**GOVERNMENT**

**POLYTECHNIC COLLEGE**

**ATTINGAL**

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**PROJECT REPORT**

REPORT ON

**FACE RECOGNITION ATTENDANCE SYSTEM AND**

**MESSAGING**

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**CERTIFICATE**

Certified that this is a bonafide report on FACE RECOGNITION ATTENDANCE SYSTEM done by Abhinav ,ADIN ,ADARSH ,AKASH ,AJITH ,ADWAITH in partial fullfilment for the award of Diploma in Computer Hardware Engineering from the director of Technical Education,Kerala during the academic year 2023-2024

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**1.ABSTRACT**

In the contemporary era, technological advancements have revolutionized various aspects of

our lives, and one such area is attendance management. This paper introduces an innovative

solution, an Automated Face Recognition and Attendance System with integrated messaging

functionalities, designed to streamline and enhance the traditional attendance tracking process.

The proposed system leverages state-of-the-art facial recognition algorithms to accurately and

efficiently identify individuals, offering a secure and non-intrusive means of authentication.

The system employs deep learning techniques to extract and analyze facial features, creating a

unique biometric template for each individual. Through the integration of advanced computer

vision algorithms, the system ensures robustness in handling diverse lighting conditions, facial

expressions, and pose variations. This adaptability enhances the system's reliability and

effectiveness in real-world scenarios.

The attendance system is designed to operate in both academic and corporate environments,

providing a seamless and automated process for tracking attendance. By replacing manual

methods with automated face recognition, the system reduces the likelihood of errors,

eliminates the need for physical cards or biometric devices, and significantly accelerates the

overall attendance management process. In educational institutions, this system proves

invaluable by not only automating attendance tracking but also fostering instant

communication between educators and students or parents. Similarly, in corporate settings, it

streamlines the attendance management process while offering a quick and effective means of

disseminating information.

Key features of the system include real-time face detection and recognition, attendance

logging, and reporting functionalities. The captured attendance data can be easily integrated

with existing databases or management systems, facilitating effortless record-keeping and

analysis. Additionally, the integration of messaging capabilities enhances the system's utility,

allowing administrators, teachers, or supervisors to communicate seamlessly with attendees.

This research contributes to the evolving landscape of biometric attendance systems by

introducing an integrated solution that combines accuracy in attendance tracking with effective

communication channels. The Automated Face Recognition and Attendance System with

messaging capabilities stands as a testament to the potential of technology to not only optimize

routine tasks but also enhance overall organizational communication.

**2.INTRODUCTION**

Attendance is prime important for both the teacher and student of an educational

organization. So it is very important to keep record of the attendance. The

problem arises when we think about the traditional process of taking attendance

in class room. Calling name or roll number of the student for attendance is not

only a problem of time consumption but also it needs energy. So an automatic

attendance system can solve all above problems.

Facial recognition and attendance management systems revolutionize traditional

methods by seamlessly combining biometrics and technology. Leveraging facial

features as unique identifiers, these systems accurately record and monitor

individuals' presence, enhancing efficiency in various sectors. The integration of

sophisticated algorithms ensures swift and reliable identification, eliminating the

need for manual tracking methods. While this innovative approach offers

convenience, concerns regarding privacy and ethical implications persist. This

introduction sets the stage for exploring the multifaceted landscape of facial

recognition in attendance management, acknowledging both its potential benefits

and the imperative need for responsible implementation.

1. **LITERATURE SURVEY**

Traditionally attendance was taken manually which is very time consuming and often leads to human error. Additionally , there are many uncertanities towards the sources of the attendance records which in fact most of the attendance records are not retreived from the actual situation . the old method that uses paper sheets for taking student attendance can no longer be used . Based on the research there are many solutions that areexisting to solve this issue

* 1. **ATTENFACE: A REAL TIME ATTENDANCE SYSTEM USING FACE RECOGNITION**
* **The attendance system is crucial for maintaining discipline and ensuring quality education**
* **Traditional methods of attendance taking, like roll calls and signatures, are time-consuming and inefficient.**
* **Advancements in technology provide an opportunity for an automated system using face detection.**
* **The system utilizes major technologies: 1) Object detection and localization, 2) Face detection, and 3) Face recognition.**
* **The core of the system is the face recognition algorithm, such as the Viola-Jones framework using Python.**

* 1. **CLASS ATTENDANCE MANAGEMENT SYSTEM USING FACIAL RECOGNITION**
* **Face recognition tech automates attendance, marking a significant advancement.**
* **Replaces time-consuming roll number methods, saving time and money by reducing manpower**
* **Demonstrates a deep understanding of the algorithm for accurate user recognition.**
* **Crucial in various sectors, preventing proxy attendance and requiring multiple technologies.**
* **Challenges include occasional failure in facial detection, identification issues, and the impact of external factors like lighting and face position.**
  1. **ATTENDANCE MANAGEMENT SYSTEM USING FACE RECOGNITION**
* **Face recognition in attendance system enhances efficiency and reduces manual effort.**
* **It ensures secure and accurate attendance tracking, minimizing proxy attendance risks.**
* **HOG method detects human faces in images, and a Python script positions faces without distortion.**
* **128 facial points extracted with high accuracy are stored for face recognition in a data file.**
* **Internal face comparison computes Euclidean distance, matching faces with a 60% threshold.**
* **Upon identification, Python generates roll numbers, and the system creates an attendance table with name, roll number, and date.**
  1. **ATTENDANCE SYSTEM USING FACIAL RECOGNITION**
* **Despite facial recognition advancements, many classrooms still use pen -and-paper attendance.**
* **Real-time implementation is limited due to high costs associated with Al -based attendance systems.**
* **Deep Learning, a key domain, enables machines to self-train using input datasets and learning algorithms**
* **Attendance is crucial for both students and teachers, and deep learning tech automates detection and record-keeping.**
* **The technology focuses on imparting knowledge-oriented technical innovation in educational settings.**
  1. **ATTENDANCE SYSTEM USING FACE RECOGNITION**
* **Face recognition is crucial in various sectors for security, authentication, and identification.**
* **Despite lower accuracy compared to other biometrics, face recognition is widely used for its contactless nature.**
* **The goal is to replace time-consuming manual attendance systems with an efficient face recognition-based approach.**
* **The system comprises four phases: dataset creation, face detection, face recognition, and attendance updation**
* **Face detection and recognition use Haar-Cascade classifier and Local Binary Pattern Histogram algorithm.**

1. **PROPOSED SYSTEM**