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Attendance system on face detection

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صدق الله العلي العظيم

(المجادلة آية 11).

لم نصل لهذه المرحلة لولا تعب وشقاء اساتذتنا الاعزاء فكل الشكر والتقدير لكل من علمنا حرفا وبذل جهدا من اجلنا فنسأل الباري ان يوفقهم ويسدد خطاهم....

Abstract

Face detection is a technique that is able to automatically identify or verify a person in a digital image or a video frame taken from a video. There are many ways in which facial recognition systems work, but generally they compare facial features selected in a particular image with faces stored in a database.
It is usually used in security systems and can be compared with other biometrics such as fingerprints or eye recognition iris systems. Traditional techniques Some facial recognition algorithms recognize facial features by extracting features, or features, from a face image in the subject. For example, an algorithm may analyze the relative position, size, and / or shape of the eyes, nose, cheekbones, and jaw.

These features are then used to search for other images with matching features. Other algorithms normalize the face image gallery and then compress face data, only providing the data in the image can be useful for recognizing faces. The image is then investigated and the hand data is compared. One of the oldest successful systems is based on template matching techniques applied to a range of prominent facial features, providing a kind of compressed face representation.
In this project we use the algorithm of PCA and LDA and use database YALE FACE RECOGNITION .We compare 15 image and we have 10 image are success of detect , in this .status we have ratio of recognition is 66%

Chapter 1

CHAPTER ONE

I.1 INTRODUCTION

Face detection is a computer technology that determines the locations and sizes of human faces in arbitrary (digital) images. It detects facial features and ignores other things, such as buildings, trees and bodies. Various government agencies are now actually more motivated to improve security data systems centered on body or behavioral characteristics, often called biometrics. As many of the biometric method have an ability of high accuracy and security. But in comparison to biometric applications face recognition system have variety of applications in security of information, enforcement of law, various cards like smart cards and observations, surveillance. The biometric authentication has been drawback worked on round the world for several persons, this problem has emerged in multiple fields and sciences, particularly in applied science, others fields that are terribly inquisitive about this technology are: Mechatronic, Robotic, criminalities, etc. For this reason Face recognition system has been used .

Almost techniques have been suffering from some limitation in the literature review to achieve the solution which may be cause to suffering from distortion of instrument as well as pose .effects in the real life

Neural Network is more capable of deriving multi-orientation information to various analyses of sources from a face image at different rules with the derived information being of local nature from a particular source. The common approach helps using neural network. Face recognition is to construct a filter bank for different scales and orientations to filter which has given face image with all filters from the bank storage.

1.2

Maintaining the attendance is very important in all the institutes for checking the performance of employees . Every institute has its own method in this regard. Some are taking attendance manually using the old paper or file based approach and some have adopted methods of automatic attendance using some biometric techniques. But in these methods employees have to wait for long time in making a queue at time they enter the office. Many biometric systems are available but the key authentications are same is all the techniques. Every biometric system consists of enrolment process in which unique features of a person is stored in the database and then there are processes of identification and verification. These two processes compare the biometric feature of a person with previously stored template captured at the time of enrollment. Biometric templates can be of many types like Fingerprints, Eye Iris, Face, Hand Geometry, Signature, Gait and voic

1.2.1

Most mobile phone has been integrated with one or more camera that possible to create complete training dataset with different lighting, background, pose, expression, etc. 3. Face recognition method based on subspaces analysis such as PCA and LDA, 5 has been improved and started to use in mobile phone. A face verification system is fully automatic in mobile phone was proposed 1, using cascade asymmetric PCA (C-APCDA) algorithm.

1.2.2

The development these days has produce so many applications that is using Face's image as information resource. Generally, a face image can give a special information that related to personal identification based on face recognition that can be used on an electronic security system. To determine the ability of android in terms of accuracy and speed of face recognition, we conduct research using PCA and Eigen Face

1.2.3

One of early step in face recognition process is face detection. The process of face recognition system divided into few sub-process. The most important sub-process is face detection 6. On an android based mobile device, face detection using PCA method already included in open CV library. Face Recognition that used is Eigen Face method that included in open CV library too [1].

. LITERATURE VIEW:

1.3 . LITERATURE SURVEY

observed that the human face is inherently symmetric and they wish to exploit this symmetry in face recognition. The average-half-face has been previously shown to accomplish just that for a set of 3D faces when utilizing eign faces for recognition. They build upon that work and present a contrast of the utilization of the average-half-face to the utilization of the initial full face with 6 different algorithms placed on two- and three dimensional (2D and 3D) databases.

Have recognized an ideal face classifier would recognize faces in accuracy that is only matched by humans. The underlying face descriptor would need to be proportional to pose, illumination, expression, and quality of image. Wang et al. in 2008 year proposed to inspect a correlation matrix constructing a bank of Bayesian Networks with the aim of detecting such various filter parameters used in decreasing the filter bank would be as possible. The same methodology can also be used to visualization and found difference between the classical and the principal Bayesian Networks.

analyzed the feasibility of a new set of face descriptors called sigma sets constructed from simple image features. Experiments show promising performance on the challenging LFW database.

The artificial neural network based technology has played a main role in this inclusiveness and sustainability of intelligent and expert system to recognized & satisfy human need is concerned in this competitive arena. In present era Face recognition is widely used due to its numerous ability to cope up with various other techniques associated with it.

have presented closing the gap to human level performance in face verification which is based on conventional pipeline. The conventional pipeline consist detection, alignment, representation and classification to face images. This pipeline methodology was used for the 3D face image to fill the remaining difference for the accurate and best performance. The same methodology can also be used to visualization and found difference between the classical and the principal Bayesian Networks.

in 2010 has presented Singularity detection and processing with wavelet and proposed the use of denoising and face detection. He also discussed the current status and future directions to simply the various tasks. He discussed and analysis the image features as color, texture, and shape in details. He also gives a summary of all the features with examples. For e.g. in texture recognition there are texture co-occurrence, Fourier power spectrum, Bayesian Network features and tamura features.

In the existing facial recognition algorithms have some problem while doing the Acquisition, lighting, Sensor. Lighting – simply it is a lighting effects of the given image. Like that lot of problem is there in the facial recognition in real time approach[2].

Chapter 2

CHAPTER TWO

PATTERN RECOGNITION

2.1 PATTERN RECOGNITION USING NEURAL NETWORKS

Face recognition has the benefit of being a passive, non-intrusive system for verifying personal identity. Many supervised and unsupervised learning techniques have been reported for face recognition. Various algorithms for face recognition have been used which can be broadly divided into two approaches, namely, structure-based (Appearance based) and statistics-based (Feature based). Three different techniques - PCA, ICA & SOM have been used for face recognition. Principal Component Analysis (PCA) is derived from transformation. Given an s-dimensional vector representation of each face in a training set of images, PCA tends to find a t-dimensional subspace whose basis vectors correspond to the maximum variance direction in the original image space. This new subspace is normally lower dimensional. If the image elements are considered as random variables, the PCA basis vectors are defined as eigenvectors of the scatter matrix. Independent Component Analysis (ICA) minimizes both second-order and higher-order dependencies in the input data and attempts to find the basis along which the data (when projected onto them) are statistically independent. Bartlett et al. provided 2 architectures of ICA Architecture I - statistically independent basis images, and Architecture II - factorial code represent. Facial analytics using SOM gives better results than PCA and ICA techniques, which has been presented in this paper. SOM is an unsupervised learning process that has the property of topology preservation.

2.1.1

Supervised: In supervised learning at each instant of time when the input is applied, the desired response of the system is provided by teacher. This persistent mode is used in many situations of natural learning. A set of input and put patterns called a training set is required for this

learning mode. • Unsupervised: Unsupervised learning algorithms use patterns that are typically redundant raw data having no labels regarding their class membership. In this mode of learning, the network must discover for itself any possibly existing patterns, regularities, separating properties etc. While discovering this, the network undergoes change of its parameters, which is called self organization. Unsupervised learning is sometimes called learning without teacher. We are using the neural network based unsupervised learning .algorithm known as Self Organizing Map

2.1.2

Unsupervised: Unsupervised learning algorithms use patterns that are typically redundant raw data having no labels regarding their class membership. In this mode of learning, the network must discover for itself any possibly existing patterns, regularities, separating properties etc. While discovering this, the network undergoes change of its parameters, which is called self organization. Unsupervised learning is sometimes called learning without teacher. We are using the neural network based unsupervised learning algorithm known as Self Organizing Map[3].

2.2 SELF-ORGANIZED KOHENEN ALGORITHM

The self-organizing map, or SOM , introduced is an unsupervised learning process which learns the distribution of a set of patterns without any class information. As a neural unsupervised learning algorithm, Self-Organizing Maps (SOM) has been widely utilized in pattern recognition area. Using the SOM as a feature extraction method in face recognition applications is a promising approach, because the learning is unsupervised, no pre-classified image data are needed at all. When high compressed representations of face images or their parts are formed by the SOM, the final classification procedure can be fairly simple, needing only a moderate number of labeled training samples. The SOM is unlike most classification or clustering techniques in that it provides a topological ordering of the classes. Similarity in input patterns is preserved in the output of the process. The topological preservation of the SOM process makes it especially useful in the classification of data which includes a large number of classes.

The algorithm used for our Facial Analytics project consists of following steps: Step 1 – START. Step 2 – Initialize the Map for Clustering. Step 3 – Set t = 0 and Repeat the following steps until t < e, where t is the iteration rate and e is the error rate, Step 4 – Get the Best Matching Unit.

Initializing There are a number of ways to initialize the weight vectors. The first is just giving each weight vector as shown in Figure 2.1, random values for its data which lies between 0 and 1. This way, less iterations are required to produce a good map and can save some time making the analysis more efficient.

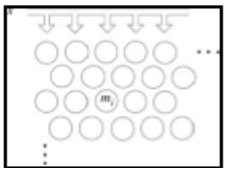


Figure2.1. Cell arrangement for map

Best Matching Unit This is a very simple step, just go through all the weight vectors and calculate the distance from each weight to the chosen sample vector. The weight with the shortest distance is the winner. If there is more than one with the same distance, then the winning weight is chosen randomly among the weights with the shortest distance. There are a number of different mathematical ways for determining the distance. We are using the Euclidean distance method where the distance formula is given as:

(2.1)

xi is the data value at the i^{th} data member of a sample and n is the number of dimensions to the sample vectors.

Scale Neighbors There are actually two parts to scaling the neighboring weights: determining which weights are considered as neighbors and how much each weight can become more like the sample vector. The second part to scaling the neighbors is the learning function. The winning weight is rewarded with becoming more like the sample vector. The neighbors also become more like the sample vector. An attribute of this learning process is that the farther away the neighbor is from the winning vector, the less it learns. The rate at which the amount a

weight can learn decreases and can also be set to whatever you want. So once a weight is determined the winner, the neighbors of that weight are found and each of those neighbors in addition to the winning weight change to become more like the sample vector.

2.3 Statistical Pattern Recognition

Pattern recognition is a computational algorithm used to classify raw data (sometimes appropriate action choice is included in the definition). The term is from machine learning, but has been adapted by cognitive psychologists to describe various theories for how the brain goes from incoming sensory information to action selection .Pattern recognition undergoes an important developing for many years. Pattern recognition include a lot of methods which impelling the development of numerous applications in different filed. The practicability of these methods is intelligent emulation.

Statistical decision and estimation theories have been commonly used in PR for a long time. It is a classical method of PR which was found out during a long developing process, it based on the feature vector distributing which getting from probability and statistical model. The statistical model is defined by a family of class-conditional probability density functions Pr(x|ci)(Probability of feature vector x given class ci) In detail, in SPR, we put the features in some optional order, and then we can regard the set of features as a feature vector. Also statistical pattern recognition deals with features only without consider the relations between features.

Data clustering Its aim is to find out a few similar clusters in a mass of data which not need any information of the known clusters. It is an unsupervised method. In general, the method of data clustering can be partitioned two classes, one is hierarchical clustering, and the other is partition clustering.

The application of fuzzy sets

The thinking process of human being is often fuzzy and uncertain, and the languages of human are often fuzzy also. And in reality, we can't always give complete answers or classification, so theory of fuzzy sets come into being. Fuzzy sets can describe the extension and intension of a concept effectively. The application of fuzzy sets in pattern recognition started in 1966, where the two basic operations –abstraction and generalization were quite much aimed at by Bellan et al.Two principles proposed by Marr (1982) and (Keller, 1995) which can be think as the general role of fuzzy sets in PR. The PR system based on fuzzy sets theory can imitate thinking process of human being widely and deeply[4].

2.3.1.Neural networks

Neural networks is developing very fast since the first neural networks model MP was proposed since 1943, especially the Hopfield neural networks and famous BP arithmetic came into being after. It is a data

clustering method based on distance measurement; also this method is model-irrespective. The neural approach applies biological concepts to machines to recognize patterns. The outcome of this effort is the invention of artificial neural networks which is set up by the elicitation of the physiology knowledge of human brain. Neural networks are composed of a series of different , associate unit. In addition, genetic algorithms applied in neural networks is a statistical optimized algorithms proposed by Holland (1975) is a very attractive since it requires minimum a priori knowledge, and with enough layers and neurons, an ANN can create any complex decision region.

2.3.2.Structural pattern recognition

The concept of structural pattern recognition was put for the fourth time (Pavilidis, 1977).And structural pattern recognition is not based on a firm theory which relies on segmentation and features extraction. Structural pattern recognition emphases on the description of the structure, namely explain how some simple sub-patterns compose one pattern.

There are two main methods in structural pattern recognition, syntax analysis and structure matching. The basis of syntax analysis is the theory of formal language, the basis of structure matching is some special technique of mathematics based on sub-patterns. When consider the relation among each part of the object, the structural pattern recognition is best.

Different from other methods, structural pattern recognition handle with symbol information, and this method can be used in applications with higher level, such as image interpretation. Structural pattern recognition always associates with statistic classification or neural networks through which we can deal with more complex problem of pattern recognition, such as

recognition of multidimensional objects.

2.3.3.Syntactic pattern recognition

This method major emphasizes on the rules of composition. And the attractive aspect of syntactic methods is its suitability for dealing with recursion. When finish customizing a series of rules which can describe the relation among the parts of the object, syntactic pattern recognition which is a special kind of structural pattern recognition can be used.(in the middle of 1960's,1978) .

Approximate reasoning approach to pattern recognition This method which uses two concepts: fuzzy applications and compositional rule of inference can cope with the problem for rule based pattern recognition. .

A logical combinatorial approach to pattern recognition This method is presented, and works mainly in Spanish and Russian, which works with the descriptions of the objects. This approach can apply for both supervised pattern recognition and unsupervised pattern recognition.

Applications of Support Vector Machine (SVM) for pattern recognition SVM is a relative new thing with simple structure; it has been researched widely since it was proposed in the 1990's. SVM base on the statistical theory ,and the method of SVM is an effective tool that can solve the problems of pattern recognition and function estimation, especially can solve classification and regression problem, has been applied to a wide range for pattern recognition such as face detection, verification and recognition, object detection and recognition ,speech recognition etc.

Using higher-order local autocorrelation coefficients to pattern recognition In 2004, present an efficient method using higher order autocorrelation functions for pattern recognition. The autocorrelation feature vectors reside in a high dimensional space, which one can avoid their computing easily.

A novel method and system of pattern recognition using data encoded as Fourier series and Fourier space It was put forward in 2006. This novel method anticipate the signal processing of an ensemble of neurons as a unit and intends to simulate aspects of brain which bring capabilities like pattern recognition and reasoning that have not been produced with past approaches as neural networks

2.4. Hybrid Model

In most of the emerging applications, it is clear that a single model used for classification doesn't behave efficiently, so multiple methods have to be combined together giving result to hybrid models. Primitive approaches to design a Pattern Recognition system which aims at utilizing a best individual classifier have some drawbacks. It is very difficult to identify a best classifier unless deep prior knowledge is available Statistical and Structural models can be combined together to solve hybrid problems. In such cases statistical approach is utilized to recognize pattern primitives and syntactic approach is then used for the recognition of sub-patterns and pattern itself. gave the concept of attributed grammars which unifies statistical and structural pattern recognition approach. To enhance system performance one can use a set of individual classifiers and combiner to make the final decision. experimentally proved that using a linear combiner or order statistics combiner minimize the variance of actual decision boundaries around the optimal boundary. Multiple classifiers can be used in several ways to enhance the system performance. Each classifier can be trained in a different region of feature space or in other way, each classifier can provide probability estimate and decision can be made upon analyzing individual results. Methods utilizing classifier ensemble design generate a set of mutually complementary classifiers that achieve optimal accuracy using a fixed decision function. Those methods which utilize combination function design tend to find an optimal combination of decisions from a set of classifiers. To achieve optimum results, a large set of combination functions of increasing complexity, ranging from simple voting rules through trainable combination functions is available to designer[5] .

2.5 Biometric Recognition

Biometrics are automated methods of recognizing a person based on a physiological or behavioral characteristic. Among the features measured are: face, fingerprints, hand geometry, handwriting, iris, retinal, vein, and voice. Biometric technologies are becoming the foundation of an extensive array of highly secure identification and personal verification solutions. As the level of security breaches and transaction fraud increases, the need for highly secure identification and personal verification technologies is becoming apparent. Biometric-based

solutions are able to provide for confidential financial transactions and personal data privacy. Enterprise-wide network security infrastructures, government IDs, secure electronic banking, investing and other financial transactions, retail sales, law enforcement, and health and social services are already benefiting from these technologies. Utilizing biometrics for personal authentication is becoming convenient and considerably more accurate than current methods (such as the utilization of passwords or PINs). a. Biometric System

A biometric system is essentially a pattern recognition system that operates by acquiring biometric data from an individual, extracting a feature set from the acquired data, and comparing this feature set against the template set in the database. b. Major components of a biometric system are: • Data collection to build the Database • Pre-Processing of Data • Creation of Database • Matching Process • Identification Process B. Face Recognition

Face Recognition is one of most used and the challenging biometric recognition and authentication system. One of the most challenging phenol menons associated with facial recognition is the accuracy for the real time images. With the time, the face recognition is also integrated with number of associated challenges. These challenges include the incompleteness

of images, noise, distortion etc. One of such common problem identified in these days is morphed images. A morphed image is the edited image using some image processing software or tool. These morphing can be done in terms of inclusion of some effect, merging two images, changing the hair cut etc. Because of this, the detection of person in these morphed images is a challenge. So that, an improved SIFT (Scale Invariant Feature Transform) is required to improve the recognition rate on morphed images. SIFT is the approach that uses the location descriptor as the key feature points to generate the dataset and to perform the recognition over the images. In this work, the complete image will be divided in several sub images based on the locational features. These features include eyes, nose, mouth etc. Once the locational segmentation will be performed, the next work is to apply the SIFT on each location segment to extract the key features over it. At the final stage, the distance level analysis over the images will be performed to recognition. The work is about to improve the recognition rate. C. Four Stage Model Stage 1: Filtration

This stage will basically handle the most common problem of real time images. The problems include the noise problem, un-equal brightness problem etc. The work will perform the filtration against different kind of noise as well as verification by using the statistical method so that the identification of the effective filtration of image will be performed.

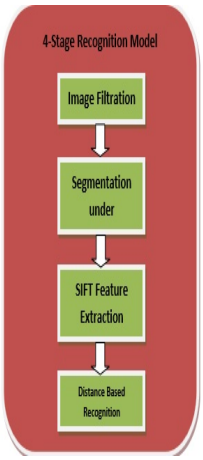


Figure 2.2 4-Stage Recognition Model

Image Filtration Segmentation under Localization SIFT Feature Extraction Distance Based Recognition

Stage2: Segmentation

The second stage of the work is to identification of the physical features from the face image. These features include the eyes, nose, lips etc. The positional analysis approach will be implemented to identify these features from the face image.

Stage 3: SIFT Feature Extraction

The SIFT is here been applied to extract the features over the facial images. The location descriptor is been used to extract such features.

Stage 4: Distance based Recognition

In this stage, the recognition process will be performed on individual feature by using distance

based analysis. This recognition process will be applied on individual region and then combined to generate the total recognition rate.
a) Deformations- These are the result of injury or accident on the face. b) Expressions- This shows the mood of the person. From expressions it is easy to determine whether the person is happy or sad. c) Aging- With age wrinkles appears on the face. The wrinkles change the formation of the face to a great extent. d) Facial hairs- Man have moustaches and beard which change the look of the face when shaven. e) Cosmetics- Cosmetic surgery has become one of the widely used techniques to enhance your facial features[6].

2.6. RELATED WORK designed a Biometric Recognition system using the four main modules:

1. Sensor module, which captures the biometric data of an individual. 2. Feature extraction module, in which the acquired biometric data is processed to extract a set of salient or discriminatory features. 3. Matcher module, in which the features during recognition are compared against the stored templates to generate matching scores. 4. System database module, which is used store the biometric templates of the enrolled users. proposed Multi biometric system which seeks to alleviate some of drawbacks of single biometric system by providing multiple evidences of the same identity. These systems help to achieve an increase in performance that may not be possible using a single biometric indicator. Multi biometric systems provide anti-spoofing measures by making it difficult for an intruder to spoof multiple biometric traits simultaneously. The authors proposed Fusion in biometrics with certain levels.
proposed an integrated system for automatic identification, using smart card and fingerprint features. The goal is to do both a biometric verification and identification, with the personal data stored on the smart card. The first important step is considered to be the enrollment. Therefore, a new user, who will be involved in the system, comes to an authority and gets his finger scanned for several times (usually 3-5 times), in order to get the best fingerprint. From the images captured by the biometric sensor, the features are extracted, and the best feature string, with maximum number of minutiae will be stored on the smart card. Sending and storing the minutiae string on the smart card are done in a secure way, with several mechanism of authentication, in order for the personal data to be perfectly protected.
presents a system that uses 28 facial feature key-points in images detection and Gabor wavelet filter provided with 5 frequencies, 8 orientations. In according to actual demand, It can extract the feature of low quality facial expression image target, and have well robust for automatic facial expression recognition.
Experimental results show that the performance of the proposed method achieved excellent average recognition rates, when it is applied to facial expression recognition system.
" A Novel Approach to Face Recognition under Various facial expressions, Occlusion and Tilt Angles". The proposed method on face recognition have been focused on color co-occurrence matrix approach & principal component analysis — applies PCA only on CCM classified Images. In comparison with the traditional use of PCA, the proposed method gives better recognition accuracy and less computational time for different facial expressions.

2.7 ROBUST FACE RECOGNITION WITH OCCLUSIONS IN BOTH REFERENCE AND QUERY IMAGES

In this paper, Author summaries three occlusion cases that a realistic FR system should take account of. Author presents a novel non-parametric classification method to handle the occlusion related problems. Presented method represents a face image as a sub-patch sequence which maintains the inherent structure information of the face.
"Face Identification from Manipulated Images using enhanced SIFT and SURF". In this paper, the extraction of the recognition of morphed images is been done using SIFT based feature analysis approach. The SIFT is here applied on whole image as the location descriptor. This feature dataset will be used for the recognition.

2.8. APPROACHES

The method for acquiring face images depends upon the underlying application. For instance, surveillance applications may best be served by capturing face images by means of a video camera while image database investigations may require static intensity images taken by a

standard camera. EXISTING approaches for face recognition (FR) mainly deal with issues such as variation in expression, lighting, pose, and acquisition time, but none of them is free from limitations. Main Approaches are classified as linear methods and non-linear methods. Some Linear methods are:- a. Eigen faces: This is a linear method. This is fast, simple, and practical technique, but they are not invariant to changes in illumination, pose, and scale. Neural networks are attractive
because their feature extraction step is more efficient than the transform, but the computation complexity increases with the number of enrolled persons, and the recognition rate (RR) decreases when the number of classes becomes too high.
b. Principal component analysis (PCA): This is a linear method and widely used in the appearance-based approaches for FR (Face Recognition). This approach aims at solving the recognition problem within a representation space of lower dimension than image space.
c. Linear discriminant analysis (LDA): This is also a linear method. And this aims at solving the recognition problem within a representation space of lower dimension than image space. In general, LDA based algorithms outperform PCA-based ones, but they suffer from the so-called small-sample-size problem (SSS) which exists in high-dimensional pattern recognition tasks.
d. Combining PCA and LDA: By combining PCA and LDA, some discriminate information is discarded together with redundant one[7].

2.9 APPLICATIONS OFPATTERN RECOGNITION IN AGRICULTURE

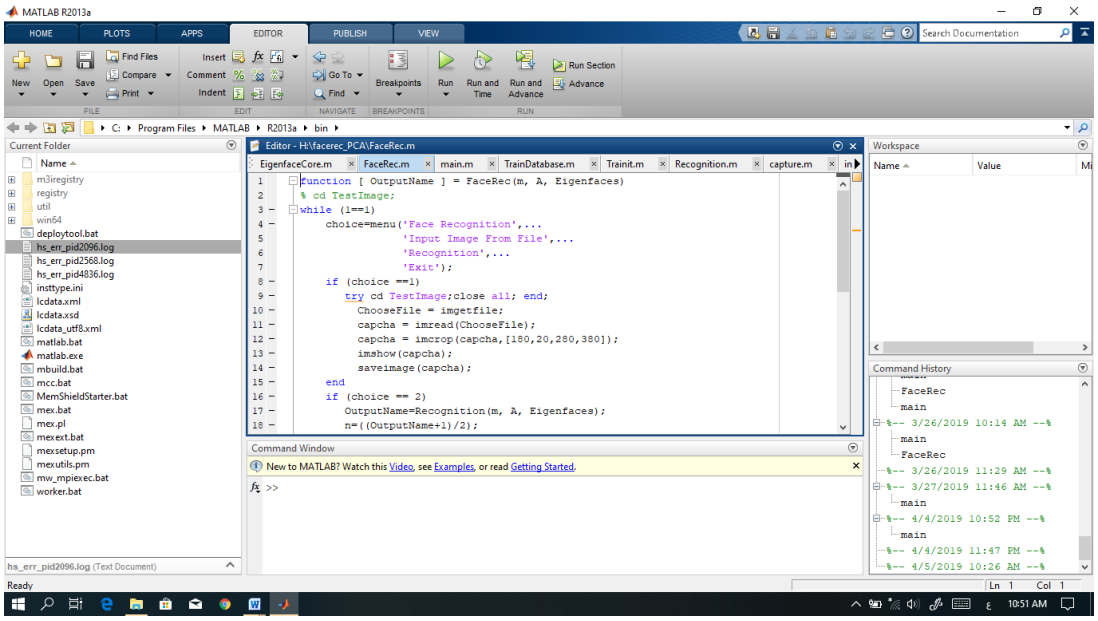
Pattern recognition is used in many area of science and engineering that studies
the structure of observations. It is now frequently used in many applications in manufacturing industry, health care and military[16].Image processing based on morphology, color and textural features of grains is necessary for different applications in the grain industry including assessing grain quality and variety classification. In grain classification process, several techniques such as statistical, artificial neural networks and fuzzy logic have been used. Below listed is the some of the contribution of pattern recognition in agriculture domain:
different techniques used to identify fruits based on color. According to them “In the automated fruit grading system the most important feature is its color. So for any automated fruit grading system one should have the idea of color space and segmentation needs to be performed. This paper provides a review of various color feature extraction techniques in detail.
proposed system as a software solution for automatic detection and classification of plant leaf diseases. The proposed algorithm’s efficiency can successfully detect and classify the examined diseases with an accuracy of 94%. Experimental results on a database of about 500 plant leaves confirm the robustness of the proposed approach[8].

CHAPTER THREE

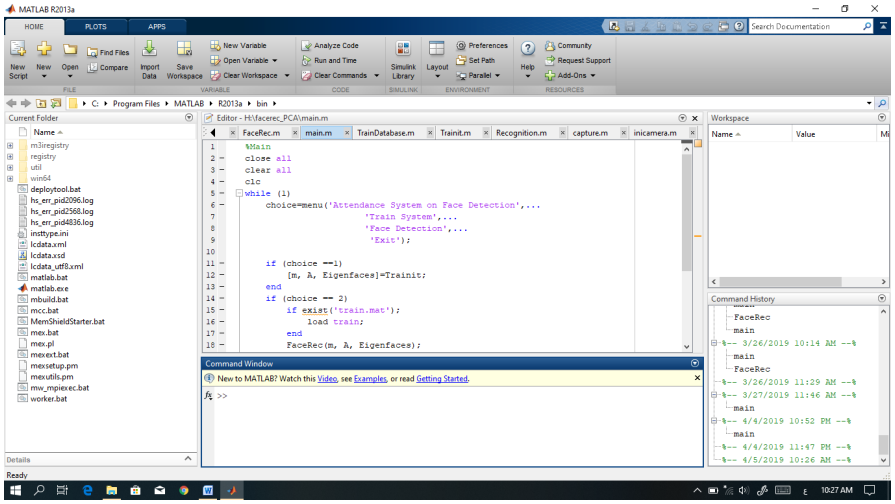
ATTENDANCE SYSTEM ON FACE DETECTION

3. TO execute the program we have several steps: -

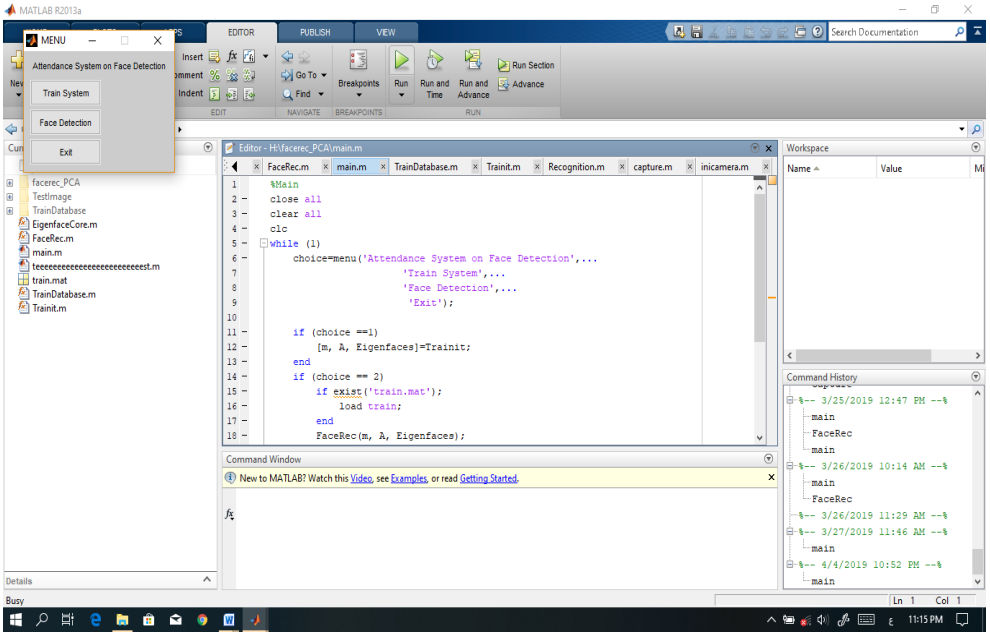
3.1 Open MATLAB version R2013a



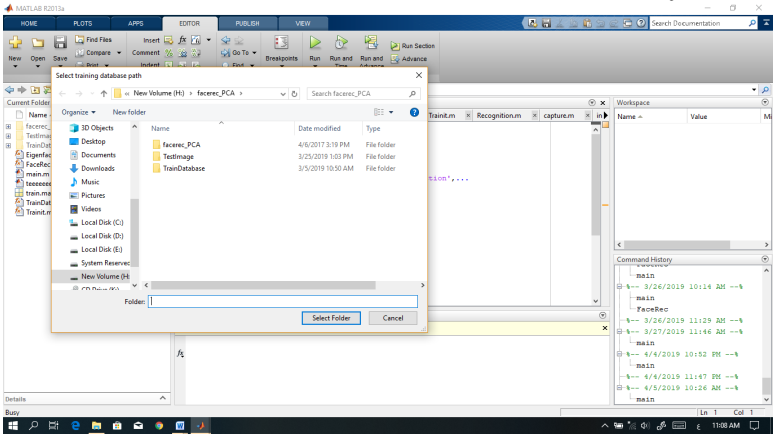
:3.2 Choose “main” code



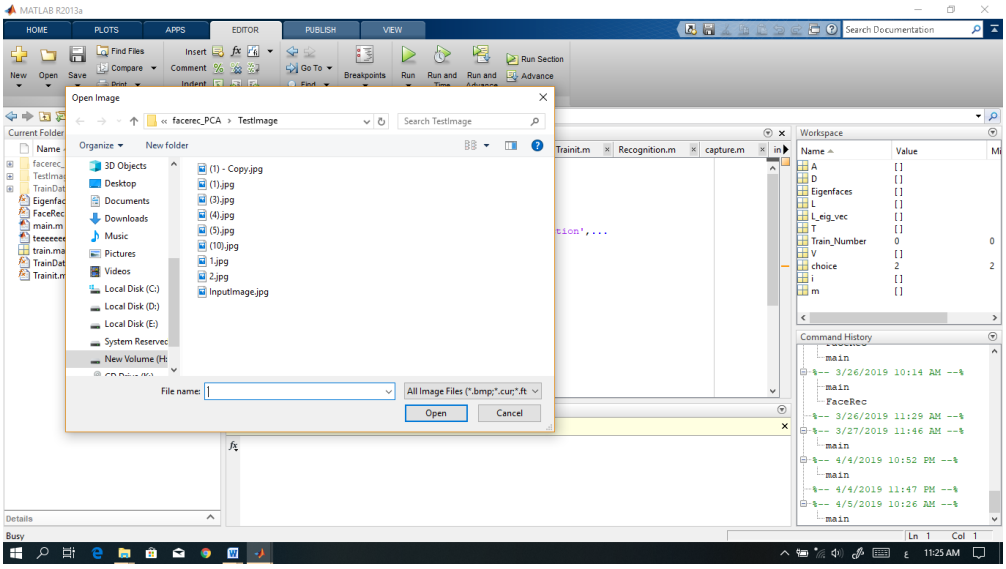
:3.3 From “EDITOR” list choose “run” order



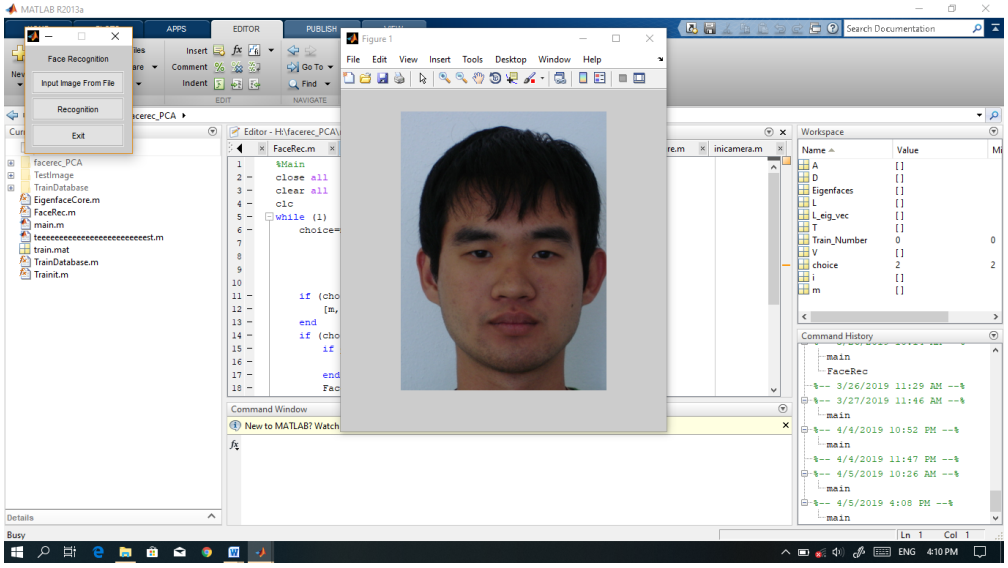
Choose ”Train System” to detect the folder of image 3.4



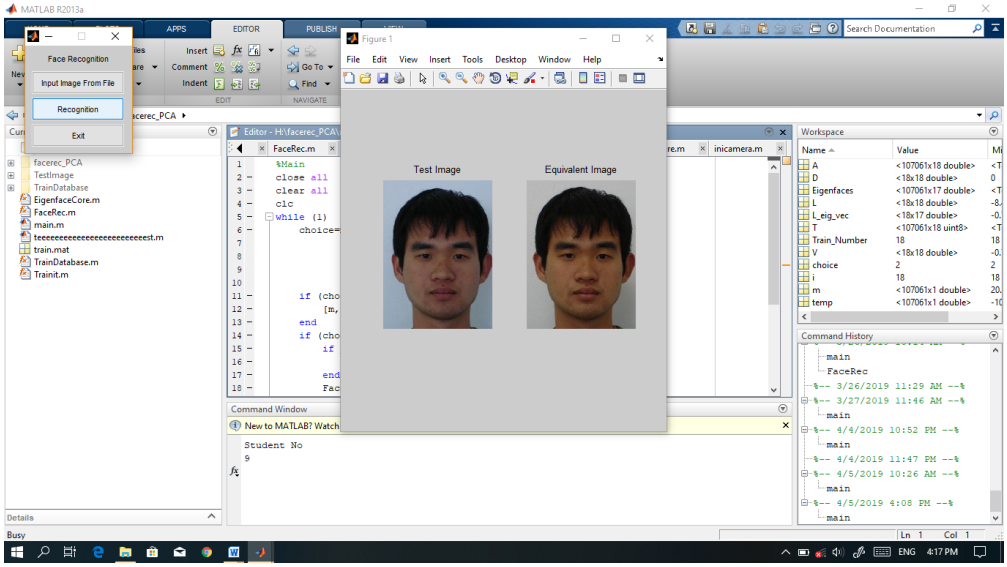
3.5 Choose ”Face Detection” then choose “Input image from file ” to insert test image:



3.6 Choose test image:



3.7 click on “Recognition”



3.8. In this way we can know if this person are existent in database or not And he was in class.

CHAPTER FOUR

4.RESULTS AND DISCUSSIONS

The discovery of the facial feature is to discover the presence and location of features, such as eyes, nose, nose, eyebrows, mouth, lips, ears, etc., assuming only one face in the picture.
Face recognition or face recognition compares the input image with the database and reports match, if any.
Face authentication verifies the identity of the individual in the input image.
Identifying facial expressions involves identifying emotional states (happy, sad, disgusting, etc.) for humans.
Face detection is the first step in any automated system to solve the above problems and it is necessary to have a strong and effective face detection system.
In this project can know the students entering the class by entering facial data and comparing it with the database located in the computer. If the person is present, his image will appear when compared
As for the obstacles that happen in project, the image of the input must be well picked. If it is picked from the side, it will not be recognized.

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