Lokmanya Tilak College of Engineering, Navi Mumbai

Computer Engineering and technology

(Artificial intelligence and machine learning)

Mini Project Presentation

S.E. (CSE AIML) Sem - IV

2022-23 Even

Face Attendance System

Group members:

57. Ashish Yelonde

61. Tanvi Kathole

64. Abhishek Chaudhari

68. MisbaYadgiri

Name of Project Guide:

Prof. Chitra Wasnik

Presentation Outline

- Abstract
- Introduction
- Literature Survey
- Limitation of Existing system or Research gap
- Problem Statement and Objective
- Scope
- Proposed System
- Analysis/ Algorithm /Framework
- Design Details
- Methodology
- Experimental Setup (details of database, validation, s/w and h/w setup)
- Conclusion
- References

ABSTRACT

- A face attendance system is an automated system that uses facial recognition technology to track and record attendance.
- The system captures images of individuals' faces and analyzes their facial features to identify them and record their presence.
- It is an efficient and reliable method of tracking attendance, reducing administrative costs and improving accuracy.
- The system involves hardware, software, and database components, which work together to capture and analyze facial images, store attendance records, and generate reports.
- Appropriate measures must be taken to protect individuals' biometric data and prevent unauthorized access to attendance records.

INTRODUCTION

- A face attendance system is a computerized system that uses facial recognition technology to track the attendance of individuals.
- The face attendance system has several advantages over traditional attendance systems.
- First, it eliminates the need for physical time cards or sign-in sheets, making the process more efficient and less prone to errors.
- Second, it can help prevent fraud, such as employees signing in for each other.
- Third, it can provide real-time data on attendance, allowing managers to make quick decisions based on accurate information.
-

LITERATURE SURVEY

Here are some key findings from a literature survey of face attendance systems:

Accuracy: Studies have shown that face recognition technology used in attendance systems is highly accurate. The error rate is low, and the systems can detect faces even in low light conditions.

Efficiency: The use of a face attendance system can save time and effort compared to traditional attendance systems.

Security: The use of biometric authentication in face attendance systems enhances security by eliminating the possibility of proxy attendance.

Integration: Face attendance systems can be integrated with other software and hardware, such as payroll and HR systems, to create a complete attendance management

LIMITATION OF EXISTING SYTEM

There are several limitations of existing attendance systems when compared to face attendance systems:

1)Manual attendance systems: Traditional attendance systems, such as manual sign-in sheets or time cards, are prone to errors and can be easily manipulated.

2)RFID-based attendance systems: Radio-frequency identification (RFID) based attendance systems use cards or badges to track employee attendance.

3)Biometric attendance systems: Biometric attendance systems, such as fingerprint or iris scanners, are more accurate than traditional attendance systems..

PROBLEM STATEMENT & OBJECTIVE

Problem statement: Traditional attendance systems have several limitations, such as inaccuracies, fraud, and high costs. These limitations can result in decreased productivity and increased costs for organizations.

Objective: The main objective of a face attendance system is to provide an accurate, convenient, and cost-effective method for tracking employee attendance.

The specific objectives of a face attendance system may include:

Improving accuracy: By using facial recognition technology, the system can accurately identify employees and mark their attendance without the need for physical time cards or sign-in sheets.

Preventing fraud: Face attendance systems can help prevent fraud by eliminating the possibility of employees signing in for each other or using fake cards or badges.

Enhancing security: By using facial recognition technology, the system can enhance security by identifying and tracking individuals entering and exiting a facility.

SCOPE

The scope of a face attendance system is primarily in the domain of attendance management, especially for large organizations or institutions where keeping track of attendance is a time-consuming and cumbersome task.
Some examples of where face attendance systems may be used include:

Educational institutions: Schools, colleges, and universities can use face attendance systems to record student attendance, monitor classroom attendance, and track the attendance of faculty and staff.

Corporate organizations: Large companies can use face attendance systems to track employee attendance, monitor work hours, and manage payroll more efficiently.

Government agencies: Government agencies can use face attendance systems to monitor attendance of employees, including law enforcement agencies.

Hospitals: Hospitals can use face attendance systems to monitor staff attendance, ensuring that the required number of doctors, nurses, and other medical personnel are present.

Overall, the scope of a face attendance system is to provide an efficient and

PROPOSED SYSTEM

A proposed face attendance system would typically consist of the following components:

Hardware: The hardware components of the system include a camera or cameras capable of capturing high-quality images of people's faces, and a computer or server to process the images and perform facial recognition.

Software: The software components of the system would include algorithms for face detection, face recognition, and attendance tracking.

Database: The system would store attendance records in a database, along with the corresponding biometric templates for each individual. This database would be used for generating attendance reports and for future analysis.

User Interface: The system would have a user interface that allows authorized personnel to access attendance records and generate reports.

ANALYSIS / ALGORITHM / FRAMEWORK

The analysis, algorithm, and framework of a face attendance system typically involve the following steps:

- **Face Detection**: The system starts by detecting the presence of a face in the image captured by the camera.
- **Face Recognition**: Once a face is detected, the system compares the facial features of the individual to the biometric template stored in the database.
- **Attendance Tracking**: If the face matches the stored template, the system records the attendance of the individual. This information is stored in the database and can be used to generate attendance reports.
- **Accuracy**: To ensure accuracy, the system may use techniques such as multi-angle facial recognition, which captures multiple images of the face from different angles, to improve the accuracy of the biometric template.
- **Security**: The system may also incorporate security measures such as encryption to protect the privacy of individuals and prevent unauthorized access to attendance records.

DESIGN DETAILS

METHODOLOGY

The methodology of a face attendance system typically involves the following steps:

- **Requirement Analysis:** The first step in developing a face attendance system is to identify the requirements of the system, including the number of individuals to be tracked, the frequency of attendance tracking, the level of accuracy required, and any other specific needs of the organization or institution.
- **System Design**: Based on the requirements identified in the analysis phase, the system is designed, including the hardware, software, and database components.
- **Development and Testing**: The next step is to develop and test the system, which involves programming the software, configuring the hardware, and integrating the different components of the system.
- **Deployment**: Once the system is developed and tested, it is deployed in the organization or institution.
- **Monitoring and Maintenance:** After deployment, the system is monitored to ensure it is operating as expected, and any issues are identified and addressed promptly.

EXPERIMENTAL SETUP

The experimental setup of a face attendance system typically involves the following components and steps:

- **Hardware:** The hardware components of the system include a camera or cameras capable of capturing high-quality images of people's faces, and a computer or server to process the images and perform facial recognition.
- **Software**: The software components of the system include algorithms for face detection, face recognition, and attendance tracking.
- **Database**: The system should have a database to store attendance records and biometric templates for each individual. The database should be set up and configured appropriately for the system.
- **Validation**: Once the system is optimized, it should be validated to ensure it meets the requirements of the organization or institution.

CONCLUSION

In conclusion, a face attendance system is an efficient and reliable method of tracking attendance that uses facial recognition technology to identify individuals and record their presence. The system involves a combination of hardware, software, and database components, which work together to capture high-quality images of individuals' faces, analyze their facial features, and track attendance in real-time.
The implementation of a face attendance system has many benefits, including improved accuracy and efficiency, reduced administrative costs, and increased security. The system is also convenient for users, as they do not need to carry physical identification cards or sign-in sheets.
Overall, a well-designed and implemented face attendance system can provide an effective and secure method of tracking attendance, saving time and effort for organizations and institutions.

REFERENCES

- Liu, H., Li, J., & Li, Z. (2019). An efficient face recognition based attendance system using deep learning. International Journal of Advanced Computer Science and Applications, 10(6), 439-445.
- Singh, S., Mishra, S., & Mishra, A. (2020). Development of face recognition based attendance system. International Journal of Advanced Research in Computer Science and Software Engineering, 10(5), 467-474.
- Li, X., Li, L., Li, Y., Li, J., & Guo, Y. (2021). A real-time face recognition-based attendance system. Journal of Ambient Intelligence and Humanized Computing, 12(3), 2463-2474.
- Sankar, S., & Deepa, G. (2020). A review of face recognition techniques for attendance system. In 2020 IEEE 2nd International Conference on Computing Methodologies and Communication (ICCMC) (pp. 1050-1054). IEEE.

Thank You!