Emotion Based Music Recommendation System

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ABSTRACT

Emotion based music recommendation system is an Android application which user can easily listen songs as per recommendation. Our Emotion based music recommendation system mainly focused to reduced unnecessary time and energy to search the songs as his /her Preference. The emotion-based music recommendation system is most effective, fast and cheapest way of listening songs. Above 14 years to 75+people can listen to songs. Emotion based music recommendation system will detect the mood and provide songs according to the current mood. we use dell's real sense camera to capture the users face expression. When detect the face expression, then the Emotion based music recommendation system show the playlist of songs as per user's emotions.

1. Introduction

This will give us freedom from the problem of being distribed in our work. It unites us across markets, ages and income levels. Music player system uses in daily activities, travelling, sports, walking etc. Often people listen to manage the mind, specifically to change mood, improve energy level or relieve stress. Also, listening to the songs according to emotion at the right time may improve mental health. Emotion based music recommendation system is developed which performs real time face detection and suggests songs as per detected face. There is an additional feature in this system which is a different show from other music apps. Incorporating the face detection concept was big challenge, so Emotion based music recommendation system has been created to reduce the user's efforts and make it stressless.so that the listening journey of the user became easy and smooth. Human emotions widely classified as: Happy, fear disgust, natural, anger, surprise, and sad. A large number of other emotions can be categorized under this system of emotions. These emotions are very precise. Facial muscle distortions are very minimal when system detect the face expression. Music is the part of art known to have ahuge relation with a person's emotion. It has got a special ability to hike one's mood. If a user inherits a recommendation based on his preference, it will also increase his listing experience. Emotion Based Music Recommendation System will be of great comfort to users along with listeners looking for music based on their mood and emotional behaviour. It will help remove the searching time for music and thereby increasing the overall accuracy and efficiency of the system. Especially when we listen to music of our choice, a dopamine is produced in the brain. Dopamine is a chemical messenger that plays an important role in how we feel joy to listen music. It also encourages us to think and plan, supporting us strive, focus, and make things interesting.

2. Method

In the modern the use and popularity of new technology and the internet are increases. Emotion based music recommendation system is an android application that target on implementing real time emotion detection. The base of this survey is the research papers and the articles that are available on

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the internet through the opinion of the people of India what they are think about the Emotion Based Music Recommendation System. After collecting such data, the team members will produce a synopsis of the overview of the system that can be use by the team.

It is a basic process of a new system that comprises three main methods: Face Capture, Emotion Detection, Emotion Classification, Music recommendation.

2.1 Face Capture

In this Method, firstly the system capture face emotion so here we will use the common device i.e., webcam for that purpose we are also using the computer vision library (CV). To integrate it with other libraries used NumPy and Pandas which makes it easy and also used as a real time computer vision (CV). when the execution starts, the camera starts working and captures some images for further process. We will use algorithms to detect face expressions and this algorithm will classify face emotions.

2.2 Face Detection

The objective of this method is given to detect the face expressions (emotions) in real time and to keep tracking of the same emotions. We will use the (Convolutional Neural Network) CNN algorithm for face detection. This is the common algorithm of machine learning which is used for face recognition.

2.3 Emotion Classification

When the system classifies successful emotions, it will show a playlist of songs according to our emotions. Support Vector Machine (SVM), Random Forest (RF) and K Nearest Neighbour (KNN) algorithms havebeenUsed to classify emotions. This Emotion Recognition May Predict Emotions Rapidly.

2.4 Music Recommendation

Music Recommended presents an updated playlist of new songs based on the user's previously listened songs. This system to provide subscription to listen to newly released songs. This Emotion Recognition May Predict Emotions Rapidly.

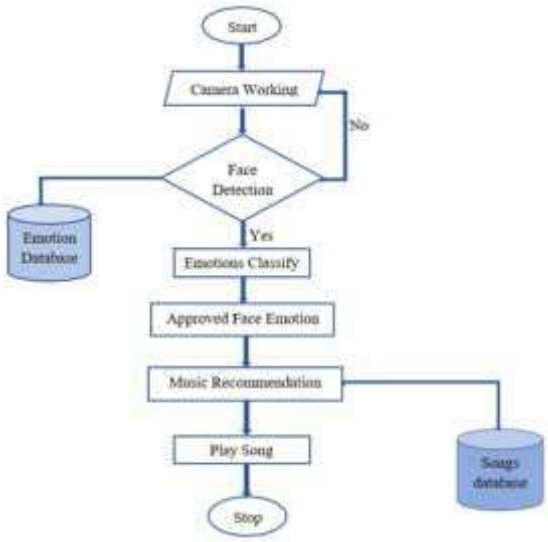


Fig.1. Data flow Diagram of EBMR System

2.5 Hardware & Software Requirements

Hardware Requirements:-

It is very general requirements of the project. It is determining any operating system or applications also known as hardware. The Some hardware requirements very required for this project are:

- 4 Gigabyte (GB) RAM (For Processing)
- Webcam (Testing Process on Laptop)
- 16 Megapixel (MP) Resolution Dell Camera (Testing on Android Devices)
- 30 MB Memory Space (Storage)

Software Requirements: -

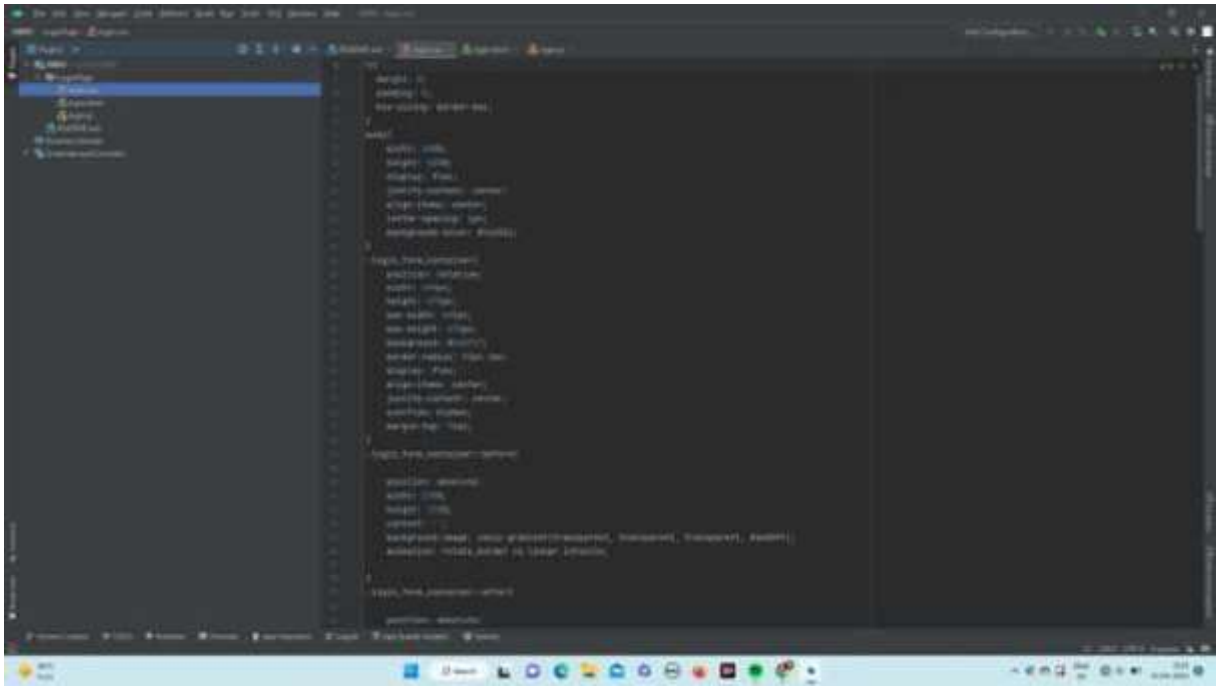
Software Requirements allocate with defining software requirements are necessary that to installed on computer to provide special functions of an application. These requirements, generally are not combine in the software installation package and require to be installed individually before the software is installed. The software requirements are required for this project are:

- Open CV 3.1
- PyCharm IDE
- Python 3.6
- Android Studio
- TensorFlow

- Keras
- Streamlit

2.6 CODING GLIMPSE

A glimpse of the Front-end coding of Emotion Based Music Recommendation System



3. Working of The Project

In Emotion based music recommendation system firstly, the user can register oneself and before listen the songs the user can login to the system through there, I'd and password. After login the user will detect own face expression through the system (emotion) then according to emotions the system will display the playlist of the songs. All the registered user's information will stored on the database to know the feedback. To know the feedback, form will display on the screen automatic. The emotion-based music recommendation System reduce unnecessary time and effort to search songs and it is easy to use. A strong internet connection is needed for the system but we can listen songs

in offline mode as per past search. The system will store users every different emotion and prepare the playlist of the songs. so, the user can listen to the songs without internet connection through their device.

4. Module Description

Our project consists of four main modules: -

4.1 Common Modules

Registration Module: -Users along with listeners can register oneself here. They can register themselves via "Email I'd / mobile number". This phase has been created so that it can be known whether the user is regular or weekly. If the user is regular then he will have an advantage.

Login Module: -The login module is portal that allows users to enter valid user name and password. User along with listener can login his/her email id and password which he/she entered during registration. Admin Module: -The Administration Module is the administrator's interface and allows to process all configuration operations of the system. Admin will update new playlists of songs according to the user's emotions. This phase has a good sound quality. It beeps an alarm in every 15 minutes, in case the user felt sleepy.

4.2 User Module
In this module, the user is approved by the admin allowing one to listen songs. Songs like the user will listen, that type of songs will be recommended to him and recently songs will also be shown. music can improve mental mood, decrease torture and impatience, and accelerate to opportunities for emotion expression. 80+year users can also listen to the songs of their choice from it.

4.3 Recommendation Module
This module is very helpful for Music lover to know the important listening resources in music system. recommendation is to make clear, specific and realistic suggestions. It learns from the user past listening history and recommends them songs which they would probably like to hear in future.

4.4 Subscription Module
In this module,Subscription required for newly launch songs. It may vary from months to year. The end user using application for 1 year will get 3 months free trial. It is a basic profit of the user along with listeners.

4.5 Dashboard Module
In this module, users can see their profile along with the review of user. Within this module, it helps to negotiate through all non-discriminatory module for e.g., Admin, Home, Help. recently listen songs is also displayed here when the user will listen songs again.

4.6 Help Module
A Help module is a platform that helps users solve their problems through single (or multiple) points of contact. users would get assistance for how to set privacy if they were panic for own privacy. There are many articles and references are extend for each and every module in the system.

5. Result
After the research we find out that emotion-based Music recommendation system is a good access to reduce stress and unconscious, it is easily implemented it in whole country as the Online and offline also. Many areas in India which does not have internet connections. These users don't lose heart, they can also listen to the songs in offline mode. 90% youth is fully dependent on music. Music is used as music therapy to decrease unconscious condition. Music therapy may help if you have a substance abuse disorder.

Research has shown that it can improve motivation and self-confidence, remove muscle tension, reduce anxiety, grow self-awareness and build up skills.A successful music recommendation system needs to meet users' requirements. How-ever, the new songs who released currently through short video or movies. The user will be able to listen to those songs through subscribing. It will make the user fell light. The subscription will also be slightly higher than the user's budget.

6. Conclusion
Normally Generally, music has play vital role in youths and adults' life. there is a special need to remove the tension of Many users, like youths, private companies' employee. Basically, music has play vital role in youths and adults' life. there is a special need to remove the tension of Many users, like youths, private companies' employee. EBMRS would help in improving positive environment to the users through fast, timely and convenient music. Using music can break the bone of mental disturbance and stress. This system will show the importance of music in India. Music recommender system should survey the music information to improve the class of music recommendation System. CRNNs that observe both the regularity attributes and time sequence sample has overall better presentation.

7. Reference

Raut, Nitisha, "Facial Emotion Recognition Using Machine Learning" (2018). Master's Projects. 632. https://doi.org/10.31979/etd.w5fs-s8wd

Hemanth Adars, Ashwani C.B, Ajith P, Veena A Kumar,"EBMRS Emotion Based Music Recommendation System", International Research Journal of Engineering and Technology (IRJET), vol. 5, no. 4, April 2018, pp. 4822-87.

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8. Output

Fig.3. UI of Emotion Based Music Recommendation System.