MES COLLEGE OF ENGINEERING, KUTTIPPURAM
DEPARTMENT OF COMPUTER APPLICATIONS
20MCA246 – MAIN PROJECT

PRO FORMA FOR THE APPROVAL OF THE FOURTH SEMESTER MAIN PROJECT

(Note: All entries of the pro forma for approval should be filled up with appropriate and complete information. Incomplete Pro forma of approval in any respect will be rejected.)

Main Project Proposal No : _____ *(Filled by the Department)*	Academic Year : 2021- 22 Year of Admission : 2020

1. Title of the Project : EMOTION BASED SMART MUSIC PLAYER
2. Name of the Guide : Prof. K P Balachandran
3. Student Details (in BLOCK LETTERS)

Name	Register Number	Signature
ASNA AV	MES20MCA-2011	

Date:

Approval Status : Approved / Not Approved

Signature of
Committee Members

Comments of the Guide Dated Signature

Initial Submission :

First Review :

Second Review :

Comments of the Project Coordinator Dated Signature

Initial Submission:

First Review

Second Review

Final Comments :

Dated Signature of HOD

EMOTION BASED SMART MUSIC PLAYER

ASNA AV

Introduction:

People tend to express their emotions, mainly by their facial expressions. Music has always been known to alter the mood of an individual. Capturing and recognizing the emotion being voiced by a person and displaying appropriate songs matching the one's mood and can increasingly calm the mind of a user and overall end up giving a pleasing effect. The project aims to capture the emotion expressed by a person through facial expressions. A music player is designed to capture human emotion through the web camera interface available on computing systems. The software captures the image of the user and then with the help of image segmentation and image processing techniques extracts features from the face of a target human being and tries to detect the emotion that the person is trying to express. The project aims to lighten the mood of the user, by playing songs that match the requirements of the user by capturing the image of the user.

Objectives:

The main objective of our music recommendation system is to provide music suggestions to the users that fit the user's preferences. The analysis of the facial expression/user emotion may lead to understanding the current emotional or mental state of the user.

More than 60 percent of the users believe that at a certain point of time the number of songs present in their songs library is so large that they are unable to figure out the song which they have to play. By developing a recommendation system, it could assist a user to make a decision regarding which music one should listen to helping the user to reduce his/her stress levels. The user would not have to waste any time in searching or to look up for songs and the best track matching the user's mood is detected, and songs would be shown to the user according to his/her mood. The image of the user is captured with the help of a webcam. The user's picture is taken and then as per the mood/emotion of the user an appropriate song from the playlist of the user is shown matching the user's requirement**.**

Problem Definition:

System can detect the facial expressions of the user and based on his/her facial expressions extract the facial landmarks, which would then be classified to get a particular emotion of the user. Once the emotion has been classified the songs matching the user's emotions would be shown to the user. And played it.

Basic functionalities:

It could assist a user to make a decision regarding which music one should listen to helping the user to reduce his/her stress levels. The user would not have to waste any time in searching or to look up for songs and the best track matching the user's mood is detected, and songs would be shown to the user according to his/her mood. The image of the user is captured with the help of a webcam. The user's picture is taken and then as per the mood/emotion of the user an appropriate song from the playlist of the user is shown matching the user's requirement.

AUDIO FEATURE EXTRACTION MODULE:

In this module a list of songs forms the input. As songs are audio files, they require a certain amount of preprocessing Stereo signals obtained from the Internet are converted to 16 bit PCM mono signal around a variable sampling rate of 48.6 kHz. The conversion process is done using Audacity technique.

The pre-processed signal obtained undergoes an audio feature extraction, where features like rhythm toning is extracted using MIR 1.5 Toolbox, pitch is extracted using Chroma Toolbox and other features like centroid, spectral flux, spectral roll off, kurtosis,15 MFCC coefficients are extracted using Auditory Toolbox.

Audio signals are categorized into 8 types viz. sad, joy-anger, joy-surprise, joy-excitement, joy, anger, sad-anger and others.

1. Songs that resemble cheerfulness, energetic and playfulness are classified under joy.
2. Songs that resemble very depressing are classified under the sad.
3. Songs that reflect mere attitude, revenge are classified under anger.
4. Songs with anger in playful is classified under Joy-anger category.
5. Songs with very depress mode and anger mood are classified under Sad-Anger category.
6. Songs which reflect excitement of joy is classified under Joy-Excitement category.
7. Songs which reflect surprise of joy is classified under Joy-surprise category.
8. All other songs fall under “others‘ category.

EMOTION-AUDIO INTEGRATION MODULE:

Emotions extracted for the songs are stored as a meta-data in the database. Mapping is performed by querying the meta-data database. The emotion extraction module and audio feature extraction module is finally mapped and combined using an Emotion-Audio integration module. Fig 2 illustrates mapping of Facial features and Audio features. For example, if an input facial image is categorized under joy, the system will display songs under joy, joy-anger, Joy-Excitement, Joy-surprise category.

Tools / Platform, Hardware and Software Requirements:

Hardware specification

- Processor :intel Pentium corei3 and above
- Primary Memory:4GB RAM and above
- Standard input output devices
- Standard camera

Software specification

- Front end: Python Django
- Backend :mysql
- Other technologies:Html,css,javascript.