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Face Emotion And Stress Detection Using Machine Learning

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ABSTRACT: Face detection has been a common nowadays. Recognizing emotions from images or videos is an easy task for human eye, but it is very difficult for machines to prove it and it requires many images processing techniques for feature extraction. so here we are introducing a CNN model to train the dataset and a harrcascade algorithm for the object detection. With the help of CNN an input image is filtered through convolution layers to produce a feature map. The Facial expressions are nonverbal form of communication. There are eight universal facial expressions which include: neutral, happy, sadness, anger, contempt, disgust, fear, and surprise. The main motive of this proposed system is to detect the expressions and level of stress.

I. Introduction:

A facial expression can be defined as the movement of muscles beneath the skin of the face. facial expressions are a form of nonverbal communication. the human face can convey countless emotions without saying a single word. Some universal emotions are happiness, sadness, neutral, surprise, anger, fear, and disgust. Emotion detection can help monitor users' emotional health and screening for emotional-related physiology and mental disease. likewise, stress is a feeling of emotional or physical tension. stress detection is a classification task that predicts whether a certain target is under stress or not. work-related stress, depression, and anxiety can result in reduced work performance and absenteeism. we aim to work in real-time in which we detect the emotions from images that have been captured by a live webcam. Now the webcam will be running a video and the faces are going to be detected in the frames according to the

facial landmarks which will contain the eyes, eyebrows, nose, mouth, and corners of the face. Then the features will be extracted from these facial landmarks (dots) faces which will be utilized for the detection of facial emotions. Stress does not have a universal facial expression of emotion however studies state that confirm the relationship between facial expressions and stress. In these studies, the negative emotions of anger, fear, and sadness were unquestionably related to stress.

III. Scope of the Project:

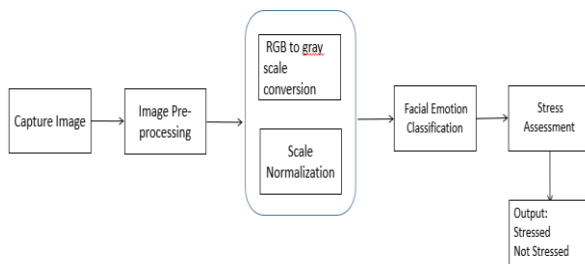
To propose the development of application that can be used for sensing the emotions of people for their better health. Detecting long-term stress, or a high degree of stress To provide better services and also better human machine interactions.

IV. Proposed system:

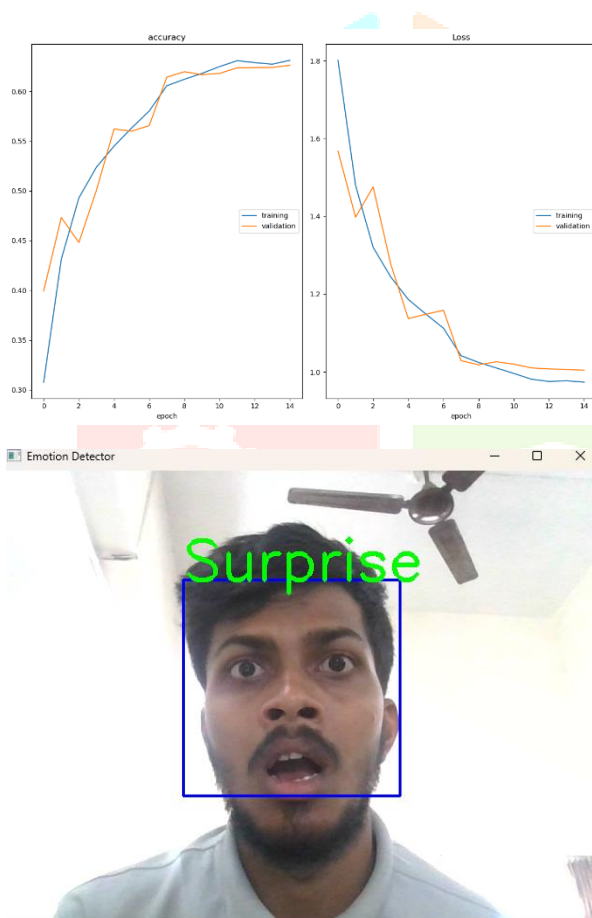
We are going to make an emotion detection system with the help of CNN (convolutional neurons network). Benefit of using CNN is their ability to develop an internal representation of two-dimensional image. A monitoring system for people which is based on technology involving recognizing emotions from image. Our proposed system includes video analysis technology which includes the data from video is adopted to realize monitoring peoples living conditions in real time. In emotion detection model, if there is a sad or surprise or angry face detected, then the stress detection method is based on same model. In this, with the

help of landmark file which works on the distance between the eyebrows will shows us a result the person is stressed or unstressed. Emotions like Scared, Sad and Angry are assigned as Stressed.

Data flow diagram:



V. Results:



VI. Future Scope:

After predictions the results are fair and useful for analysing emotions and the level of stress, but still the model gives average accuracy. The CNN model uses data to classify the emotions of an individual and detect the stress level in the form of a graph. There are other factors such as improving the accuracy for the emotion detection and also after matching a certain level of stress there should be a recommendation of few consultants with their address and contacts.

VII. Conclusion:

The result obtained from the proposed model gives the estimated emotion prediction of an individual based on real time video information. The resulting output can help us tell the emotion and also stress based on emotions such as sad and scared and therefore in such cases the family members and friends of an individual can take actions to encourage and motivate the emotional stature of an individual resulting in peace of mind of an individual.

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