



TONTADARYA COLLEGE OF ENGINEERING

Mundaragi road, Gadag-582101

DEPARTMENT OF COMPUTER SCIENCE AND DESIGN

Mini Project on Real Time Face Recognition Attendance System

Under the guidance of

Prof.Uzma M

Presented by :

Ramesh P Koujalagi(2TG21CG032)

Rakshitha Badiger(2TG21CG031)

Nishkala Sangur(2TG21CG022)

Sakshi Maned(2TG21CG037)

Introduction to Real-Time Face Recognition Attendance System

This presentation introduces a attendance system powered by real-time face recognition technology. This innovative solution offers a streamlined and efficient approach to tracking student attendance, enhancing security and productivity.



Importance of Attendance Tracking

Accurate attendance tracking enabling effective workforce management, accuracy, and performance analysis. It ensures accountability and provides insights into students engagement and productivity.

1 Accuracy

Precise attendance data ensures accurate calculation of students those who are present.

2 Performance Insights

Tracking attendance patterns reveals students regularity and identifies potential issues.

Challenges with Traditional Attendance Systems

Traditional attendance systems, such as manual sign-in sheets or swipe card readers, often face limitations in accuracy, security, and efficiency.

Time-Consuming

Manual procedures can be slow, leading to delays and wasted time.

Security Concerns

Traditional methods may be vulnerable to fraud, such as buddy punching or unauthorized access.



Overview of Face Recognition Technology

Face recognition technology utilizes advanced algorithms to identify individuals based on their unique facial features, offering a secure and efficient authentication method.

1

Face Detection

The system identifies human faces within an image or video frame.

2

Feature Extraction

Key facial features, such as the distance between eyes or nose shape, are extracted and converted into a unique mathematical representation.

3

Matching

The extracted features are compared to a database of registered faces to determine a match.



Key Components of the Attendance System

The real-time face recognition attendance system comprises several key components, each playing a vital role in its functionality and reliability.

Cameras

High-resolution cameras capture clear images of employees for accurate face recognition.

Software

The software analyzes captured images, compares them with registered faces, and records attendance data.

Database

A secure database stores employee facial data and attendance records for easy retrieval and analysis.

Access Control

The system can integrate with access control systems, allowing theorized personal entry into secure areas.

Enrollment and Registration Process

The enrollment process involves capturing and storing employees' facial data, creating a secure database for future attendance tracking.

1

Student Information

Basic student details, such as name, ID, and department, are collected.

2

Facial Data Capture

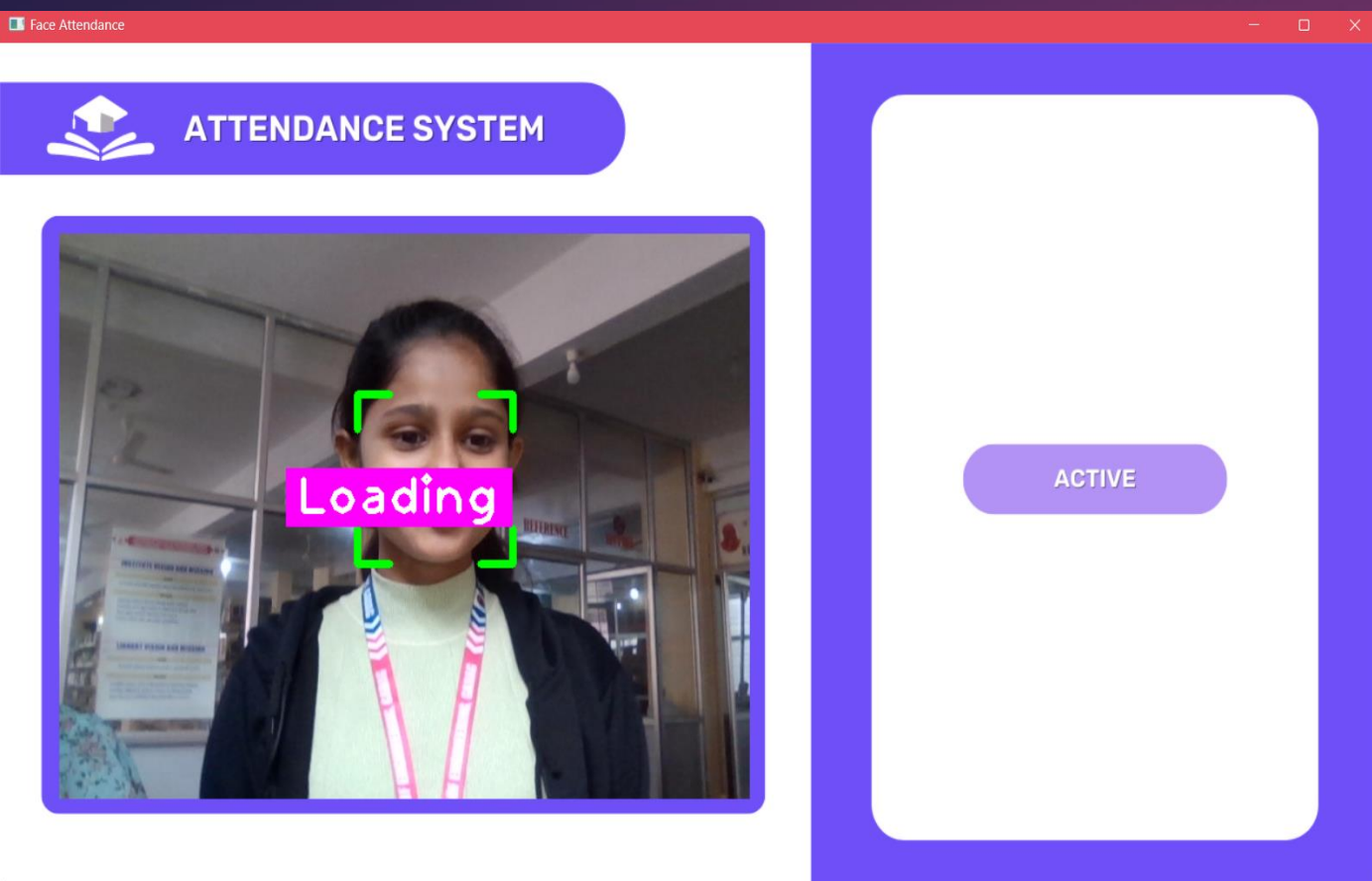
Student's faces are captured from multiple angles to ensure accurate identification.

3

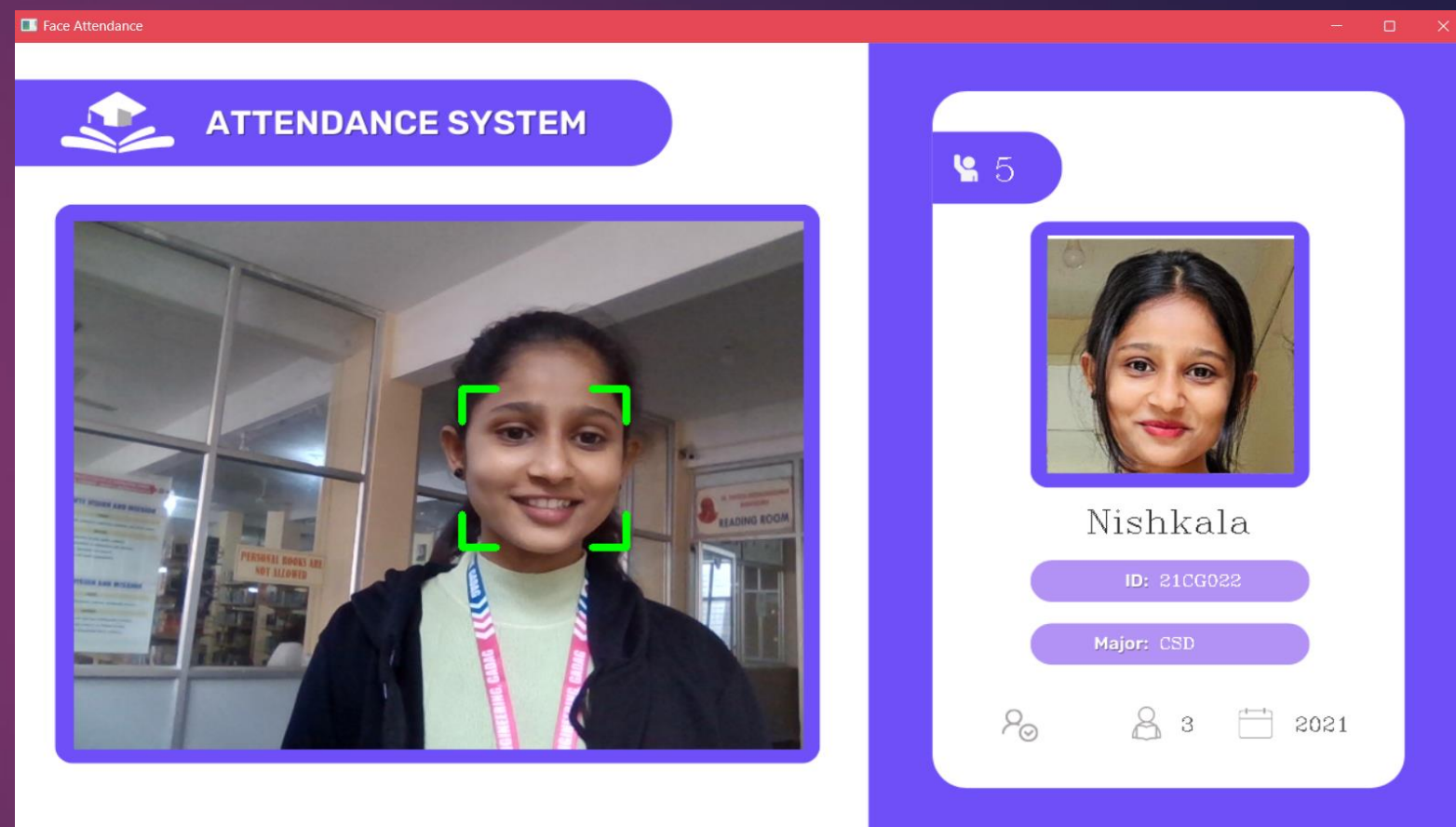
Database Storage

The captured facial data is stored securely in the system's database.

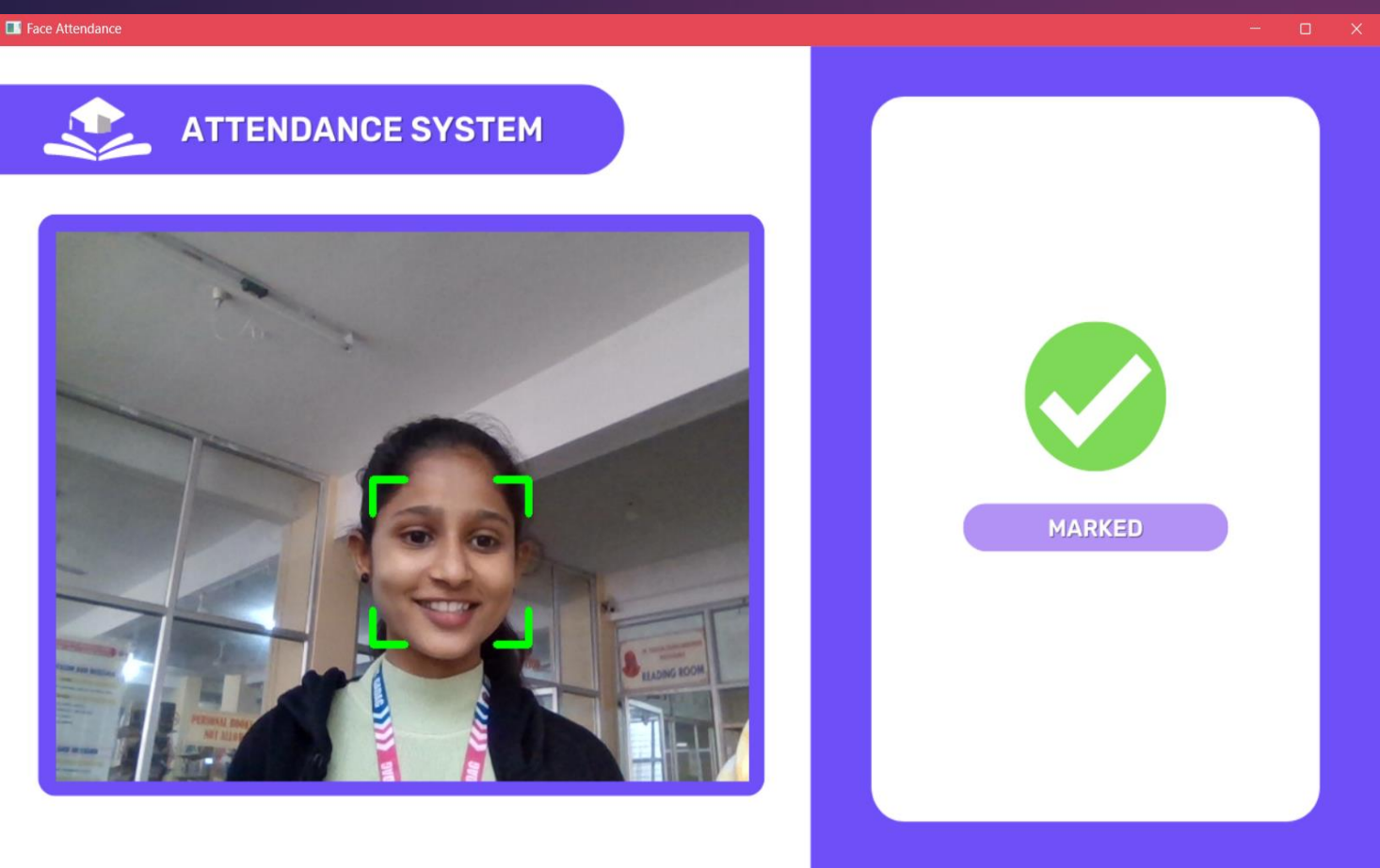
Step 1 :



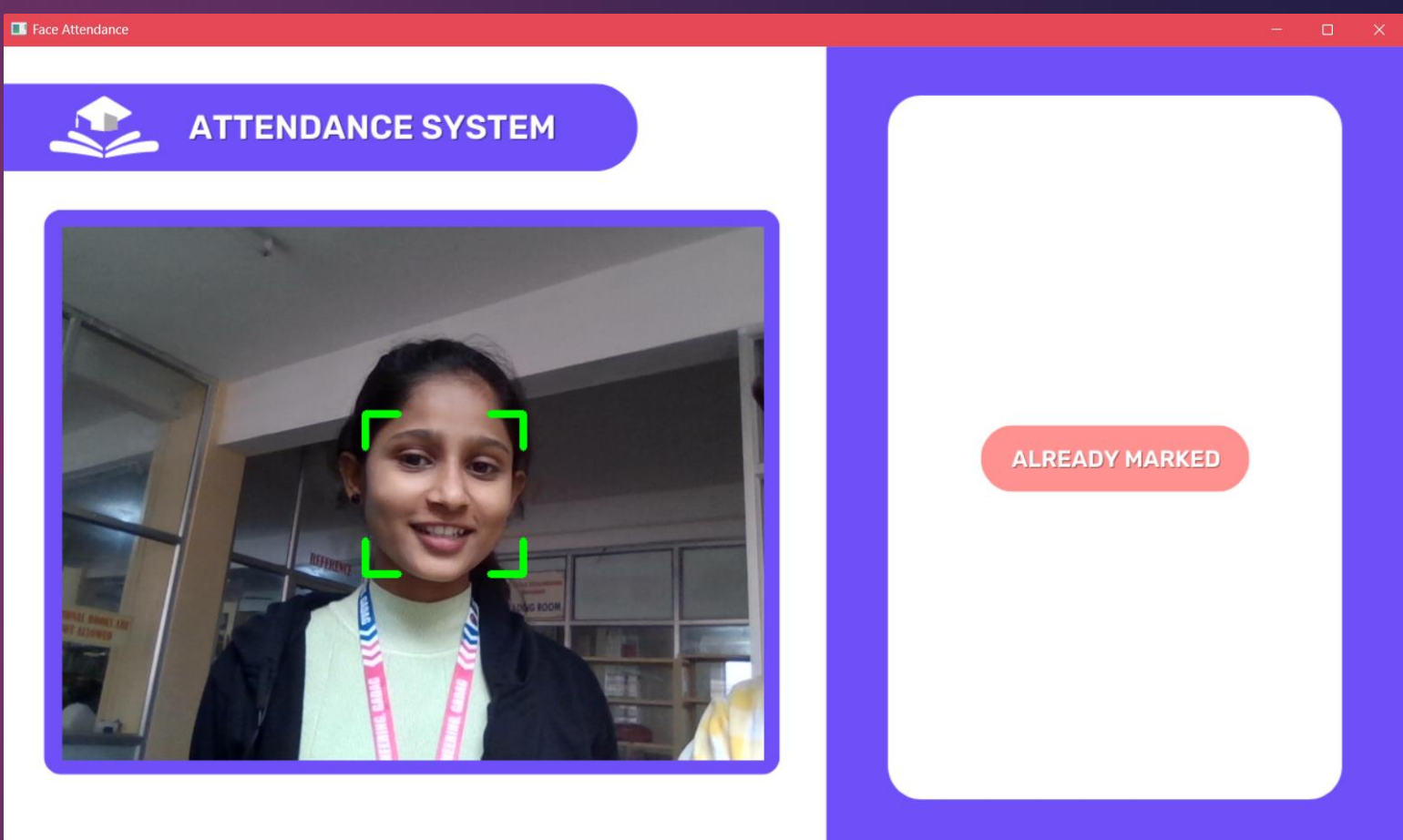
Step 2 :



Step 3 :



Step 4 :



Real-Time Face Detection and Identification

The system detect and identify Students faces in real-time, ensuring accuracy and efficiency in attendance tracking.

Face Detection

The system identifies human faces within the camera's field of view.

Feature Extraction

Key facial features are extracted and converted into a unique mathematical representation.

Database Matching

The extracted features are compared to the registered employee database to identify a match.

Authentication

If a match is found, the system authenticates the student's identity and records their attendance.

Attendance Tracking and Reporting

The system automatically records attendance data, providing real-time insights into students presence and generating comprehensive reports for analysis.



Attendance Logs

Accurate and detailed records of students arrival times.



Attendance Trends

Visual representations of attendance patterns over time.



Custom Reports

Generate personalized reports based on specific criteria, such as department or time period.



Data Export

Export attendance data in various formats, such as Excel sheet and firebase database for further analysis.

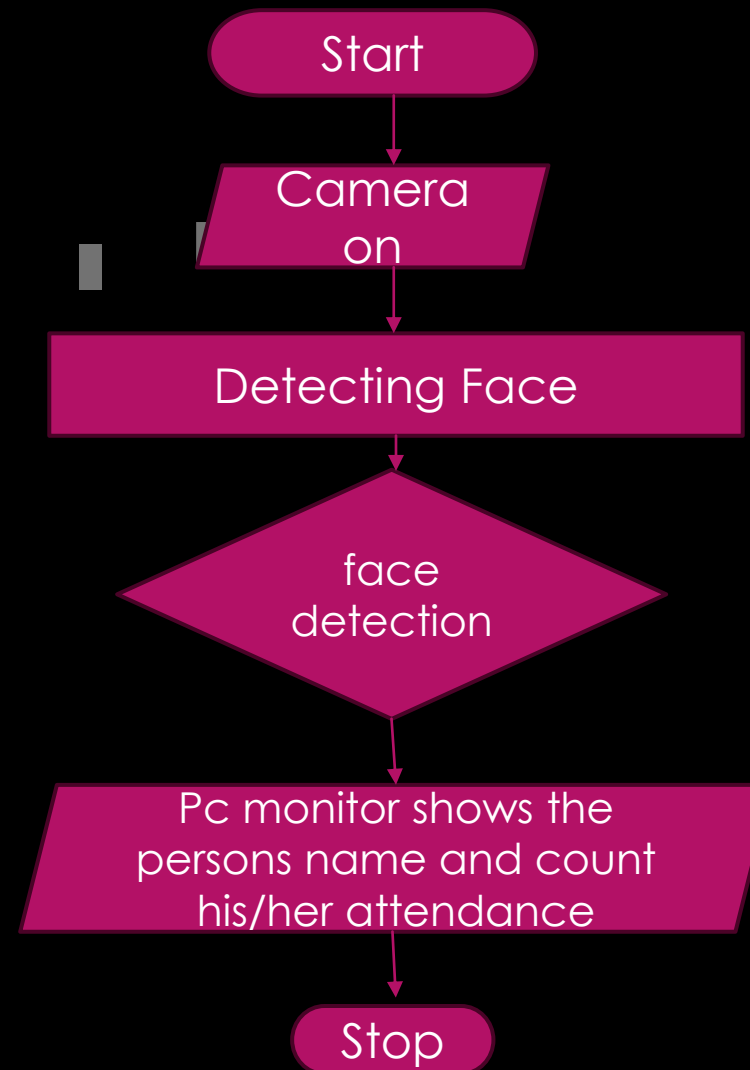
Benefits of the Real-Time Face Recognition System

The real-time face recognition attendance system offers numerous advantages, contributing to improved efficiency, security, and productivity.

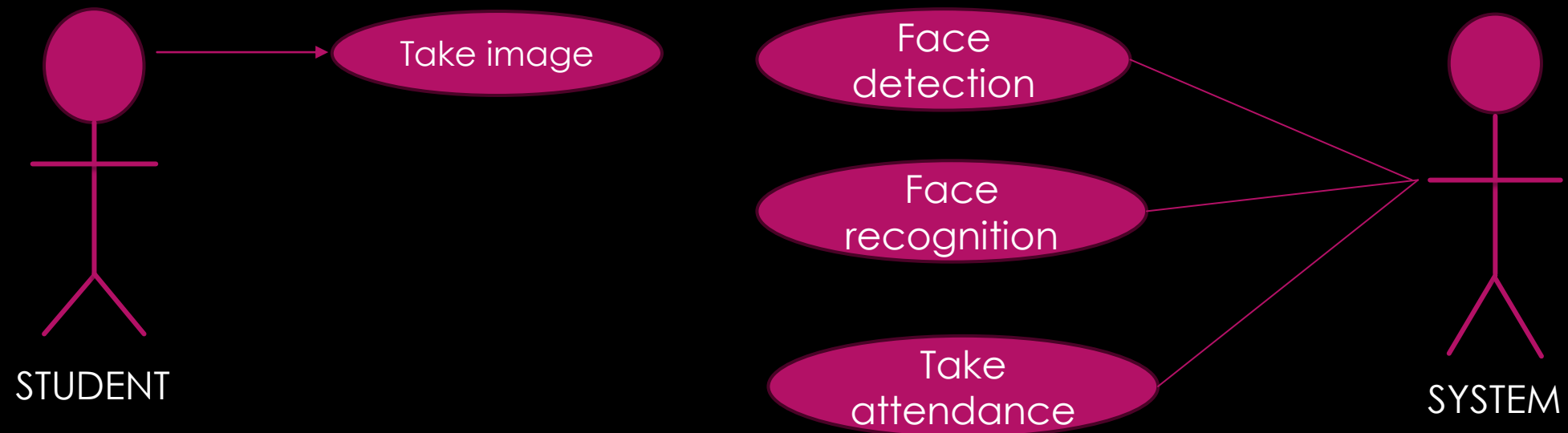
- 1 Improved Accuracy**
Eliminates human errors associated with traditional methods, ensuring accurate attendance records.
- 2 Enhanced Security**
Reduces the risk of unauthorized access and fraud, safeguarding sensitive students information.
- 3 Increased Efficiency**
Streamlines the attendance process, saving time for both teachers and management.
- 4 Data-Driven Insights**
Provides real-time data and reports for informed decision-making in workforce management.



FLOW CHART



Use case diagram



Advantages :

- ▶ Automated Time Tracking System
- ▶ Cost-Effective
- ▶ Touchless Sign In System
- ▶ More Accurate and Better Student Record
- ▶ Easy To Manage

Future Developments

The real-time face recognition attendance system revolutionizes workforce management, offering a secure, efficient, and data-driven solution for businesses of all sizes.



Continuous Improvement

The system is constantly evolving with new features and advancements in face recognition technology.



Integration with Other Systems

Future developments will focus on integrating the system with other workplace systems.

CONCLUSION

Face recognition attendance system are modern utilities that are a requirement of even the post pandemic era.

These systems make students attendance tracking accurate while saving the record of the student. Such a system also adds a layer of security and accuracy, Facial recognition systems are the best modern day solution for tracking students attended hours.

If the organization is still burdened by the manual attendance system, its time to upgrade to facial recognition attendance system



THANK YOU