Women Security Alert using Face Recognition

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Abstract - *Security is one of the necessary requirements of homes and businesses which require biometric identification. This paper intends to identify a person through face recognition. The system which translates facial images to feature characteristics of initial training database images . Facial features are takeout from the face and LBPH are calculated .Nowadays, women and children safety is a prime concern of our society.Facial expression being a important mode of communicating human emotions..Expressions and emotions go hand in hand, i.e. special combinations of face muscular actions reflect a particular type of emotion.A front end system may include textual or GUI.It is essential to recognize and verify the emotions of a person. It also contains pop up message box. It displays an alert style message pop up message according to the emotion of a person.*

*Keywords —*Facial Expression Recognition, Face Detection, Face Extraction and Expression Classification.

1. INTRODUCTION

At the present scenario Women and men are competing with each other in every prospect of society. Women contributes fifty percent to the evolution of our nation. But the women have fear of getting harassed, troubled and killed. All these types of women strained cases are increasing day by day. So it is very important to make sure the safety of women Ease of Use.Its development platform is open cv. Front end is QT GUI and back end is image processing and machine learning.Facial expression recognition is a technique to recognize expressions on one's face. A wide range of techniques have been proposed to detect and identify expressions like happy, sad, fear, disgust, angry, neutral, surprise but others are hard to be implemented. Facial expression recognition, it consists of three major steps: (1) Face detection and preprocessing of image, (2)

Feature extraction and (3) Expression classification. The main aim of this paper is to understand the basic difference **between** the face recognition and facial expression recognition and to identify the effective facial expression recognition rates by acknowledging the existing proposed models. Image processing is the field of signal processing where both the input and output signals are images. One of the most essential application of Image processing is Facial expression recognition. Our emotion is exposed by the expressions in our face. Facial Expressions plays an essential role in interpersonal communication.The aim of this project is to develop Automatic Facial Expression

Recognition System which can take human facial images containing some expression as input and recognize. Our facial emotions and expressions are expressed through activation of specific sets of facial muscles. These sometimes subtle, yet complex, signals in an expression often contain a more amount of information about our state of mind. Humans are well-trained in understanding the emotions of others.A review of signals and methods for affective computing is reported in [1], according to which, most of the research on facial expression analysis are based on detection of basic emotions [2]: anger, fear, disgust, happiness, sadness, and surprise. A number of novel technologies for facial expression recognition have been proposed over the last decade.

2. TECHNIQUES USED

Local Binary Pattern (LBP) is a simple yet very well organized texture operator which labels the pixels of an image by thresholding the neighborhood of each pixel and reflects the result as a binary number[3].It was first described in 1994 (LBP) and has since been found to be a efficient feature for texture classification. It has further been determined that when LBP is combined with histograms of oriented gradients (HOG) descriptor, it improves the efficiency of the detection performance considerably on some datasets. Using the LBP, when it is combined with histograms we can represent the face images with a simple data vector. As LBP is a visual descriptor, that has the advantage of it can be used in the face recognition task[4. Lot of face recognition software have been implemented during the past decade.
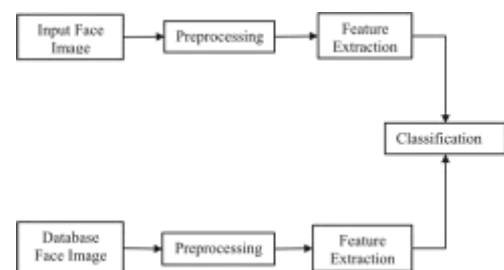

Fig -1 Architecture of face expression recognition system

3. EXISTING SYSTEM

Each software uses distinct methods and different algorithm than other software. Some facial recognition software extracts the face features from the input image to find the face .Other algorithms normalize a set of face

images and then reduce the size of the face data, the saves the data in one image that can be used for facial recognition. The next step is input image is compared with the face data .During the past decade many face recognition software have been implemented.
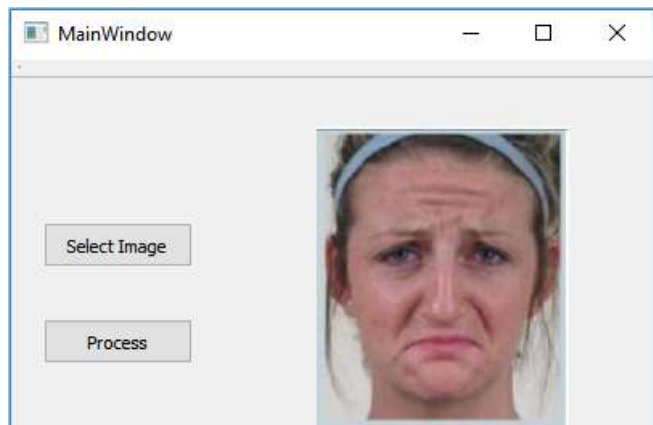

Fig 2 Face recognition using GUI

4. PROPOSED SYSTEM

It attempts to understand the emotion recognition, face recognition and some expression recognition techniques.The existing system system has illumination and recognition accuracy limitations.The proposed system is free from the effectiveness of preprocessing of images. This system simply aims to improve the accuracy of emotion recognition and finds the human emotions with high accuracy.
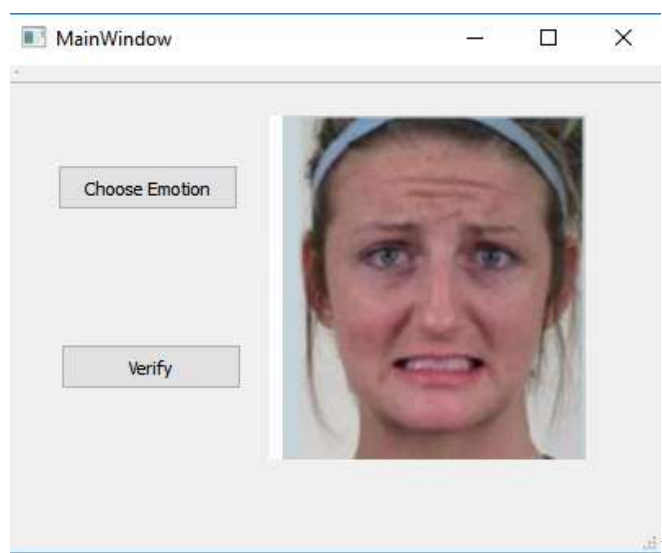

Fig 3 Emotion recognition using GUI

TABLE I Difference: Face recognition and facial expression recognition

FACE RECOGNITION	FACIAL EXPRESSION RECOGNITION
It is a computer application for mechanically identifying or verifying a person from a digital image or a video frame.	It is a computer application for identifying the facial expressions of any human either using an image or a video clip or the person itself.
Procedurals steps: Data acquisition, input processing, face image classification and decision making.	Procedurals steps: Face detection, feature extraction and expression classification.

5. MODULE DESCRIPTION

● Face detection: Locates faces in the scene.

● Emotion recognition:Analyze and identify emotion of detected areas and identifies the emotion of human.

● Face recognition:It identifies and verifies the identity of an individual using their own face.

6. CONCLUSION

Face recognition systems provide better fulfilment over other security systems. Technology is now a big part of our society and our predicted future, hence security is being an inevitable part. Along with these advantages efficient memory management makes this project relevant and special. In this project three different facial expressions of more than 270 persons pictures have been collected and analyzed and more than sixty images are taken for recognition.
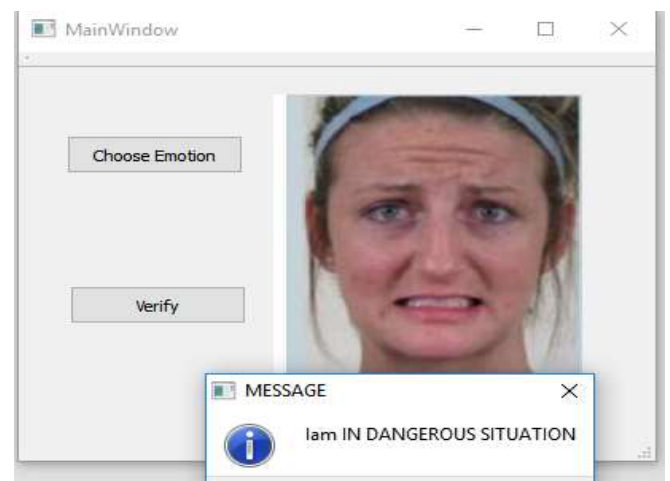

Fig 4 Displays an alert using a pop up message

7. FUTURE ENHANCEMENT

The facial expression recognition can be tested using physiological signals, as the physiological signals are strongly coresponds to human emotions. These signals are not controllable by person. The main signals on which facial expressions are most responsible are temperature, respiration, skin conductance.

8. ACKNOWLEDGMENT

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