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Emotional Music Player Using Convolutional Neural Networks

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ABSTRACT: Emotion Based Music Player is a web application in which the human face is an important organ of an individual's body and plays an important role in extraction of an individual's behaviour and emotional state. Manually segregating the list of songs and generating an appropriate playlist based on an individual's emotional feature is a very tedious. This proposed system based on the facial expression extracted will generate a playlist automatically thereby reducing the effort and time involved in rendering the process manually and also based on voice recognition and text recognition by giving interested mood as the input. Thus, the proposed system tends to reduce the computational time involved in obtaining the results and the overall cost of designed system, thereby increasing the overall accuracy of the system. If we want we can also play songs in the background. Facial expressions are captured using an inbuilt camera and are categorized into five basic types joy, anger, sad, surprise, excitement based on one of these types, songs list will be opened. Thus, it yields better accuracy in terms of performance and computational time and reduces the designing cost.

KEYWORDS: Emotions, Music Player, Facial Expression.

I. INTRODUCTION

Music is an important entertainment medium. With advancement of technology, the optimization of manual work has gained a lot of attention. Currently, there are many traditional music players that require songs to be manually selected and organized. User, have to create and update play-list for each mood, which is time consuming. Some of the music players have advanced features like providing lyrics and recommending similar songs based on the singer or genre. Although some of these features are enjoyable for user, there is room to improve in the field of automation when it comes to music players. Selecting songs automatically and organizing these based on the user's mood gives user's a better experience. This can be accomplished through the system reacting to the user's emotion, saving time that would have been spent entering information manually.

Emotions can be expressed through facial expressions, voice, text. For the system to understand a user's mood, we use facial expression. There are many emotion recognition systems which take captured image as input and determine the emotion. For this application, we are using webcam and providing emotion as input for the recognition of emotion. The system includes an algorithm that organizes songs based on the user's emotions and preferences. This algorithm suggests user's songs to play based on their emotion. The basic emotions which we have considered in our application are happy, sad, angry, surprised, neutral.

Our application consists of three different features, which take emotion as input and play songs based on the emotion of the user. Features include facial emotion recognition, voice recognition and text recognition. Recognition of facial expressions is used to identify the basic human emotions. Facial expressions give important rules about emotions. A human can express his/her emotion through lip and eye. Generally, people have a large number of songs in their database or playlists. Thus, to avoid trouble of selecting a song, most people will just randomly select a song from their playlist and some of the songs may not be appropriate for the current mood of the user and it may disappoint the user. As a result, some of the songs are not matching to the user's current emotion. Moreover, there is no commonly used application which is able to play songs based on the current emotions of the user. Music plays a very important role in enhancing an individual's life as it is an important medium of entertainment for music lovers and listeners and sometimes even imparts a therapeutic approach. In today's world, with ever increasing advancements in the field of

multimedia and technology, various music players have been developed with features like fast forward, reverse, variable playback.

Although these features satisfy the user's basic requirements, yet the user has to face the task of manually browsing through the playlist of songs and select songs based on his current mood and behaviour. Coming to voice recognition feature, user's voice is taken as input. Here, name of emotion is given as input and after the voice is recognized, it is converted into text. Then, we check whether the emotion is valid or not. If it is valid, songs will be played from the particular playlist(module). User's voice is taken using the device microphone. We need to give permission to allow the device to use microphone.

In the same way, the text recognition feature is added. Here, user needs to give the name of emotion as input in the search box. Using regular expressions in python, we check whether the given input is matching with one of the emotions, which we have provided. If the provided input is valid, then the user can listen to the songs based on the emotion.

II. EXISTING SYSTEM

Currently, there are many existing music player applications. Some of the interesting applications among them are:

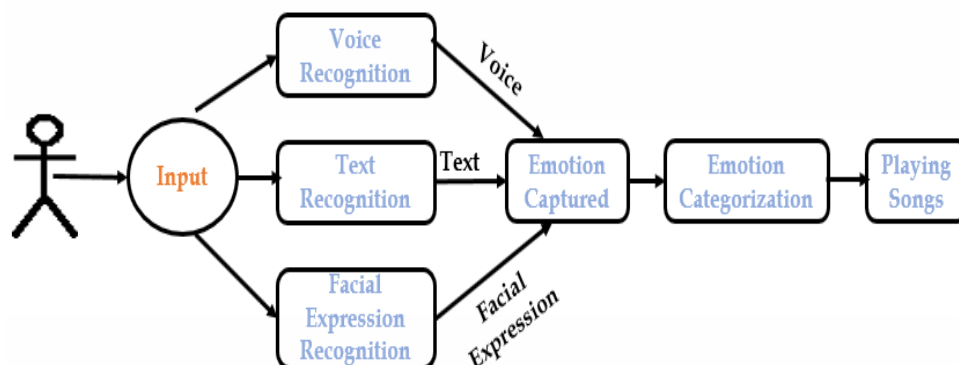
- Saavan and Spotify – These application gives good user accessibility features to play songs and recommends user with other songs of similar genre.
- Mood fuse - In this application, user should manually enter mood and genre that wants to be heard and mood fuse recommends the songs-list.

Proposed system:

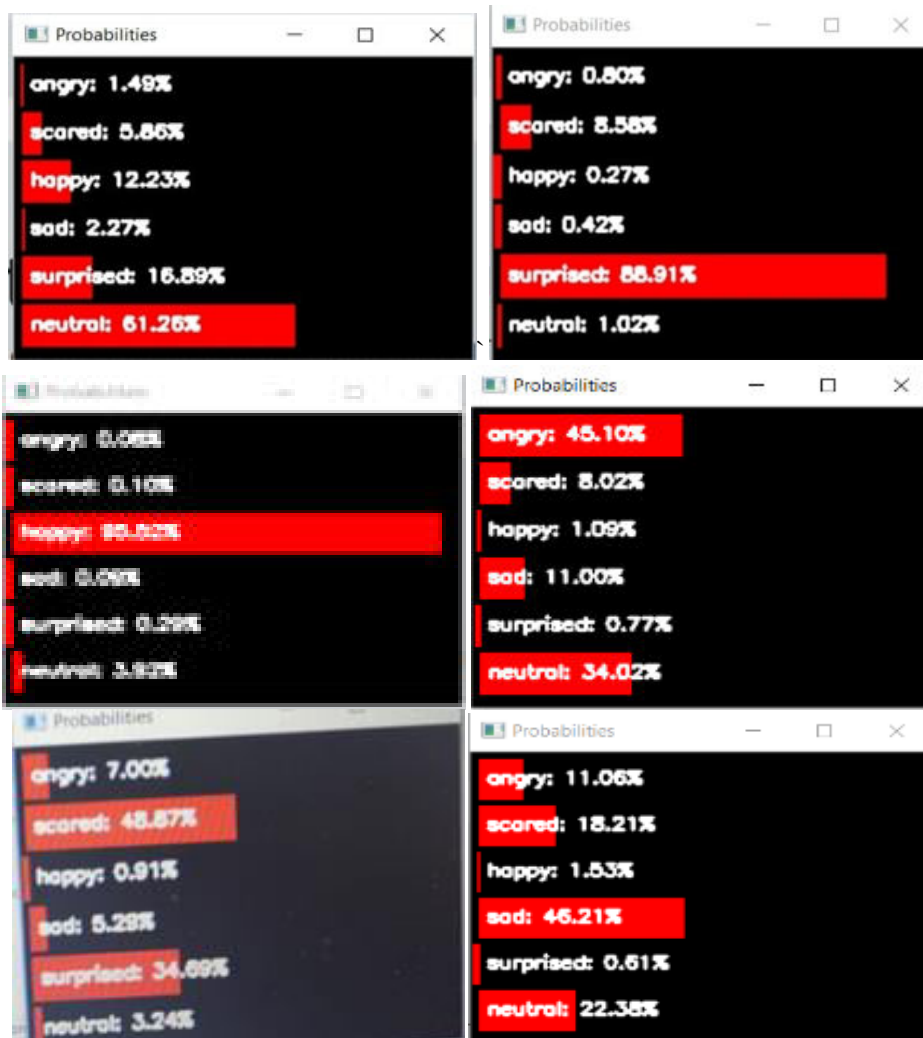
In this proposed system, we consider the notion of collecting human emotion from the user's expressions, and explore how this information could be used to improve the user's experience with music players. We present a new emotion based and user-interactive music system, EMOTIONAL MUSIC PLAYER. It aims to provide user-preferred music based on emotion. EMOTIONAL MUSIC PLAYER that learns its user's emotions through three different features, and plays songs based on user emotion. Based on user emotions, songs related to that emotion will be played.

A user's facial expression helps the music recommendation system to decipher the current emotional state of a user and plays songs and also in the case of voice recognition, user's current emotion will be taken as voice input through device's microphone, using keyboard input for text recognition is taken. The user needs to grant permissions to use web cam or microphone. It is composed of mainly three modules: Facial Emotion Recognition, Voice Recognition and Text Recognition. All these modules are mutually exclusive. User needs to login in order to get access to the system. Songs will be played in the background even if user wants to go to the other tab. Admin is responsible for adding or deleting or updating songs in the system. Login and registration details are also maintained by the admin.

Architecture:



III. RESULTS



IV. CONCLUSION

Emotion recognition is a rising trend which helps in reducing the time involved in completing tasks. Selecting songs based on emotion is a complex task. So, this system helps the user by playing songs based on the emotion of the user. Emotion of the user can be recognised using any of the three features. Using any one of the features, user can listen to the songs based on the emotion. This project has been developed to give us great advancement in the field of machine learning technology. Emotional music player fulfils to sort out the music based on the emotions of the user such as whether it is happy or sad. So, totally our work aims to develop a player which is based on user need and it helps to revive in case of free time or leisure time if we want to hear music based on our current situation.

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