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ijircce@gmail.com



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Music Genre Classification and Recommendation Using Facial Expressions

Mrunal Patange, Shantanu Suvarna, Mayan Jain, Abhishek Dahiwal

Department of Computer Science and Engineering, PCET Nutan College of Engineering and Research, Pune, India

ABSTRACT: We propose a new approach for playing music automatically using facial emotion. Most of the existing approaches involve playing music manually, using wearable computing devices, or classifying based on audio features. Instead, we propose to change the manual sorting and playing. We have used a Convolutional Neural Net-Our proposed system tends to reduce the computational time involved in obtaining the results and the overall cost of the designed system, thereby increasing the system's overall accuracy. Testing of the system is done on the FER2013 dataset. Facial expressions are captured using an inbuilt camera. Feature extraction is performed on input face images to detect emotions such as happy, angry, sad, surprise, and neutral. Automatically music playlist is generated by identifying the current emotion of the user. It yields better performance in terms of computational time, as compared to the algorithm in the existing literature.

KEYWORDS - Face Recognition, Feature extraction, Emotion detection, Convolutional Neural Net-work, Pygame, Tkinter, Music, Player, Camera.

I. INTRODUCTION

Facial expressions are one of the natural means to communicate the emotions and these emotions can be used in entertainment and Human Machine Interface (HMI) fields in today's world, with the advancements in the areas of technology various music players are deployed with features like reversing the media, fast forwarding it, streaming playback with multicast streams. Although these features satisfy the basic requirements of the user, yet one has to manually surf for the song from a large set of songs, according to the current circumstance and mood. This is a time consuming task that needs some effort and patience. The main objective of this work is to develop an intelligent system that can easily recognize facial expressions and accordingly play a music track based on that particular expression/emotion recognized.

The seven universally classified emotions are Happy, Sad, Anger, Disgust, Fear, Surprise and Neutral. The main objective of this work is to develop an intelligent system that can easily recognize facial expressions and accordingly play a music track based on that particular expression/emotion recognized. The seven universally classified emotions are Happy, Sad, Anger, Disgust, Fear, Surprise and Neutral. The algorithm that is used in developing the present system is Haar Cascade algorithm which utilizes Eigen faces to extract the facial features. The designed algorithm is very efficient due to less computational time taken hereby increasing the performance of the system. This work finds its applications in various domains like Human Computer Interaction (HCI), therapeutic approach in health care etc. Most of the time the digital music is sorted and put together based on attributes such as artist, genre, albums, language, and popularity and so on. Many of the available online music streaming services recommend music based on user's preferences and his previous music listening history that employ content based and collaborative filtering recommendations. But these recommendations may not suit the current mood of the user.

The manual classification of songs by learning the user's preference of emotion is a time consuming task. So, recommendations can also be achieved using the physiological and emotional status of the user which are mainly captured from the user's facial expression, gestures, pulse rate, movement, speech/text interactions etc. Several work is carried out to detect emotions using facial landmarks to extract the features. Nguyen et al. detected three kinds of emotions namely positive, negative and blank using 68 facial landmarks. This system work proposes a CNN based approach to recommend music by analysing the multimodal emotional information captured by facial movements and semantic analysis of the speech/text interactions of the user, thus, intensifying the decision of the system on recognized emotions in real-time. Machine learning has become very popular in recent years. Depending on the type of application

and the dataset available, certain types of machine learning techniques are more appropriate than others for different applications.

II. PROBLEM STATEMENT:

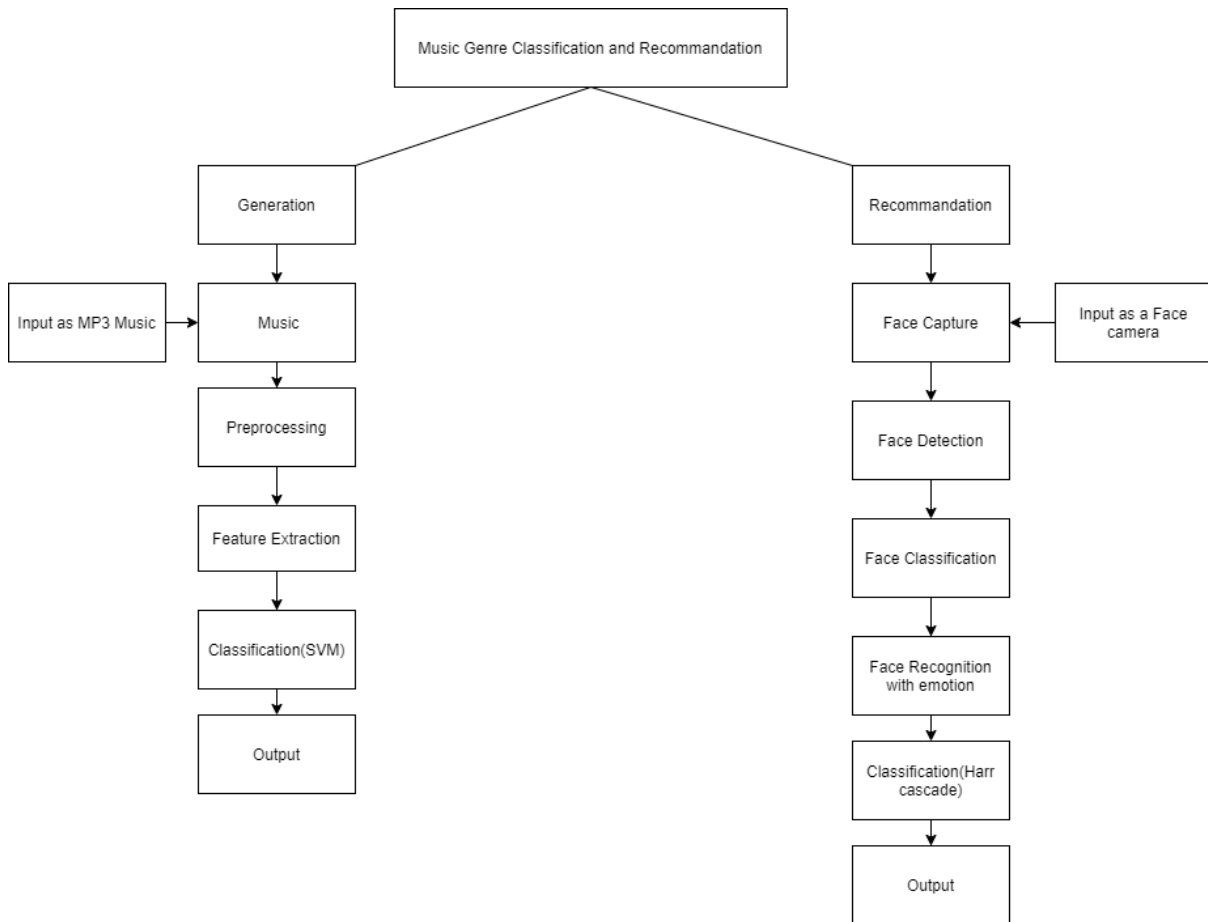
To implement an application that provides evacuation route guidance and indoor navigation system by using Augmented Reality. This will help users to easily navigate through the buildings, companies, offices, college, etc. to reach their respective location by using the path provided by the application and also in case of indoor fire environment it will provide the safe path to the users to get out from that place. The application should be able to fetch and play .mp3 and .Wav Files. The ability to support different type of service level music

III. EXISTING SYSTEM

- Machine learning methods are used to classify music genres.
- Deep learning method is used to train the model.
- Can classify limited genres.
- Cannot classify complicated genres or remix music.

IV. PROPOSED SYSTEM

- The automatic analysis and understanding of music by the computer is the new possibility in the field of music information retrieval. First we login in the system .In capture phase we capture the face or image in the camera. Here we use a camera for face detection. The main objective of face detection technique is to identify the face which is happy or angry.
- In the next block which is Affix API. An application programming interface is computing interface which defines interaction between multiple software. API allows two applications to talk to each other. It is interaction between capture phase and main phase.
- In data storage phase we already store the image which are happy, sad or angry. This data and incoming data from capture phase are compare in the main phase and automatically played songs for these particular phase which is displayed in a display phase
- Neural Network is used to classify music genres.
- A convolutional neural network (CNN) is a type of neural network that is intended to process multi-dimensional arrays such as images.
- Images of spectrograms generated from time-slices of songs as the input into a neural network to classify the songs into their respective musical genres.



System Architecture Diagram

V. CONCLUSIONS

The proposed work presents facial expression recognition system to play a song according to the expression detected and also classify music Type. It uses CNN approach to extract features, and Euclidean distance classifier classifies these expressions. In this work, real images i.e. user dependent images are captured utilizing the in-built camera.

REFERENCES

1. Miao Jiang, Ziyi Yang, Chen Zhao: A RNN-based music recommendation system (April 2018)
2. Sushmita G. Kamble and Asso. Prof. A. H. Kulkarni: Facial Expression Based Music Player (Sept 2016)
3. Jie Liu; Liang Liang : The Application of Computer Music Technology in Music Education (May 2021)
4. George Tzanetakis, Student Member, IEEE, and Perry Cook, Member, IEEE: Musical Genre Classification of Audio Signals (July 2002)
5. Liang Liang; Jie Liu: An exploration of the application of computer music production software in music composition (April 2021)
6. Federico Simonetta; Stavros Ntalampiras : Multimodal Music Information Processing and Retrieval: Survey and Future Challenges (2019)
7. Yao L S, Xu G M, Zhap F. Facial Expression Recognition Based on CNN Local Feature Fusion [J]. Laser and Optoelectronics Progress, 2020, 57(03): 032501
8. Xie S, Hu H. Facial expression recognition with FRR-CNN [J]. Electronics Letters, 2017, 53 (4): 235-237
9. ZouJiancheng, Deng Hao. An automatic facial expression recognition method based on convolutional neural network [J]. Journal of North China University of Technology, 2019, 31 (5): 51-56
10. HouYuqingyang, QuanJicheng, Wang Hongwei. Overview of the development of deep learning [J]. Ship Electronic Engineering, 2017, 4: 5-9



11. Liu Sijia, Chen Zhikun, Wang Fubin, et al. Multi-angle face recognition based on convolutional neural network [J]. Journal of North China University of Technology (Natural Science Edition), 2019, 41 (4): 103-108.
12. Li Huihui. Research on facial expression recognition based on cognitive machine learning [D]. Guangzhou: South China University of Technology, 2019.
13. Li Yong, Lin Xiaozhu, Jiang Mengying. Facial expression recognition based on cross-connection LeNet-5 network [J]. Journal of Automation, 2018, 44 (1): 176-182.
14. Yao L S, Xu G M, Zhap F. Facial Expression Recognition Based on CNN Local Feature Fusion[J]. Laser and Optoelectronics Progress, 2020, 57(03): 032501. 9. Xie S, Hu H. Facial expression recognition with FRR-CNN [J]. Electronics Letters, 2017, 53 (4): 235-237.
15. ZouJiancheng, Deng Hao. An automatic facial expression recognition method based on convolutional neural network [J]. Journal of North China University of Technology, 2019, 31 (5): 51-5



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