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(NBA Accredited)

Smart Attendance System

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Project Guide
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1. Introduction

- A smart attendance system is a modern solution that uses advanced technology of facial recognition to monitor and record attendance and reduce any errors that occur during manual attendance.
- Problem Identified :
  - Manual attendance systems have been widely used in various organizations for many years, but they have several inherent problems. Some of the main issues with manual attendance include:

    a)Time-consuming b) Human errors

    c)Fraud and cheating d)Difficulty in generating reports
- Solution Proposed :
  - A smart attendance monitoring system is a technological advancement that streamlines the attendance tracking process with facial recognition with the help of LBPH and Haar Cascade Classifier.

2. Objectives

The main objective of this project is to develop a face recognition based on student attendance system.

1. To detect the face segment from the video frame.
2. To extract the useful features from the face detected.
3. To classify the features in order to recognize the face detected.
4. To record the attendance of the identified student.

3. Scope

- Can help track the attendance data which can be used by instructors.
- The Admin can add new students and manage that students information.
- Can recognize individual's faces.

4. Literature Survey

Sr.no	Title	Author(s)	Year	Algorithms	Limitations	Result
1	Face Recognition Based Smart Attendance System	Arjun Raj,Mahammed Shoheb,KArvind,KS Chethan	2020	LBPH & DNN	Limited data sources.Lack of comparative analysis of different machine learning techniques. Does not cover areas such as sensor placement, data preprocessing, and feature extraction techniques. Outdated information.	The system uses LBPH to identify students in real-time, eliminates proxy attendance,auto updates attendance data in an Excel sheet, and sends absent notifications to parents via SMS. Additionally, an Android application developed by MIT app Inventor allows students to check their attendance.
2	Student Attendance System using Face Recognition	Samridhi Dev,Tushar Patnaik	2020	Haar classifiers along with SVM, KNN & CNN	Sensitivity to image quality Limited training data Evaluation on a single dataset	The system replaces thetraditional method of taking attendanceby using Haar classifiers, KNN, CNN, SVM&generatingattendance reports in excel format. After testing, the system is found to be accurate, and cost-effective.

5. Proposed System

Algorithms Used:

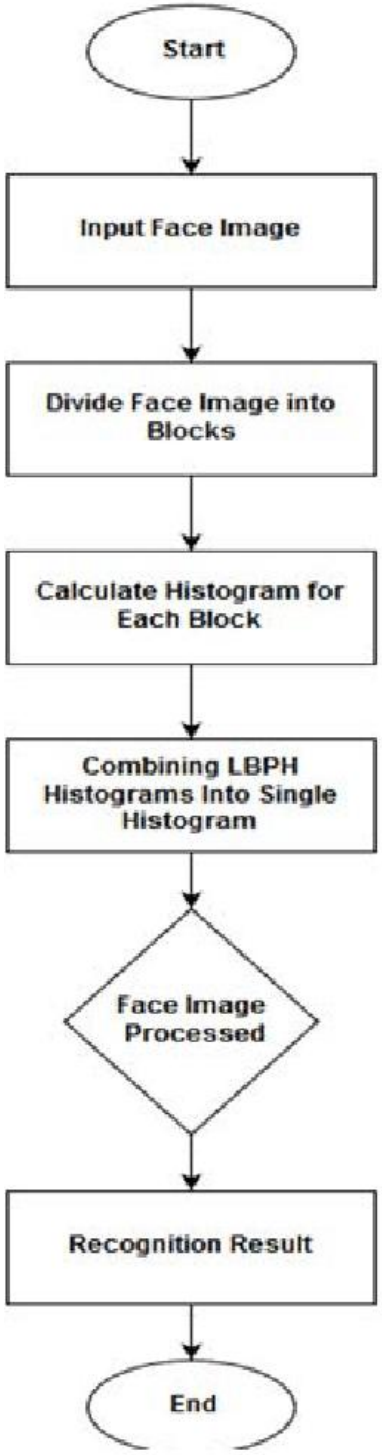
1) Local Binary Pattern Histogram (LBPH) algorithm:

It is widely used in facial recognition.

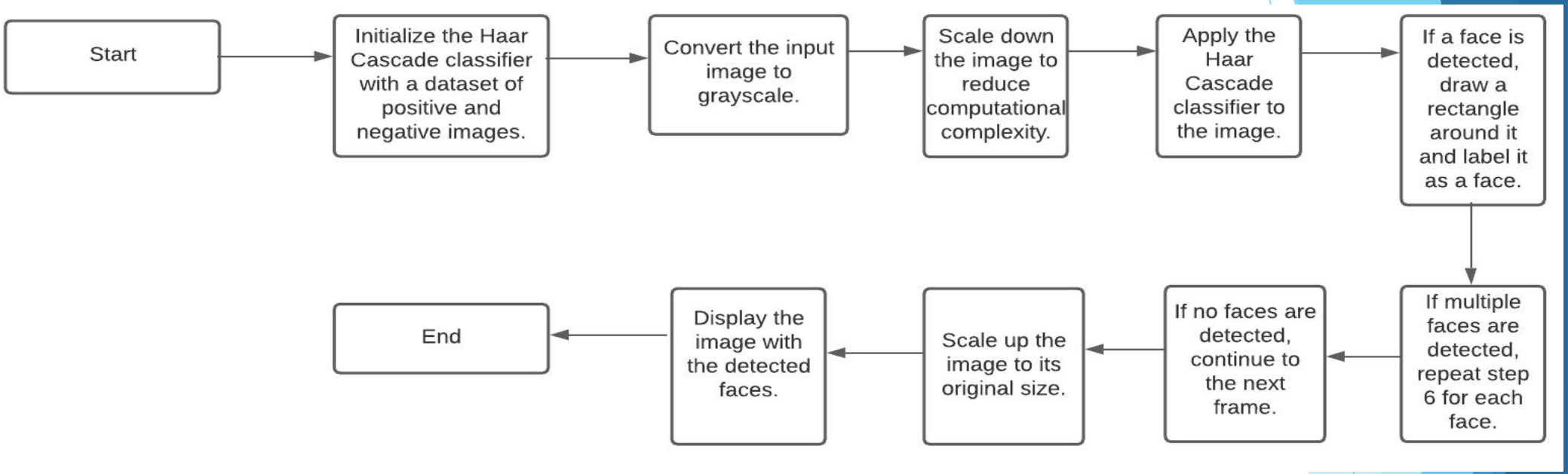
2) Haar Cascade Classifier:

It is used to detect objects in an image or video stream.

5.1 Flowchart of LBPH:



5.2 Flowchart of Haar Cascade:



6. Outcome of Project

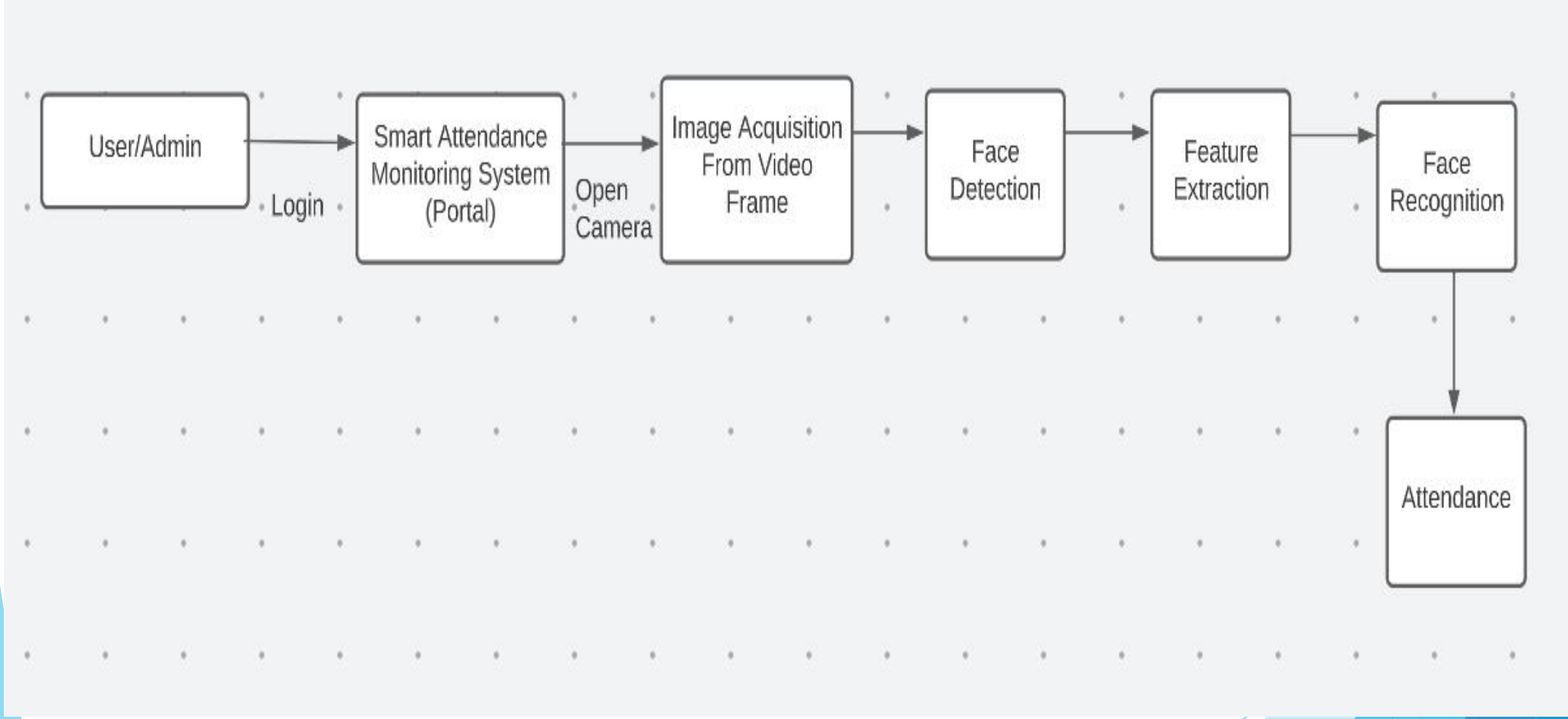
Admin:

- **can login with proper credentials.**
- **can add new student details, update details and delete details.**
- **can train data.**
- **can view attendance.**

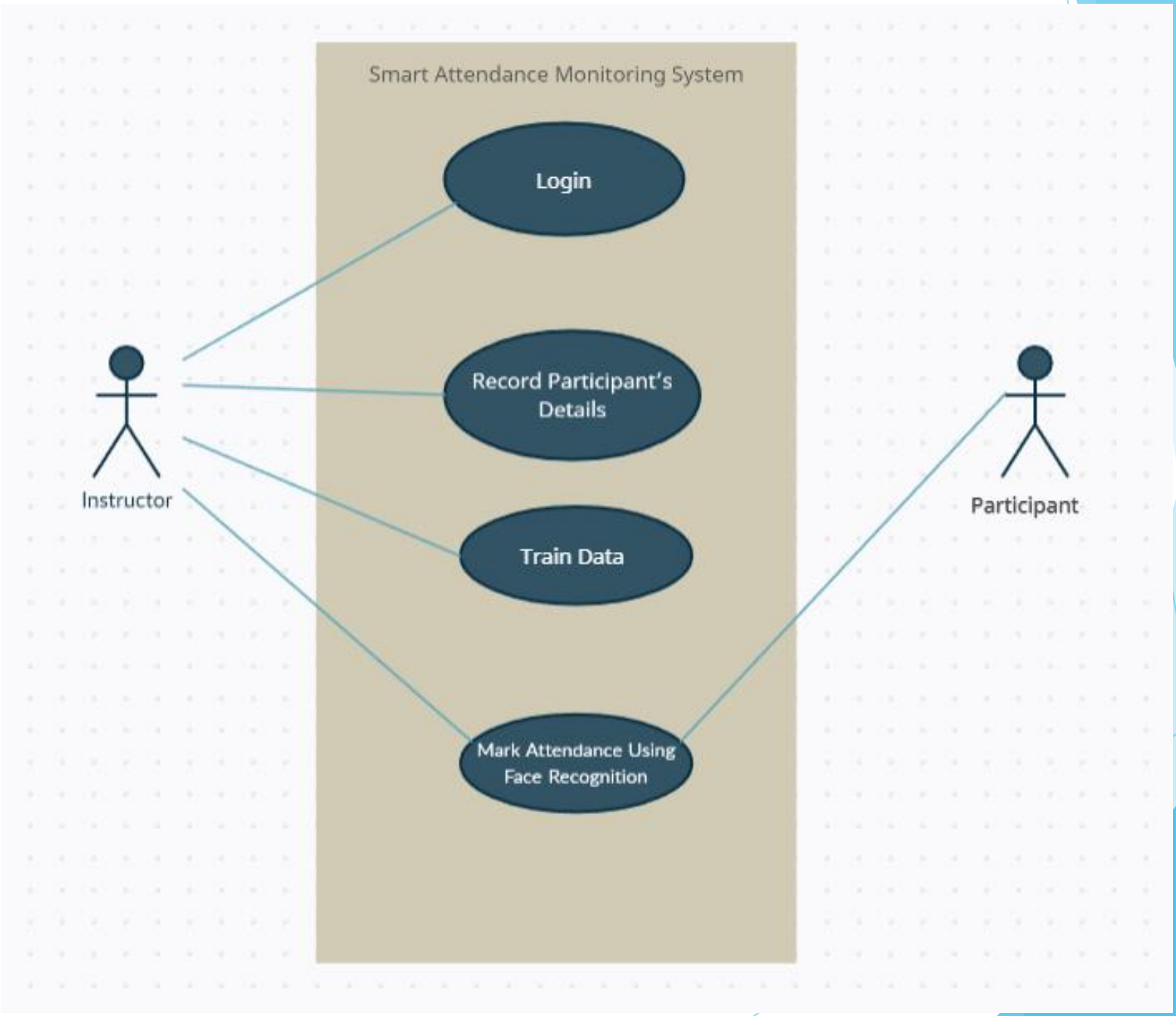
User:

- **can mark his/her attendance using face detection.**

7. Block Diagram



8. Use Case Diagram



9. Technology Stack

Frontend:

Python - Idle

OpenCV

The Graphical User Interface (GUI)

Tkinter - Python GUI

BackEnd :

MySQL Workbench:

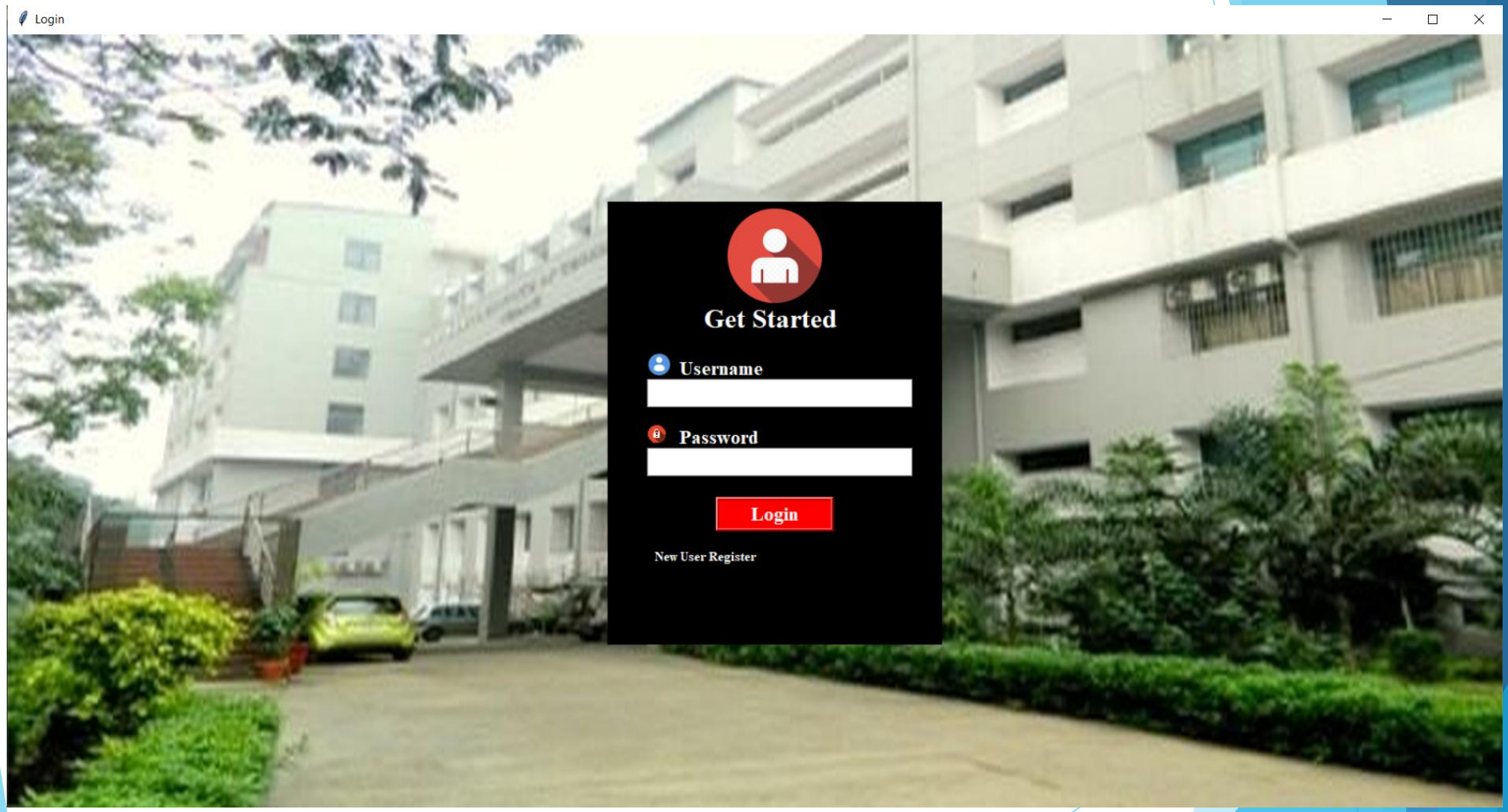
Database - MySQL

- Laptop Camera

Suggestions in Review-1

- Add a proper UI to the proposed system
- Reframe the literature survey table
- Add Flowchart of Algorithms.

Result and Discussion



Result and Discussion

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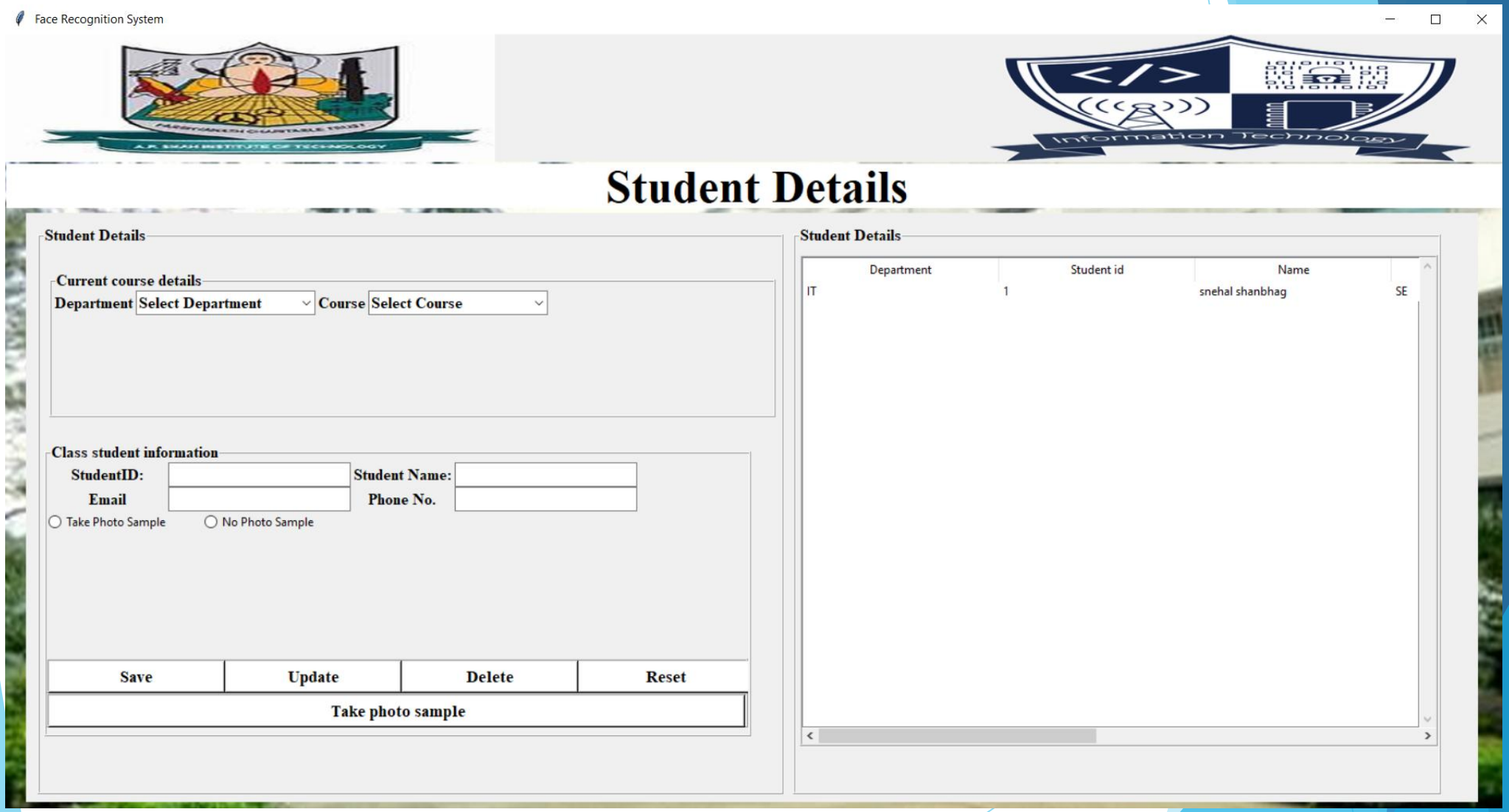

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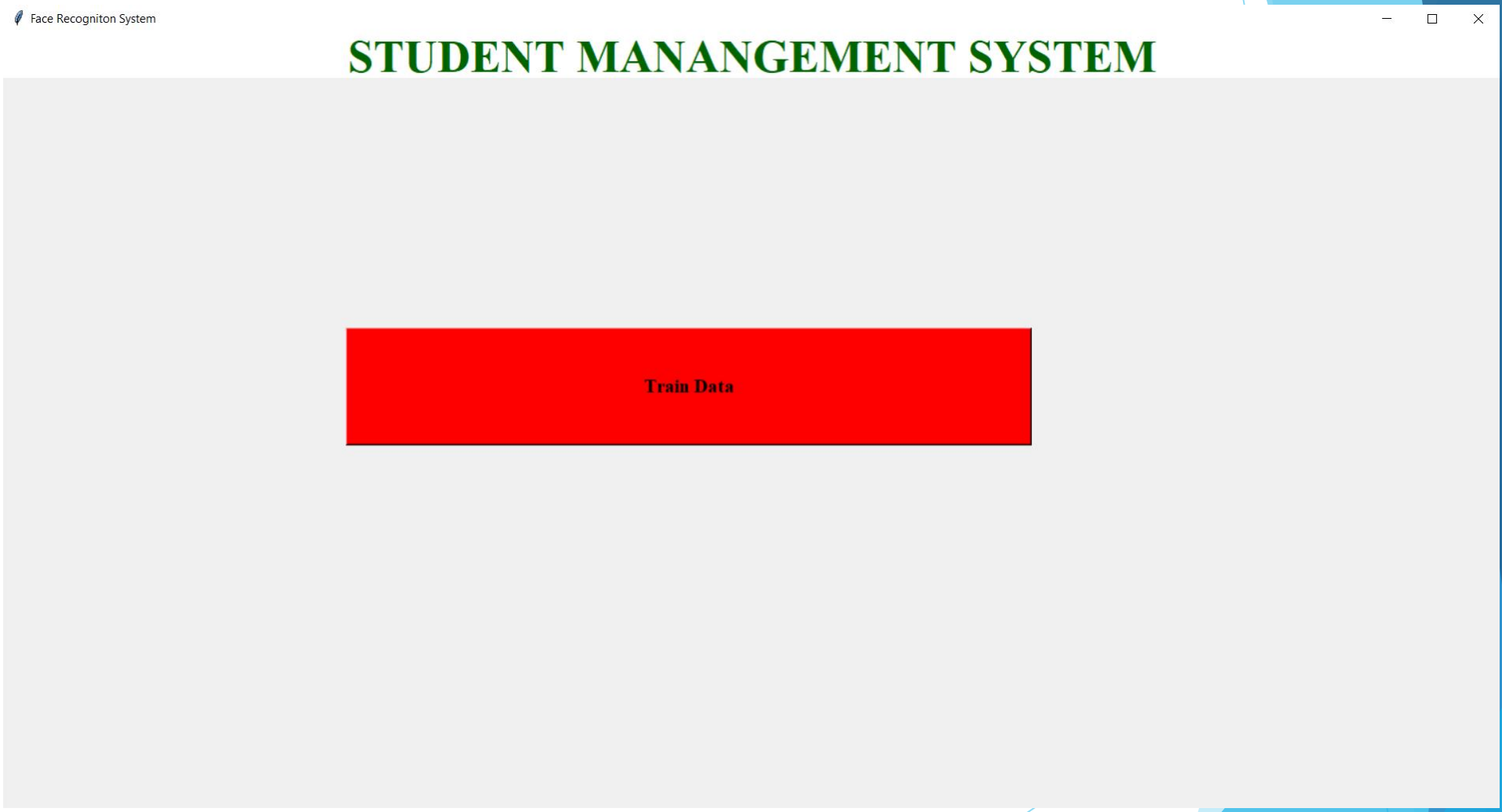

Conclusion and Future Scope

Hence, a smart attendance system is a modern solution that uses advanced technology of facial recognition to monitor and record attendance and reduce any errors that occur during manual attendance.

The smart attendance monitoring system has immense potential for future development and deployment in various industries, such as education, healthcare, hospitality, and manufacturing.

Here are some potential future scopes of this technology:

- Improved Accuracy
- Integration with Other Systems
- Personalized attendance tracking
- AI-powered analysis
- Predictive analytics
- Enhanced security features

References

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Thank You...!!