



Automated Attendance System Using Face Recognition

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ABSTRACT

Due to the rapid growth in the technology all the work is depend on the digital elements in this generation. In every field the all data is managed in form of digital data. So to manage records in department we had developed this model. With help of this model all teachers can easily manage and store the data and manual attendance will reduce .

Keywords: Teachers, Face Recognition.

INTRODUCTION

The technology aims in imparting a tremendous knowledge oriented technical innovation these days. machine Learning is one among the interesting domain that enables the machine to train itself by providing some datasets as input and provides an appropriate output during testing by applying different learning algorithms. Nowadays Attendance is considered as an important factor for both the student as well as the teacher of an educational organization. With the advancement of the machine learning technology the machine automatically detects the attendance performance of the students and maintains a record of those collected data. In general, the attendance system of the student can be maintained in two different forms namely, Manual Attendance System (MAS) and Automated Attendance System (AAS).

LITERATURE SURVEY

The literature surrounding automated attendance systems employing face recognition technology offers a multifaceted view of the advancements, challenges, and implications of these systems. A significant portion of the literature focuses on the technological advancements in facial recognition algorithms. Research by scholars like Li et al. (2019) and Zhang et al. (2020) delves into deep learning approaches for enhancing the accuracy and robustness of facial recognition systems. These studies contribute to the continual refinement of algorithms, addressing issues such as variations in lighting, facial expressions, and occlusions, thus improving the overall performance of attendance systems.

Effectiveness and accuracy are central themes in the literature, with numerous studies evaluating the reliability of facial recognition-based attendance systems in real-world scenarios. Hu et al. (2018) and Chen et al. (2020) investigate factors influencing system accuracy, such as pose variations and environmental conditions. Their findings shed light on the strengths and limitations of facial recognition technology, guiding efforts to optimize system performance and mitigate potential challenges.

Privacy and ethical considerations represent a critical aspect of the literature on automated attendance systems. Researchers like Garfinkel et al. (2019) and Acquisti et al. (2020) explore the privacy risks associated with facial data collection and storage, emphasizing the importance of robust privacy safeguards and regulatory frameworks. These studies underscore the need for ethical deployment practices and transparent policies to protect individuals' privacy rights while leveraging facial recognition technology for attendance tracking.

PROBLEM STATEMENT

The problem statement for an automated attendance system using face recognition revolves around the need to streamline and modernize the traditional attendance-taking process prevalent in educational institutions and organizations. The existing methods often involve manual entry or paper-based systems, leading to inefficiencies, inaccuracies, and time-consuming administrative tasks. The aim of implementing an automated attendance system using face recognition technology is to address these challenges by providing a more efficient, accurate, and convenient solution for tracking attendance.

PROPOSED SYSTEM

The proposed system is an automated attendance system leveraging face recognition technology to enhance efficiency, accuracy, and convenience in tracking attendance. The system aims to streamline the attendance-taking process by automating the identification and recording of individuals' attendance based on their facial features.

SYSTEM DESIGN



Status	Student ID	Timestamp
present	Shravani Dhenge	01/04/2024 8:09
Absent	Namarata Khot	01/04/2024 8:09
Absent	Shravani Dake	01/04/2024 8:09
Absent	Samiksha Patil	01/04/2024 8:09
present	Shravani Dhenge	01/04/2024 10:48
Absent	Shravani Dake	01/04/2024 10:48
Absent	Samiksha Patil	01/04/2024 10:48
Absent	Namarata Khot	01/04/2024 10:48
present	Shravani Dake	01/04/2024 10:50
present	Shravani Dhenge	01/04/2024 10:50
present	Samiksha Patil	01/04/2024 10:50
Absent	Namarata Khot	01/04/2024 10:50

CONCLUSION

In conclusion, the attendance system developed using Python demonstrates an effective approach to automating attendance tracking and identifying defaulters based on predefined criteria. By leveraging Python's built-in modules such as `csv`, `pickle`, and `datetime`, along with object-oriented programming principles, the system achieves robustness, scalability, and maintainability. The system's core functionality involves loading attendance data from a CSV file, identifying defaulters based on the number of absences exceeding a specified threshold, and generating a defaulter list CSV file with relevant information. Through systematic testing, including basic functionality tests, identify defaulter tests, edge cases tests, and boundary tests, the system's correctness and reliability are ensured across various scenarios.

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