WALCHAND COLLEGE OF ENGINEERING, SANGLI

(Government-Aided Autonomous Institute)

"Dual Recognition Attendance System"

Submitted By

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Introduction

The Dual Recognition Attendance System is an innovative approach to tracking the attendance of students using both facial recognition and RFID scanning technologies. The system is designed to make the attendance system more efficient, accurate, and secure than traditional methods.

In this project report, we will discuss the design, implementation, and testing of a Dual Recognition Attendance System that uses both facial recognition and RFID scanning technologies.

Literature Survey

- Face Recognition System - Prof. S.G. Jasmine

  In this paper, after experimenting several techniques all techniques are working well face recognition. Face Recognition Systems is based on face recognition. This system can be used to identify unknown people. In real time scenarios, PCA outperforms other algorithms. The future work is for the recognition of the algorithm.

- Review of RFID Based Attendance System , Prof. D.D.Dighe

  The proposed system can provide a new, accurate, and less cumbrous way of taking student attendance in school and shift the instance of student‘s lecture attendance monitoring in the classroom. A low cost RFID Based Attendance System prototype was successfully developed.

Proposed Work

The implementation of the Dual Recognition Attendance System is done using Python and various libraries such as OpenCV, Pillow, and face recognition. The system is divided into two modules, an RFID scanner, and a facial recognition module.

RFID is Radio Frequency Identification:

RFID or Radio Frequency Identification is an automatic identification method that uses wireless non-contact radio frequency waves in which data is digitally encoded in RFID tags or smart labels which can be read by the reader through radio waves.

Facial Recognition Module:

The facial recognition module uses OpenCV and Pillow libraries to capture and compare images. The system captures an image of the individual's face using the webcam and compares it with the saved images to verify their identity. If the individual's face matches the saved images, their attendance is recorded.

The Dual Recognition Attendance System is tested by simulating attendance using a database of saved images of students. The system is tested by scanning the RFID on the ID card and taking an image of the individual's face to verify their identity. The attendance is recorded, and the data is saved in a database.

Objective

The dual recognition attendance system has several objectives that it aims to achieve, including:

1. Accurate attendance tracking: The primary objective of the dual recognition attendance system is to accurately track employee or student attendance. The system uses facial recognition and fingerprint recognition technologies to ensure that attendance is marked only for the person who is present.
2. Fraud prevention: The system is designed to prevent fraud and cheating by employees or students. The use of both facial and fingerprint recognition technologies makes it difficult to falsify attendance records, thus promoting transparency and accountability.
3. Time-saving: The dual recognition attendance system is a fast and efficient method of tracking attendance. It eliminates the need for manual attendance marking, reducing the time taken for the process and increasing productivity.

Overall, the dual recognition attendance system aims to improve attendance tracking accuracy, reduce fraud, save time and costs, provide real-time monitoring, and enhance security for organizations.

Methodology

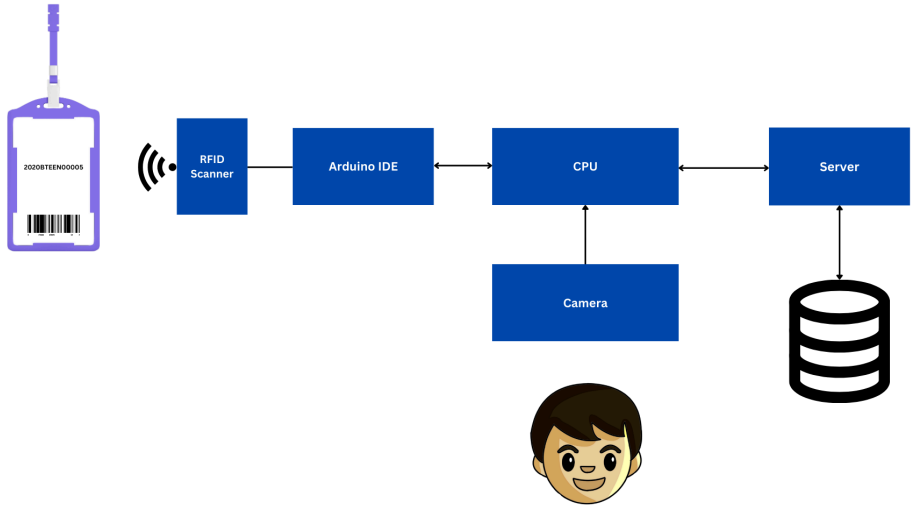
Attendance marking with conventional method has been area of challenge.The growing need of efficient and automatic technique of marking attendance using face recognition and RFID scanning technologies.

This methodology aims to develop an automated system that records students attendance by using facial recognition and RFID scanning.Here faces will be recognized using facial recognition algorithms.

The image will be compared against the existing stored record and then attendance is marked in database accordingly.The proposed system is implemented with four phases such as image capturing,segmentation of image and face detection,face comparison and recognition,updating attendance in database. The original database containing images of students is created by taking live real time video of students,splitting video into frames,converting gray scales and storing only faces of students as images.Here software used for splitting video into frames is Open-CV.

RFID(Radio Frequency Identification) is one of the solid and quick method for recognizing material article.In this framework when card brought near to RFID module it reads card data and contrasts and information in program memory and show corresponding students name on the card.

Block Diagram



Expected Outcomes:

1. It will provide convenient way to mark attendance
2. Organiser will able login and mark attendance and this will be mailed to organiser

References

- **https://www.academia.edu/42839944/Automatic_light_fence_with_alarm_A_project_report_0n_Electrical_and_Electronics_engineering**
- **https://ieeexplore.ieee.org/document/9269237**
- **https://unibrary.com/content/design-and-construction-of-automatic-fence-light-controller/**