e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Conference:01/December-2022 Impact Factor- 6.752 www.irjmets.com
1st National Conference on Applications of soft Computing Techniques in Engineering NCASCTE-2022
Organized by Department of Electrical & Electronics Engineering, ACE Engineering College, Hyderabad

MUSIC RECOMMENDATION THROUGH FACIAL EXPRESSION

MS Shubhangi Mahule*1, N. Soumit Sai Kumar*2, P. Rohit*3, V. Sathivk*4

*1Assistent Professor, Department Of Computer Science & Engineering, ACE Engineering College, Hyderabad, Telangana, India.

*2,3,4Student, Department Of Computer Science & Engineering, ACE Engineering College, Hyderabad, Telangana, India.

DOI: https://www.doi.org/10.56726/IRJMETS-NCASCTE202228

ABSTRACT

Music Recommendation Using Facial Expression is the title of this project. The study of human emotional responses to visual stimuli such as photos and films, known as visual sentiment analysis, has proven a fascinating and difficult problem. It attempts to comprehend the high-level information of visual data. The development of strong algorithms from computer vision is responsible for the present models\' success. The majority of existing models attempt to overcome the problem by recommending either robust features or more sophisticated models. Visual elements from the entire image or video are the key proposed inputs in particular. Local areas have received less attention, which we believe is important to the emotional reaction of humans to the entire image. Image recognition is used to locate people in photos, analyze their emotions, and play emotion-related tunes based on their feelings. This repo accomplishes this goal by utilizing the Google platform\'s Vision services. Given an image, it would look for faces, identify them, draw a rectangle around them, and describe the emotion it discovered.

Keywords: Music Recommendation, Facial Expression, Machine Learning, Emotion Based Music, Opencv.

I. INTRODUCTION

When they have hundreds of tracks, music listeners find it difficult to manually create and organize playlists. It's also tough to keep track of all the music: some are added but never played, wasting a lot of device capacity and forcing the user to manually locate and delete songs. Users must actively choose music depending on their interests and mood each time. When users' play-styles change, it's also tough to reorganize and play music. As a result, we employed the Machine Learning idea, which entails face scanning and feature monitoring, to assess the user's mood and create a tailored playlist based on it.

Fig -1: Various basic emotions of humans

II. METHODOLOGY

- Three major modules:
  - Emotion extraction module (EEM)
  - Audio feature extraction module (AEM)
  - Emotion-Audio recognition module.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Conference:01/December-2022 Impact Factor- 6.752 www.irjmets.com
1st National Conference on Applications of soft Computing Techniques in Engineering NCASCTE-2022
Organized by Department of Electrical & Electronics Engineering, ACE Engineering College, Hyderabad

- EEM and AEM are two separate modules and Emotion-Audio recognition module performs the mapping of modules by querying the audio meta-data file.
- The EEM and AEM are combined in Emotion-Audio integration module.

III. MODELING AND ANALYSIS

User: With this module, a user may connect a camera to an application and track live video of a user with various emotional expressions, as well as take images of each frame and transmit data to a CNN model that will forecast and provide live emotions. Based on the studied data values provided from the CNN model and received by the user, the live camera was shown with the type of sentiment (sad, happy...etc.)

Dataset Collection: Collect data from the 2013 dataset, which includes pixel values as features and emotions as labels.

Preprocessing: This stage divides the dataset into features and labels, which are then stored as x and y values.

Initializing CNN: The CNN model is initialized at this step, and features and labels are provided to the fit statement, and the algorithm is trained. The model is stored as a.h5 file.

CNN Model Training: Fer 2013 data set with facial emotions is used as input, and a CNN algorithm model is developed and saved to disc for prediction of live emotions. ( )

Prediction: At this point, the camera will open, and faces will be detected and forecasted using a trained model, with an emotion song being played based on the results.

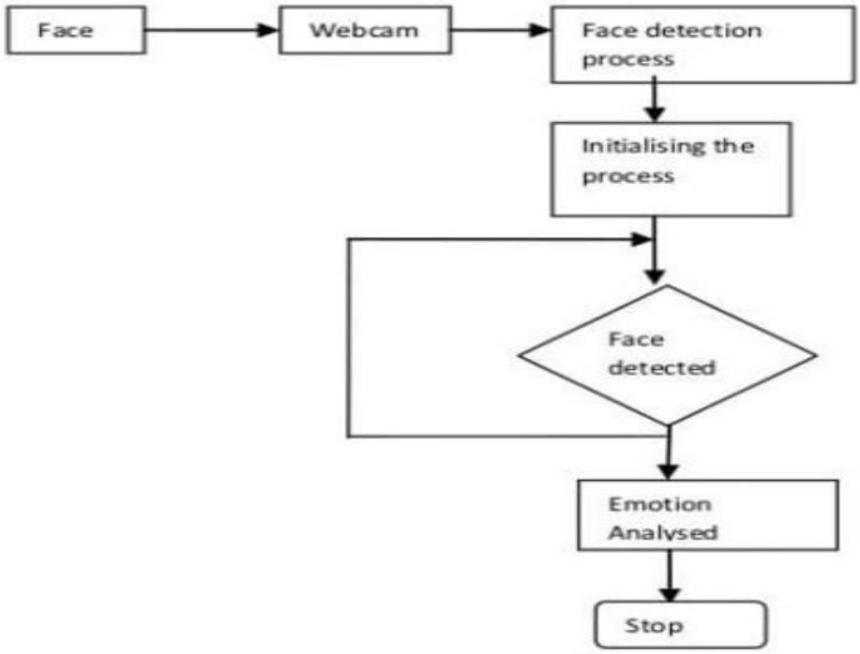

Figure 2: Flow diagram

IV. RESULTS AND DISCUSSION

- The Track User Emotion
- Recommend by Sorting playlist based on user's current
- Sort songs by 2 factors

TYPES OF EMOTIONS:

1. Relevancy to User Preference
2. Effect on user Emotion
3. Songs that resemble cheerfulness, energetic and playfulness are classified under Happy.
4. Songs that resemble very depression are classified under Sad.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Conference:01/December-2022 Impact Factor- 6.752 www.irjmets.com
1st National Conference on Applications of soft Computing Techniques in Engineering NCASCTE-2022
Organized by Department of Electrical & Electronics Engineering, ACE Engineering College, Hyderabad

5. Songs that reflect mere attitude, revenge are classified under Anger.
6. Songs which reflect excitement of joy is classified under Excitement Category.
7. Songs which reflect Surprise of joy is classified under Surprise Category.

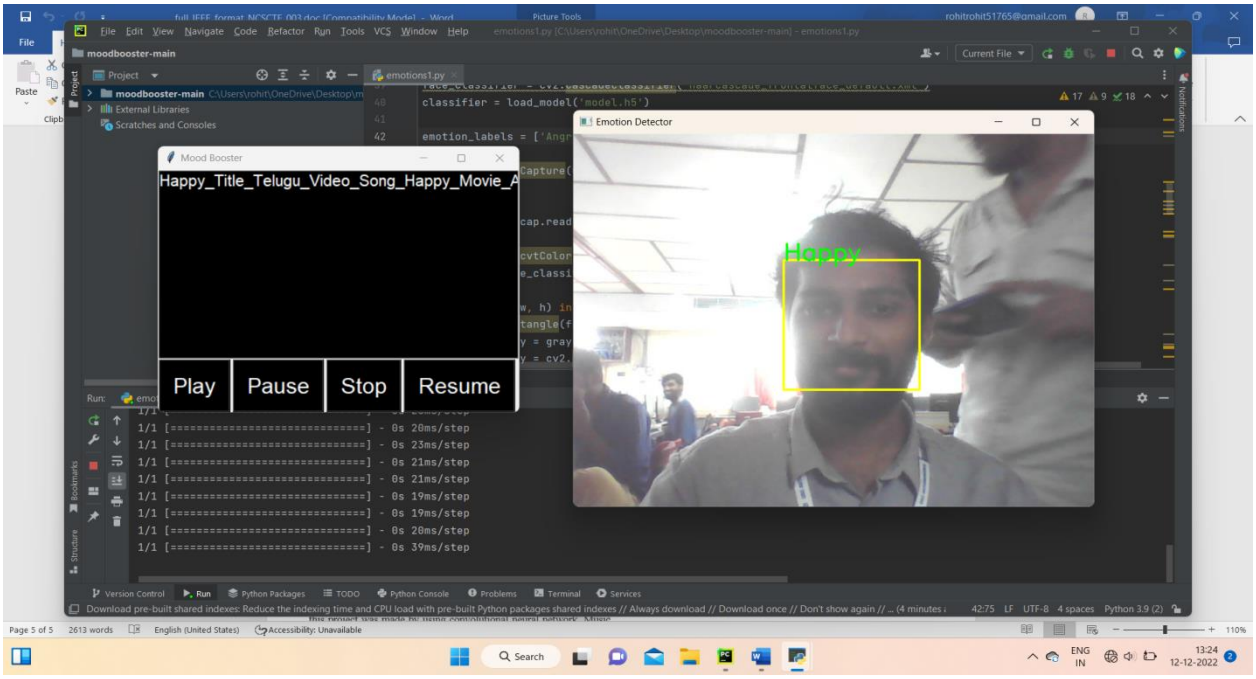

Figure 3: Output

V. CONCLUSION

The emotion recognition of the photographs fed into the suggested model is the most important aspect of this study. The main goal is to use the emotion detecting feature. The suggested approach aims to improve an individual\'s entertainment by integrating emotion recognition technologies with a music player. The proposal can detect four different emotions: normal, joyful, and sad. When the suggested model detects an emotion, the music player will play the appropriate song(s). In terms of usefulness and accuracy, the suggested model has undergone both system and emotion accuracy testing, with positive results. The suggested model was able to recognize 34 of the 40 photos fed into it, giving it an 85 percent recognition rate. Furthermore, the suggested model is a computer program that may run on a variety of operating systems and machines. As a result of our Emotion Based Music Player, users may choose music in a more participatory and straightforward manner. It can assist music fans in automatically searching for and playing songs based on their feelings. B. Recommendation Every system, including the Emotion Based Music Player, is subject to modifications and improvements. The first step is to improve emotion detection accuracy. It is possible to do this by expanding the amount of face characteristics utilized in emotion recognition. At the moment, the model simply extracts the mouth and eyes. Other face characteristics, such as brows and cheeks, might be introduced in future development. Furthermore, noise reduction software may be included in the model to automatically eliminate noise from still or recorded images. Apart from the foregoing, the suggested model might be enhanced by include auto-adjustment of picture resolution, brightness, and contrast. The quality of the photographs loaded has a significant impact on the accuracy of emotion recognition in the current application. Furthermore, a real-time emotion recognition technology may be used to improve the interaction between the user and the program. Once the app is activated, the future model will identify and extract face features, allowing the emotion to be identified in real time.

VI. REFERENCES

[1] S. R. Paul, NHTSA's Drowsy Driver Technology Program.
https://en.wikipedia.org/wiki/Driver_drowsiness_detection

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Conference:01/December-2022 Impact Factor- 6.752 www.irjmets.com
1st National Conference on Applications of soft Computing Techniques in Engineering NCASCTE-2022
Organized by Department of Electrical & Electronics Engineering, ACE Engineering College, Hyderabad

[2] Hitendra Garg Drowsiness Detection of a Driver using Conventional Computer Vision Application, 2020 International Conference on Power Electronics & IOT Applications in Renewable Energy and its control (PARC), Mathura, Uttar Pradesh, India.

[3] Qaisar Abbas Hybrid Fatigue: A Real Detection using Hybrid Features and Transfer Learning International Journal of Advanced Computer Science and Applications, Vol. 11, No. 1, 202

[4] Shruti Mohanty, Shruti V Hegde, Supriya Prasad, J. Manikandan Design of Real-Time Drowsiness Detection System using Dlib, 2019 5th IEEE International WIE Conference Computer Engineering, 15-16 Nov 2019, Bangalore, India.

[5] K. Sakthidasan, N. Vasudevan, V. Nagarajan Detection using Percentage Eye Closure method, International Conference on Communication and Signal Processing, Chennai, India.

[6] Wisaroot Tipprasert, Theekapun Charoenpong, Chamaporn Chianrabutra, Chamaiporn Sukjamsri Closure and Yawning Detection for Drowsiness Analysis by Infrared

[7] Wisaroot Tipprasert, Theekapun Charoenpong, Chamaporn Chianrabutra, Chamaiporn Sukjamsri Closure and Yawning Detection for Drowsiness Analysis by Infrared

[8] Ratna Kaavya M, Ramya V, Ramya G Franklin Driver's Drwosiness using Image Processing, Conference on Vision towards Emerging Trends in Communication and Networking, Vellor International Journal of Latest Technology in Engineering, Management & Applied Science.