

# Live Class Monitoring System by Face Emotion Recognition

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**Abstract** -The sentiments influence information processing, attitude formation, and decision making to a great extent in real-world scenarios. Several recent efforts have been published about FER or facial expression recognition, however, due to the diversity of human faces and fluctuations in pictures, reliable and robust FER systems remain a challenge. Till date, every study and work has proposed either a single network or an ensemble model. The accuracy of ensemble models is higher, but they were associated with many models and datasets and a few tweaked datasets to improve the accuracy, increasing the computing complexity. While the majority of research in this field focuses on improving accuracy, this study utilizes the proposed model to a real-world scenario in which a person's face contains a mix of emotions, and a single-label sentiment can be highly noisy in such situations. In view of this scenario, we developed and tested 15-20 models and methods. In this paper, we propose a single standalone-based CNN model with its implementation on a real-time Intelligent System for Sentiment Recognition, which validates accuracy through transfer learning and performs tasks such as face detection, sentiment classification, and providing a live list of probabilistic labels in Real-time from a webcam feed in one blended step.

**Key Words**- Facial Emotion Recognition, Deep Convolutional Neural Network, Classification, Adam.

## 1. INTRODUCTION

The face is the most expressive and communicative part of a human being. It's able to transmit many emotions without saying a word. Facial expression recognition identifies emotion from face image, it is a manifestation of the activity and personality of a human. In the 20th century, the American psychologists Ekman and Friesen defined six basics' emotions (anger, fear, disgust, sadness, surprise and happiness), which are the same across cultures. Facial expression recognition has brought much attention in the past years due to its impact in clinical practice, sociable robotics and education. According to diverse research, emotion plays an important role in education. Currently, a teacher uses exams, questionnaires and observations as sources of feedback but these classical methods often come with low efficiency. Using facial expression of students the teacher can adjust their strategy and their instructional materials to help foster learning of students. The purpose of this article is to implement emotion recognition in education by implementing an automatic system that analyses students' facial expressions based on Convolutional Neural Network (CNN), which is a deep learning algorithm that is widely used in image classification. It consists of a multistage image processing to extract feature representations. Our system

includes three phases: face detection, normalization and emotion recognition that should be one of these seven emotions: neutral, anger, fear, sadness, happiness, surprise and disgust.

## 2. PROBLEM DEFINATION

Indian education system is moving towards e-Learning platforms digital learning is going to increase in future but there are some challenges in physical classes teachers can access the face and emotions of each student but in digital caste it is not possible lack of surveillance and lack of partition we will solve the above mention challenges by applying the learning algorithm to live video data the solution is to problem is to recognize special emotions.

## 2. MOTIVATION

The variety of fields required Face detection and recognition mechanism in the modern life Face recognition algorithm are also used in many different applications apart from biometric such as video compression indexing etc. In this system help in forensic science identification law enforcement surveillance authentication for banking and security system, and giving preferential access to authorized users.

## 3. OBJECTIVES

- To do thoro literature survey on the face recognition technology
- To design appropriate algorithms and system for the face recognition
- To implement the algorithm for the face recognition technology

### 3. SYSTEM REQUIREMENT

#### Software Resources Required:-

- A) Windows 10.
- B) VS-code, Notebook, etc.

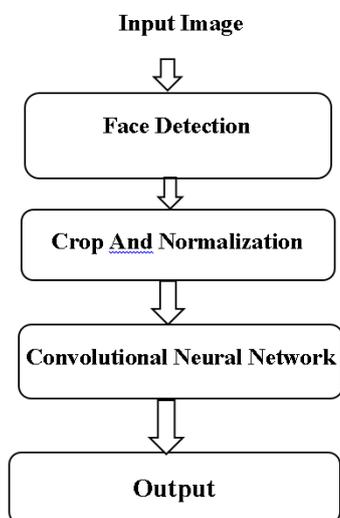
#### Hardware Requirement:-

- A) Intel i3 above 4<sup>th</sup> Gen
- B) Hard Disk 1 TB, 4GB RAM
- C) Camera

### 4. FUTURE SCOPE

The future of facial recognition technology is bright. Forecasters opine that this technology is expected to grow at a formidable rate and will generate huge revenues in the coming years. Security and surveillances are the major segments which will be deeply influenced. Other areas that are now welcoming it with open arms are private industries, public buildings, and schools. It is estimated that it will also be adopted by retailers and banking systems in coming years to keep fraud in debit/credit card purchases and payment especially the ones that are online. This technology would fill in the loopholes of largely prevalent inadequate password system. In the long run, robots using facial recognition technology may also come to foray. They can be helpful in completing the tasks that are impractical or difficult for human beings to complete.

### 5. BLOCK DIGRAM



### 6. CONCLUSION

1. Build a FER web app using streamlet and deployed on Heroku, with live webcam detection.
2. The model created with CNN layers gave training accuracy of 68% and validation accuracy of 64% after 50 epochs
3. Difficult to classify disgust images
4. Model also works for multiple face detection.

### 6. REFERENCES

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