

# Emotion Detection using facial Expressions and speech recognition

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## Abstract:

The main objective of paper is to detect the human emotion by using face expressions and speech recognition. Emotion recognition plays a crucial role in era of artificial intelligence. It is going to detect the emotion using body movements, Voice , Brain or Heart signals. Four emotions are classified by using these decision level approach and feature level integration those are Happiness, Sadness, Anger, Neutral. These emotions are detected by face marks.

## I. INTRODUCTION

There is a wide aspect of emotion recognition In past days rather than today because the technology has acquiring more faster than other aspects, as per analysis all the terms are based on speech and facial expressions these are mainly concentrated on speech algorithm and prosodic parameters, they include principal component analysis and vector machines but these methods have less research according to our knowledge. Usually human beings can easily recognize various kinds of emotions. This can be achieved by the human mind through years of practice and observation. The human mind figures out and senses all type of emotions from childhood and it reflects and make a difference with an emotions which the human observed. The calculation of Emotion and its features are complex, yet it can be divided into few parts and can be described. Here there are many we know emotions in human: so that psychological studies observed and determined the emotions through human speech frequency ranges and expressions. This works with an approach of decision level algorithm and determines human expressions not only with frequency level it also

detects through facial landmarks and it gives whether the person is happy or neutral or sad based on the human emotion.

## 2. LITERATURE SURVEY

Face options typically embrace three types of Geometric options, commixture options. The Physical option talk to whole face image . Commixture options mix the geometric options with Face images. And this commixture option will be very difficult because it works with the combination of geometric and physical. So, geometric option becomes easy and very accurate and gives relevant data. As per the ancient method we are going to train the dataset. Data set is a collection of images it is going to extract the image and identify the facial land marks and tells whether the human's emotion. Then we have a tendency to extract facial geometric options from the pre-processed expression photos to create feature vectors, and compare them with the samples of expression guide library established once coaching, so we should find a difference between from totally different emotional classes.

### 3. SYSTEM REQUIREMENTS

#### A. *Hardware Requirements:*

- SYSTEM: MINIMUM I3
- HARD DISK: 40 GB
- RAM: 4GB

#### B. *SOFTWARE SPECIFICATIONS*

- OPERATING SYSTEM : WINDOWS 8.
- PROGRAMMING SPECIFICATION : PYTHON 3.7:

### 4. SYSTEM STUDY

#### A. *FEASIBILITY STUDY*

The feasibility of the project is analysed in this phase. During system analysis the feasibility study of proposed system is used.

#### B. *ECONOMICAL STUDY*

This study is employed to examine the economic impact wherever system can wear the organization. the number of fund that the corporate will pour into the analysis and development of the system is proscribed. The expenditures should be even.

#### C. *TECHNICAL FEASIBILITY*

This study is employed to ascertain the technical feasibility, that has the technical needs of the system. Any system developed should not have a high demand on the offered technical resources. this can result in high demands on the offered technical resources. this can result in high demands being placed on the consumer

### 5. EXISTING SYSTEM

The existing add this space reveals that almost all of the current work depends on lexical analysis for feeling recognition, that are used for the aim of classification of emotions into 3 classes, i.e. Angry, Happy and Neutral. The maximum cross correlation between the separate time sequences of the audio signals is computed and therefore the highest degree of correlation between the testing audio file and therefore the coaching audio file is employed as associate degree integral parameter for identification of a selected feeling sort.

### 6. PROPOSED SYSTEM

In the project, MFCC has been used because the feature for classifying the speech information into numerous feeling classes using artificial neural networks. The Usage of the Neural Networks provides us the advantage of classifying many alternative varieties of emotions in a very variable length of audio signal in a very real time atmosphere. This technique manages to ascertain a decent balance between machine volume and performance accuracy of the period of time processes.

### 7. ALGORITHM AND MODULES

**CNN Algorithm:** A Convolutional Neural Network (CNN) is a Deep Learning algorithm which can take in an input image, assign importance to various aspects/objects in the image and be able to differentiate one from the other. The pre-processing required in a CNN is much lower as compared to other classification algorithms. While in primitive methods filters are hand-engineered, with enough training, CNN have the ability to learn these filters/characteristics.

**OpenCV:** OpenCV is a cross-platform library using which we can develop real-time computer vision applications. It mainly focuses on image processing, video capture and analysis including features like face detection and object detection.

**TensorFlow:** TensorFlow is a free and open-source software library for machine learning and artificial intelligence. It can be used across a range of tasks but has a particular focus on training and inference of deep neural networks

### 8. Modules

#### *Add Product details*

To build project we have used some sample products image to train product identification models .

#### *Train Model*

In this Module screen train model generated with 100% accuracy and now show product to web cam.

#### *Add/Remove product from basket*

To allow application to identify product image and then show in text area and if we again show same product then application will remove from text area.

## II. CONCLUSIONS

A lot of uncertainties square measure still gift for the simplest al growth to classify emotions. totally {different|completely different} mixtures of feeling AI options provide different emotion detection rate. The researchers square measure still debating for what options options the popularity of feeling in speech heaps of uncertainties square measure still gift for the simplest algorithmic rule to classify emotions. Recent interest in speech feeling recognition analysis has seen applications in call centre analytics, human machine and human golem interfaces, multimedia system retrieval, police work tasks, behavioural health IP, and improved speech recognition. during this study, the summary of SER strategies is mentioned for extracting audio options from speech sample, varied classifier algorithms square measure explained concisely. Speech feeling Recognition encompasses a promising future and its accuracy depend on the emotional speech information, combination of options extracted from those databases for coaching the model, kinds of categorification algorithmic rule wont to classify the feelings inappropriate emotion class for example(happy, sad, anger, surprise etc.). This study aims to supply an easy guide to the beginner who's meted out their analysis within the speech feeling recognition.

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