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FACIAL RECOGNITION USING USER AUTHENTICATION

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ABSTRACT

Now a days there are more threaten activity occur and face is the crucial part which uniquely identifies a person using their facial characteristics of a person. It is a challenging task and it should not be accurate and it is very impossible to identify the correct persons are responding are not in a large environment and with several branches in a seminar hall so we want to implement an automated attendance system using facial recognition technologies because of it two reasons one is it is the smart way and a faster techniques to detect and identify all background effects like brightness, illumination etc.

KEYWORDS: Biometrics, Face recognition and detection.

1. INTRODUCTION

The person's biometrics is an analyzer through which the person facial and body features are identified. It can be applied many parts like image and film processing and criminal identification where the cctv footage will detect the faces of criminals from the crime scene and compare with the criminal database to recognize them. Moreover in manual process of recording the attendance in a larger environment to mark the attendance is a major task. As this is fastest growing research area and implemented in many domains this facial recognition systems can be implemented in many security systems like attendance in institution and banking sector to record the attendance automatically and in lockers of bank as this automated attendance systems are generally based on biometric data like smart cards and web based ones are widely used in many organizations.

OBJECTIVES

The main objective of this system is-

a. To present an automated attendance system using facial recognition technology in any back ground effects like illumination, brightness etc.,
b. To increase the correctness of present students over a larger environment,
c. To provide a security in recording the attendance of a system in a database to to provide flexibility and correctness to the institution.

2. METHODOLOGY

In this face capture simply defined as the image of students captures and will sent to the detecting the image using paul viola jones algorithm. The students should be captured in such a way that its detects all the features of the image including its back ground effects like illumination, position of person and soon. And will store in a database. It does not detect the properly of students it will default save as empty in the database.

USER INTERFACE LAYER:

User interface layer also called as an capturing face layer in this where the user will capture the frames using a web app that runs on almost all platforms before this an enrollment must be done using the basic details by id or batch as primary key to detect the person.

SYSTEM LAYER:

In this layer where the processing is done that is the face recognition and detection part at the server side using the detection and recognition algorithms.

DATABASE LAYER: It is a last layer and is a centralized database system and it consists of students database during enrollment initially it takes frames which system takes and crop it stores in a database or in a folder and stored images are used during the recognition part the results of the proposed system are compared with the images in the database after successful comparison it will automatically updates the database of recorded students database.

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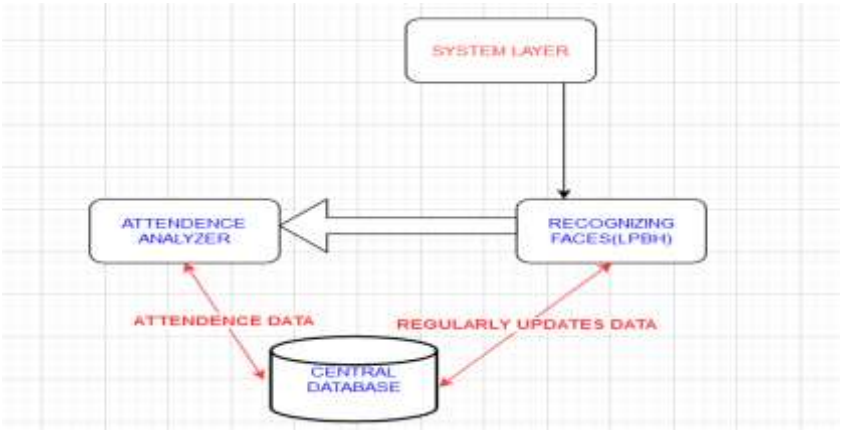

Fig: Database Layer

3. MODELLING AND ANALYSIS

SYSTEM REQUIREMENTS:

SOFTWARE REQUIREMENTS:

- Python environment — pycharm
- Visual studio installer — upto data preferred
- Coding language -- python

HARDWARE REQUIREMENTS:

- Processor - i5(8th generation)
- Ram - 4gb
- Hard disk - 100gb

4. RESULT AN DISCUSSION

FACE DETECTION:

Basically it is a classifier which is used to detect the objects and it is based on the haar wavelet technique which is used to analyze the pixels while encoding of faces as rectangle around the faces and compute the distance between two images and it basically uses a technique called “INTEGRAL IMAGE” to compute the features that are detected and adaboost algorithm can be used to detect the small features around a group of people.

Fig; Haar Cascade Face Detection In Live

ADABOOST ALGORITHM: it is a machine learning based approach and it is used to boost or make the accuracy of the performance of any algorithm like detection of gender is male or female of how much accuracy is recognizing it is how much percentage it can be able to recognize the person.

INTEGRAL IMAGE: Here during enrollment of images when images are scanned it will form a rectangle and inside this the pixels are arranged to reduce the computation of pixels viola jones introduced a techniques calls integral image the value at pixels(x,y) are computed using the pixels at left and above to the x,y. The operation can be described in the following figure FIG:3B

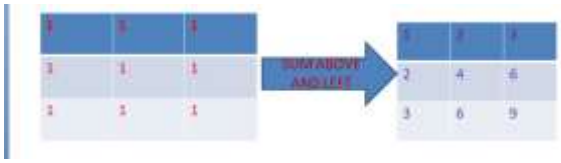

Fig: 3b Operation Of Integral Image

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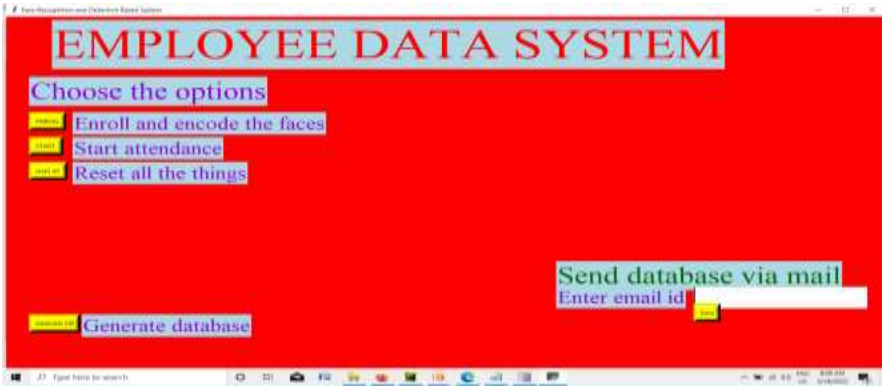
CASCADE CALSSIFIER: Basically it is a machine learning based approach where it is trained from a two sets one is images with faces also called positive images and images without faces also called negative images during capturing one person can capture the images with a new size and changing the position of a person every time during this cascade classifier it mainly concentrates in removing the non faces from a set of faces everytime.

DATA SET GENERATION: here the faces are stored in a database which are detected during enrollment of images including its features along with the name and these images are later used in recognizing the persons and marking the attendance of a person and will save in a database.

The results of the proposed system are shown in FIG where you can choose any options first you need to generate a database and then used to enroll the data and you can click to attendance to record and will save in a database and can the database via email and will save the data and it cannot able to change the data and it has security and it avoids the proxy attendance in a larger environment. and we make unique constraint as college id if the id is already enrolled it will not enroll again and will give the error already exists and unique constraint failed and in FIG: 5A you can see the attendance data in a database and will save the data in a database and can be able to easily filter.



Fig; Home Page Of System

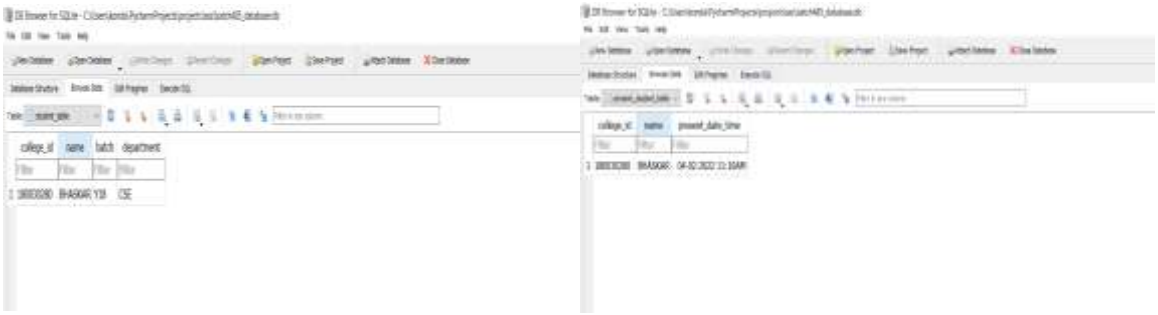


Fig: Attendance In A Database

5. CONCLUSION

From the above analysis we found that the machine learning techniques to make the attendance system more accurate and it is a cost effective which only requires a camera and it is secure as only users or teachers only can manipulate the records and easy for the users and it is a user friendly system.

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