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# Customer Feedback System using Emotion Detection

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**Abstract:** *In this project we will use image processing as a major tool in the detection of face and expression. The expression might be happy, sad, fear, surprise and disgust. The detection of expression plays a vital role in our project as it is our major motive and intension. On the basis of the expression which might be detected, our project will be able to detect and track the user's state of mind, and it is used to help the people in emotion related-research to improve the processing of emotion data. Our project is mainly used in mini-marts to view the feedback of the customers and to enhance the smart business in the marketing sector.*

**Keywords:** *Facial expression recognition (FER), Local binary pattern (LBP), Feature extraction, Image preprocessing.*

## I. INTRODUCTION

People express their feelings through facial expressions no matter what language they speak or which country they are from, facial characteristic movement that can convey the messages about our feelings. This concept was introduced by the great scientist "CHARLES DARWIN".

Facial expression analysis is becoming attractive and also considerable attention in the advancement of human machine interface where it provides a natural and efficient way to communicate between humans.

Some best examples for emotion detection are teleconferencing, forensic applications, human-computer interaction, cosmetology, and so on. But when it comes to the performance point of view, face detection is more likely to affect the performance of all the applications.

Many methods have been proposed in order to detect human face images, they are classified into four categories: knowledge-based methods, feature-based methods, template-based methods and appearance-based methods. When these are used separately, it cannot solve all the problems of face detection like pose, expression, orientation. so it is better to operate with several successive or parallel methods.

Most of the facial expression recognition methods reported to date are focused on recognition of six primary expression categories such as: happiness, sadness, fear, anger, disgust and grief. the Facial Action Coding System(FACS) was first designed by Ekman and Friesen in the mid 70s. In FACS, motions of the muscles of the face are divided into 44 action units and any facial expression is described by their combinations.

"SATISFACTION OF THE CUSTOMER IS THE BEST SOURCE OF ADVERTISEMENT". In social interaction , face is playing an important role. social psychology researchers had agreed that among the three mediums in communication, facial expression is the one that is always active. its no secret that emotions drive behaviour. happy people whistle, angry drives crash cars ,frowns when they are sad and now with the help of emotion detection and analytics most of the companies are tuning into their customer feelings in an attempt to learn what makes them satisfied. The customer's emotions will eventually determine their trust and likelihood of churning.

That's why monitoring customer sentiment through emotion recognition is becoming an increasingly important way to improve the customer experience.

## II. PROPOSED SYSTEM

In earlier proposed systems, the sensor did not made complete use of non-verbal cues such as gestures', facial expression. It just had good impact on the pre-processing of an low quality image to high quality image but efforts in this proposed system are being made to gather useful information of both low-quality and high-quality to meet demands of the system so that the system not only does processing of image, but it can read process and simulate human emotions by emphasizing emotion recognition in real time.

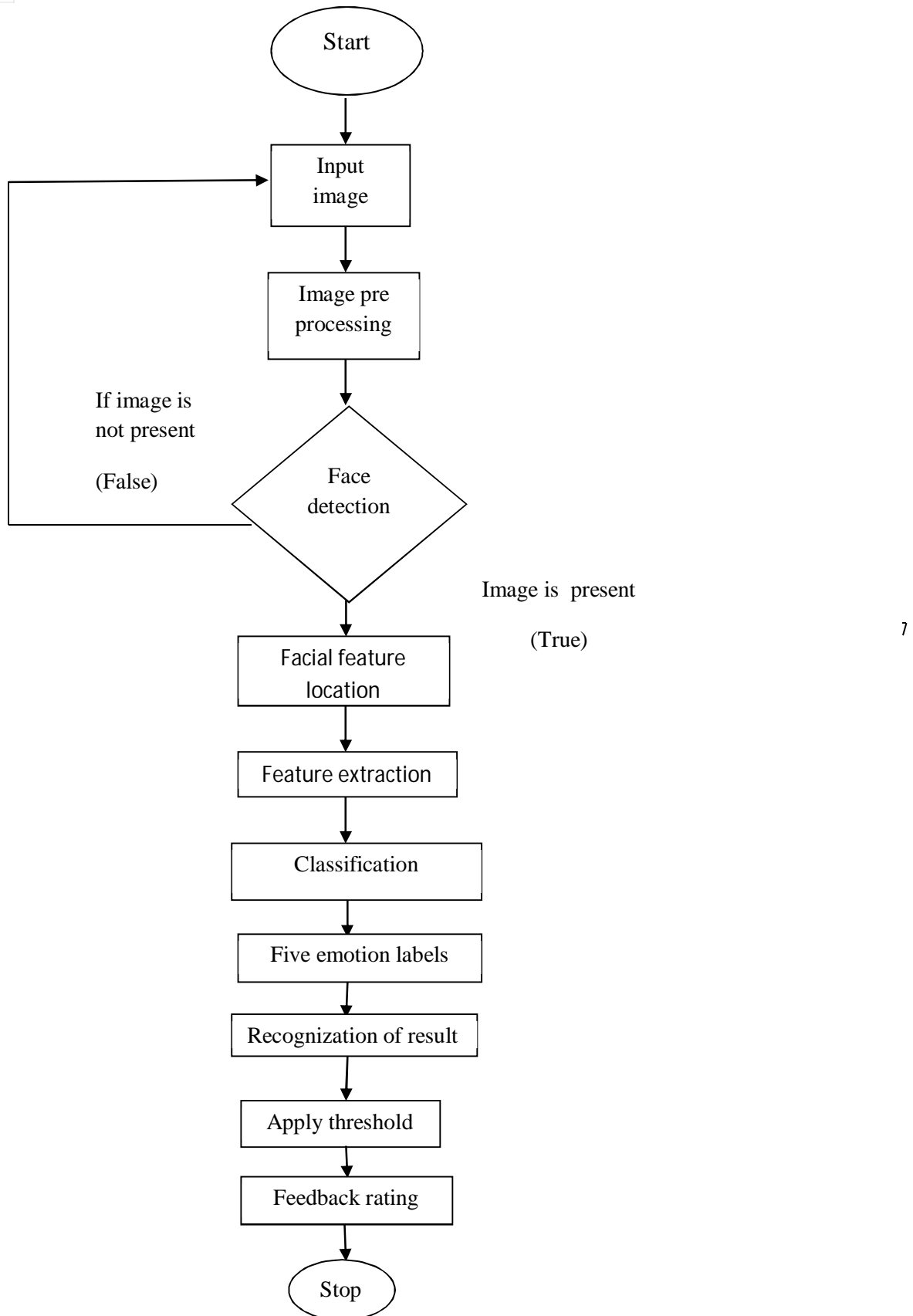


Fig 1 Flowchart of Proposed system

We have proposed a system application which provides feedback of the customers in mini-marts to enhance the smart business in the marketing sector using emotion detection.

First, the captured face image of the customer is taken as an input image. Next, once the particular still image is detected contrast stretching of the image is performed so that an image contains principal lines for varying conditions and now the user is provided with the services of the system. Later the system starts its process of providing well observed feedback of the customer with accurate classification label along with its maximum probability (i.e., rating).

#### *A. The data-flow is as Explained*

Facial feature locator takes a well normalised still image as an input from the face detector module. The output of facial feature locator acts as input to the facial feature extractor module which then performs extraction process to extract interest points on mouth and eye.

Classification module then takes the normalised face image of customer containing extracted eye and mouth contours which is obtained from the final landmark points for eye and mouth contours, which is the output of feature extractor module and along with bezier curve application on it. Thus, the image is ready to be classified as one among the 5 emotion label.

This emotion labelled image is provided as an input for feedback rating module, which then outputs an image with matching maximum rating in the form of probabilities assigned for each class. After application of threshold, the well segmented image is generated as output. Later result recogniser module provides feedback of the customer with most accurate emotion label with maximum rating detected.

### **III. RESULTS**

The set forth system results in the development of a platform to ensure the advancement in the marketing sector. The project named "customer feedback system using emotion detection" provides the feedback of the products in on-go scanning by reducing manual feedback from customers. The techniques we used are facial feature extraction and image pre-processing where we can get the exact feedback from the customer. Thus, ensuring a step forward in digitization in marketing sectors. Overall, the project gives an idea to develop a system which can be used in various other departments involving exploration

### **IV. CONCLUSIONS**

This project proposes for recognizing the category of facial expressions. Face Detection and Extraction of expressions from facial images is very useful and important in many applications.

The main objective of our project is to develop a facial recognition system which can work effectively in all the fields and also to gain the brand loyalty among the customers. Emotion can be detected by facial expression pre-processing followed by feature extraction using feature extraction. In this project, four different emotions can be captured.

The implemented system process is focused to detect the expressions from facial images using various methods like edge based segmentation applied to extract features from particular region. The facial images of different age persons are taken and results are evaluated.

Thus the system provides a good recognition of facial expressions, indicating good feedback system performance in marketing sector.

### **V. ACKNOWLEDGMENT**

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