"BIOMETRIC ATTENDANCE SYSTEM USING FACIAL RECOGNITION"

Ms. Pranjal P Waghunde[1]

Zeal College of Engineering and Research Pune
Student in Information Technology
Savitribai Phule Pune University Maharashtra

Mr. Akshay A Sabale[3]

Zeal College of Engineering and Research Pune
Student in Information Technology
Savitribai Phule Pune University Maharashtra

Ms. Manali P Tayde[2]

Zeal College of Engineering and Research Pune
Student in Information Technology
Savitribai Phule Pune University Maharashtra

Mr. Yashpal B Sawant[4]

Zeal College of Engineering and Research Pune
Student in Information Technology
Savitribai Phule Pune University Maharashtra

Prof. Amarnath S. Chadchankar

Zeal College of Engineering and Research Pune,   *Asst. Prof Information Technology Department*

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Abstract - *This paper represents a type of automated system enabled by the Class Biometric Register System (OBCARS). This program is designed to address the issues of registered papers that are in the wrong place and / or torn in various classrooms in higher education institutions. The system is designed to provide an effective and efficient classroom tracking system that avoids the presence of impersonation among students, and facilitates the counting of student records. Biometric information includes similarly, within the open concept of calculation, biometric behavior that is contrary to what was previously expected of the data. Balanced balances are obligatory due to differences in biological symptoms, actions within and within humans. On the basis of the student's presence in the classroom, attendees will be produced by the program. The student's face is recognized and saves the response to the database automatically by program.*

***Key Words* : Face Recognition, Attendance system and Bio-metric, etc.**

1.INTRODUCTION:

Face recognition is one of the few biometric methods that involves the beauty of precision and low distortion. For this reason since the 70's, facial recognition has received the attention of researchers in fields ranging from security and image processing to computer visuals. Facial recognition is considered to be an aid to multimedia information processing environments. Traditionally, meetings are hand-held in the classroom using the attendance registers provided to faculty members. But it is a time-consuming process. Also, it is very difficult to convince students individually in a large classroom, whether they are present or not. The proposed program shows how face recognition is used to automatically take a student using Python, how to save faces in a database and how to find missing listings.

Determines whether the face photo of any given person is similar to any of the faces stored in the database. This problem is a challenge to solve automatically because of various possible changes in the image, such as facial expressions, aging, and even lighting. Among the different biometric techniques facial recognition may be unreliable but there are several advantages over others. The program appears to be useful in a variety of areas such as security and access control, intelligence services, police controls and an attendance management system. The various techniques for marking attendance are:

1) Signature based System

2) Fingerprint based System

3) Iris Recognition

4) RFID based System

5) Face Recognition

Among the above strategies, Face Recognition is natural, easy to use and does not require assistance with the subject being tested. Here is a list of several related issues that are resolved step by step:

1) Capturing a picture and understanding all the faces on it.

2) Concentrate on one face at a time and understand that even if a face is turned in a strange direction or in bad lighting, it is still the same person.

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3) Discover various facial features that can help distinguish you from anyone else's face. These features can be eye size, nose, face length, skin color, etc.

4) Compare these distinctive features of that face to all human faces that we already know to find a person's name. The human brain is made to do all of this automatically and quickly. Computers cannot do this kind of high-level scope, so we need to teach or schedule each step to introduce a different face to the system. The facial recognition system is divided into two categories namely verification and identification. Face verification is a 1: 1 match that compares the face image with the face image of the template, which is required. Controversy, facial identification problem is a 1: N comparing image of question face.

2. LITERATURE SURVEY

1. Aadhaar Based Biometric Attendance System Using Wireless Fingerprint Terminals.

Narra Dhanalakshmi; Saketi Goutham Kumar; Y Padma Sai.

Published in: 2017 IEEE 7th International Advance Computing Conference (IACC)

In this paper, two different methods are suggested to verify fingerprints during validation. The first method uses a data center created by the organization itself and the second method uses the Aadhaar Central Identification Repository (CIDR). Wireless finger terminals are used to capture and store student attendance records in device data and update them on a server data domain. SMS notifications are sent to students and their parents in the event of a failure, absence or shortage of attendance.

Limitation: Aadhar Data may not be available and also fingerprint based system has its own drawbacks.

2. A web enabled secured system for attendance monitoring and real time location tracking using Biometric and Radio Frequency Identification (RFID) technology.

Srinidhi MB ; Romil Roy

Published in: 2015 International Conference on Computer Communication and Informatics (ICCCI)

The main idea of this paper is to create a safe and secure web-based security monitoring system using Biometrics and Radio Frequency Identification (RFID) Technology based on multi-component design, on both computers and smartphones.

Limitation: Students can exchange their RFID cards.

3. Real-Time Online Attendance System Based on Fingerprint and GPS in the Smartphone.

Lia Kamelia; Eki Ahmad Dzaki Hamidi; Wahvudin Darmalaksana; Afit Nugraha

Published in: 2018 4th International Conference on Wireless and Telematics (ICWT)

The aim of the study was to create an online system that is a combination of fingerprint modules and GPS. The ZFM-20 fingerprint module is used as the main installation of the system and the security tool as an entry point throughout the system. To determine the location of the user and send it to a smartphone, using the GPS Module. The existing Arduino module in the system will send a text message to the affected parties with user location details automatically.

Limitation: It is a fingerprint based system and has its own disadvantages.

4. Design and Implementation of a Student Attendance System Using Iris Biometric Recognition.

Kennedy O. Okokpujie; Etinosa Noma-Osaghae; Olatunji J. Okesola; Samuel N. John; Okonigene Robert.

Published in: 2017 International Conference on Computational Science and Computational Intelligence (CSCI)

In this paper, the iris of the human eye is used as a biometric. After enrolling all attendees by keeping their details and their unique iris template, the program was designed to automatically capture attendees by taking a picture of each viewer, viewing the user's iris, and searching matches in the generated database.

Limitation: This system is not cost effective.

5. Development of an Online Biometric-enabled Class Attendance Register System.

Victor Oluwatobiloba Adeniji; Mfundo Shakes Scott; Nomnga Phumzile.

Published in: IST-Africa 2016 Conference Proceedings Paul Cunningham and Miriam Cunningham (Eds) IIMC

International Information Management Corporation, 2016 ISBN: 978-1-905824-55-7.

In this paper, the program is designed to record student attendance on both lectures and tests with the help of Fingerprint. With the system, student attendance records are controlled online as Administrators and Instructors can view and modify student attendance data through a Web browser.

Limitation: It is a Fingerprint based system which has its own disadvantages.

3. PROBLEM STATEMENT:

Development of a windows based prototype model for biometric attendance system using face recognition using python programming language.

OBJECTIVES:

1. To detect faces.

2. To mark attendance.

3. To check defaulter list.

4. MOTIVATION:

Recently, image processing extracting useful information from digital photography has played a unique role in the detection of technological advances. It focuses on two functions namely, enhancement of human translation image information, final image upload data, transmission and representation of independent machine vision. And people are starting to use digital cameras as never before with the advent of smart phones and closed circuit television.
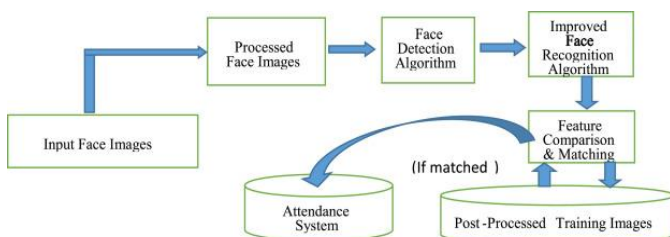
5. PROPOSED SYSTEM:

Fig.1: Proposed system architecture.

The proposed system is a student biometric visitation system using face recognition. Face detection has been extensively researched in the last few decades. It is a specific case of the acquisition of an object that determines the size of the candidate's face in the image. It is a process of building

a system by providing input that contains images that contain faces and training the distinction to identify the face in the image. The main focus of this program is to reduce the false standard and thus increase the accuracy.

6. ALGORITHM:

The main idea of Principal Component Analysis (PCA) is to reduce the size of the data set including many related variables, either more or less, while maintaining variability in the dataset, to a higher level. The same process is performed by changing the dynamics in a new set of dynamics, called as key elements (or more simply, PCs) and orthogonal, ordered in such a way that the retention of existing variations of the original dynamics decreases as we go down in sequence. Thus, the first major part retains the complete diversity that existed in the original parts. The eigenveters of the covariance matrix are key elements, which is why they are orthogonal.

7. EXPECTED RESULTS:

1. Face Recognition
2. Marking Attendance
3. Defaulter Detection
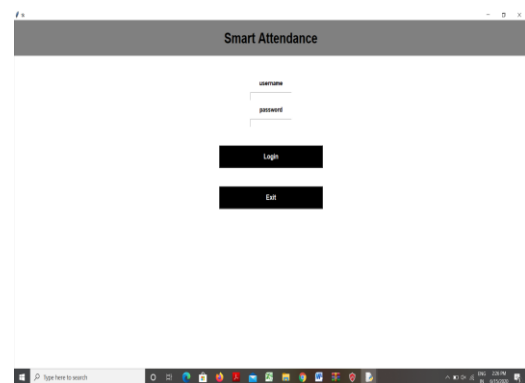
8. OUTCOME:

Figure 8.1: Admin Login Page

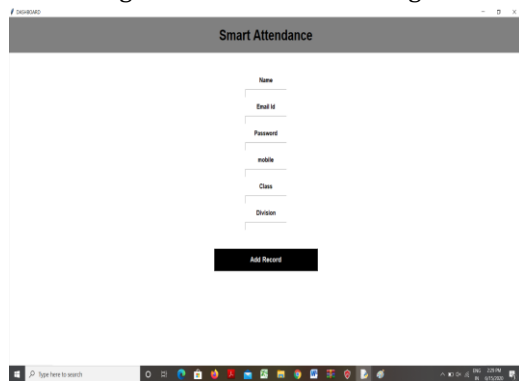Figure 8.2: Admin Home Page

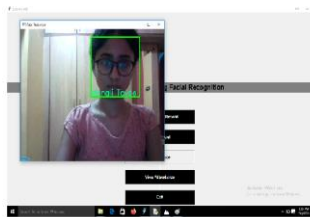Figure 8.3: Admin Add Student Record
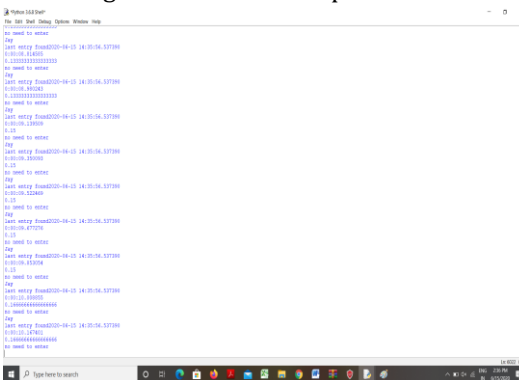

Figure 8.4: Student Capture Face

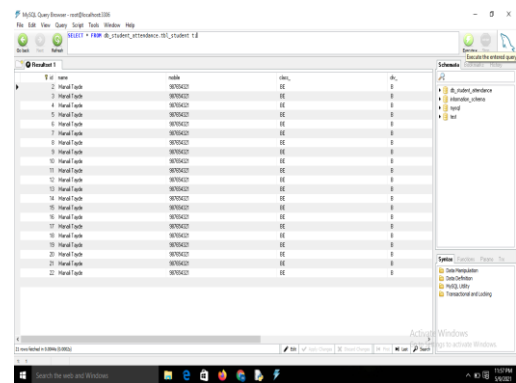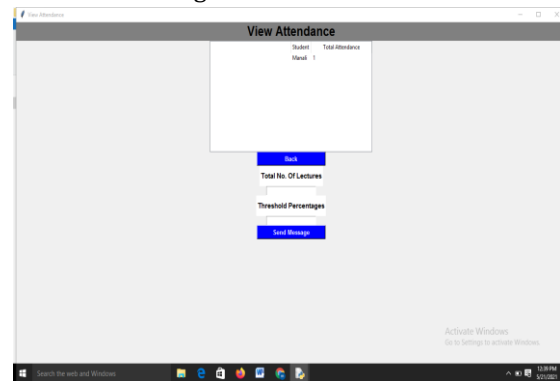Figure 8.5: Student Identified

Figure 8.6: Database

Figure 8.7: View Attendance

9. ADVANTAGES:

1. Ease in maintaining attendance.
2. Reduced paper work.
3. Automatically operated and accurate.
4. Reliable and user friendly.
5. Increased productivity.

10. APPLICATIONS:

1. To verify identities in Government organizations.
2. Enterprises.
3. Attendance in Schools and colleges.
4. To detect fake entries at international borders.
5. Industries.

11. CONCLUSION & FUTURE WORK:

In this system we will use a lesson plan, class or laboratory where a teacher or teaching assistant can record students. It will save you time and effort, especially if it is a talk with a large number of students. The Automated Attendance System is designed to reduce barriers to the traditional system (manual)

This system demonstrates the use of photo processing techniques in the classroom. This program can not only help the attendance, but also improve the institutional interest.

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