



REVIEW PAPER ON CNN ALGORITHM FOR REAL TIME FACIAL EXPRESSION RECOGNITION

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ABSTRACT:-

Facial expression recognition is a crucial aspect of understanding customer emotions in various domains, including e-commerce. This study proposes a real-time facial expression recognition system utilizing a Convolutional Neural Network (CNN) algorithm specifically designed for analysing customer feedback on e-commerce websites. The proposed system is integrated into the feedback analysis module of an e-commerce website to enable real-time monitoring of customer emotions. By analysing facial expressions, the system can provide valuable insights into customer satisfaction, frustration, or other emotions while navigating the website. This information can then be used to improve the overall user experience, identify potential issues, and optimize the site's design and functionality

KEYWORDS: - Convolutional neural network, Deep neural networks, Deep structured learning, Machine learning.

I. INTRODUCTION

The success of e-commerce businesses heavily relies on understanding customer needs and preferences. One crucial aspect of customer feedback is the emotional response exhibited during their interactions with the e-commerce website. Traditional methods of collecting feedback, such as surveys and questionnaires, often fall short in capturing the genuine emotions experienced by customers. To address this limitation, real-time facial expression recognition systems using Convolutional Neural Networks (CNNs) have emerged as a promising solution. In this study, we propose a real-time facial expression recognition system specifically designed for analyzing customer feedback on e-

commerce websites. The system utilizes a CNN algorithm that can effectively detect and classify facial expressions in real-time scenarios. By integrating this system into the feedback analysis module of an e-commerce website, businesses can gain valuable insights into customer emotions and sentiments, enhancing their understanding of customer satisfaction and dissatisfaction

II. LITERATURE SURVEY

1. A facial expression is a gesture created by the facial muscles that can convey human emotions. Facial expression recognition system is used to recognize different emotions of a face. A facial expression is exhibited by the movement of muscles underneath the face skin. Facial expression Recognition comprises of three main phases viz. face detection using Haar classifier, feature Selection using Local Binary Pattern algorithm and Expression Classification using Support Vector Machines. The image files for training are stored in the form of pixels in CSV file and are then converted by the algorithm to form images which subsequently decreases the size of the training data set. The proposed system predicts various emotions from a single image rather than predicting only one kind of emotion as done by the existing systems. Training of the system is done using the neural network. [1]

2. The paper presents a real-time facial emotion recognition system using Convolutional Neural Networks (CNNs) and OpenCV. The system processes video frames in real-time to detect faces and recognize emotions from the facial expressions. The CNN model is trained on a large dataset of facial images and emotions, and the results demonstrate accurate and fast emotion

recognition performance. The integration of OpenCV with the CNN model enables real-time processing of video frames, making the system suitable for various practical applications. One use of machine learning is the identification of facial expressions of emotion. That were extracted from an image based on the features, It assigns a face emotion image to one of the facial emotion classes. Among the classification techniques, convolutional neural network (cnn) also pulls patterns from a picture. In this study we used the CNN model to recognize the facial expressions. To increase the precision of facial emotion detection, the wavelet transform is then used. There are seven different face emotions represented in the facial emotion image dataset that was gathered from Kaggle. The accuracy of the experimental facial emotion recognition utilizing the CNN and wavelet transform increases. [2]

3. Facial expression plays a serious role in every aspect of human life for communication. It has been a boon for the research in facial emotion with the systems that produce to the terminology of human-computer interaction in real world. Humans socially interact with each other via emotions. In this research paper, we've proposed an approach of building a system that recognizes facial emotion employing a Convolutional Neural Network (CNN) which is one among the foremost popular Neural Network available. It is said to be a pattern recognition Neural Network. Convolutional Neural Network reduces the dimension for giant resolution images and not losing the standard and giving a prediction output what's expected and capturing of the facial expressions even in odd angles makes it stand different from other models also i.e. it works well

for non-frontal images. But unfortunately, CNN based detector is computationally heavy and may be a challenge for using CNN for a video as an input. We will implement a facial emotion recognition system employing a Convolutional Neural Network employing a dataset. Our system will predict the output supported the input given thereto. This system can be useful for sentimental analysis, can be used for clinical practices, can be useful for getting a person's review on a certain product, and lots of more. [3]

4. In this paper, we propose a method for improving the robustness of real-time facial expression recognition. Although there are many ways to improve the accuracy of facial expression recognition, a revamp of the training framework and image pre-processing allow better results in applications. One existing problem is that when the camera is capturing images in high speed, changes in image characteristics may occur at certain moments due to the influence of light and other factors. Such changes can result in incorrect recognition of the human facial expression. To solve this problem for smooth system operation and maintenance of recognition speed, we take changes in image characteristics at high speed capturing into account. The proposed method does not use the immediate output for reference, but refers to the previous image for averaging to facilitate recognition. In this way, we are able to reduce interference by the characteristics of the images. The experimental results show that after adopting this method, overall robustness and accuracy of facial expression recognition have been greatly improved compared to those obtained by only the convolution neural network (CNN).[4]

III. SYSTEM DIAGRAM

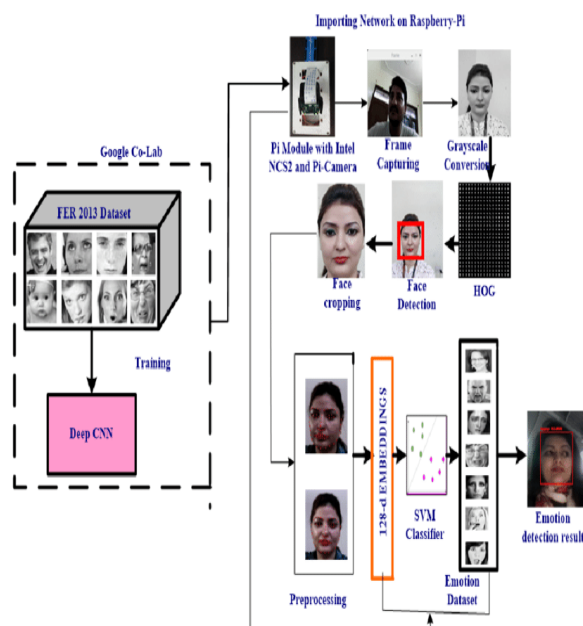


Fig: Real Time Facial Expression Recognition using CNN Algorithm for E-Commerce

IV. CONCLUSION

In this study, we presented a real-time facial expression recognition system using a Convolutional Neural Network (CNN) algorithm specifically designed for analysing customer feedback in the e-commerce domain. Hence we concluded the system provides a valuable tool for e-commerce businesses to gain insights into customer emotions and sentiments, ultimately enhancing the overall user experience and optimizing their services

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