International Journal For Advanced Research In Science & Technology
A peer reviewed international journal
www.ijarst.in
ISSN: 2457-0362

EMOTIONAL BASED MUSIC RECOMMENDATION SYSTEM USING WEARABLE PHYSIOLOGICAL SENSORS

Rohith Brahma Taduri[1], Rajkumar Reddy Annem[2], Nithin Chandra Thatikonda[3], Pavan Kurra[4], Sai Charan Lingampalli[5], G.V.S.CH.S.L.V. Prasad[6]

[1, 2,3,4,5] UG students, Dept of CSE, ANURAG Engineering College, Ananthagiri, Suryapet, TS, India.

[6]Assistant Professor, Dept of CSE, ANURAG Engineering College, Ananthagiri, Suryapet, TS, India.

ABSTRACT:

Music plays a very important role in enhancing an individual's life as it is an important medium of entertainment for music lovers and listeners and sometimes even imparts a therapeutic approach. In today's world, with ever increasing advancements in the field of multimedia and technology, various music players have been developed with features like fast forward, reverse, variable playback speed (seek & time compression) local playback, streaming playback with multicast streams and including volume modulation, genre classification etc. The motivation of this work comes from the possibility of reducing the human effort in creating music playlists manually, thus generating them automatically based on the user's emotional state. The human face plays an important role in knowing an individual's mood. The required input is extracted from the human face directly using a camera. One of the applications of this input can be for extracting the information to deduce the mood of an individual. This data can then be used to get a list of songs that comply with the "mood" derived from the input provided earlier. This eliminates the time-consuming and tedious task of manually Segregating or grouping songs into different lists and helps in generating an appropriate playlist based on an individual's emotional features.

Key words: CNN, RCNN, SSD, dataset, weapon detection.

I. INTRODUCTION

Fast advancement of cell phones and web has made workable for us to get to various music assets openly. The quantity of tunes accessible surpasses the listening limit of single person. Individuals now and then feel hard to look over a large number of tunes. In addition, music specialist co-ops require a productive method to oversee tunes and help their costumers to find music by giving quality suggestion. Consequently, there is a solid need of a decent proposal framework. In this

venture, we have composed, actualized and investigated a tune suggestion framework. We utilized Million Song Dataset given by Kaggle to discover relationships amongst clients and tunes and to gain from the past listening history of clients to give proposals to melodies which clients would like to listen most in future. Because of memory and handling power impediments, we could just explore different avenues regarding a small amount of entire accessible dataset. We have executed different calculations, for example, notoriety based model, memory based shared separating, and SVD (Singular Value decay) in view of idle factors and substance based model utilizing k-NN. Memory based community oriented sifting calculation gave most extreme mean normal accuracy. We trust that substance based model would have worked better on the off chance that we would have enough memory and computational capacity to utilize the entire accessible metadata and dataset. Music is one of the best relaxations for humans. Music acts as a good company for humans during any kind of emotions. The existing music player system needs the involvement of humans to play the songs according to their interest. An individual in satisfaction dislikes hearing dismal tunes but rather if the music player isn't educated to consequently play music as indicated by audience's state of mind. Emotion of a user is classier by a wearable computing device which is integrated with a galvanic skin response (GSR) and photo plethysmography (PPG) physiological sensors (OR) Force sensor. This emotion information is feed to any collaborative or content based recommendation engine as a supplementary data. Our proposed methodology feeling acknowledgment issue is considered as excitement and valence forecast from multi-channel physiological signs. Play the songs automatically depends upon our user Mood. In this task, we have planned and executed a melody suggestion based framework. We utilized certain melody list gave to discover connections amongst clients and tunes to learn through their vibrations to give proposals to tunes which clients would want to listen most. Because of memory and preparing power constraints, we could just explore different avenues regarding a small amount of accessible melodies. We have executed different calculations, for example, prevalence based model, and memory based shared separating. Memory based community

International Journal For Advanced Research In Science & Technology
A peer reviewed international journal
www.ijarst.in
ISSN: 2457-0362

separating calculation gave most extreme mean normal accuracy. The usage of force sensor reads the value for specific user and converts it into the electrical signal vibrations, which would analyze the force and suggest the songs based on the user interest. Thus Listener's action for playing song is eradicated. Music player is automated to play songs according to the listener's mood.

2. LITERATURE SURVEY

"David Matsumoto" and "Hyi Sung Hwang" published a paper titled "Reading facial expressions ofemotion" Emotions are an incredibly important aspect of human life and basic research on emotions ofthe past few decades has produced several discoveries that have led to important real world applications. This article described two of those discoveries – the universality of facial expressionsof emotion and the existence of micro expressions – because of their importance to and novelty in psychology. The paper discussed how those discoveries create programs that teach people how to read facial expressions of emotion, as well as recent research that has validated those training programs and documented their efficacy.

"Akshobhya Rao BV" and "Fathima RameeshaAsokan" published a paper titled Emotion Based Music Player (Emotify). Music is a major form of entertainment. Through the advent of technology, much focus has been given to the optimization of manual labor. There are still many traditional music players who need songs to be selected and arranged manually. User, the playlist needs to be generated and modified for every mood which takes time. Some of the music players have advanced features, such as lyrics and assisting the user by suggesting similar tracks.

"DegerAyata" and "Yusuf Yuslun" published a paper titled "Emotion Based Music Recommendation". Most of the existing music recommendation systems use collaborative or content based recommendation engines. However, the music choice of a user is not only dependent to the historical preferences or music contents. But also dependent on the mood of that user. This paper proposes an emotion based music recommendation framework that learns the emotion of a user from the signals obtained via wearable physiological sensors.

"Asha Sugave" and "Sahil Mulani" published a paper titled "Emotion Recognition from Audio-Visual Data". Emotion Recognition Systems is used to identifying the emotions of humans with their accuracy. This paper using Audio-visual Data to recognizing emotion. This emotion recognition system automatically identifies the human emotional states fromhis or her voice and face images. An audiovisual emotion recognition system is used to develop uses fusion algorithm. In this system firstly separate emotion recognition systems that use voice and facial expressions were tested separately.

International Journal For Advanced Research In Science & Technology
A peer reviewed international journal
www.ijarst.in
ISSN: 2457-0362

EXISTING SYSTEM:

Up to now, most of the research on PDS has focused on how to enforce user privacy preferences and how to secure data when stored into the PDS. In contrast, the key issue of helping users to specify their privacy preferences on PDS data has not been so far deeply investigated. This is a fundamental issue since average PDS users are not skilled enough to understand how to translate their privacy requirements into a set of privacy preferences. As several studies have shown, average users might have difficulties in properly setting potentially complex privacy preferences.

DISADVANTAGES OF EXISTING SYSTEM:

Personal data we are digitally producing are scattered in different online systems managed by different providers (e.g., online social media, hospitals, banks, airlines, etc). In this way, on the one hand users are losing control on their data, whose protection is under the responsibility of the data provider, and, on the other, they cannot fully exploit their data, since each provider keeps a separate view of them.

PROPOSED SYSTEM:

Personal Data Storage (PDS) has inaugurated a substantial change to the way people can store and control their personal data, by moving from a service-centric to a user-centric model. PDSs enable individuals to collect into a single logical vault personal information they are producing. Such data can then be connected and exploited by proper analytical tools, as well as shared with third parties under the control of end users.

Emotion Classification

When the face is detected successfully, a box will appear as, and it overlay the image to extract the face and the images that are extracted previously will process. The code will extract the facial spatial positions from the face image, and it is based on the pixel'sintensity values that are indexed at each point and it uses boosting algorithm. Then perform the comparison between the input data and with stored one so it can predict the class that contain the emotion. If it contains one of the four emotions anger, sad, neutral or happy, and detection of the emotion as seems to be decreasing speed command and it will be executed so that it can reduce the speed of the wheelchair so, that we could prevent the user from endangerment.

Music Recommendation

The input image that is acquired is from the web camera and is used to capture real-time images. It is very hard to define all the emotions and by limited options it can help the compilation time

International Journal For Advanced Research In Science & Technology
A peer reviewed international journal
www.ijarst.in
ISSN: 2457-0362

and the outcome is more sophisticated. The emotions are assigned to every song. It compares the values that are present as a threshold in the code. The values will be transferred to perform the web service. The song's will be played from the detected emotion. When the emotion is transferred the respective song and the emotions are numbered are arranged and assigned to every song. However, we can use many kinds of models to recommend because of their accuracy. The fisher face that contains the PCA and LDA algorithms gives the accuracy better than other algorithms and for the sound mechanism win sound(commonly used python library) for basic sound play ing for the mechanism obtained are being compared the values that are present as a threshold.

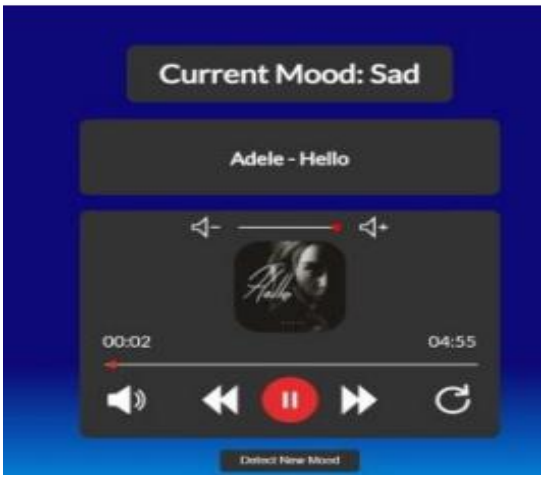

Fig.1. Sad detected mood.

Fig.2. Happy mood detected.

V. CONCLUSION

Music is helpful in changing the mood of the user and for some people it is a stress reliever. Recent development shows a wide prospective in the developing the emotion-based music recommendation system. The methodology that enhances the automatic playing of songs is done by the detection of person mood. The music player that we are using it can be used locally and the emotion of a person can be taken by different of wearable sensors that would give us enough data to predict the mood of the customer accurately. This system with enhanced will beable to benefit and the system with advanced features and needs to be constantly upgraded. An the alternative method, that is based on the additional emotions which are being excluded in our system.

REFERENCES

[1] AnaghaS.Dhavalikar and Dr. R. K. Kulkarni, "Face Detection and Facial Expression Recognition System" 2014

Interntional Conference on Electronics and Communication System (ICECS -2014)

[2]. Yong-Hwan Lee , Woori Han and Youngseop Kim, "Emotional Recognition from Facial Expression Analysis using Bezier Curve Fitting" 2013 16th International Conference on Network-Based Information Systems.

[3]. ArtoLehtiniemi and Jukka Holm, "Using Animated Mood Pictures in Music Recommendation", 2012 16th International Conference on Information Visualisation.

[4]. F. Abdat, C. Maaoui and A. Pruski, "Humancomputer interaction using emotion recognition from facial expression", 2011 UKSim 5th European Symposium on Computer.

[5]. T.-H. Wang and J.-J.J. Lien, "Facial Expression Recognition System Based on Rigid and Non-Rigid Motion Separation and 3D PoseEstimation," J. Pattern Recognition, vol. 42, no. 5, pp. 962-977, 2009.

[6] Renuka R. Londhe, Dr.Vrushshen P. Pawar, "Analysis of Facial Expression and Recognition Based On Statistical Approach", International Journal of Soft Computing and Engineering (IJSCE) Volume-2, May 2012.

[7] AnukritiDureha "An Accurate Algorithm for Generating a Music Playlist based on Facial Expressions" : IJCA 2014.

[8] Bruce Ferwerda and Markus Schedl "Enhancing Music Recommender Systems with Personality Information and Emotional States": A Proposal: 2014.

[9] P. Melville and V. Sindhwani, "Recommender systems," in Encyc. of mach. learn. Springer, 2011, pp. 829–838.

[10] N. Sebe, I. Cohen, T. S. Huang et al., "Multimodal emotion recognition," Handbook of Pattern Recognition and Computer Vision, vol. 4, pp. 387– 419, 2005.