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Automatic Face Detection and Attendance of Class Students

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Abstract

Taking attendance within the schools and colleges are being a squander of time and exertion for both the students and courses. Presently days biometric are more utilitarian, they have fingerprint recognition, facial recognition iris filtering recognition voice recognition signature recognition. The attendance system checking as a comparison of manual call and involves a lot of paperwork, making it difficult to look for any information and perform modifications on the student. In the system, there's a parcel of scope for intermediary attendance. To solve this situation, the proposed system has automated the attendance marking prepare by using the Viola-Jones Algorithm face detection technologies. The study presents a modern model in automatic participation organized the system, expanded with computer vision algorithms. The attendance system after detecting all students face and it should be applied some filter on the image to enhancement, face detect and remove the noise on images when capturing all face. This requires a high-end determination of a system in arranging to get the way better results. So, this may run as it were a big database and compare them with the face required. The equipment promises to offer precise comes about and some more explanations announcing system that appears understudy movement and the presents in a class.

1. **Keywords**– Face Detection, Histogram Normalization, Attendance, Image capturing, camera, Viola-Jones Algorithm

الملخص

في المراكز التعليمية كالمدارس و الكليات اصبح تسجيل اسماء الطلاب الحاظرين عمل تكراري و هو سبب لاهدار وقت الاساتذة و الطلاب. في الوقت الحاضر ، يعد استخدام نظام االقياسات الحيوية(Biometric) أكثر نفعا و سهولة في التعرف على بصمة الاصابع و شكل الوجه و الصوت و العين و التوقيع. تحتاج عملية تسجيل حضور الطلاب الى عمل يدوي (manual)، مما يجعل من الصعب البحث عن أي معلومات وإجراء تعديلات عليها. في مثل هذه الانظمة، هناك حدود لمركز تسجيل حضور الطلاب.

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لحل هذه المشكلة، فان النظام المقترح إعداد علامات الحضور باستخدام تقنيات خوارزمية التعرف على الوجه فيولا جونز-(Viola Jones). تقدم الدراسة نموذجًا حديثًا في تنظيم الحضور بشكل تلقائي وتم توسيعه باستخدام خوارزمية رؤية الكمبيوتر (Computer Vision). يقوم النظام بعملية تصفية (filtering) للصور بعد تحديد و تمييز ملامح جميع الطلاب لاجل ازالة التشوهات من الصورة اثناء عملية الالتقاط بواسطة الكاميرة. وهذا يتطلب تحديدًا راسخًا للنظام لاجل الحصول على نتائج أفضل. لذلك ، فان النظام كقاعدة بيانات كبيرة تحتاج الى مقارنة جميع الملامح مع الوجه المطلوب. ان النظام يؤكد على نتائج واضحة و دقيقة تقارير اكثر عن عملية تسجيل حضور الطلاب.

ثوختة

لە ناوەندەکانی خویندنی وەکو قوتابخانەو کۆلیجەکان وەرگرتنی ناوی ئامادەبوونی خوێندکاران لە ناوەندەکانی خوێندندا (قوتابخانەوکۆلێج) بووەتە کارێکی دووبارە وە هۆکاری بەفیڕۆدانی کاتە بۆ مامۆستا و خوێندکاریش. لە ئێستادا بەکارهێنانی سیستمی بایۆمیتری و ناسینەوە لە ڕێگەی پەنجەمۆر و ڕوخسارو دەنگ وبیلبیلەی چاو و سیگنیچە(وێنەی واژوو) وە ئاسانکاری زۆری کردووە. پرۆسەی وەرگرتنی ئامادەبونی خوێندکاران کارێکی زۆری دەستی (manual) پێویستە، کە ئەمەش وادەکات گەڕان بە دوای زانیاری و دەستکاریکردنی کارێکی قورس بێت. وە لەم جۆرە سیستمانەدا، سنورداریەک هە یە لە ناوەندی وەرگرتنی ئامادەبووواندا. بۆ چارەسەرکردنی ئەم بارودۆخە، سیستەمێکمان پێشنیار کردووە بە بەکارهێنانی تەکنەلۆجیایی ناسینەوەی ڕوخسارو بە بەکارهێنانی خوارزمی (Viola-Jones) کە پرۆسەی وەرگرتنی لیستی ئامادەبوان بەشێوەی خودکار (automatic) دەبێت. ئەم توێژینەوەیە مۆدێلێکی نوێ پێشکەش دەکات لە سیستمی ڕێکخستنی ئامادەبووان بە شیوەی خودکاری کە زیاتر فراوان کراوە لە ڕێگەی بەکارهێنانی خوارزمی (Computer Vision) . لەم سیستەمەدا، پرۆسەی فلتەرکردن بەسەر وێنەکاندا جیبەجێ دەکرێت دوای دۆزینەوە و دیاریکردنی ڕوخساری هەموو خویندکارەکان بە مەبەستی لابردنی خاوش لە وێنەکەدا لە کاتی گرتنی بە کامێرە. کە ئەمەش پێویستی بە قەراریکی باش هە یە لە ناو سیستەمەکەدا بۆ ئەوەی ئەنجامێکی باشترمان دەست بکەوێت کە سیستەمەکە وەکو بنکەیەکی زانیاری گەورەیە کە بەراوردی هەموو ئەو ڕووخسارانە دەکات کە پێویستن. وە ئەم سیستەمە دڵنیایی ئەوە دەدات کە ئەنجامێکی ڕوون و دەقیق وە ڕوونکردنەوەی زیاتر دابین بکات لە پرۆسەی وەرگرتنی ئامادەبوونی خوێندکاران.

1. INTRODUCTION

One of those biometric categories is faced with discovery and recognition. Based on the picture, attendances and a few times it valuable for a decision too. Generally, this facial discovery and recognition have diminished the manual work of a human. The image captures from the camera at some point, usually moreover a spilling video from the camera. A Shape that offline or online information, we capture the picture after that applying the face discovery strategies. Face discovery is recognizing the face area and nearness of face in pictures. This research paper presents a recent programme participation administration stamping system, without any impedances through the standard instructing handle. [1]

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The framework can be utilized moreover amid examination sittings or other educating exercises where student attendance is mandatory. This system dispenses with classical understudy recognizable proof equally calling student names or inspecting individual recognizable proof cards, which can't as it interfered with the teaching prepare, however moreover, perhaps upsetting on behalf of understudies amid cross-examination sessions. Instances taking camera capture presently check that picture to database Pictures. Face recognition of distinctive student groups based on the related images of that person image the system requirements to take pictures for before face recognition. In the case in the event that the picture isn't in the database at that point the system store that image as a modern person in the database. Next time the same picture of that unused picture person show up in the Image and recognized the face or else taking as a new picture and storing in database prepare is repeating. [2] [3]

2. LITERATURE REVIEW

In [1] an attendance system which presents a checking computer system, which coordinating computer face detection and faces student recognition program into the method of the present administration. The system program is actualized using a capture device introduced in a class, which filters the classroom, recognizes and extricates all students' faces from the obtained image. When the students' student faces have now been extricated, whole face student matched with an existing database of understudy image and abreast fruitful recognition, a student attendance checklist is created and spurred on a database. This paper issues such as immediate face discovery in situations with different items, face recognized calculations together with social and academic matters with the connected matching systems. [4]

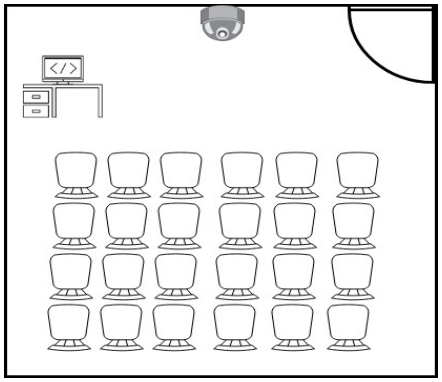

Fig. 1. Class Room Setup [1]

When any person required to pass in the get to a control system, he/she used the radio-frequency identification (RFID) card for taking the card by the non-touch way. The system takes the

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information within the card and in the intervening time, the video camera is begun to require photos of the separable. At that idea, the face can be detected in a moment's time. The personal information within the card is compared to the data from the database and the comparing face data will be gotten. On or off face chance that the personality data and the face information are entirely coordinated with the data from the database, the person will be entered. Otherwise, he/she can't enter the database. The director can do the handle work such as inquiry the registers.

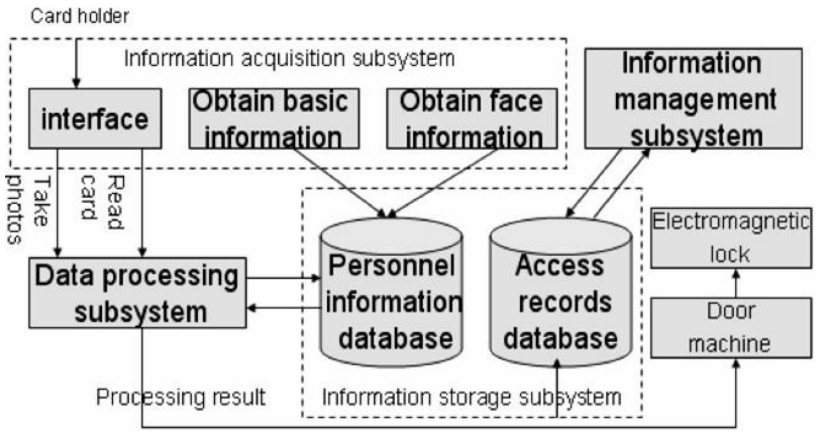

Fig. 2. System of the entire system control [2]

In [5] a technique system in the ear is additionally presented that the digital snapshot of the ear is got and run on the computer. Border caching is performed on this image. From this recognized edge, is lonely an orientation line with regard to which other features are recognized. These extricated highlights are laid in a database in the shape of a vector, each vector compared to a specific image within the database. The system is used for the reason of comparison and choice created, connecting of MATLAB and a few information bases utilizing the Open Database Connectivity (ODBC) Drivers is performed agreeing to which a coordinate is calculated.

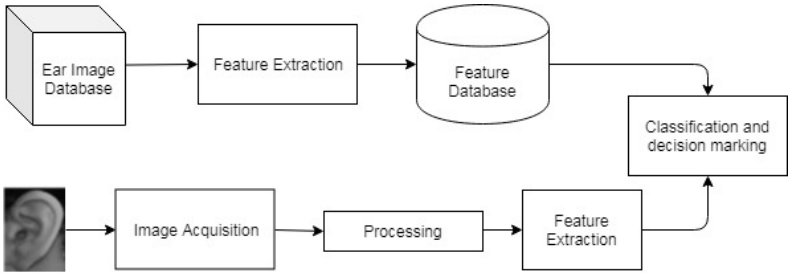

Fig. 3. The system attendance based on ear [3]

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A number of industrial plants linked to Radio Recurrence Identification (RFID) based Participation existing system within the composition. In [6] the authors have proposed an RFID based framework in which understudies run an RFID tag, sort ID card and they should lay that on the card per client to enrol their participation. Suggested Standard - 232 (RS232) is used to put through the arrangement of the data, preparing framework and fascination through the recorded participation from the database. This association may offer ascent to the issuance of false access. An unapproved individual may make use of an approved ID card and bring into the framework.

In [1] A helpful special finger impression gadget has been produced which can be reached out among the understudy put their fingers along with the identifier amid the address time without the lecturer's intervention. This plan ensures a secure technique for setting participation. The issue with this arrangement of assault is that the loss of the gadget amid the address time may occupy the consideration of the understudy.

Digital Image is grouped into two areas: Transform Domain which is also known as a strategy of Frequency Domain and Image Domain also called a procedure of Spatial Domain. Before handling, ought to be a readied picture for preparing, this is a strategy called preprocessing. Transform Domain applies the picture change and control of the calculation, and representations of this system are “Discrete Fourier change, transformation (DFT), Discrete Cosine transformation method (DCT), Discrete Wavelet transformation procedure (DWT)”. In common, Spatial domain methods are separated into: “Least Significant Bit (LSB), Pixel Value Differencing (PVD), Edges Based information Embedding strategy (EBE), Random Pixel Embedding strategy (RPE), Mapping pixel” to conceal data methodology, Naming or availability strategy, Pixel concentration based strategy, Texture-based technique, Histogram shifting strategies. [7]

3. PROPOSED SYSTEM

The process of designing a new system is organizing the characterizes of system architecture such as modelling, interfacing in order to satisfy the system requirements. System design is the critical key hypothesis for the application system in terms of item development. The proposed computerized attendance system can be distributed into three essential modules.

The specified infrastructure in the classroom could be a circling camera situated centrally within the front of the class of students. Utilizing this setup, the camera is skilful to catch the front essence of the understudies' picture. A differing approach is using a camera at the passageway of

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the study hall. Which would exclusively distinguish the faces of every students' incoming the classroom or laboratory? The proposed mechanized attendance system can be divided into three primary modules. The modules and their capacities are defined in this segment. The three components into which the proposed system is separated [8] [9].

A-Image Capturing

The digital image is taken using a segment which is an advanced camera with the link is coordinated with the program, this is settled utilizing the given idea. When the false detection, the system is practicing the skin classification technique, applying this technique enhances efficiency. First of all, there is the skin identification and the remains is only skin pixels, this well is done in the processor as well as the rest of the pixels in the image are fixed to dark, this remarkably enhances the exact of the face recognition procedure. The camera constantly captures pictures along a provided interim, this is done default every five minutes. Until the whole recognized faces are effectively recognized or till the system stops. This shows that in a few instances, e.g., while a font unable to be effectively recognized, the photos going on to be taken by the camera until the lesson wraps up. [10] [11]

B-Face Detection

For face detecting, we can manage it using the object cascading class and we use the b-box method. The spotting of the expression using the object cascading is bought from the most popular facial recognition model Viola Jones. In here, at that place are several objects are present. These are there in the course of small blocks containing them. They are selected through an image and are affecting through each and every block of the image and are checked for overlapping through them. First, we will convert the image of the red blue green to the greyscale picture. The typefaces from the image captured are to be taken in. The captured faces are trimmed into small images of resolution 111x91. It would be approximately 11 KB in size. [11]

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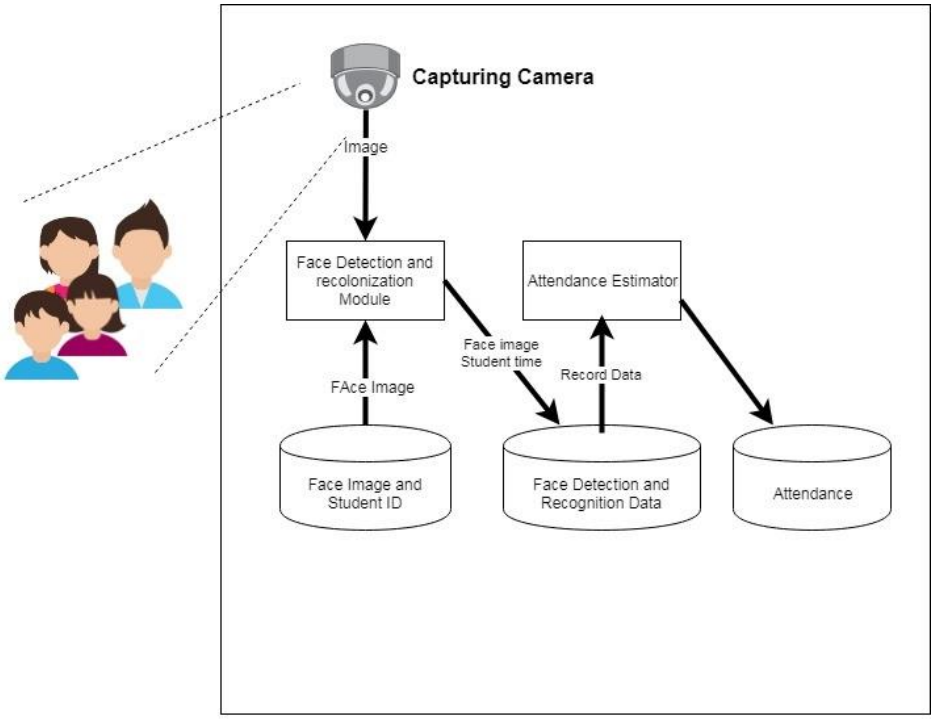

Fig. 4. Image Capturing by the camera

In this process, identifying objects as faces by mistake can be seen as a false positive which was a huge number. But this was not a serious problem for this project because false positive does not effect on the acknowledgment stage.

During this process, the problem faced was the expansive number of a false-positive, such as identifying mistake objects as faces. Because of, a false-positive does not result in a positive conspicuous confirmation among the affirmation stage. This was not a huge issue for us. Since of this, we have brought down the location limit, so all face expressions can be detected.

After a face discovery has been recognized, the square shape encasing this face is modified and orchestrated a brief span later by the go facing acknowledgment module. This square shape converses with a solitary go facing, and subsequent to being cut as an image is exchanged inside the database. Each record exchanged is renamed to have a fascinating ID. [11][12]

C-Face Recognition

The Student face recognition implies to recognize that specific face from a list of students' faces in a database. In a college or schools, upon enrolment, take pictures of each student, and those

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Images are put away in the database. Similar to in student face discovery, the several processing existing calculations utilized to recognize a detect student face.

This algorithm has various drawbacks: it relies upon the scale, poses and the colour of the comparison pictures. In any case, the calculation is exceptionally fast and can look at in a manner of speaking two pictures, thusly we don not Ought to have various photos of an individual to set up our framework.

Since our framework is set up to catch so to speak frontal pictures the stance of the face is not an issue. At the point, when a face is caught in the midst of the face area organize, it is changed over into greyscale. A similar transformation is associated with countenances on our understudy picture database. We besides do establishment subtraction on our photos so different items do not meddle in the midst of the procedure. [12][13]

Another issue is that faces are subject to modification during the time (facial hair, eyeglasses, etc.). At whatever point, we viably perceive a face, a replica of that face is verified inside the database of appearances for that understudy. On the part of the picture, we tend to save the time and date once this picture was taken. Thusly, indeed, if an understudy is steadily changing his appearance (e.g., develops a stubble) the structure is so far talented to recall him/her since it has assorted photographs of a comparable person. On each resulting check for an understudy, the acknowledgment module begins taking a gander at pictures from this database, orchestrated by date in slipping request [14].

This approach was picked for the most recent picture of an understudy on our database is well while in transit to be logically proportional to the current got picture. Clearly, an outrageous change on an understudy's see makes the structure not perceive that specific understudy. To comprehend this issue, we have joined a module, which records each unidentified face and the instructor can physically interface a got face with an understudy from the once-over. This picture is in addition verified in the database, like an overhauled picture of this specific understudy. This manual acknowledgment prepares is executed as it was once. In a subsequent filter, this understudy is perceived normally by this system.

4. System Algorithm

In the part, the identification of the software algorithm of the system is shown. The algorithm includes some different stages such as the first stage is Image acquisition, and the other steps are chronologically arranged as Histogram normalization, Noise removal, Skin classification, Face detection, Face recognition and the last step in the process is the Attendance. At the beginning of the procedure, the picture is captured by the camera. In addition, there is also clarified that

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various lighting states and some noise that are to be omitted within the planning of the mentioned steps. For the differentiating enrichment within the spatial domain, Histogram normalization can be used. To evacuate of clamor in the picture using the middle channel is possible to apply. For the commotion expulsion and smoothing of the images, the other methods are applicable. These methods are low pass filter and FFT, and this channel produces a remarkable result. The explanation and description of individual steps as mentioned earlier and the influences on the pictures at the end of each step is shown with this algorithm in figure [6].

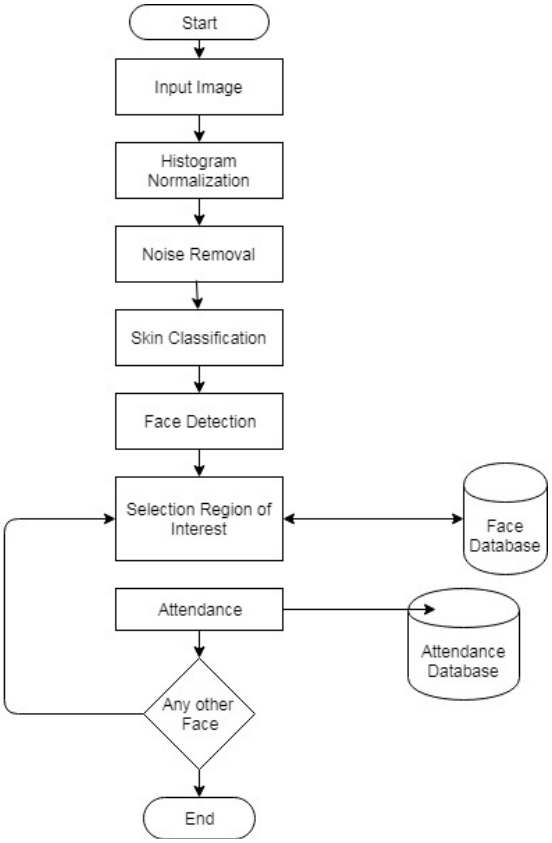

Fig 6: Software Algorithm

4.1 Image Acquisition

The high-quality camera that connected above the whiteboard is used to obtain the image. After every 2 minutes, when the digital camera connected to the digital computer, it takes images and sends them to the computer for the next steps of the process. Figure 7 shows the input picture of a classroom, which is taken by the camera.

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Fig 7. Input image

4.2 Histogram Normalization

The Captured picture now and then have brightness or obscurity in it which ought to be removed for great comes about. To begin with, the Red Green Blue (RGB) image is changed over to the greyscale image for improvement, which is appearing within the below figure 8. [16]

Fig 8. Grey picture of a class of studen

The histogram of the input grey-scale image shown in Figure 9

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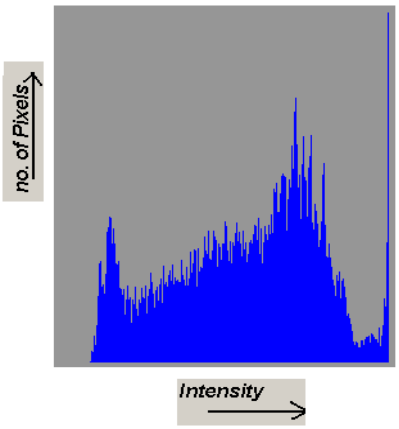

Fig 9: Histogram of Input Image

A normalization histogram is one of the worthy method used for enhancement in contrast within the special space. An example of a histogram normalized image of the input image is shown in figure 7. This method contains algorithms that can recognize different face forms for both men and women such as recognizing faces with a veil or unveil for girls and a boy with a beard or without a beard.

Fig 10: Histogram Equalized Image

This could be effectively noticed that students who are sitting in the back or rear places can be recognized very easily. For image illumination invariant, other techniques also can be used. In figure 11, is the histogram of the input image after the equalization.

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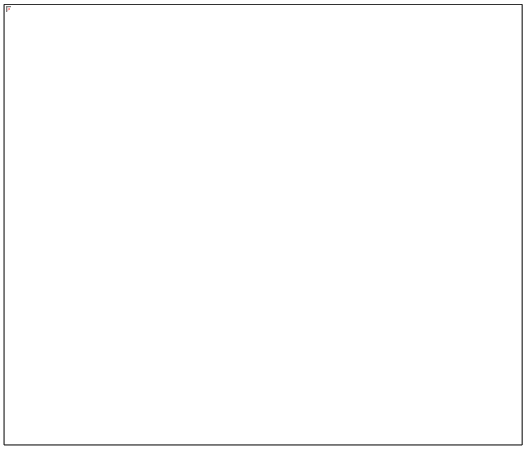

Fig 11: Histogram of the Equalized image

4.3 Noise Filtering

When an image captured from the camera, many noise sources may occur. For this purpose, there are a number of strategies used for removing the noise from the image. One of the choices is a low pass sifting within recurrence domain, whereas this might banishes some significant information from the picture. Therefore, in this system, we have utilized middle filtering, which is utilized to remove clamour in the standardized histogram pictures. [17]

4.5 Face Detection:

As shown in figure 12, all student's faces are detected and marked using a yellow circle.

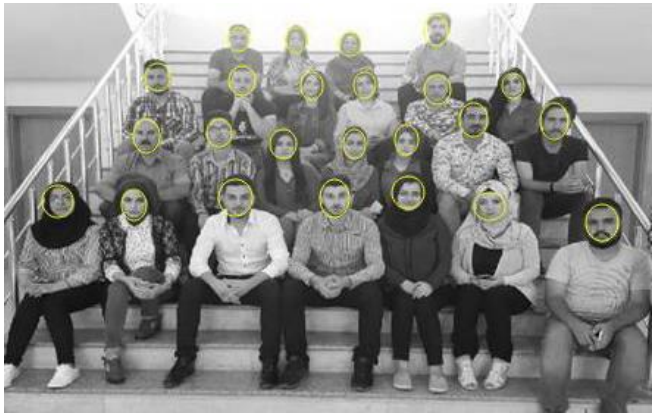

Fig 12: Detected faces of a group of students in greyscale

In figure 10, in the wake of executing the strategy for skin grouping, the disclosure rate of the algorithm improved. In the beginning, the algorithm for face detection used for a variety of

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pictures with different positions of the faces and lighting condition. After that, this algorithm was connected in real time video in order to identify faces.

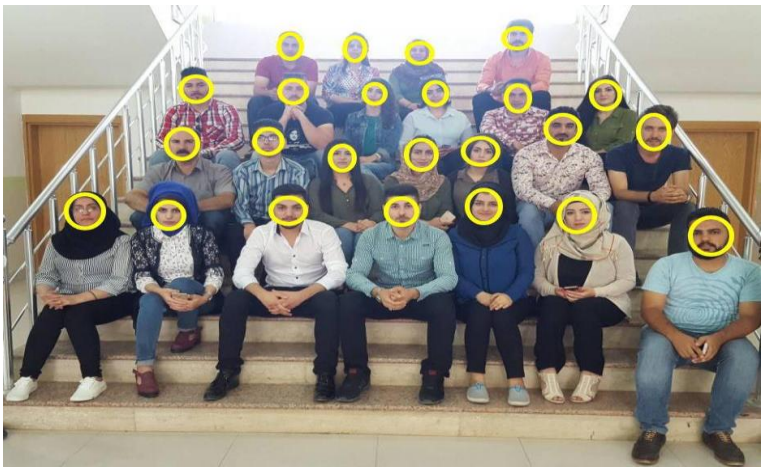

Image 13: Detected faces of a group of students in colour

This algorithm is prepared for detecting faces and then implemented on the whole course-room of students for locating of different and multiple faces inside the image. As shown in image 13, the algorithm can find and detect all faces with a veil. The next step is the process of editing of all faces which are identified after the location of the image is found. In order to improve the speediness of the algorithm, a threading method is used by this algorithm. Moreover, for deeper purposes of face recognition, each clipped picture is referred to a separate string, as shown in figure 14. [16] [17]

Fig 14: Cropped Faces

5. PRIVACY CONCERNS

As referenced as of now, we store picture data on the server. This methodology can frequently raise security concerns, with respect to the security of those photos and get to the level to that server. At whatever direct, one needs to deal with this sort of sensitive data, he should persistently offer proposes to verify data from unapproved get to. In a couple of countries, these security concerns are considered uncommonly genuinely with guidelines set up in their contrasting

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lawmaking bodies. Since the standard framework is principally done to research the points of interest and the likelihood of using face acknowledgment in participation the executives, regardless it does not offer any security insurance. [17]

Nevertheless, in case the framework shows to utilize one needs to actualize a couple of sorts of secure proposes to ensure protection. Using secret word security is one of the premiers, familiar approaches, for this situation, are scrambling information utilizing a one-way work. For this system, along with these lines to encode pictures gotten from the camera and compare those photos and existing (also encoded) pictures on a server. However, since biometric information is prevalent, this strategy isn't achievable. Another method can be used with single directional encryption using a private or public key methodology. This approach, as it was the individual with responsibility for the right key can decrypt the information. [18]

6. SOFTWARE APPLICATION

This part gives a description of a product application that executes the proposed idea. Inside the setting up, the picture is caught and stored inside the database. Moreover, starting there, the system can get it the face character that is showed up in the second picture (Fig. 9) That is a location and recognition. First of all, we got to enrol the person in the database. To do so, we have to donate name and his/her enrolled number to store. [19]

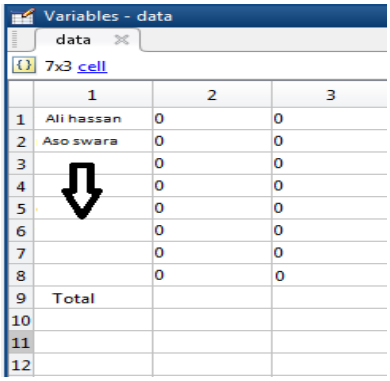

Fig 15: Registration form

Presently we to induce the pictures of the people from the webcam or any other cams accessible like we utilized Logitech webcam here. Select the cam from which we have to be taking the image and begin the camera. The camera is plotted within the axes and we will capture and spare the pictures within the organizer made naturally with the enlisted number we have entered in fig 15. [20][21]

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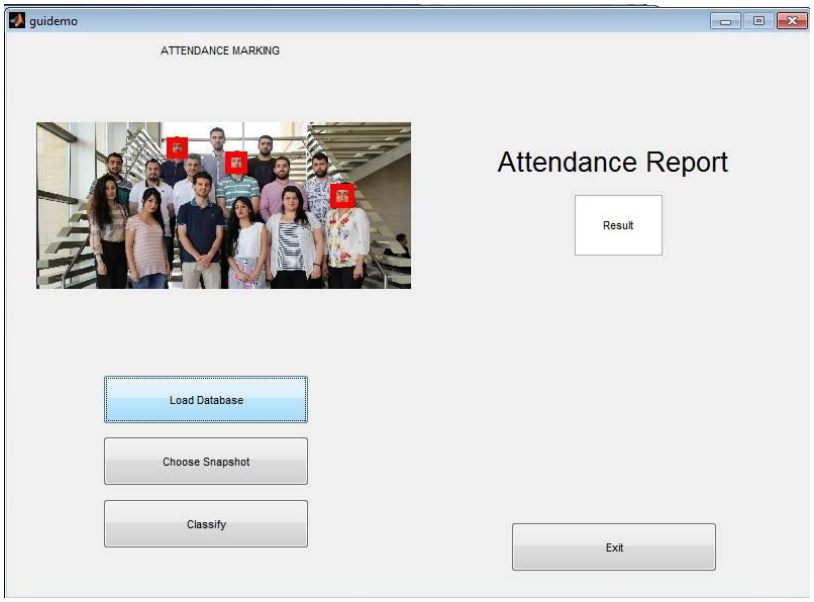

Fig 16: Input image

This is a system detect face for each student and load student image capture to the database after that processing on the snapshot.

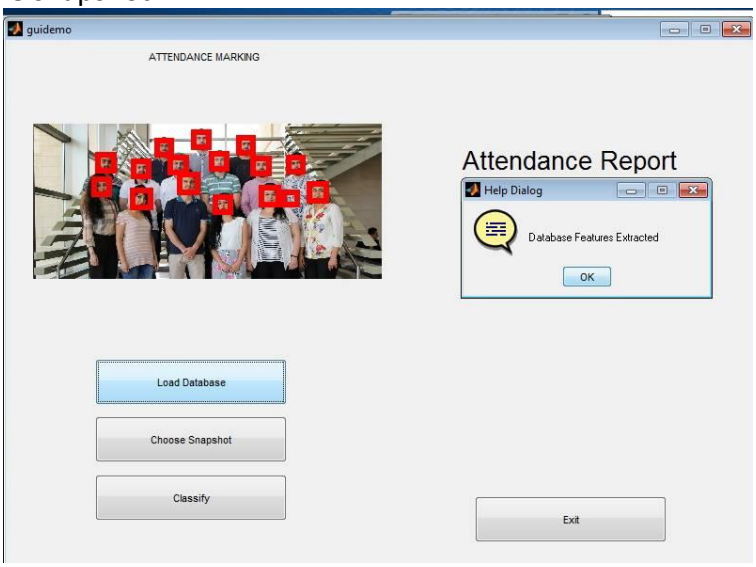

Fig 17: Load image to database

After that click on the "Choose Snapshot" and the camera software and takes the image to give the results checking of the saved database.

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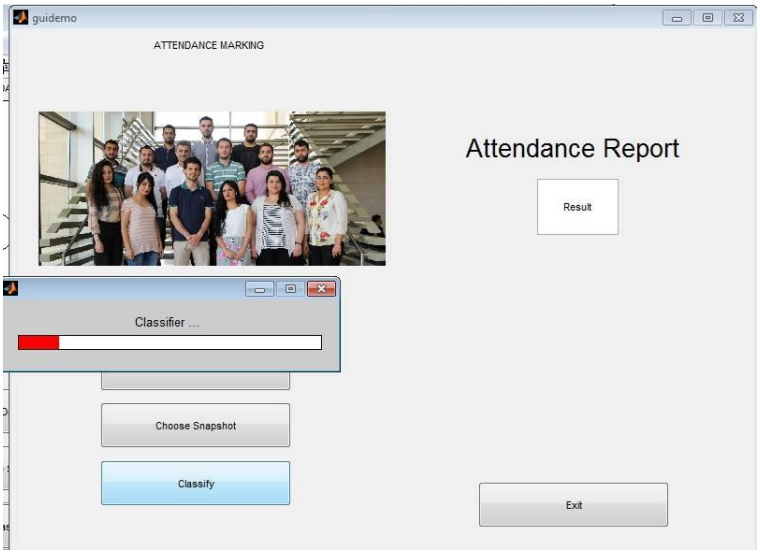

Fig 18: Face Classify

Face recognition systems in arranging to attain superior execution of the system. Destitute lighting conditions may affect picture quality which indirectly debases system performance.

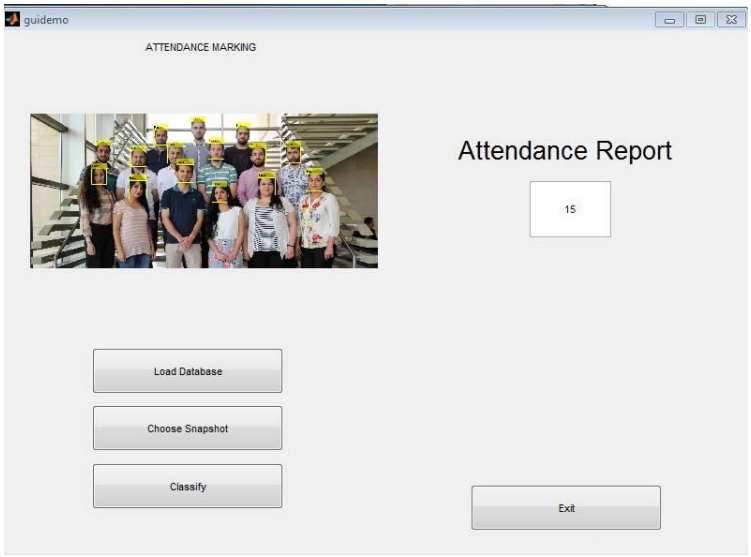

Fig 19: Face recognition

7. Comparison of results

This can be seen from table 1, for the effectiveness and the exactness of the algorithms in various pictures and distinctive gathering of individuals.

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Table1: Results of the algorithm

Algorithm	Percentage Results			
	Veil	Unveil	Beard	Shaved
Face Detection	40%	95%	75%	65%
Face Recognition	2%	85%	63%	60%

(Detection rate) and (recognition rate) can be improved so the number of understudies can be identified and perceived for the individuals who show inside the class. [22]

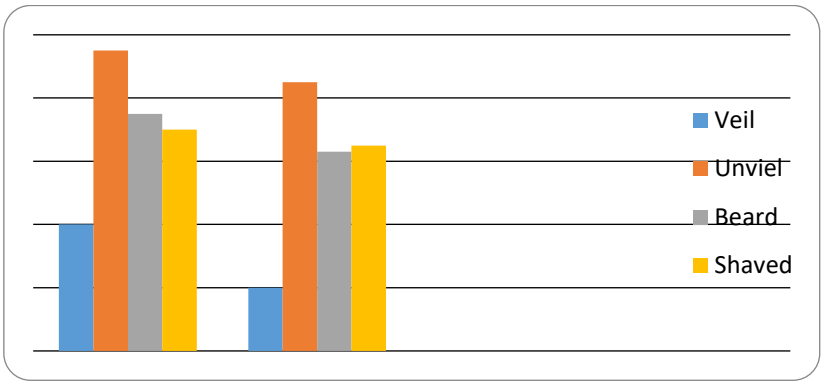

Fig 20: Results of the algorithm

8. CONCLUSION

Capturing the pictures from the camera and applying procedures face location and recognition can diminish the manual work of human and increment the security, taking the choice from this recognition result. Based on this face detection and recognition can utilize in actualize so many applications like automatic attendance system based on face acknowledgment, specialist attendances, security, security, police application like finding a cheater in the picture that offers assistance to catching cheating. In this framework, we have executed an attendance system for a location, section or research facility by which speaker or instructing associate a record student participant. It saves time and effort, especially if it might be a location with many students. The whole system is completed in MATLAB. This participation framework shows up the use of facial

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recognition methodologies for the reason of undergraduate assistance and for the help handle this record of understudy can be used in test related issues.

REFERENCES

[1] Fingerprint attendance system for classroom needs. Mohamed Basheer K P, Raghu C V., Kochi, India: Annual IEEE India Conference (INDICON)., 28 January 2013.

[2] T. Lim, S. Sim, and M. Mansor - "Rd based attendance system", in Industrial Electronics Applications, 2009. ISIEA 2009. IEEE Symposium on, vol. 2. IEEE, 2009, pp. 778782.

[3] S. Kadry and K. Smaili - "A design and implementation of a wireless iris recognition attendance management system", Information Technology and control, vol. 36, no.3, pp. 323329, 2007.

[4]Visar Shehu, Agni Dika, "Using Real-Time Computer Vision Algorithms in Automatic Attendance Management Systems" ITI 2010 32nd Int. Conf. on Information Technology Interfaces, June 21-24, 2010, Cavtat, Croatia.

[5]. Ear Based Attendance Monitoring System Proceedings. Jawale, Mr.Jitendra B. Nagercoil, India: IEEE, 2011. 11973796.

[6] M. Turk and A. Pentland, Eigenfaces for recognition, Journal of Cognitive Neuroscience, 3(1), pp. 7186, 1991.

[7] Hiding Secret Text inside a Dynamic Handwritten Signature as. Fahad Layth Malallah, Ayad Hussain Abdalqadir, Mohammad Aldabbagh, Ammar Waisy. 1, Sulaimanyia: The Scientific Journal of Cihan University – Sulaimanyia, 16, Vol. 1. 2520-7377.

[8] Automated Attendance Management System Based On Face Recognition Algorithms. Shireesha Chintalapati, M.V. Raghunath. Pune: IEEE International Conference on Computational Intelligence and Computing Research, December 2013.

[9]. Face and Head Detection for a Real-Time Surveillance System. Akshara Jadhav, Akshay Jadhav, Tushar Ladhe, Krishna Yeolekar. 01, s.l. : IEEE, Jan -2017, Vol. 04. 2395-0072.

[10] Robust Real-Time Face Detection. Paul viola, michael j. Jones. USA : International Journal of Computer Vision 57(2), 137–154, 2004, 2004. 137–154.

[11] Ming Du, Aswin C. Sankaranarayanan, and Rama Chellappa, Robust Face Recognition from Multi-View Videos, IEEE TRANSACTIONS ON IMAGE PROCESSING, VOL. 23, NO. 3, MARCH 2014.

[12] Security Assurance Using Face Recognition &Detection System Based On Neural Networks. Chandrasekaran, Rahul. Beijing, China: IEEE International Conference on Neural Networks and Brain, 13-15 Oct. 2005. 0-7803-9422-4.

[13] M. Turk and A. Pentland, Eigenfaces for recognition, Journal of Cognitive Neuroscience, 3(1), pp. 7186, 1999.

[14] [8] Harguess, J., Aggarwal, J.K., A case for the average-half-face in 2D and 3D for face recognition, IEEE Computer Society Conference on Computer Vision and PatternRecognition Workshops, pp. 7-12, 2009.

DOI: http://dx.doi.org/10.25098/3.1.3

The Scientific Journal of Cihan University – Sulaimanyia **PP: 31-46**

Volume (3), Issue (1), Jun 2019

ISSN 2520-7377 (Online), ISSN 2520-5102 (Print)

[15] Curran, K., X. Li, et al. (2005). "Neural network face detection." Imaging Science Journal, the 53(2): 105-115.
[16] P. N. Belhumeur, J. P. Hespanha, and D. J. Kriegman.Eigenfaces vs. fisher face: Recognition using class specific linear projection. IEEE Transactions on Pattern Analysis and Machine Intelligence, 19(7):711–720, July 2009.
[17] FloatBoost Learning and Statistical Face Detection. Stan Z. Li, Zhenqiu Zhang. 9, s.l. : IEEE transactions on pattern analysis and machine intelligence, September 2004, Vol. 26.
[18]S. Jeng, H. Y. M. Liao, C. C. Han, M. Y. Chern, and Y. T. Liu, "Facial feature detection using geometrical face model: An efficient approach," Pattern Recognit., vol. 31, no. 3, pp. 273–282, 1998.
[19] Shireesha Chintalapati, M.V. Raghunadh, Automated Attendance Management System Based On Face Recognition Algorithms, 2013 IEEE International Conference on Computational Intelligence and Computing Research.
[20] M. Turk and A. Pentland, Eigenfaces for recognition, Journal of Cognitive Neuroscience, 3(1), pp. 7186, 2009.
[21]. Visar Shehu, Agni Dika, "Using Real-Time Computer Vision Algorithms in Automatic Attendance Management Systems" ITI 2010 32nd Int. Conf. on Information Technology Interfaces, June 21-24, 2010, Cavtat, Croatia.

[22]. RamandeepKaur, P.S. Mann. "Techniques of Face Spoof Detection: A Review" International Journal of Computer Applications (0975 – 8887) Volume 164 – No 1, April 2018.

DOI: http://dx.doi.org/10.25098/3.1.3