

SONG RECOMMENDATION SYSTEM USING FACIAL EXPRESSION

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ABSTRACT

Face detection and emotion selection is the one of the current topic in the security field which provides solution to various challenges. Beside traditional challenges in captured facial images under uncontrolled settings such as varying poses, different lighting and expressions for face recognition and different sound frequencies for emotion recognition. For the any face and emotion detection system database is the most important part for the comparison of the face features and sound Mel frequency components. Music is one of the most fruitful media as it can in still deep feelings and marsh listeners with subliminal messages. It skilfully plays with our emotions which in turn influence our mood. Books, movies and television show are a few other means but, in disparity to these, music convey its message in sheer moments. It can aid us when we are feeling low and entrust us. When we listen to sad songs, we tend to feel a downswing in mood. When we listen to happy songs, we feel happier. The sentiment analysis has been explored by several Internet services to endorse contents in line with human emotions, which are expressed through casual texts posted on social network. Music recommendation will mainly work on enhancing user's mood by providing song by detecting the facial expression of the end user and according to its expression it recommend the preferrable song. This paper extract the human expression and suggest the song according to it and if the user accept that song then the song starts to play.

Keyword:- Clustering, KNN, Machine learning, Recommendation system, Sentiment analysis

1. INTRODUCTION

Song Recommendation System is used to recommend songs based on factors that have lyrics similarity between songs, lyrics features of songs, metadata of songs using Artificial Neural Network (ANN) and KNN Regression algorithm. Recommendations are also made formed on the same artist.

In this we use sentiment analysis for recommending song to the enjoyer by judging their emotion through the facial expression. For the sake of to discover the correlation between music and the emotion that it may evoke, sentiment have been categorized into many types and pattern recognition procedures have been referred to classify the song [4-5]. Emotions such as pleasure, anger, and sadness have been classified using various emotion models, such as Thayer's model [6], the arousal-valence model [7] Russell's model [8].

Sentiment analysis is starting to be examined in song recommendation systems to suggest a distinct song depending on the psychological state of a person, since the song is totally associated to the current emotion and feelings of the person. There is sentiment analysis research placed on emotional signals [9], [10], subjective emotion estimation [11], tag-based extractions [12], [13], web semantic [14], [15], ML,

such as, Support Vector Machines (SVM) and its derivation [16], and the lexicon-based technique like ANEW [17].

The process of recommending song which is commonly used among users and clustering of data (spotify dataset) is shown the figure (fig.1) given below.

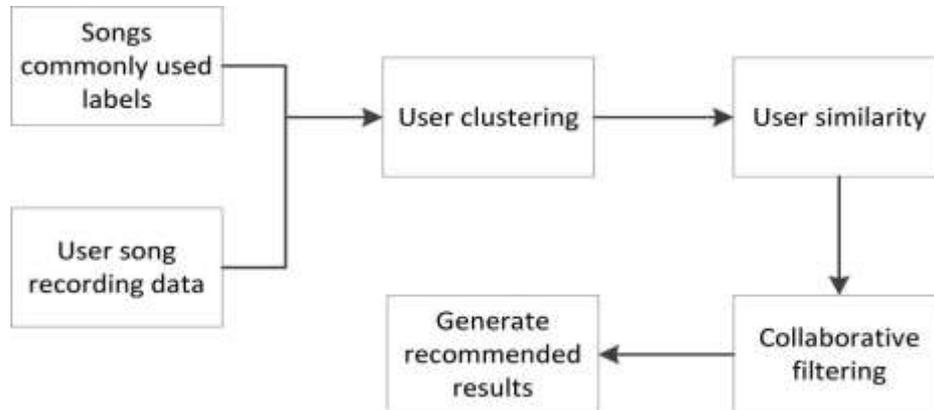


Fig.1- Block diagram of music recommendation system

2. LITERATURE REVIEW

These are the literature survey which is based on different research paper that related to our own project “Music recommendation system using sentiment analysis”-

Author [1] Recommend a music recommendation system, which includes music genre classification, music emotion classification and music similarity query functions. A new tempo feature extraction method is presented and effectively combined with conventional timbre features by AdaBoost algorithm, which significantly improves the accuracy of music classification. Furthermore, an efficient similarity query strategy based on the results of music classification is adopted in our system. The high precision of music classification results in better recall rate and higher query speed than the traditional brute-force searching scheme.

Author [19] Proposed a system ‘EmoPlayer’, which is an Android based application. It captures an image of the user using camera of his device and detects the face from this image. The application will then identify the emotion from the face detected. In this paper author used approaches like Canny Edge Detection, Viola Jones Algorithm, SVM and so on. In this the simulation has been carried out successfully on multiple Android devices connected to Internet and running on android version 5.0 and above.

Author [20] Proposed system which processes images of frontal and profile face view. Face boundaries have been found using Vertical and horizontal Histogram Analysis. Then, face contour is obtained by thresholding the image with HSV color space values.

Author [22] In this paper “An Efficient Method to Face and Emotion Detection” have detected face from the input image using Viola-Jones face detection algorithm and evaluated the face and emotion detection using K-Nearest Neighbours classifier.

Author [23] Proposed a correlation-coefficient-based approach to find emotional music sequences which may evoke a specific emotion in subjects. The SFFS method is applied to select significant music features from emotional music sequences. The selected features are used to train SVM classifiers for an individual

subject. results show that the proposed method achieves high classification accuracy, and that the recommended music is close to a subject’s emotion perception.

Author [24] This paper presents a recommendation system establish on a sentiment intensity metric, named enhanced Sentiment Metric (eSM) that is the corporation of a lexicon-based sentiment metric with a correction factor establish on the enjoyer’s profile. Results showed that 78% of end user preferred to listen to a musical genre similar to their current sentimental state, and only 22% preferred to listen to a different musical genre in relation to their current sentimental state.

3. WORKING OF PROJECT

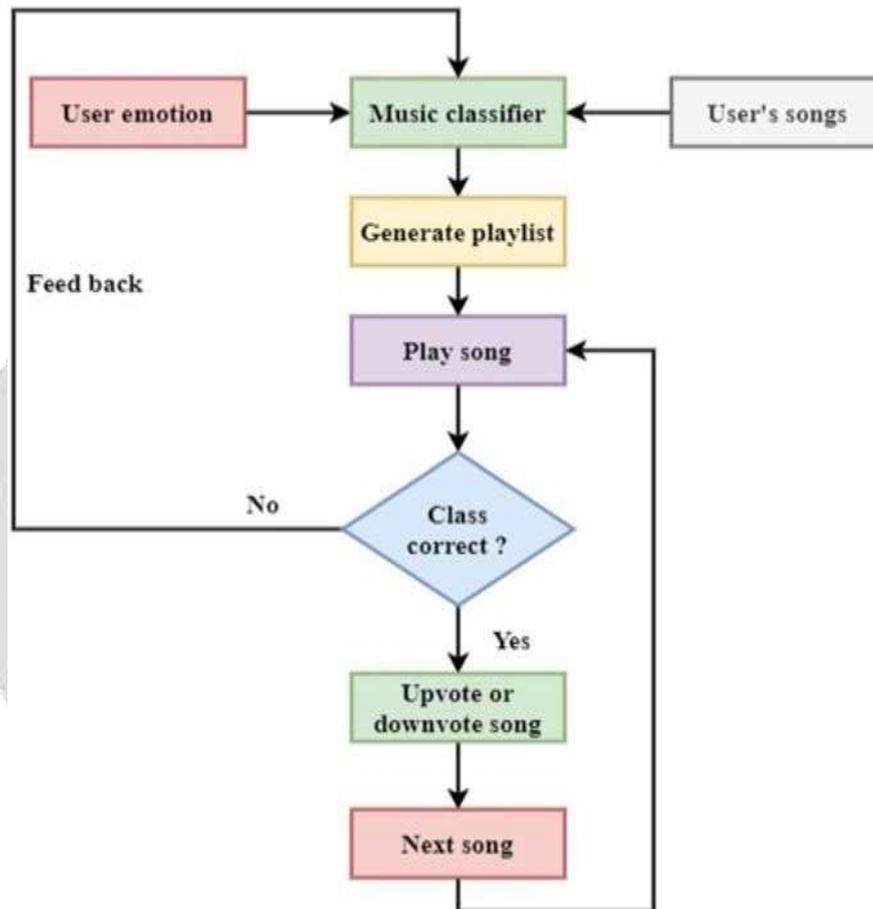


Fig.2- ER diagram of music recommendation system

In our project , the user first come in front of his/her system camera. Then our system detect the face and its mood using OpenCV(a computer vision technology that helps to locate human faces in digital images. Deals with detecting instances of semantic objects of a certain class in digital images and videos.)

Emotion detected on the basis of facial expression goes into the music classifier KNN(KNN algorithm is used to classify by finding the K nearest matches in training data and then using the label of closest matches to predict. It is a supervised machine learning algorithm i.e. it learns from a labelled training set by taking in the training data X along with it’s labels y and learns to map the input X to it’s desired output y.)

Then the playlist is generated on the basis of emotion detected from the dataset(Spotify).

Then the song is played. If the emotion and song is correct according to the facial expression, the the class is correct or if the class is not correct then it goes to music classifier again.

If the class is correct, the user upvote or downvote the song and then the next song from the playlist is played.

4. CONCLUSION

The client's profile were analyzed and the results showed that 68% of enjoyer preferred to listen to a musical category similar to their current emotional state, and only 32% preferred to listen to a different musical category in relation to their present emotional state. Such as, if a person has a state of mood of sadness than this person choose to listen to a more sad song. The solution does not include complex programming languages; therefore, the proposed solution preoccupy low resources from current electronic devices. The add-on evaluated an imperceptible obrusion regarding the preoccupy resources in the electronic device. The study presents the emotion analysis applied to a song recommendation system; however, sentiment metrics could be put on to many other areas.

5. ACKNOWLEDGMENT

The authors thanks to the Institute of Technology and Management ,GIDA, Gorakhpur. And Mr. Harvendra Kumar and Mr. Ajay Gupta .whose guidance and feedback helped us to prepare this review paper.

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