

Emotion based Music Player Department of Computer Engineering

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Abstract— As the music has the high impact on the human brain activity the recent studies has proved that human respond and react to music and has high impact on human body. The average human being listens to music that they love for four hours in a day based on their mood and interest. This project helps the user to suggest songs based on their mood and capturing their facial expression. Non-verbal is a form of facial expression. This field is an interdisciplinary computer vision that has a high level of understanding of videos, digital images. The computer vision components in this system helps to determine the emotions of the user through facial expression. When the user's emotion is recognized, it provides the playlist to the user, this reduces the time to search of playlist to the user manually. It also keep the track of user details like name, number. When the user suggest the need about the interest level and recognized the playlist every time. The songs which are never played by the user are automatically deleted and modified as the user interest.

Keywords: Music Player

I. INTRODUCTION

Music plays an awfully very important role in enhancing associate individual's life as a result of it's a significant medium of diversion for music lovers and listeners. In today's world, with ever increasing advancements inside the sphere of multimedia and technology, various music players square measure developed with choices like fast forward, reverse, variable playback speed (seek & time compression), local playback, streaming playback with multicast streams and yet as volume modulation, genre classification etc. although these choices satisfy the user's basic wants, but the user must face the task of manually browsing through the play list of songs and select songs supported his current mood and behavior.

A. Objective

Project Emo player (an feeling based music player) might be a unique approach that helps the user to automatically play songs supported the emotions of the user. It acknowledges the facial feelings of the user and plays the songs in step with their feeling. The emotions square measure recognized using a machine learning methodology Support Vector Machine (SVM) formula. The external part may be a vitals of associate individual's body associate degree it significantly plays a significant role in extraction of associate degree individual's behaviors and feeling. The camera captures the image of the user. It then extract the countenance of the user from the captured image. Facial expression classified into 2, smiling and not smiling. According to the sensation, the music square measure contend from the predefined directories.

B. Downside Definition

Using ancient music players, a user had to manually flick through his listing and select songs that may soothe his mood and emotional experience. In today's world, with ever increasing advancements at intervals the sphere of multimedia and technology, varied music players square measure developed with choices like fast forward, reverse, variable playback speed (seek & time compression), local playback, streaming playback with multicast streams and also as volume modulation, genre, classification, etc.

Although these choices satisfy the user's basic wants, but the user must face the task of manually browsing through the listing of songs and select songs supported his current mood and behavior. That is the needs of a personal, a user sporadically suffered through the need and want of browsing through his listing, in keeping with his mood and emotions.

C. Purpose

The main thought of this project is too mechanically play songs supported the emotions of the user.

It aims to produce user-preferred music with feeling awareness. In existing system user need to manually choose the songs, every which way compete songs might not match to the mood of the user, user must classify the songs into numerous feelings and so for enjoying the songs user must manually choose a specific emotion. These difficulties is avoided by exploitation Emo Player (Emotion based mostly music player). The emotions area unit recognized employing a machine learning methodology Support Vector Machine (SVM) algorithm. SVM is used for classification or regression issues. Per the feeling, the music are compete from the predefined directories.

D. Scope

Facial expressions are an excellent indicator of the state of a mind for someone. So the foremost natural thanks to specific emotions is through facial expressions. Humans tend to link the music they hear, to the feeling they're feeling. The song playlists though' are, now and then large to mapped out mechanically. It'd be useful if the music player was "smart enough" too mapped out the music supported the present state of feeling the person is feeling. The project sets bent use numerous techniques for associate degree feeling recognition system, analyzing the impacts of various techniques used.

By victimization Emo player we will simply play the songs in step with the feeling of the user.

E. Application

- Mechanically play song supported the feeling of the user.
- Act as a plugging for web site.
- Recommending for YouTube.

- Smart TV.
- Personal Assistant

F. Literature Review

Machine learning may well be a field of computing that uses mathematics techniques to grant laptop computer systems the flexibility to "learn" (i.e., a lot of and a lot of improve performance on a particular task) with data, whereas not being expressly programmed.

The name machine learning was coined in 1959 by Arthur prophet. Evolved from the study of pattern recognition and machine learning theory in computing, machine learning explores the study and construction of algorithms which will learn from and build predictions on information- such algorithms overcome following strictly static program directions by making data-driven predictions or selections, through building a model from sample inputs. Machine learning is employed in associate degree extremely vary of computing tasks where arising with and programming categorical algorithms with good performance is hard or infeasible; example applications embrace email filtering, detection of network intruders or malicious insiders operative towards associate degree data breach, optical character recognition (OCR), learning to rank, and laptop computer vision.

Machine learning is closely related to (and typically overlaps with) machine statistics that put together focuses on prediction-making through the employment of computers. Its robust ties to mathematical optimization that delivers strategies, theory and application domains to the sector. Machine learning is usually conflated with data processing, wherever the latter subfield focuses additional on exploratory information analysis and is understood as unattended learning. Machine learning also can be unattended and be wont to learn and establish baseline behavioral profiles for numerous entities and so won't to notice significant anomalies.

Within the sector of knowledge analytics, machine learning may be a technique won't to devise complicated models and algorithms that lend themselves to prediction; in business use, this is often referred to as prognosticative analytics. These analytical models permit researchers, information scientists, engineers, and analysts to "produce reliable, repeatable selections and results" and uncover "hidden insights" through learning from historical relationships and trends within the information. Effective machine learning is troublesome as a result of finding patterns is tough and sometimes not enough coaching information square measure available; as a result, machine-learning programs typically fail to deliver.

II. SYSTEM ANALYSIS

A. Existing System

The options obtainable within the existing Music players gift in laptop systems area unit as follows:

- 1) Manual choice of Songs
 - 2) Party Shuffle
- Playlists
 - Music

Squares where user ought to classify the songs manually keep with specific emotions for fewer than four basic emotions .Those unit fervent, Calm, Joyful and Excitement.

Using ancient music players, a user had to manually flick through his list and select songs that may soothe his mood and emotional experience. In today's world, with ever increasing advancements at intervals the sphere of multimedia and technology, varied music players are developed with choices like fast forward, reverse, variable playback speed (seek & time compression), native playback, streaming playback with multicast streams and further as volume modulation, genre classification etc.

Although these choices satisfy the user's basic desires, still the user possesses to face the task of manually browsing through the list of songs and select songs supported his current mood and behavior. That is the requirements of a personal, a user sporadically suffered through the need and want of browsing through his list, in step with his mood and emotions.

B. Limitation Existing System

- It needs the user to manually choose the songs.
- Randomly contend songs might not match to the mood of the user.
- User must classify the songs into varied emotions and so for taking part in the songs user has to manually select a particular emotion.

III. PROPOSED SYSTEM

Here we tend to propose a sense based music player (Emo Player).Emo player is Associate in Nursing music player that play songs in step with the sensation of the user. It aims to provide user-preferred music with feeling awareness. Emo player depends on the thought of automating well-endowed of the interaction between the music player and its user. The emotions unit recognized using a machine learning technique Support Vector Machine (SVM) algorithm. In machine learning, support vector machines unit supervised learning models with associated learning algorithms that analyse data used for classification and statistical procedure. It finds Associate in nursing best boundary between the potential outputs. The coaching job dataset that we've got a bent to use is Olivetti faces that contain four hundred faces and its desired values or parameters. The photographic camera captures the image of the user. It then extract the face of the user from the captured image. The coaching job methodology involves initializing some random values for say smiling and not smiling of our model, predict the output with those values, then compare it with the model's prediction therefore modification the values in order that they match the predictions that were created antecedent.

A. Advantages of Planned System

- Users don't need to pick out song manually.
- No want of list.
- Users don't need to classify the songs supported the emotions.
- 3 code AND HARDWARE needs

B. Hardware Requirements

- Intel I3
- 4GB RAM
- Webcam
- Speaker

C. Software Requirements

- Python 2.7
- Open CV 3.1

IV. GENERAL DESCRIPTION

A. Product perception

This project works on the basis of a dataset. The dataset is an Olivetti faces containing of 400Faces with different emotion in it. This dataset works on the basis of the SVM algorithm which classifies the data set into test and training dataset .Test dataset helps to give out scores of the learning dataset or its accuracy whereas Training dataset helps to particularly helps to seek linear and nonlinear data after which it is classified and when camera is invoked certain facial features are captured and it is then used to find the training dataset being classified, this helps to select a particular type of emotion (happy/sad).then according to that emotion music will be played.

B. Product Functionality

1) Training Dataset

In machine learning, the study and construction of algorithms which will learn from and make predictions on data may be a common task. Such algorithms work by making data-driven predictions or decisions, through building a mathematical model from computer file.

2) Webcam Module

A camera is also a video camera that feeds or streams its image in real time to or through a laptop to a system. Once "captured" by the laptop, the video stream is additionally saved, viewed or sent on to various networks via systems just like the internet, associate degreed emailed as Associate in nursing attachment. Once sent to a foreign location, the video stream is additionally saved, viewed or on sent there. Not like associate information processing camera (which connects pattern native space network or wi-fi), a camera is generally connected by an usb cable, or similar cable, or designed into hardware, like laptops.

3) SVM Algorithmic Program

In machine learning, support vector machines (svms, together support vector networks) square measure supervised learning models with associated learning algorithms that analyze information used for classification and statistical method. Given a set of work examples, each marked as happiness to one or the other of two categories, associate in nursing svm work formula builds a model that assigns new examples to one category or the other, making it a non-probabilistic binary linear classifier (although ways in which like platt scaling exist to use svm during a} very probabilistic classification setting). Associate in nursing svm model might be a illustration of the examples as points in house, mapped so as that the samples of the separate categories square measure divided by a clear gap that is as wide as accomplishable. New examples square measure then

mapped into that exact same house and expected to belong to a category supported that facet of the gap they fall. Further formally, a support vector machine constructs a hyperplane or set of hyperplanes during a} very high- or infinite-dimensional house, which could be used for classification, regression, or totally different tasks like outliers detection. Intuitively, Associate in Nursing honest separation is achieved by the hyperplane that has the foremost vital distance to the highest training-data purpose of any class (so-called helpful margin), since usually the larger the margin the lower the generalization error of the classifier.

C. User Characteristics

Since it's a security system version one.0, the user needn't apprehend what the code truly will. Throughout demand gathering, the user have to be compelled to specify some vital data like details a couple of explicit email wherever he/she wish to receive the knowledge concerning the laptop computer location once it's purloined. It's thought of that the user don't have the fundamental information of operation behind the system and to possess access thereto.

D. Useful Needs

Functional wants square measure statement of services the system need to provide, but the system need to react to express inputs and therefore the approach the system need to behave specially state of affairs. The dataset train by support vector classifier

- Machine learns support vector classification
- Exploitation support vector machine. Learn and
- Establish image capture by internet cam.

E. Non Useful Needs

- Reliability
- Maintainability
- Portability
- Extensibility
- Reusability
- Simplicity.
- Resource Utilization

V. CONCLUSIONS

This project has been developed to produce USA nice advancement inside the sphere of machine learning technology. EMO player fulfills to delineated the music supported the emotions of the user like whether or not or not it's happy or sad. So, utterly our work aims to develop a player that's predicated on user would really like and it helps to revive simply just in case of free time or time without work if we have a tendency to want to concentrate to music supported our current situation.

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