**FACIAL MOOD RECOGNITION**

**A Project Report**

***Submitted by***

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***In partial fulfilment for the award of the degree***

***of***

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**IN**

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**At**

****

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DECLARATION BY THE CANDIDATE

I hereby declare that the work, which is going to be presented in the Project, entitled **“simple face emotion recognition”** to be submitted in partial fulfilment of the requirement for the award of Degree of “Bachelors of Technology” in Department of Information Technology with Specialization in Image Processing and to be submitted to the Department of Information Technology, Manipal University Jaipur is an authentic record of my own investigations carried out under the supervision of Dr. Vivek K Verma , Assistant Professor, SCIT, Manipal University Jaipur.

I have not submitted the matter presented in this project anywhere for the award of any other degree.

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The enduring pages of the work are the cumulative sequence of extensive guidance and arduous work. I wish to acknowledge and express my personal gratitude to all those without whom this work could not have been reality.

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**ABSTRACT**

Human emotion recognition plays an important role in the interpersonal relationship. The automatic recognition of emotions has been an active research topic from early eras. Therefore, there are several advances made in this field. Emotions are reflected from speech, hand and gestures of the body and through facial expressions.

In here are presented the results of recognition of three emotional states (neutral, happiness, anger) based on facial expressions. Coefficients describing elements of facial expressions, registered for three subjects, were used as features. The features have been calculated for two-dimensional face model. The classification of features was performed using MATLAB.

**INTRODUCTION**

Interpersonal interaction is oftentimes intricate and nuanced, and its success is often predicated upon a varietyfactors. These factors range widely and can include the context, mood, and timing of the interaction, as well as the expectations of the participants. For one to be a successful participant, one must perceive a counterpart’s disposition as the interaction progresses and adjust accordingly.

Significantly, these emotions are exhibited through facial expressions that are consistently correspondent. This means that regardless of language and cultural barriers, there will always be a set of fundamental facial expressions that people assess and communicate with. After extensive research,it is now generally agreed that humans share seven facial expressions that reflect the experiencing of fundamental emotions. These fundamental emotions are anger, contempt,disgust, fear, happiness, sadness, and surprise

**1.1 Background**

Over the last two decades, researchers have significantly advanced human facial emotion recognition with computer vision techniques.

As this topic is of interest in many fields spanning both social sciences and engineering, there have been many

approaches in using computers to detect, extract, and recognize human facial features and expressions. For example, Zhang details using both geometric positions of facial fiducial points as well as Gabor wavelet coefficients at the same points to perform recognition based on a two-layer perceptron. Significantly, Zhang shows that facial expression detection is achievable with low resolution due to the low-frequency nature of expression information. Zhang also shows that most of the useful expression information is encoded within the inner facial features. This allows facial expression recognition to be successfully performed with relatively low computational requirements

**1.2 Aims and Objectives**

Our basic moto is to create database using dataset and then use this dataset to find emotion of uploaded photo.

The detection and recognition implementation proposed here is a supervised learning model that will use the one versus -all (OVA) approach to train and predict the seven basic emotions (anger, contempt, disgust, fear, happiness, sadness, and surprise).

The overall face extraction from the image is done first using a vision cascade object face detector. The detection seeks to identify faces or features of a face (or other objects) by using simple features. The process entails passing feature boxes over an image and computing the difference of summed pixel values between adjacent regions. The difference is then compared with a threshold which indicates whether an object is considered to be detected or not. This requires thresholds that have been trained in advance for different feature boxes and features. Specific feature boxes for facial features are used, with expectation that most faces and the features within it will meet general conditions. Essentially, in a feature-region of interest on the face it will generally hold that some areas will

be lighter or darker than surrounding area.

Once the faces are detected, they are extracted and resized to a predetermined dimensional standard. As Zhang has shown that lower resolution (64x64) is adequate, we will resize the extracted faces to 100x100 pixels. This will reduce computational demand in performing the further analysis.

Next, the mean image for all training faces will be calculated.

Then this data will be stored in database for the usage, when user enters the photo it will be resized and same mean will be taken and closest distance will be taken from database and given back to the user.

The completed training implementation uses cascade detector to detect faces as well as eyes and mouths. Detected faces are cropped, resized, and mean subtracted, then closest match is performed. Using the reduced dimensionality

training dataset.

**TECHNOLOGY**

MATLAB (FACE DETECTION THROUGH VISUAL CASCADE)

IMAGE PROCESSING TOOLBOX

VISUAL PROCESSING TOOLBOX

**IMPLEMENTATION**

**1.FIRST NEED TO TRAIN THE MATLAB WITH DIFFERENT DATA THAT CAN BE DONR THROUGH THE FILE NAME DATABASE TRAIN WHICH BASICALLY JUST ASK YOU TO SELECT AN IMAGE**

**2.THIS IMAGE IS SENT TO THE FEATURE STATICAL WHICH BASICALLY EXTRACT THE DATA OF YOUR FACE LIKE MOUTH ,EYES AND NOSE AND GIVE BACK DATA TO YOUR DATA TRAIN FILE**

**3.THIS FILE THEN CREATES A DATABASE AND STORE YOUR FACE INFO**

**4.WHEN USER GIVE FACE THROUGH THE FILE FACELESS IT AGAIN GOES TO THE FEATURE STATICAL FILE AND TAKE MEAN AND STANDARD OF YOUR MOUTH EYES AND NOSE AND COMPARE WITH DATA IT ALREADY HAS**

**5.CLOSING MATCH GIVES YOU YOUR FINAL CLASS WHICH IT BELONGS AND THAT’S WHAT YOUR EMOTION OR MOOD IS**

**CONCLUSION**

This project fails at certain points due to insufficient data stored or difference between age, sex and whether you are Asian or not because each region has its specific details.

An image processing and classification method has been implemented in which face images are used to train a dual classifier predictor that predicts the seven basic human emotions given a test image.

The predictor is relatively successful at predicting test data from the same dataset used to train the classifiers.

However, the predictor is consistently poor at detecting the expression associated with contempt. This is likely due to a combination of lacking training and test images that clearly exhibit contempt, poor pre-training labeling of data, and the intrinsic difficulty at identifying contempt. The classifier is also not successful at predicting emotions for test data that have expressions that do not clearly belong exclusively to one of the seven basic expressions, as it has not been trained for other expressions.

Future work should entail improving the robustness of the classifiers by adding more training images from

different datasets, investigating more accurate detection methods that still maintain computational efficiency, and

considering the classification of more nuanced and sophisticated expressions.

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