

Emotion Based Music Recommendation System

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Abstract

This paper demonstrates the Bezier- approximation technique as a facial expression recognition method. The system is predicated on facial expression choices, faces pure mathematics knowledge, and approximated by Bezier curves of third order representing the relation between feature motion and expression changes. For face detection, color segmentation has been used to help the novel Fuzzy classification plan which manipulates color ambiguity. The experimental findings indicate that the facial expressions with Associate in nursing accuracy of 90 cases are recognized by this technique. Finally, a manipulator golem and face gesture commands were used to execute the System. We have a propensity to split in three regions from the external part of the body, namely the left eye, the right eye and the mouth. Facial identification first comes so that a skin layer is identified. We prefer to maintain the face skin region and attach the wide area of the skin to the outside body area of the skin.

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1. Introduction

- Scientific world is as vast as the cosmos. Each day new developments is weighed, if it isn't huge or revolutionary, certainly beneficial that can contribute to a significant upside. Two main fields in science and engineering are the aspects in Sound and Graphics, however, do not merely impress people into studying in detail to discover its depths. Since then, many other inventions have driven us to the modern day, so when possible is the thought of different ideas that could not be applied over a long time period.

- Nowadays, when you select a screenshot and take care of music "on the move," it's just a part of the life style, which provides many enhancements within the operations of technology that inevitably value consumer skills. The technical advances have also increased the level of software complexity. Furthermore, the creation of subtle applications can be a problem with the concept of 'making it easy.'

- Main function or cornerstone of the project is the primarily music player based on Facial Expression, an

immersive, discreet and creative technology that can be used entirely differently as a music player. The program operates in a slightly different compared to usual software kit as it checks, lists the audio files of the user and offers a primary playlist mood category in accordance with the specified criteria (audio features). The graphics produced for the application in real time are categorized (facial expression recognition) to have a context that can select the desired quote from the previous package.

2. Literature Survey

- The paper of Hafeez Kabini [1] immediately tackled the problem that such techniques typically only addresses purposefully characterized representations that initial feelings, including purposeful action, which vary in terms of visual appearance, audio profiles, and temporal order from impromptu behavior.

- The goal of Setiawardhana [2] in their technical paper is to classify facial expressions as an indication of a significant extent in the creation of a music chart. The picture is considered a color mixture and separation is

carried out to help the alignment of super cilium, eye and mouth related classes. They developed a device to identify three facial expressions: standard, wrathful, and joyful.

- The Henal Shah paper from Iran [3] conveys a nostalgic or feeling review to our expected intellectual music player. A main aspect of functionality is also calculated in Emotions. In life, they play a significant role. Test for human emotions to express thoughts and expectations with one another. The square feelings are portrayed verbally and facially.

- In keeping with the user's intent, Anukriti Dureha [4] manually separated lists and annotation of songs as laborious, time consuming task. The existing square algorithms thus calculate gradually, raise the device value with additional hardware loss and have reduced precision.

3. Proposed System

The interface is articulated as follows:

- The predicted framework operates by providing an immediate interface that enables the user to scan the audio file memory after the application has been opened.
- When you have located the files, you search for audio options and remove those options.
- The extracted functional values are then categorized based on the specified parameters.
- They include a narrow range of genre variations that help the processing of the audio feature values.
- It is something that was later aided by the Lily-White tracks on entirely separate playlists.
- Lists of comparable sounding songs or songs are, therefore, created happiness to specific genres.
- The next move is to invoke the user camera with the right permissions and the device can obtain true-time graphical entry (image).
- The initial framework tests the face appears in the input-victimization process
- The categorized word is used to compile a list from the first playlists created and then play the listed track.

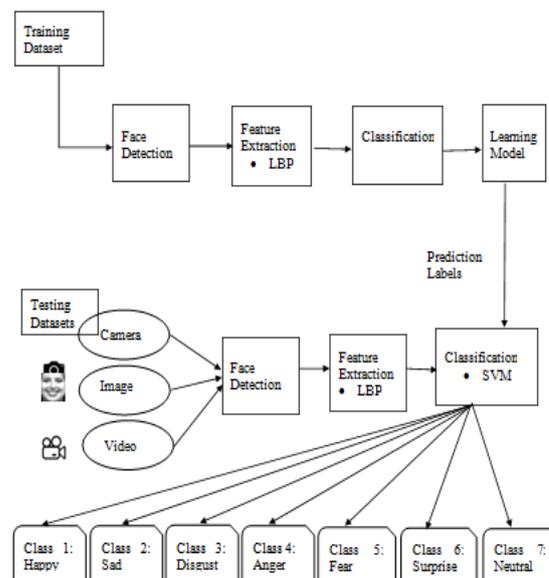


Figure 1: High level architecture

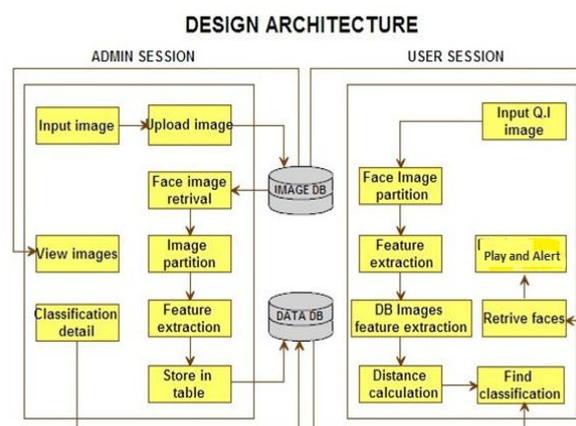


Figure 2: Design Architecture

4. Methodology

• OpenCV:

Open CV may be a primarily time computer vision programming feature novel. It is a Python module for execution. A Python Cv library resulting from the mistreatment of OpenCV can apply the algorithm of Viola and Jones detection. Facial recognition is really necessary since the expression is present. Additionally, the graphic recognition system is used to understand speech. Audio files will be searched, alternatives will be omitted and the collection will continue to be acquired through mood.

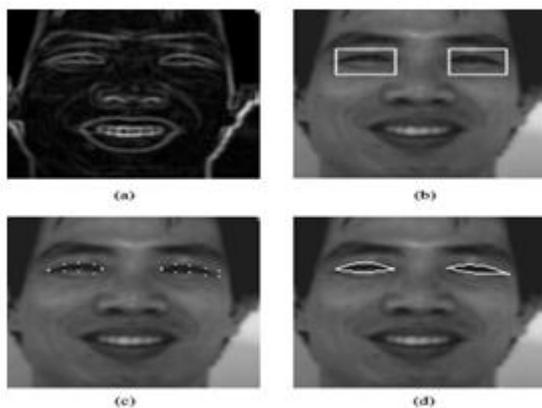


Figure 3: Eyes & Mouth Extraction

• **Viola-Jones algorithm:**

The Viola-Jones Object Detection System is the first object detection system to have effective and fast object detection, developed by Paul Viola and Michael Jones in 2001. During its training in monitoring the distribution of object types, the problem with facial recognition was mainly triggered. This law is applied as cv.HaarDetectObjects() in OpenCV.

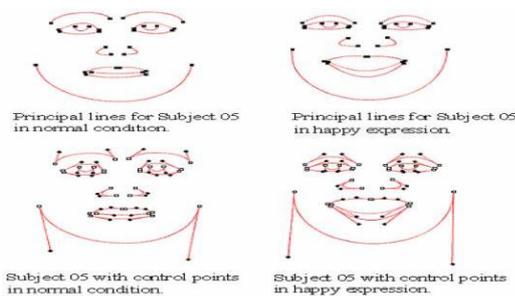


Figure 4: Bezier Curves

• **Audio Feature**

An inventory of songs are the input. As songs are audio files, they need a definite quantity which is acceptable of MP3 format. As the expression is been detected the songs is been played according to the detected expression or emotion.

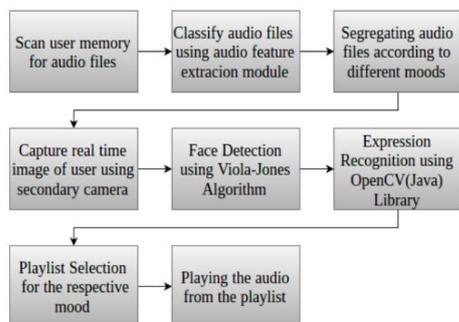


Figure 5: Proposed System

5. Working and Implementation

Step 1: Input Image

Step 2: Contrast Stretching:

Max. image contrast extension, pixels ((pixel-min) / (Max-min))*255 convert from the source to destination.

Step 3: Skin Colour Conversion:

Equation:

$$Y = 0.299R + 0.587G + 0.114B$$

$$Cb = -0.169R - 0.331G + 0.500B$$

$$Cr = 0.500R - 0.419G - 0.081B$$

is possible to transform optical RGB images to YCRCB.

Step 4: Connected Region Detection:

The marking of associated components is used to identify linked regions of binary visual images of computer vision.

Step 5: Binary Translation of the File.

Step 6: Eyes and Lips are Extracted from the Binary File to Detect Bezier Curves: The Bezier curves display emotions by measuring their values in a database.

Step 7: To Determine Human Emotions: Curves are drawn and an appropriate emotion is sought.

Step 8: Plays the Recommended Music.

6. Applications

The aim of this program is to resolve problems that occur in everyday life. Some scope:

- The device can be used for the identification and tracking of a user's mood.
- The system can be used in commercial shopping centers to provide consumer reviews for market improvement; the device can also be used for instructional purposes, such as input on how the pupil responds in the context of the classroom.
- The program can enable people in emotion based studies and enhance the emotional data analysis. The device can be used to identify men lying among criminal suspects during questioning.

7. Conclusion

- A predicted device (basically a Music Player based on Facial Expression) introduces a music player that produces a set of sound choices for the songs and thereby provides a basic user with a chart.
- The proposed model uses the Viola Jones law for coerced victimization java and OpenCV (javacv) for the elimination and classification of audio features to retain a part of its functionality and svm classification is used.

Bibliography

- [1] AnukritiDureha, “An Accurate Algorithm for Generating a Music Playlist based on Facial Expressions”, International Journal of Computer Applications (0975-8857), Volume 100-No.9, August 2014.
- [2] Dr.R.K. Kulkarni andAnagha S. Dhavilkar, “Face Detection and Facial Expression recognition System”, 2014 International Conference on Electronics and Communication System (ICECS-2014).
- [3] Pooja VankatBorule, Megheshwari Sanjay Lad and Ashwini BalkrisnaSontakke, “The Emotion Recognition Based On Facial Expression Play Music”, International Research Journal of Engineering and Technology (IJRET), Volume:03 Issue:11.
- [4] Corneliu Lazar and Elena Alionte, “A Practical Implementation of Face Detection by Using Matlab Cascade Object Detector”, 2015 19th International Conference on System Theory, Control and Computing (ICSTCC), October 14-16, ChelleGradistel, Romania.
- [5] Asso. Prof. A.H. Kulkarni and Sushmita G. Kamble, “Facial Expression Based Music Player”, 2016 International Conference on Advances in Computing, Communications and Informatics (ICACCI), Sept. 21- 24, 2016, Jaipur, India.