A Novel Method To Design Emotion-Based-Music-Player

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Abstract **- Recent studies confirm that humans respond and react to music which music features a high impact on person's brain activity. People tend to concentrate to music supported there mood and interests. This paper helps the user to automatically play songs supported the emotions of the user. It recognizes the facial emotions of the user and plays the songs consistent with their emotion. A countenance may be a sort of non verbal communication. Manually adding the list of songs and generating an appropriate play list supported an individual's emotional features may be a very time consuming. during this system, the emotions are recognized employing a machine learning method countenance detection in Fisher faceworks with the assistance of trained models. Reason behind this is often to permit user to require data set consistent with their use. also as small memory of knowledge give output fast which end in quick reaction time . Here we first tried with Cohn-Kanade data set then we made some classification within the as our need make it to coach our model.**

keywords **- Music, emotion, machine learning, face works.**

I. INTRODUCTION

Music has been turned out to be a fundamental piece of every body's life. It goes about as a hotspot for stimulation and further more utilized for different medicinal needs as it is turned out to be a Stress Reliever. With the expanding progressions in the field of Multimedia as of late, there are various top of the line music players accessible with the most recent high light so taking care of the volume ,adjustment, pitch, sound, type, and soon. In spite of the fact that these high lights are helpful for the clients yet in some cases it turns out to be very chafing and tedious to physically peruse through the playlist for the planned melody which client needs to play dependent on his/her temperament and passionate state. To provide the clients with the most ideal and easy delight to music, Facial Expression Recognition(FER) based frame works have been embraced as they give all the more quick, precise and productive outcomes with less exertion. With the world moving towards fields like Artificial Intelligence(AI) and Machine Learning(ML), our point is to give the clients a stage through which on their present disposition, music is played utilizing Facial Expression Recognition.

II. LITERATURE SURVEY:-

[1] In this paper ,Authors states that ,Music plays a really important role in human's lifestyle and within the modern advanced technologies. Usually, the user has got to face the task of manually browsing through the playlist of songs to pick . Here we are proposing an efficient and accurate model, that might generate a playlist supported current spirit and behavior of the user. Existing methods for automating the playlist generation process are computationally slow, less accurate and sometimes even require use of additional hardware like EEG or sensors. Speech is that the most ancient and natural way of expressing feelings, emotions and mood and its and its processing requires high computational, time, and cost. This system supported real-time extraction of facial expressions also as extracting audio features from songs to classify into a selected emotion which will generate a playlist automatically such the computation cost is comparatively low.

[2] This paper proposes an intelligent agent that sorts a music collection supported the emotions conveyed by each song then suggests an appropriate playlist to the user supported his/her current mood. The user's local music collection is initially clustered supported the emotion the song conveys, i.e. the mood of the song. this is often calculated taking into consideration the lyrics of the song, also because the melody. whenever the user wishes to get a mood-based playlist, the user takes an image of themselves at that instant. This image is subjected to facial detection and emotion recognition techniques, recognizing the emotion of the user. The music that best matches this emotion is then recommended to the user as a playlist.

[3] In this paper ,Authors states that , Nowadays, people tend to increasingly have more stress due to the bad economy, high living expenses, etc. taking note of music may be a key activity that assists to scale back stress. However, it's going to be unhelpful if the music doesn't suit the present emotion of the listener. Moreover, there's no music player which is in a position to pick songs supported the user emotion. to unravel this problem, this paper proposes an emotion-based music player, which is in a position to suggest songs supported the user's emotions; sad, happy, neutral and angry. the appliance receives either the user's pulse or facial image from a sensible band or mobile camera. It then uses the classification method to spot the user's emotion. This paper presents 2 sorts of the classification method; the guts rate-based and therefore the facial image-based methods. Then, the appliance returns songs which have an equivalent mood because the user's emotion. The experimental

results show that the proposed approach is in a position to exactly classify the happy emotion because the guts rate range of this emotion is wide.

[4] Authors says that, Digital audio is straightforward to record, play, process, and manage. Its ubiquity means devices for handling it are cheap, letting more people record and play music and speech. additionally , the web has improved access to recorded audio. So, the quantity of recorded music that folks own has rapidly increased. Most current audio players compress audio files and store them in internal memory. Because storage costs have consistently declined, the quantity of music which will be stored has rapidly increased. A player with 16 Gbytes of memory can hold approximately 3,200 songs if each song is stored in compressed format and occupies 5 Mbytes. Effectively organizing such large volumes of music is difficult. People often listen repeatedly to alittle number of favorite songs, while others remain un justifiably neglected. We've developed Affection, an efficient system for managing music collections. Affection groups pieces of music that convey similar emotions and labels each group with a corresponding icon. These icons let listeners easily select music consistent with its emotional content. Experiments have demonstrated Affection' effectiveness.

[5] In this paper ,Authors states that , Songs, as a medium of expression, have always been a well-liked option to depict and understand human emotions. Reliable emotion based classification systems can go an extended way in helping us parse their meaning. However, research within the field of emotion-based music classification has not yielded optimal results. during this paper, we present an affective cross-platform music player, EMP, which recommends music supported the real-time mood of the user. EMP provides smart mood based music recommendation by incorporating the capabilities of emotion context reasoning within our adaptive music recommendation system. Our music player contains three modules: Emotion Module, Music Classification Module and Recommendation Module. The Emotion Module takes a picture of the user's face as an input and makes use of deep learning algorithms to spot their mood with an accuracy of 90.23%. The Music Classification Module makes use of audio features to realize an interesting results of 97.69% while classifying songs into 4 different mood classes. the advice Module suggests songs to the user by mapping their emotions to the mood sort of the song, taking into consideration the preferences of the user.

[6] In this paper, a sensible music system is meant by recognizing the emotion using voice speech signal as an input. the target of the speech emotion recognition (SER) system is to work out the state of emotion of a person's being's voice. This study recognizes five emotions-anger, anxiety, boredom, happiness and sadness. The important aspects in implementing this SER system includes the speech processing using the Berlin emotional database, then extracting suitable features and selecting appropriate pattern recognition or classifier methods to spot the emotional states. Once the emotion of the speech is recognized, the system platform automatically selects a bit of music as a cheer up strategy from the database of song playlist stored. The analysis results show that this SER system implemented over five emotions provides successful emotional classification performance of 76.31% using GMM model and an overall better accuracy of 81.57% with SVM model.

[7] The paper constitutes the implementation of Convolutional neural network for the emotion detection and thereby playing a song accordingly. Segregating the songs and playing them in accordance to one's mood could facilitate the concert-goer . Although there exist tons of algorithms designed for it, the computation isn't needless to say . This paper eradicates such a problem by using CNN. so as to get minimal processing, multilayer perceptron are implemented by CNNs. as compared to varied algorithms for image classification, CNNs observed to possess little-processing. this suggests that the filters utilized in CNNs are advantageous in comparison to traditional algorithm. The visualization of features directly are often less informative. Hence, we use the training procedure of back-propagation to activate the filters for better visualization. The multiple actions like capturing, detecting the emotion and classifying an equivalent can all be confined together step through the utilization of CNN. The slow performances of the real-time approaches might be enhanced by regularizing the methods and by visualizing the hidden features. Hence the proposed approach could enhance the accuracy and therefore the computation speed.

[8] In this paper ,Authors states that Music is ubiquitous in our lifestyle . People actively or passively hear music at different locations and consciously or non-consciously experience it as a sort of emotion expression. during this paper, we present a replacement location and emotion aware web-base interactive music system. It aims to supply the user preferred music with location and emotion awareness. The system starts recommendation with expert knowledge. If the user doesn't just like the recommendation, he/she can decline the advice and choose the specified music himself/herself. During this process, the user's interactions with the system, current location and emotion are logged for music preference learning. Thus, the system can adapt to the user's latest music preference. Also, the more the user uses the system, the more personalized music are often adapted to him/her.

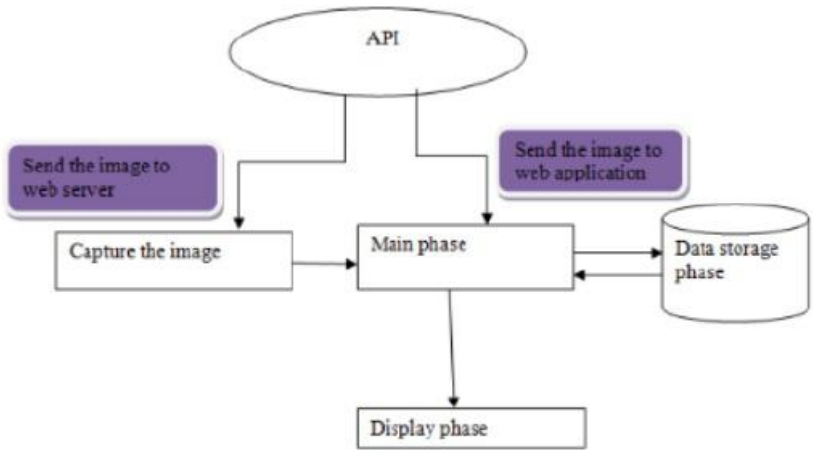
[9] In this paper ,Authors states that , Harmonization may be a crucial task in piano music creation. However, it's a tedious task for novice piano players. this is often because piano players got to keep track of the extensive set of western music rules and ideas , and also need years of coaching and practice to harmonize a melody accurately. This research addresses the issues of harmonization and proposes an interactive learning tool, "ChordATune" that facilitates piano players, song writers and music students to experiment with harmonization concepts to make harmonies effectively incorporating emotions, genre, beat and tempo.

[10] In this paper ,Authors states that Mirror is an artifact that's a reflective surface, with which we interact for grooming and decoration. However, the recent developments in technology and therefore the improved need and value of customer satisfaction means the utilization of mirrors is not any longer limited to its arbitrary functions. during this paper, we propose a fairly Intelligent mirror that's incorporated in our lifestyle to make sure that the interactions we've with are more feasible, efficient and eventful. this technique aims to feature functionality to the mirror and take it to its extreme potential. By means of an easy webcam, a music speaker and a raspberry pi, this paper presents a mirror that's capable of performing tasks including identifying presence of person, identifying emotion, use of straightforward augmented reality by displaying real-time personal information and an emotion-based music player connected to the system to play an emotion to appease the mood. Thus, an easy mirror is transformed into an item of excellence.

[11] Authors presented a completely unique multi-modal access to large MP3 music databases. Retrieval are often fulfilled either during a content-based manner or by keywords. As input modalities, speech by tongue utterances or singing, and manual interaction by handwriting, typing or hardkeys are used. so as to realize especially robust retrieval results and automatically suggest music to the user, contextual knowledge of the time, date, season, user emotion, and listening habits is integrated within the retrieval process. The system communicates with the user by speech or visual reactions. The concepts shown are especially designed for home and mobile access on tablet-PCs, PDAs, and similar PC solutions, The paper discusses the concept and a working prototype called Shangrila. An evaluation by a user study results in an impact of the capabilities of the suggested approach to multimodal music retrieval.

III. ARCHITECTURE DESIGN:

The proposed algorithm in this involves an emotion music recommendation system that provides the generation of a customized play list in accordance with the user‘s emotional state.



The proposed system involves two major modules: Emotion extraction module and an Emotion recognition module. Emotion recognition module performs the mapping of modules by querying the audio meta-data file and speech it recognizes the input text where it should be used for the Registration purpose.

- Done by the analysis on images, image of a user is captured using a webcam or it can be accessed from the stored image.
- This acquired image under goes image enhancement in the form of tone Mapping in order to restore the original contrast of the image

DESCRIPTION OF MODULES:-

- Creating a model
- Capturing a image
- Predicting the emotions

- Module1:creatingamodel
  1:Take128*128imageasinput.
  2:Image passes through convolution 2D.
  3:The size of the each filter in a layer is 3 and the size increase from 16,32,64 and 128 as the image passes through each layer.
  4:Images passes through 3 convolutional layer and then through aflatten layer.
  5:The out put offlatten layer passes through 2 fully connected layers. Output–Trained Model

- Module2:Capturea image

1:The images captured through webcam, and it's featured are extracted.
2:Extracted features of a input image is stored in a folder.
3:Extracted features are sent to next module for the prediction.

- Module3:Predictingaemotions
  1:Take128*128 image as input.
  2:Recreate a network graph of the trained model.
  3:Loads the weights saved using there store method.
  4:Access the default graph which has been restored and get input and output tenser name.
  5:Feed the images to the in put place holders. Output-emotion of a user is detected

Detecting emotions:-

- Collecting data
  Facial expression detection in Fisherface works with the help of trained models. Reason behind this is to allow user to take dataset according to their use. Suppose if we take a huge amount of dataset of around 25-30k it will given ice accuracy no doubt but if the situation is like that the user of the devices area few people. Now in such condition if we take some precise dataset with around 400-450 images as input related to the user then it will also give good accuracy with the benefit of less amount of dataset and less storage on memory to operate. As well as small memory of data give output fast which result in quick response time. Here we first tried with Cohn-Kanade dataset then we made some classification in the as our need make it to train our model.

- Detectedemotions
  We have implemented the linking of python with java script through eellibrary. Which provide us the privilege to access python methods from js asw ell as vice versa. Here the striating flow will be in python code as the library is implemented in python then it transfer the control to html, JS. And according to the result we show emoticons.

According to which we can classify emotion directory for playing song we have chosen this 4emotions.

IV. CONCLUSION
The Emotion-Based Music Player is employed to automate and provides a far better music player experience for the top user. the appliance solves the essential need so music listeners without troubling them as existing applications do: it uses technology to extend the interaction of the system with the user in some ways . It eases the work of the end-user by capturing the image employing a camera, determining their emotion, and suggesting a customized play-list through a more advanced and interactive system.

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