



# Face Recognition Data Logging

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**ABSTRACT:** Facial acknowledgment framework assumes a significant job in savvy homes and responsive workplaces. Security is one the most significant worry in the business world. Discovery and acknowledgment of the human face ought to be finished utilizing Haar course Algorithm. Validated client's information ought to be signed in the log document and unauthenticated client's picture will be put away in a record. The log document contains the client's data. Using Haar Cascade calculation, facial acknowledgment has accomplished magnificent execution..

## I. INTRODUCTION

Security is the most significant issues in this day and age. Regardless of the size and structure of the association, with no safety efforts, the whole notoriety of the organization is in question. With biometric personality arrangements, it is important to pay attention to the security perspective. Biometric character the executives is a response for breaking down examples to perceive biometric highlights, for example, fingerprints or face.

The human face assumes an extremely basic job in correspondence. There are diverse static and dynamic highlights that human uses to effectively associate with others and to distinguish them.

Acknowledgment of the face is the key element of this venture. Facial highlights are separated and afterward checked with the current datasets. Haar course calculation is utilized for discovery and acknowledgment of the appearances. Haar Cascade calculation convert the picture into dark scale and afterward does the acknowledgment part. Face Recognition needs to happen to guarantee Authenticate client is given the authorization. Datasets are made by catching the pictures of the client which will be useful in acknowledgment. On the off chance that a client needs to confirmed himself, at that point another dataset ought to be made for that client

Aside from Facial identification and acknowledgment the information logging is likewise done. Information logging can sound muddled, however it is a just procedure of gathering and putting away information over any timeframe. Information Logging helps in Auditing staff and can react to cautions, fortify safety efforts, and follow suspicious movement.

## II. RELATED WORK

The precision of facial acknowledgment framework as a biometric security framework is higher than iris acknowledgment and unique mark acknowledgment, it is broadly received because of its contact less and non- intrusive procedure. Numerous standard papers are concentrated during the procedure and some are referenced beneath

### A. *FACE RECOGNITION USING FISHER FACEALGORITHM*<sup>[1]</sup>:

Face acknowledgment (FR) framework recognizes a human face by coordinating the face with the facial database. It has increased extraordinary advancement in the ongoing time because of upgrade done in plan and learning the highlights and face acknowledgmentmodels.

Discover an individual from his/her picture in an enormous database of facial pictures (for example a police database). These frameworks utilize 64 Deep Neural Network for Human Face Recognition restores the subtleties of the individual being looked.

The proposed thought is for the second kind of frameworks with changing or distinctive facial subtleties, articulations, and edges. It despite everything stays an open issue to locate a perfect facial element which is powerful for FR in unconstrained.

### B. *FACE RECOGNITION USING EIGENFACES*<sup>[2]</sup>:

Individuals are continually moving starting with one specific spot then onto the next spot. Indeed, even while sitting, human squirm and modify their body position, flicker, glance around, and such. For the instance of a moving individual in a static domain, they constructed basic movement identification and following framework, which find and track the situation of the human head. Basic spatial-transient separating is trailed by the non-linearity picture areas that adjustments in the force after some time, so a moving individual "illuminates" in the sifted picture. After edge the



separated picture to be created a paired movement picture, they examine the "movement masses" over period to choose if the movement is brought about by a human moving and to decide headposition.

**C.HUMAN FACE DETECTION ALGORITHM VIA HAAR CASCADECLASSIFIER<sup>[3]</sup>:**

Haar-like component is a square shape which is essentially part into two, three or four square shapes. Every one of the square shape is dark or white. A Haar-course should be prepared with the different positive and negative pictures. The target of this is to remove the mix of the highlights that speaks to a face. While the positive picture contains the article which must be perceived, a negative picture speaks to an image without the item. In respects with the face identification, a positive picture has a human face, and a negative picture doesn't have anything This calculation requires dim scalepictures.

The power of dark scale will be utilized to identify which highlight is spoken to and how it is spoken to. The removed mix of highlights of human countenances from the preparation part will be utilized for identifying faces in an image. To recognize a face in an obscure picture the mix of the highlights will be utilized. The highlights are attempted to be coordinated distinctly in a square of pixels characterized by the scale. Each component of the mix will be coordinated individually in the square. In the event that one of the highlights doesn't show up in the square, at that point it will be halted. The rest of the highlights won't be tried in light of the fact that the framework presumes that there is no face rightnow

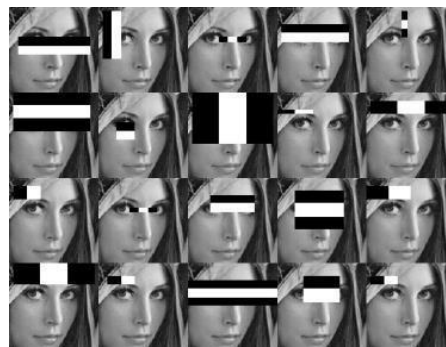


Fig 2(1): Haar cascade

The biggest and the most complex step are teaching the system to recognize human faces. Many pictures are needed in the training the data set, and the system will have to learn how to differentiate human faces.

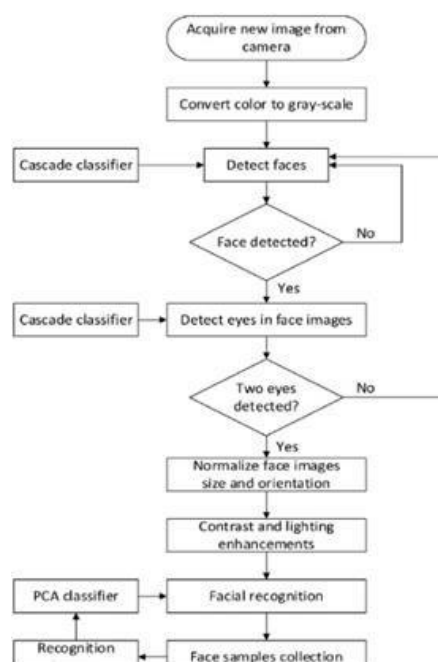


Fig 2(2): Haar Cascade Algorithm Flowchart



Images Captured from the camera is converted into gray scale. If two eyes are detected then the image is extracted and normalized. Face is recognized and samples are collected and recognition is carried out using PCA classifier.

Parameter	Haar-cascade classifier	Eigen faces	Fisher face
Approach	It is an approach where a cascade function is trained from lot of positive and negative images.	Eigen faces refers to an appearance-based approach to face recognition that seeks to capture the variation in a collection of face images.	Fisher faces recognition takes efforts to maximize the separation between classes in the training process.
Detection Accuracy	High	High	High
False Positive rate	Low	Low	Low
Implementation	Easy	Moderately Easy	Moderately Difficult
Training Time	Short	Medium	Medium
Speed	Fast	Moderately fast	Moderately slow

Table 2(1): Comparison of facial recognition’s algorithms

### III.PROPOSED SYSTEM

Manual logs of a particular user are maintained whenever he/she is entering or leaving the premises. It is very tedious work to maintain the log file of every individual. Data can get lost because of natural disaster or catastrophic condition. Extraction and searching the data of any user is very difficult.

Therefore, a system should be built that can overcome these drawbacks. The system should have a mechanism to compare the images and provide the desired result. Also, the data entries of the users should automatically get stored in the log file.

Recognizing a face requires several pictures per subject. Each picture needs to be labeled with the name of the subject. First, the faces have to be detected in the picture. Then, they are pre- processed and used as input for training the machine learning. Finally, a picture can be used in the machine learning to predict the person. Facial recognition is a technique used by computer algorithms to identify or verify a person or an object through images. The objective of facial recognition techniques is to get different features of human faces from images or different people. Before recognizing a face, it is first essential to detect and extract the faces from the original pictures. For recognizing a face, the algorithms compare only faces. Any other element in the picture that is not part of a face deteriorates the recognition. There are several existing algorithms for detecting faces.

The project is divided in three phases: user interface (UI) to interact with, a database for storing data and algorithms for recognizing facial data by appropriate comparison with the existing data in the database.



Fig 3(1): Face Detection



The environment for the project will be on ideal. User Interface will be constructed using python. An algorithm will be using python. First things for getting started with the face detection through libraries like numpy, opencv, matplotlib, dlibetc from python gathering the dummy data set with dummy details of the employees, student etc for the recognition purpose.

There will be two databases one for gathering and storing the information of employees or student with their updated images and second for storing the real time images which will be captured during the video streaming on the entrance of the company or colleges. Facial detection through video streaming will be using the camera module it will detect the faces and store those images in the dataset then it will compare both the dataset and update the log file with timestamp and the details of the employee or student if he/she is the student or employee of the organization then it will show the time designation with image in the log file.

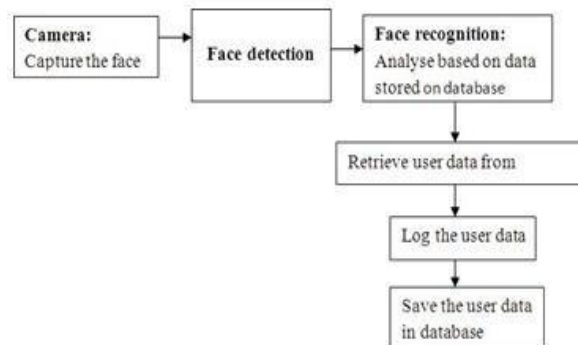


Fig 3(2): Block Diagram

#### IV.RESULTS

- **User Interface**



Fig 4(1): Home Page

The Home Page of the system we look likes the above figure. When creating a new dataset the user have to enter the unique user id and should specify the name so that it can be stored in the database. Take image will capture the photo of the face, train image will train those dataset. Track Image is the recognition part where the images are compared and see whether the user is authenticate ornot.

- **Face Recognition**



Fig 4(2): Face Recognition



The above screenshot specify how the recognition of the face module will look like. As you can see the name of the authenticated user will be displayed on the screen below the box. The track image button of the home page will be used for the facial recognition.

- **Log File**

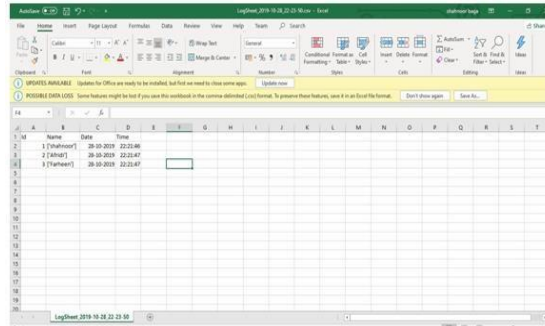


Fig 4(3): Log file

Excel sheet where all the user information will be stored can be seen in the above screenshot. The log file has the columns of the user name, date and time of entry.

**Haar cascade classifier result (Accuracy)**

Database For Images	Correctly detected face Images	False detected face images	Detection rate (%)
Test set 1	360	0	100%
Test set 2	345	25	93.24%

Table 4(1) shows Detection results on test set 1 and test set 2 databases

Datasets	False detection rate (%)
Test set 1	0%
Test set 2	6.76%

Table 4(2) False detection rate

The detected face from simple background images with 0% false detectionrate.

The detected face from complex background images with 6.76 % false detection rate using haar cascade classifier. All faces are not detected accurately in first attempt.

**V.CONCLUSION**

Manual work to log user data is a very time consuming process, which is done automatically with this system. When dataset of 360 images is taken haarcascade algorithm provides more efficiency. User data successfully logged in an excel sheet and unknown users images in different folder. Separate log sheet is created while creating dataset which denotes authorized users. Face recognition systems are going to be used more and more in the future world for security reasons because they provide better performance over other security systems. In our system, we used Haar Cascade Algorithm which has shown an excellent performance for the picture which contains the simple background. The haar cascade approach is used to handle the large data sets haar cascade classifier is the best detector in terms of speed and reliability. Even the image affected by illumination can detect faces resulting in more accuracy using haar cascadeclassifier.

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