International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395 -0056
Volume: 03 Issue: 12 | Dec -2016 www.irjet.net p-ISSN: 2395-0072

Automatic Identification Of Criminal Faces In Public Area

Snehal Patil[1], Ashwini Garje[2], Shanil Pawar[3] ,Diksha Gaikwad[4]

Prof. Sayali Shivarkar[5](ME COMP.)
Dept. of Computer Engineering,
Dhole Patil College of Engineering, Pune, Maharashtra,india

Abstract - *Face recognition systems are an important field in computer vision and are currently used to monitor for dangerous persons and track criminals. A face recognition system uses a database of images and compares another image against those to find a match, if one exists. We implemented an original face recognizer in Java and tested it for recall and accuracy with three image sets. We found that the distances between the eyes, nose, and mouth were not useful as they vary little between people. Overall, our method achieved good results. For scenarios like surveillance which require low false negatives, our accuracy rate was 75%*

For detecting & recognizing the face of criminal in crowd the picture of the person is taken through the camera. The pictures are taken from different direction of the faces ,those picture are then send to the static image repository, then unique data is extracted from that image repository and then template is created from that extracted data. Then created template data get converted into binary form & then it is passed to the central template database. The central database system has various picture into which the template which is created matched with new sample data, and finally the system decides whether the feature that are extracted from new samples are match or a non-match.

Key Words :-Neural networks ;Feature analysis ;Graph matching ;Information theory.

1.INTRODUCTION

In this digital world as everywhere computerized systems are working, we are taken initiative to help the security systems and policemen's for grabbing the criminals and criminal background persons. Automatic System Person Recognition system is the improvement that has taken place in field of identifying and locating criminals in such public places like hotels, lodges, airports etc.

Main system is at another side which is a one type of web application and this application takes snaps of IR cameras and then continuously matching these pictures/images with available databases of criminals. If any image is matching then a system alert is generated and it will be the indication for Policemen's that identified person will be the susceptible one. This system is helpful and advance for our security agencies. It is also saves time, money, travelling expenses of police vehicles.

1.1 CURRENT RESEARCH ON FACE RECOGNITION AND TECHNIQUES AVAILABLE

Before you begin to format your paper, first write and save the content as a separate text file. Keep your text and graphic files separate until after the text has been formatted and styled. Don't use hard tabs, and limit use of hard returns to only one return at the end of a paragraph. Do not add any kind of pagination anywhere in the paper. Do not number text heads-the template will do that for you.

Finally, complete content and organizational editing before formatting. Please take note of the following items when proofreading spelling and grammar:

2.1 Two-Dimensional and Three-Dimensional Techniques

In the early years of the 21st century, we found ourselves continually moving further away from the necessity of physical human interaction playing a major part of everyday tasks. Striding ever closer to an automated society, we interact more frequently with mechanical agents, anonymous users and the electronic information sources of the World Wide Web, than with our human counterparts. It is therefore perhaps ironic that identity has become such an important issue in the 21st century. It would seem that in an age where fraud is costing the public

Billions of pounds every year and even the most powerful nations are powerless against a few extremists with a flight ticket, it is not who we are that is important, but rather, that we are who we claim to be. For these reasons, biometric authentication has already begun a rapid growth in a wide range of market sectors and will undoubtedly continue to do so, until biometric scans are

as commonplace as swiping a credit card or scrawling a signature [4].

2.2 Various categories of facial recognition algorithms

Neural networks.

1. Feature analysis.
2. Graph matching.
3. Information theory.

Face recognition has a number of advantages over

biometrics, it is non-intrusive. Whereas many biometrics require the subject's co-operation and awareness in order to perform an identification or verification, such as looking into an eye scanner or placing their hand on a fingerprint reader, face recognition could be performed even without the subject's knowledge as described by the NSTC Committee [4].

2.3 Face Recognition Techniques

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. Some other applications, such as access to top security domains, may even necessitate the forgoing of the nonintrusive quality of face recognition by requiring the user to stand in front of a 3D scanner or an infra-red sensor [4].

2.3.1 Face Recognition from Intensity Images

Face recognition methods from intensity images fall Into two main categories: feature-based and holistic. An overview of the well-known methods in these categories is given below

3 .Algorithm

3.1The Viola-Jones face detector

The basic principle of the Viola-Jones algorithm is to scan a sub-window capable of detecting faces across a given input image as demonstrated by Ole Helvig Jensen [2]. The standard image processing approach would be to rescale the input image to different sizes and then run the fixed size detector through these images. This approach turns out to be rather time consuming due to the calculation of the different size images. Contrary to the standard approach Viola-Jones rescale the detector instead of the input image and run the detector many times through the image – each time with a different size. At first one might suspect both approaches to be equally time consuming, but Viola-Jones have devised a scale invariant detector that requires the same number of calculations whatever the size. This detector is constructed using a so-called integral image and simple rectangular features reminiscent of Haar wavelets [2].

Fig4. Face detector, Nose detector, Eye detector output

We are using this algorithm to separate different features of Face from the Image. And we are storing these features into a Database with corresponding face.

The scale invariant detector

The first step of the Viola-Jones face detection algorithm is to turn the input image into an integral image. This is done by making each pixel equal to the entire sum of all pixels above and to the left of the concerned pixel. This is demonstrated in Figure

1	1	1
1	1	1
1	1	1

Input image

1	2	3
2	4	6
3	6	9

Integral image

This allows for the calculation of the sum of all pixels inside any given rectangle using only four values. These values are the pixels in the integral image that coincide with the corners of the rectangle in the input image.

The Viola-Jones face detector analyzes a given sub-window using features consisting of two or more rectangles. Each feature results in a single value which is calculated by subtracting the sum of the white rectangle(s) from the sum of the black rectangle(s). Viola-Jones has empirically found that a detector with a base resolution of 24*24 pixels gives satisfactory results. When allowing for all possible sizes and positions of the features total of approximately 160.000 different features can then be constructed. Thus the amount of possible features

vastly outnumbers the 576 pixels contained in the detector at base resolution. Following images are Screenshots from our systems module that is Face Recognition along with name of a corresponding face.

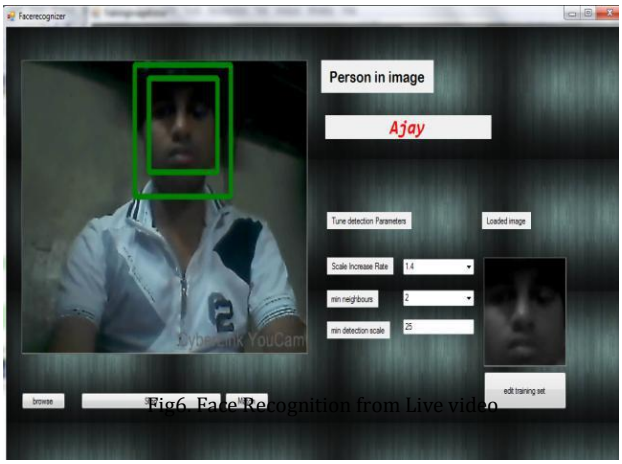

Fig6. Face Recognition from Live video

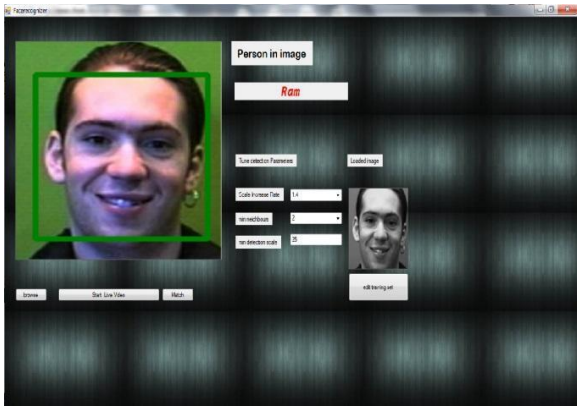

Fig. Face Recognition with Image

4. CONCLUSIONS

This paper presented a smart Automatic Identification Of Criminal Faces In Public Area which is a best solution for criminal identification. By using this system security agencies and policemen's working will be somehow simplify. The successful solution for person recognition is achieved by this system. By using this system criminal database is centrally managed and used for systematic identification of criminals.

REFERENCES

[1] Mahyidin,M.F.Student Attendance Using RFID System. 2008 December 2012;Available

[2] Gatsheni, B.N., R.B. Kuriakose, and F. Aghdasi.Automating a student class attendance registerusing radio frequency identification in SouthAfrica. in Mechatronics, ICM2007 4th IEEEInternational Conference on. 2007.

[3] Tokiwa, Y., K. Nonobe, and M. Iwatsuki. Web-based tools to sustain the motivation of studentsindistance education. in Frontiers in EducationConference, 2009. FIE '09. 39th IEEE. 2009.

[4] Chuo-Ling Chang, Edward Li, Wen, Rendering Novel Views of faces Using Disparity Estimation. Stanford EE368 Spring 2000/2001 Final Project.

[5] W. Zhao, R. Chellapra, P.J. Phillips, A. Rosenfeld,Face Recognition: A Literature Survey, ACM

[6] M.A. Turk, A.P. Pentland. Face RecognitionUsing Eigen faces, IEEE Conference on ComputerVision and

[7] X. Li and S. Areibi, A Hardware/Software Co-design Approach for Face Recognition, Proc. 16th International Conference on Microelectronics, Tunisia, Dec 2004

[8] Mr.C.S.Patil, Mr.R.R.Karhe, Mr.M.D.Jain Student Attendance Recording System Using Face Recognition with GSM Based International Journal of Research in Advent Technology, Vol.2, No.8, August 2014 E-ISSN: 2321-9637

[9] Automated Attendance Management System Based On Face Recognition Algorithms ShireeshaChintalapati, M.V. RaghunadhDepartment of E and CENIT Warangal INDIA 506004

[10] B. K. Mohamed and C. Raghu, Fingerprint attendance system for classroom needs, in India Conference (INDICON), 2012 Annual IEEE . IEEE, 2012, pp. 433438.