AN INDUSTRIAL ORIENTED MINI PROJECT REPORT ON

EMOTION BASED MUSIC PLAYER

Is Submitted to Jawaharlal Nehru Technology University, Hyderabad,

In partial fulfillment of requirement for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

INFORMATION TECHNOLOGY

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Accredited by NAAC with A+ Grade, Recognized under Sec. 2(f) of UGC Act. 1956
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2019-2023

1. LITERATURE SURVEY

1. Emotion Detection of Autistic Children Using Image Processing

Abstract:

Facial Emotion Detection is an approach towards detecting human emotions through facial expressions. Autism Spectrum Disorder is an advance neurobehavioral disorder. Autistic people have repetitive, rude behavior. They are not ready to do social communication. People with this syndrome have problems with emotion recognition. This paper works on detecting the emotions of autistic children from the expression of their faces. This paper works on four emotions. These emotions are sad, happy, neutral, and angry. To detect the emotion of autistic children is performed with image processing and machine learning algorithms. The features are extracted from the faces of autistic children with local binary pattern. Machine learning algorithms are used for classification of emotions. Machine learning classifiers used in classification process are support vector machine and neural network.

Author: Pooja Rani

YEAR: 2020

- Machine Learning,

- Support Vector Machine,

- Neural Network,

- Emotion Detection,

- Image Processing,

- Local Binary Pattern

2. A Review on Different Facial Feature Extraction Methods for Face Emotions Recognition System

Abstract:

Emotion recognition using facial images is the state-of-the-art research area in the human-computer interaction paradigm. In order to recognize emotions from images, the system needs to extract facial features like mouth, eyes, etc. Emotions can also be extracted from frontal and

non-frontal images. Traditional methods used for extracting facial features are geometry based method, template based method, and appearance based method. The main focus of this paper is to review different types of facial feature extraction method and this research article illustrates a comparison between different methods and in the end, it describes some future research works that would be helpful to make FER more reliable and efficient.

Author: Viha Upadhyay; Devangi Kotak

Year: 2020

3. Multi Label Classification for Emotion Analysis of Autism Spectrum Disorder Children using Deep Neural Networks

Abstract:

Emotion recognition and analysis is the process of identifying emotions and feelings of a person. Emotion analysis process is accurate in identifying expression in normal people in a single attempt. Emotion analysis is difficult in case of Autism Spectrum Disorder (ASD) children which are suffering with communication problems and speech problems. This paper proposed an optimized deep learning model with multi label classification for predicting ASD and NoASD with emotion analysis in children of age group 1 to 10 years. The kaggle dataset [1] of 1857 ASD children and 1850 Typically Developed (TD) children are used in this paper. Proposed model performance is tested on Yale Expression Dataset [2], CAFÉ children dataset [3] and also tested on social media dataset of autism parents group. The model is implemented by extracting face landmarks and is used to predict ASD and NoASD as first classification label and emotion is detected based on landmarks by computing internal and external distances by feature wise. Convolutional Neural Networks (CNN) is used to work with extracted face landmarks by using optimization methods, dropout, batch normalization and parameter updating. The proposed model is applied to predict 6 emotions irrespective of 4 general emotions with better accuracy.

AUTHOR: T. Lakshmi Praveena; N.V.Muthu Lakshmi

Year: 2021

4. Image Processing Methods for Face Recognition using Machine Learning Techniques

Abstract:

The face is one of the simplest ways to distinguish one another's personal image. Face recognition is a personal identification system which uses a person's personal features to recognize the identity of the individual. Human facial identification is basically a two-phase procedure, including face detection, where the process is carried out very rapidly in people, whereas the second is the implementation of environments that classify the face as persons, when the eye is positioned within a short distance. Stage is then repeated and established to be one of the most researched biometric strategies and established by experts for facial expression recognition. In this study, we implemented the area of face detection and face recognition image processing MTCNN techniques while utilizing the VGG face model dataset. In this initiative, python framework is the program necessity.

AUTHOR: T. R. Ganesh Babu; K. Shenbagadevi; V. Sri Shoba; S. Shrinidhi; J. Sabitha; U. Saravanakumar

YEAR: 2021

5. Virtual Markers based Facial Emotion Recognition using ELM and PNN Classifiers

Abstract:

Detecting different types of emotional expressions from the subject's face is important for developing intelligent systems for a variety of applications. This present work proposed virtual markers based on Facial emotion expression recognition using the Extreme Learning Machine (ELM) and Probabilistic Neural Network (PNN). A facial emotional expression database is developed with 55 undergraduate university students (male: 35, female: 20) of age range between 20 - 25 years with a mean age of 23.9 years. A HD webcam is used to capture the facial image and Haar Like features and Ada Boost classifier is used to detect the face and eyes through Open CV. A mathematical model based is used to place ten virtual markers called Action Units (AUs) on subjects face at a defined location. Later, Lucas-kanade optical flow

algorithm is used to track the marker movement while the subject expressing different emotions and the distance between the center of the face to each marker is used as a feature for classifying emotions. One way Analysis of Variance (ANOVA) is used to test the statistical significance of the features and five fold cross-validation method is used to input the feature for classifiers. In this work, two non-linear classifiers namely, ELM and PNN are used for emotional expression classification. The experimental results give a maximum mean emotion classification rate of 88% and 92% in ELM and PNN classifiers, respectively. Maximum individual class accuracy of happiness - 96%, surprise - 94%, anger- 92%, sadness - 88%, disgust - 90% and fear 89% is achieved using PNN. The experimental results confirm that the proposed system is able to distinguish six different emotional expressions and could be used as a potential tool for a variety of applications which include, e-learning, pain assessment, psychological counseling, human-machine interaction-based applications, etc.

Author: M Murugappan; Vasanthan Maruthapillai; Wan Khariunizam; A M Mutawa; Sai Sruthi; Chong Wen Yean