Playlist Generator using Facial Expression

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Abstract: ***The playlist generator creates music playlists based on the user's facial expression or mood to create music that matches their current mood. This study investigates a system that creates music playlists based on facial recognition. The system analyzes the user in real time and matches the user's current mood with compatible songs from a selected library. The goal is to create personalized playlists that improve mood and enhance user experience. Research focuses on the accuracy of emotional intelligence, the impact of visual feedback, and user satisfaction. The electronic playlist using facial recognition is an innovation designed to enhance the user experience in music therapy by analyzing emotions using facial recognition technology. The system is designed to create personalized playlists that match the user's current mood, as determined by instant facial analysis. The system is based on facial recognition, which can process and interpret multiple faces to show emotions such as happiness, sadness, anger, and grief. The mood data is then matched with a predefined library of music genres, tracks, and moods. The system dynamically creates playlists that correspond to the emotional state, offering the user music options that match their current emotions.***

Keywords: Emotion Recognition, Playlist Generation, Personalized Music, Emotional Analysis, Machine Learning, Computer Vision, Mood-Based Music, Adaptive Algorithms, Real-Time Emotion Detection, User-Centric Music Recommendation.

I. INTRODUCTION

In the digital age, music has transformed from a source of entertainment to a powerful tool for emotion and well-being. Traditional music recommendations often rely on user preferences, listening history, and distribution types to recommend tracks. However, these systems often fail to immediately change the user's mood, which can be important in increasing overall attention. Playlist creators that use facial expressions represent a revolutionary approach to music curation by integrating real-time feedback into the playlist creation process.

This new system addresses the limitations of traditional systems by using technology to recognize the need to customize the aesthetic message to the user's current mood. By analyzing various devices such as facial expressions, tone of voice or body movements, the body can capture emotions with high accuracy and transform this information into dynamically curated playlists. This technology allows the system to interpret various emotions such as happiness, sadness, anger or anxiety and display them in a sound music library of thoughts and emotions.

The result is personalized listening that changes instantly with the user's mood, offering music that not only matches but also enhances their current mood. The ability to communicate music has implications for a variety of uses, including stress management, mood management and general motivation. Therefore, thought-driven playlist creators represent a significant advancement in the personal music experience, moving beyond traditional recommendations to provide an enjoyable and listening environment. This introduction lays the groundwork for research into how integrating emotion into visual music can transform the way we interact with and experience music, providing greater support and stimulation for the self and the mind.

II. LITERATURE SURVEY

1. Emotion-Based Music Recommendation: This paper introduces an emotion-based music player that can display songs that, support the user's happy, neutral, and angry emotions. This device, captures the user's pulse or facial image from the smart belt, or mobile camera. Then it uses a classification method to determine, the user's intention. This paper presents two classification methods, standard and face model with median value. The application, returns songs that are in the same mood as the user's mood. This paper divides the opinions of users and songs into four categories: neutral, happy, sad, and angry. Experimental results show that the accuracy of detecting happiness is the highest, about 98%, and the accuracy of detecting sadness is the lowest, about 40%.

2. Face recognition uses CNN and LBP, and eye interaction is a good way to communicate with

people based on social interaction. Even current changes can express happiness, sadness, surprise, and anxiety. Each person's face should look different from different factors such as lighting, body, and background. These factors are still problematic when it comes to face recognition. This paper hopes to provide a good comparison between the two most commonly used face recognition [FER] technologies and shed light on their reality. The applications here are local binary model [LBP] and convolutional neural network [CNN]. LBP is considered as a method for feature extraction only, so Support Vector Machine [SVM] classifier is used to classify the features extracted by LBP. The data used for testing and training in this paper are CK+, JAFFE and YALE FACE.

3. A music theory based on machine learning:This paper presents a neural network application for music-based music search. Multiple perceptron layers are used by CNNs to achieve low performance. Compared to many image classification algorithms, the success rate of CNN is quite low. This means that the filters used in CNNs are better than the algorithms. Direct visualization of features is usually less familiar. Therefore, we use the backpropagation training method to initialize the filter to provide better visibility. Using CNNs, various operations such as detection, behavior detection, and classification can be limited to the same steps.

4. Using basic facial features for automatic face recognition:they proposed to transfer the system's image data to the face domain to detect noise caused by the use of Gaussian filters or masks. Here, they used Viola Jones techniques such as Haar features and Adaboost learning for face detection. The detection time includes face angle, eye detection, noise, and face shape. After extracting active face patches, feature classification is done by SVM (Support Vector Machine). When testing, it will take many photos from the storage and extract features and classify accordingly. They used CK+ (CohnKanade) dataset and JAFEE dataset to train and test the data. The curriculum contains a total of 329 images.

5. Deep Learning for Music Emotion Recognition:
Reviews deep learning models applied to music emotion recognition, discussing various network architectures and their applications. Deep learning models like CNNs and RNNs for recognizing emotions in music. This are the Effective in capturing complex relationships between music and emotions.

III. METHODOLOGY

A. Existing System

Current systems provide a good insight into facial recognition and beauty perception. However, instant playlist generators that use facial recognition to directly and dynamically display selected songs are still emerging in the music industry. This difference demonstrates the potential impact and innovation of combining emotional intelligence with AI-driven music personalization to create a seamless and uninterrupted delayed music experience.

B. Proposed System

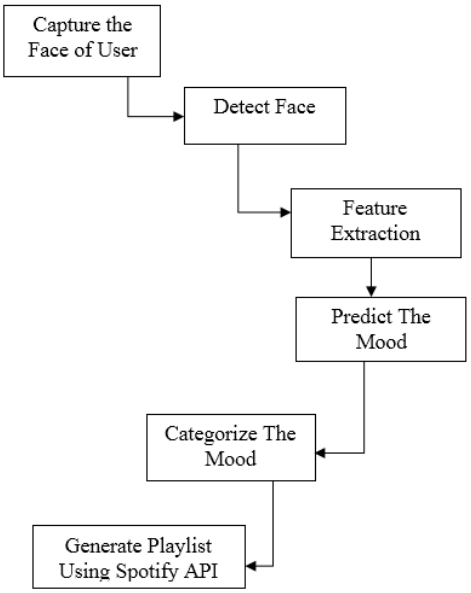
In our web application, the user logs in to the system and the user's face is captured by the laptop camera. Then, Vialo Jones algorithm is used to measure the face only, and Haar function is used to accurately identify the face. Then, use CNN to identify the user's facial features. Then, the system creates different new music according to the needs found by the user, and finally combines the music to create a new music. If the user finds the same mood, new music will be created for the user every time. :

Self-awareness: The system provides music that suits the user's current mood, increasing their mood and satisfaction.

Dynamic Adaptation: Instant adjustments to keep the music suitable for the user's changing mood. Increased engagement: Personalized playlists and interactive ideas increase user engagement and attention.

The emotion-focused playlist creator uses advanced emotion recognition and adaptive algorithms to deliver highly personalized music. The system aims to provide a better listening experience and enhanced awareness by combining beautiful visuals with immediate emotional experiences.

IV.SYSTEM ARCHITECTURE



V. CONCLUSION

The face-based playlist generator is a new way to improve music listening. Through facial recognition and emotional analysis, the system can adjust playlists according to the user's mood, creating a harmonious and personalized environment. Such devices not only delight users by providing music that suits their mood, but also demonstrate the ability of smart technology to change the interactions that affect every day. The project will take an important step towards improving the intellectual and entertainment level by providing communication, interaction and emotional response to the appreciation of music. service providers are(spotify, etc.) we can use this system. The main goal is to create a music playlist that can capture the user's mood based on their face. Case studies include emotional intelligence and playlist creation. The old or current system requires users to search for playlists based on their needs, our proposal facilitates this by taking the user's image, reviewing their needs and creating a list based on what they can see. When the machine now needs to pick up songs based on their ideas, speech recognition can be used to do this job and map songs easily. All user accounts are also created, allowing users to save recommended songs to their accounts for future use.

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