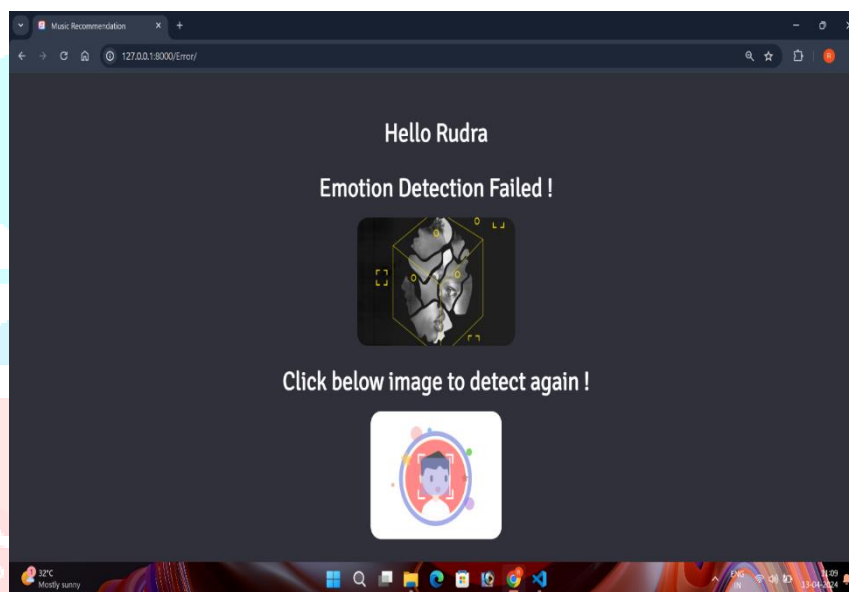

Fig-6 Detection Failed

Figure 6 shows the failure of emotion detection. If there is no face or that is not a face infront of camera, then it shows emotion detection failed clip. We can again recaptured the face for the outcome.

IX. CONCLUSION

Stress and emotions are often triggered by music, so it is necessary to recommend video and music according to the user's current emotional needs. There are many audio and video recommendation systems already in use such as Spotify, Netflix, Gaana, YouTube, etc. Therefore, our proposed system recommends a music playlist and videos according to the mood of the user. The purpose of this project was to explore facial expression recognition for implementation of an emotion-based music and video player.

X. ACKNOWLEDGEMENT

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