



JB INSTITUTE OF ENGINEERING & TECHNOLOGY

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Smart Attendance System

Presented by

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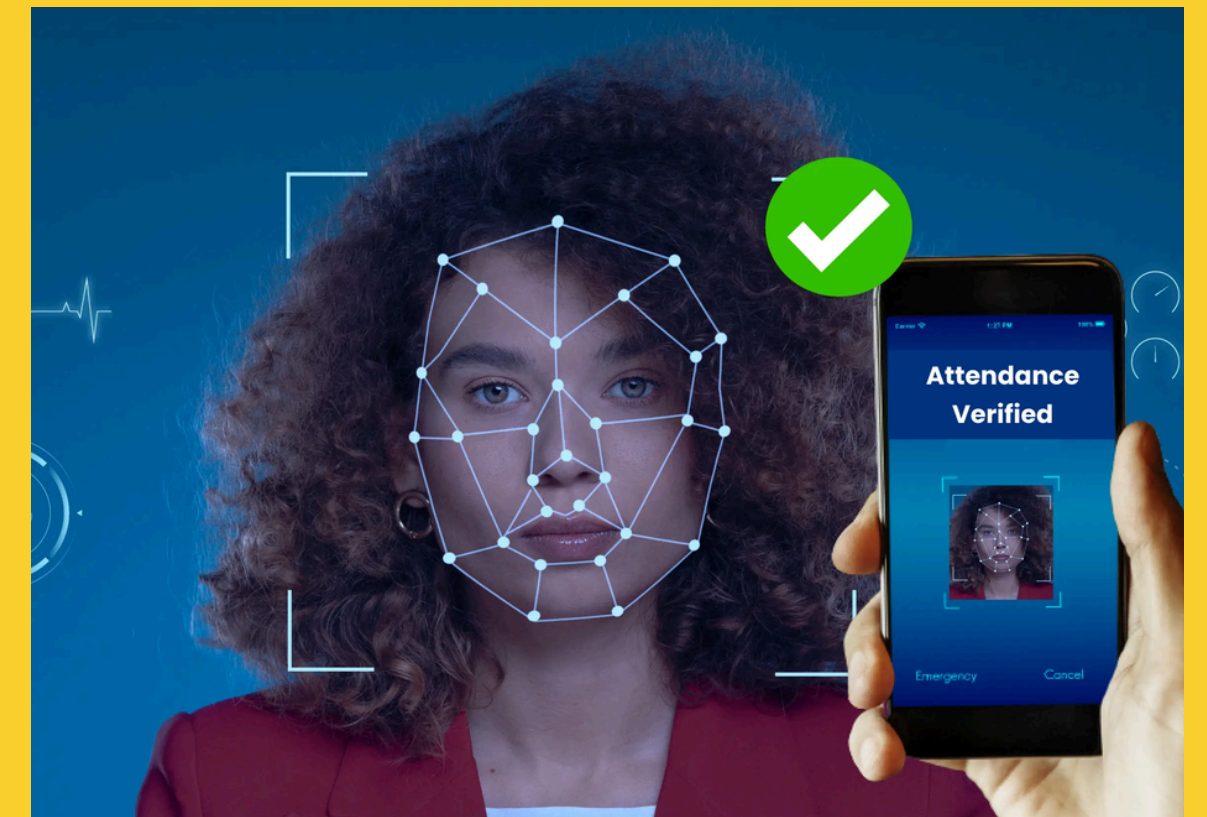
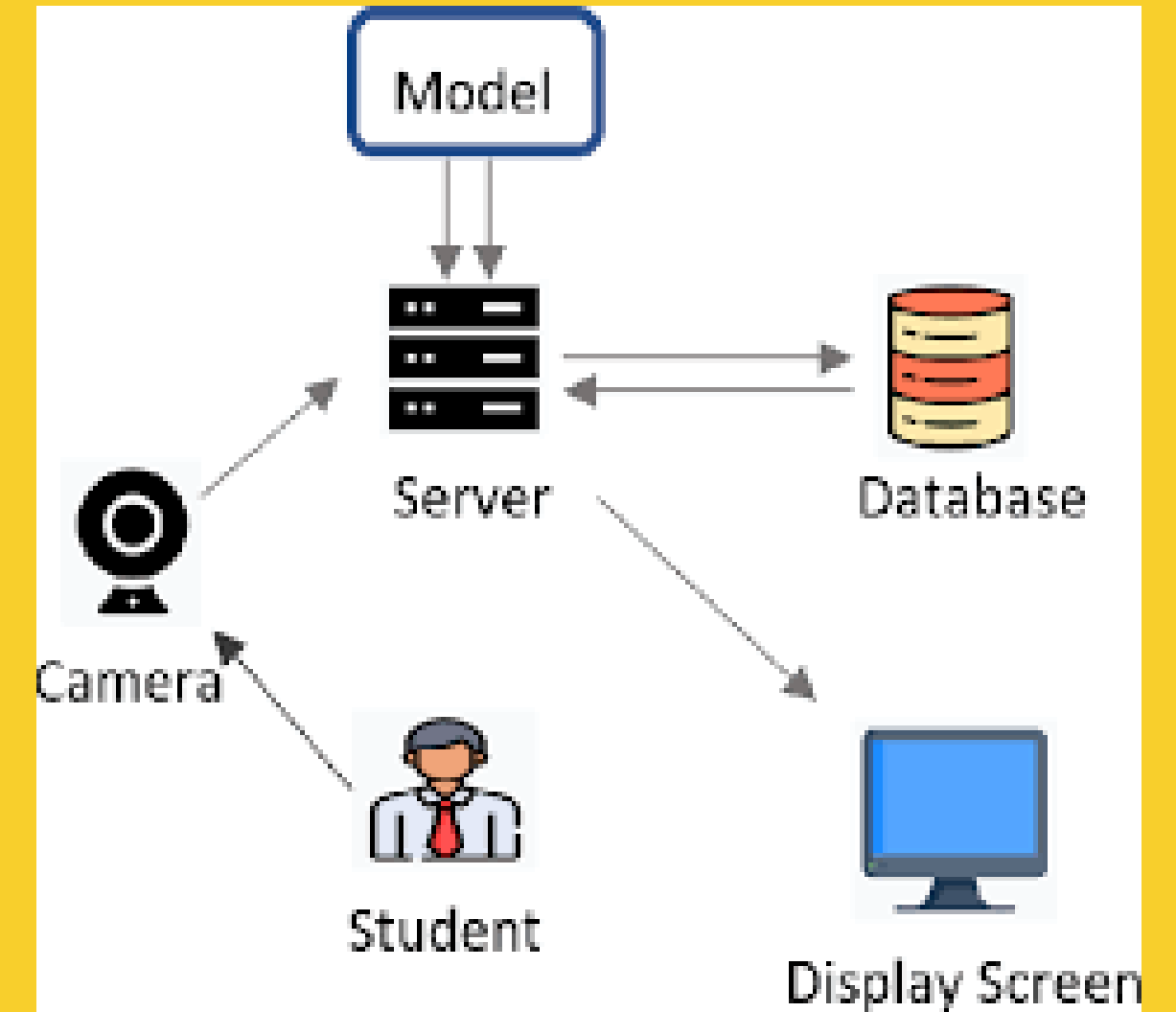
ABSTRACT

This project presents a Flask-based smart attendance system using face recognition and speech feedback. It leverages `dlib` and `face_recognition` libraries for real-time face detection and recognition, enabling administrators to enroll students by capturing images. During attendance sessions, the system captures live video, detects faces, matches them against enrolled students, and marks attendance. A speech synthesis module provides real-time attendance feedback. Key features include error handling, multithreading for speed, and a dashboard for attendance records. This system enhances attendance management with reliable face recognition and user-friendly interaction, suitable for educational and organizational settings.



INTRODUCTION

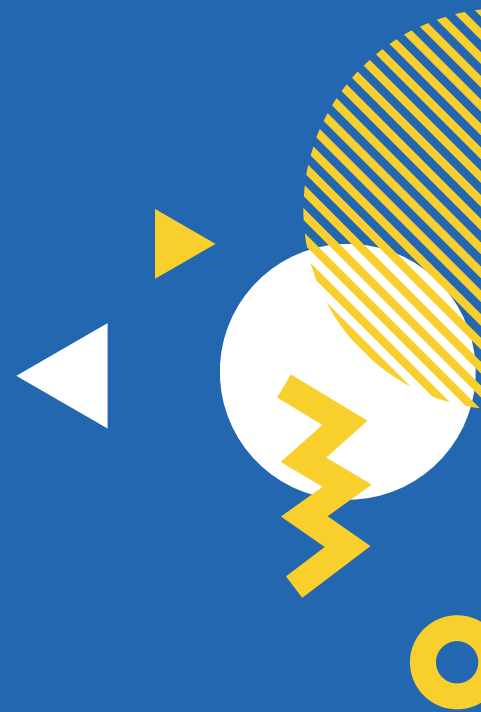
This project introduces a smart attendance system built with Flask and face recognition technologies to automate attendance marking based on facial detection and recognition. Using dlib and face_recognition libraries, it enables real-time face detection and comparison with enrolled students' images stored securely. The system features a user-friendly interface for enrollment and real-time attendance monitoring via webcam feeds. It includes speech feedback upon successful attendance marking and a robust admin dashboard for managing attendance records. Designed to enhance efficiency and accuracy, this system addresses traditional attendance management challenges with advanced machine learning algorithms and web technologies, ensuring reliable and streamlined attendance tracking in educational and organizational contexts.



OBJECTIVE

The primary objective of the smart attendance system is to create a robust and efficient solution for automating attendance marking using facial recognition technology. Key goals include:

- Accuracy Improvement
- Real-time Attendance
- User Interface Enhancement
- Attendance Management
- Scalability



SYSTEM REQUIREMENTS

Hardware Requirements:

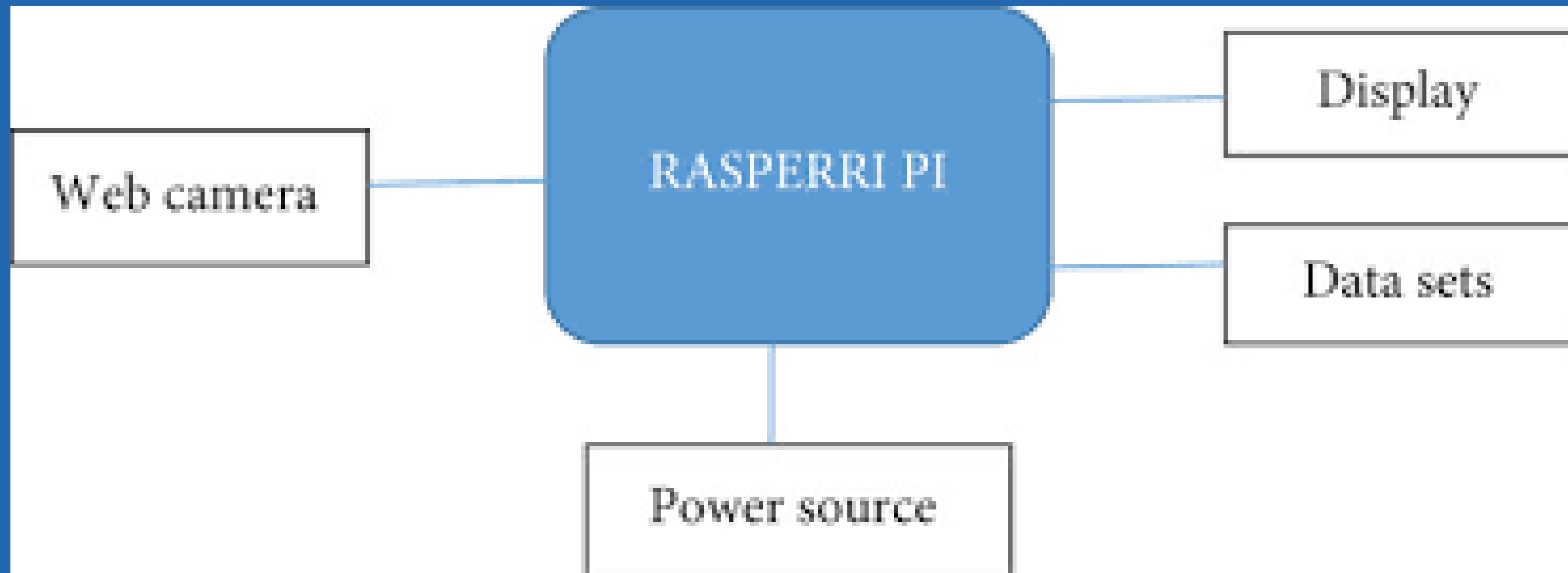
- 4Gb Ram
- 512 GB SSD/HDD
- Intel core i3 10th Generation CPU
- Standard keyboard, Mouse and Monitor

Software Requirements:

- Windows Operating System 8 or above
- Edge or Chrome Web Browser
- Notepad++
- Anaconda Navigator
- Frontend: HTML, CSS
- Backend: Python




SYSTEM DESIGN





SYSTEM MODULES

- Data Collection Module
 - Train / Test Split
 - Pretrained Model Integration Module
 - Face Detection Module
 - Face Recognition Module
 - Attendance Marking Module
 - User Interface Module
 - Database Management Module
 - Speech Feedback Module
 - Enrollment Module
 - Settings and Configuration Module
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CONCLUSION

The smart attendance system employing facial recognition technology represents a significant advancement in attendance management. By leveraging machine learning algorithms and real-time facial detection capabilities, the system enhances accuracy and efficiency in marking attendance. It offers seamless integration with existing educational or organizational infrastructures, providing administrators with reliable attendance data and reducing manual workload. The system's ability to provide real-time feedback and notifications ensures timely and accurate attendance recording. Future enhancements could focus on refining facial recognition models, optimizing system performance, and expanding functionality to accommodate diverse educational and corporate environments.





THANK YOU