FACE DETECTION FOR ATTENDANCE MARKING

TEAM MEMBERS

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INTRODUCTION

Traditionally attendance is marked manually by teachers and they must make sure correct attendance is marked for respective student.

Moreover it is very difficult to verify one by one student in a large classroom environment with distributed branches whether the authenticated students are actually responding or not.

There are also many other techniques for recording attendance like use of Radio Frequency Identification (RFID) , iris recognition, fingerprint recognition and so on. However, these systems are queue based which might consume more time.

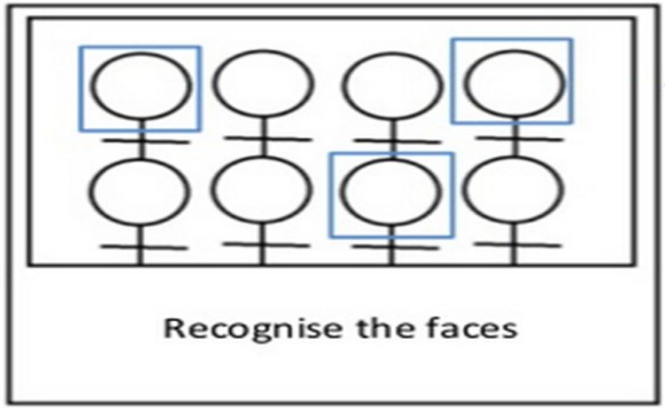
The purpose of this system is to build a attendance system which is based on face recognition /face detection techniques. Here face of an individual will be considered for marking attendance.

FACE RECOGNITION

Face recognition is a technology that is capable of matching a human face from a digital image or a video frame against a database of faces, typically employed to authenticate users through ID verification services, works by pinpointing and measuring facial features from a given image.

FACE DETECTION

Face detection is used to determine their faces and then compare them with the database which consists of the image of students in the class and then attendance will be recorded accordingly.



Recognise the faces

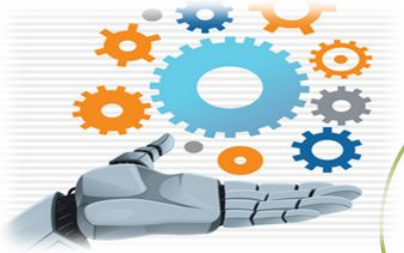
Image processing and comparison module

Compares with Database and fills up the attendance

Database

X	Present
Y	Absent
Z	Absent

SIGNIFICANCE

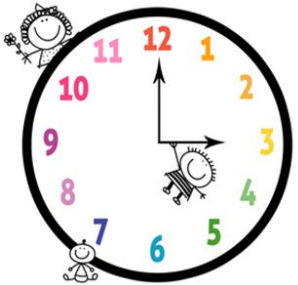


1-Automated

3-Effective

2- Economically

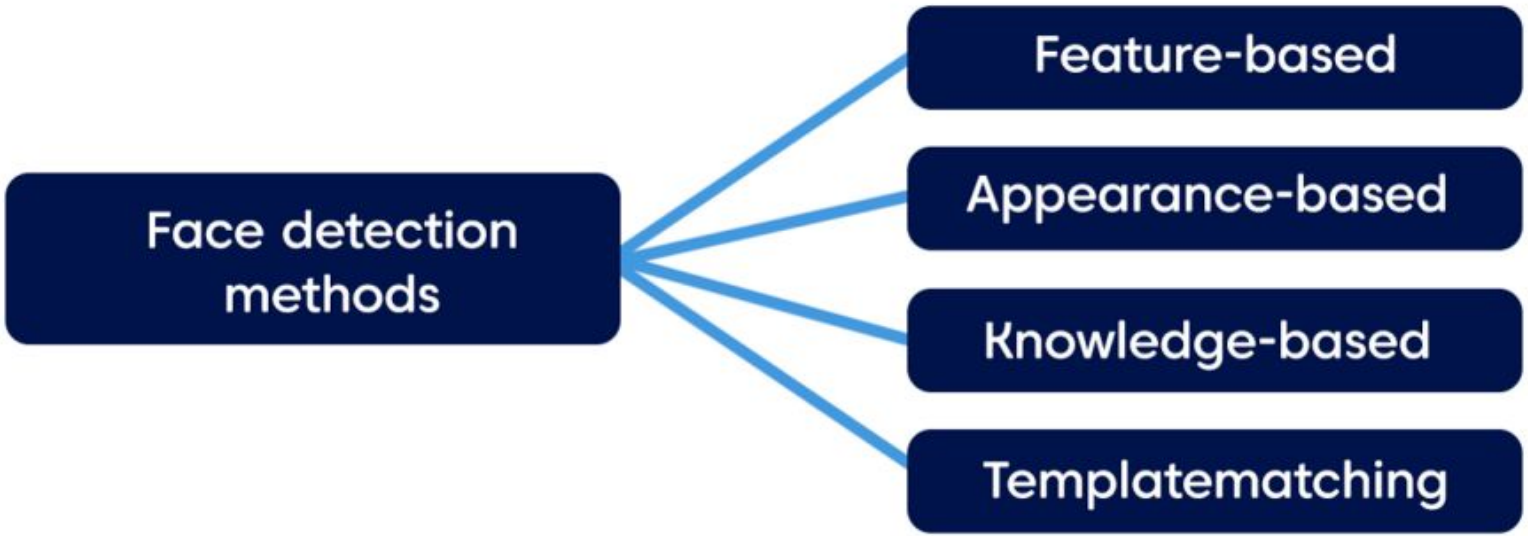
4- Keep extra time



LITERATURE SURVEY

In the face detection and recognition system, the process flow is initiated by being able to detect the facial features from a camera or a picture stored in a memory. The algorithm processes the image captured and identifies the number of faces in the image by analysing from the learned pattern and comparing them to filter out the rest. This image processing uses multiple algorithms that take facial features and compare them with known databases.

Detection method



ABSTRACT

Time consumption is an important point of concern in this system. We have thought of revolutionize it using available digital tools in the modern era i.e. FACE RECOGNITION. Our project will ensure more precision and negligible manual work. The project is revolutionized in order to overcome the problems of conventional system. Face recognition and then marking the attendance is our project all about. The database of all the students in the class is stored in a folder and when the face of the individual student matches with one of the faces stored image, attendance is marked else the face is ignored and attendance not marked.

Project Objectives

1.Reducing time wastage during conventional class attendance.

2. Utilizing latest trends in machine vision to implement a feasible solution for class attendance system.

3. Automating the whole process so that we have digital environment

4.Encouraging the use of technology in daily lives.

Advantages

1. Time saving
2. Easy time tracking
3. Productivity
4. Easy to manage

SYSTEM DESIGN

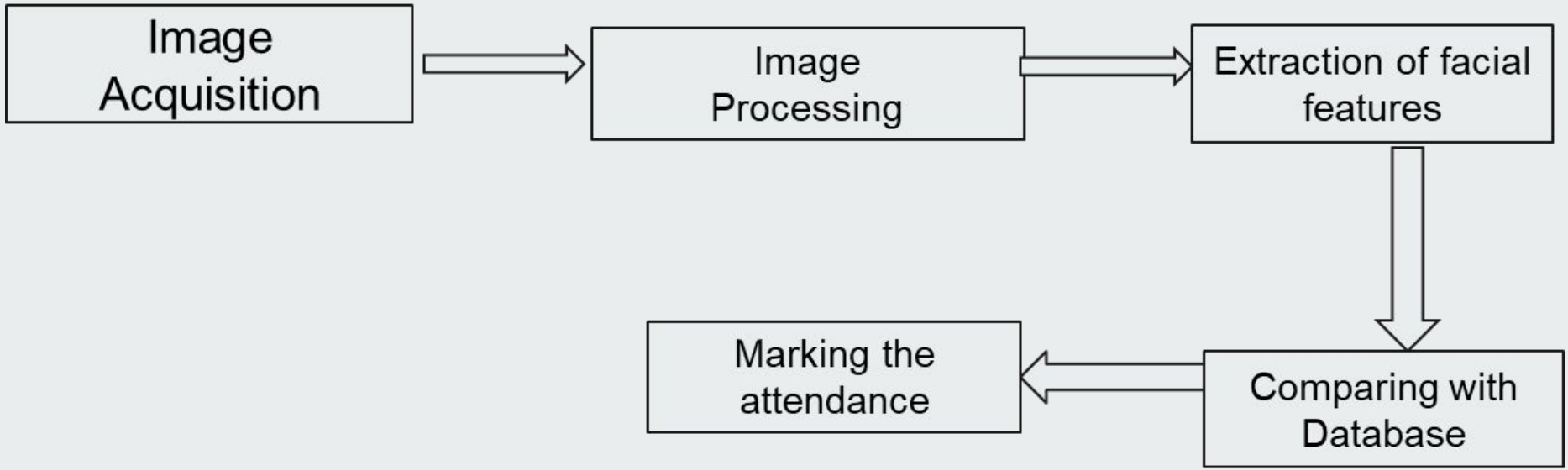
EXISTING SYSTEMS

- Fingerprint Based recognition system
- RFID(Radio Frequency Identification) Based recognition system
- Iris Based Recognition System

PROPOSED SYSTEM

The task of the proposed system is to capture the face of each student and to store it in the database for their attendance. The face of the student needs to be captured in such a manner that all the features of the students' face need to be detected, even the seating and the posture of the student need to be recognized. There is no need for the teacher to manually take attendance in the class because the system records a video and through further processing steps the face is being recognized and the attendance database is updated.

Block diagram



Block diagram

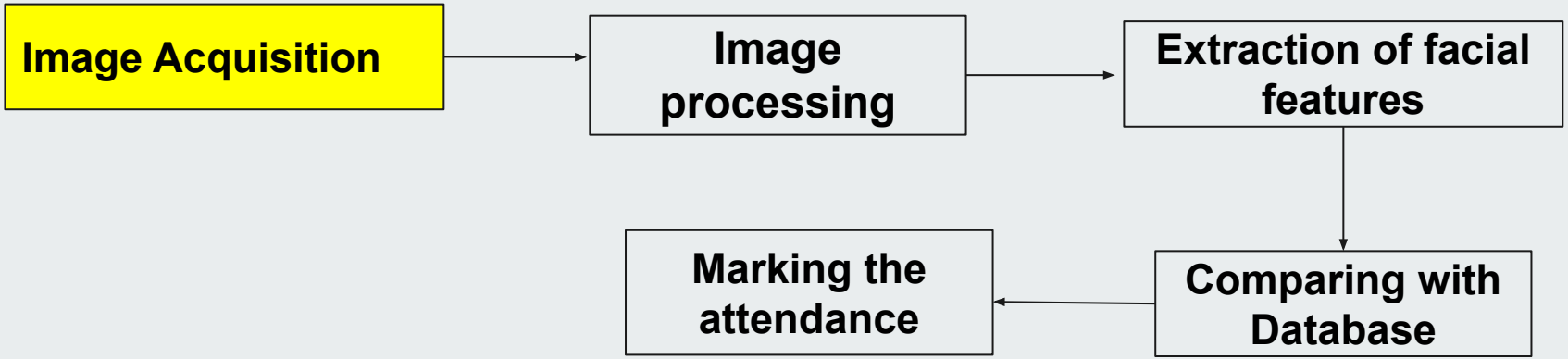


Image Acquisition

Image acquisition is the process of converting an analogue image into digital form. This usually happens in a camera or scanner,

Block diagram

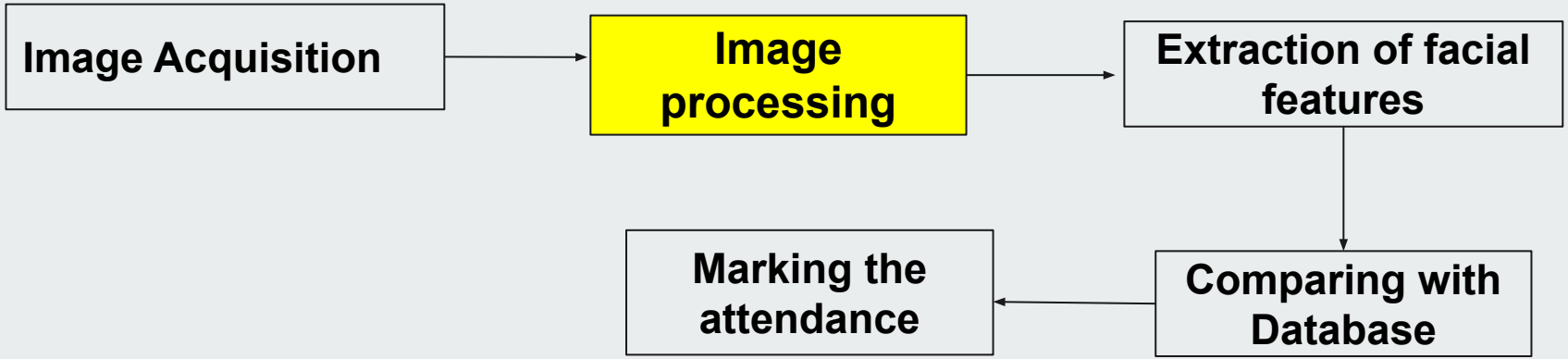
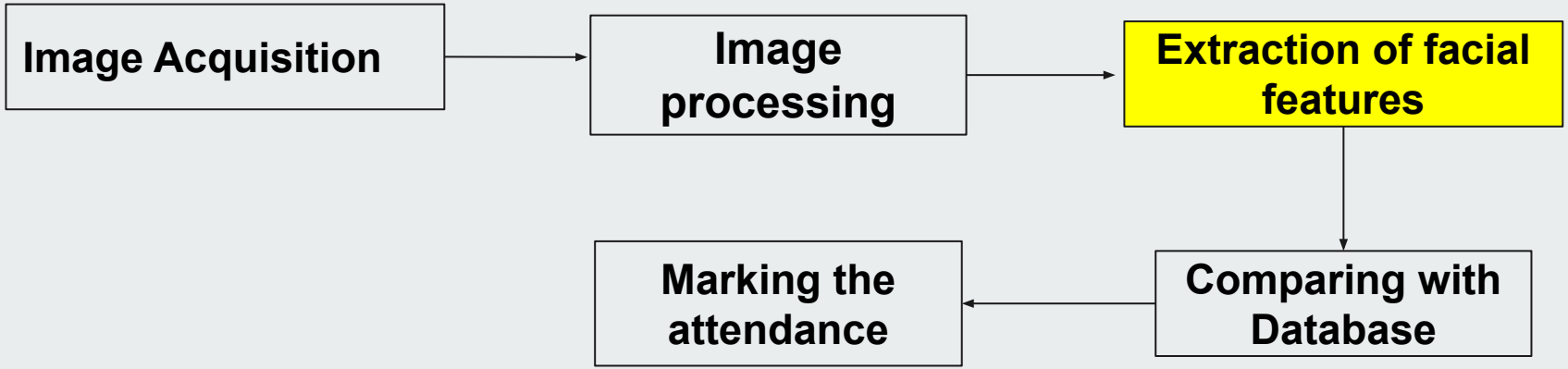


Image processing

Image processing is a method to perform some operations on an image, in order to get an enhanced image or to extract some useful information from it. It is a type of signal processing in which input is an image and output may be image or characteristics/features associated with that image.

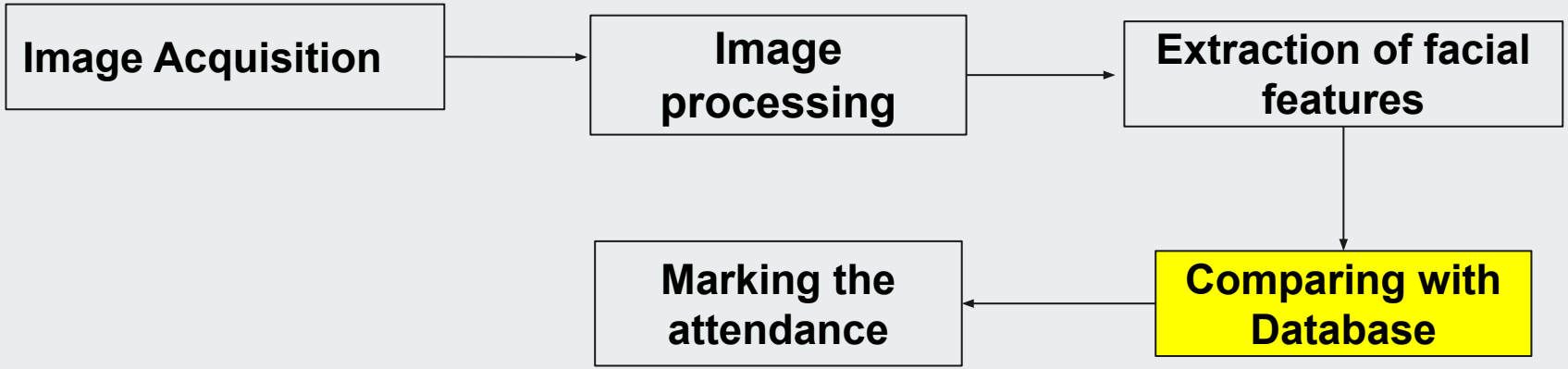
Block diagram



Extraction of facial features

Facial feature extraction is the process of extracting face component features like eyes, nose, mouth, etc from human face image. Facial feature extraction is very much important for the initialization of processing techniques like face tracking, facial expression recognition or face recognition.

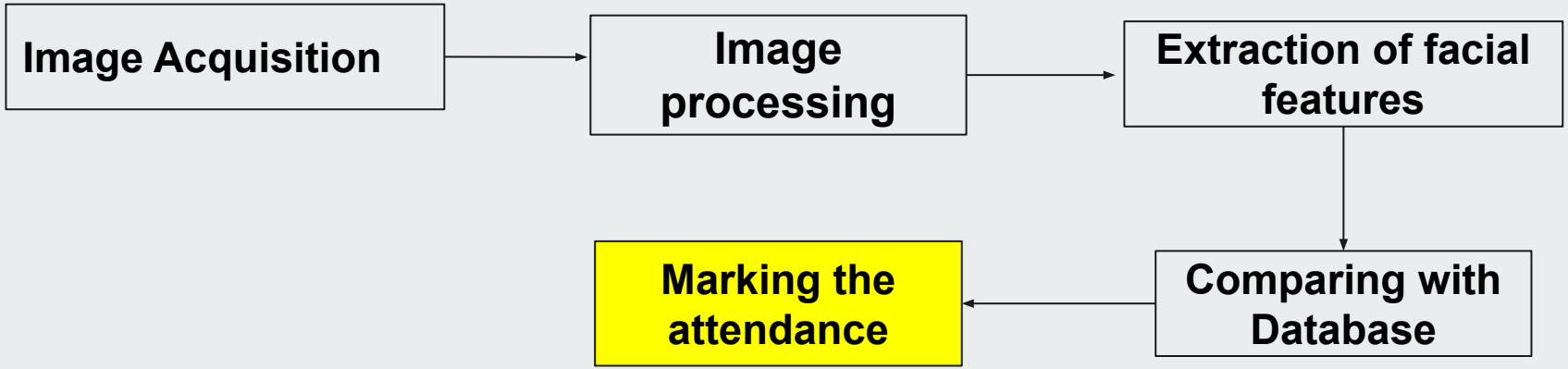
Block diagram



Comparing with Database

Face Databases are imagery data that are used for testing face processing algorithms. In the contents of biometrics, face databases are collected and used to evaluate the performance of face recognition biometric systems.

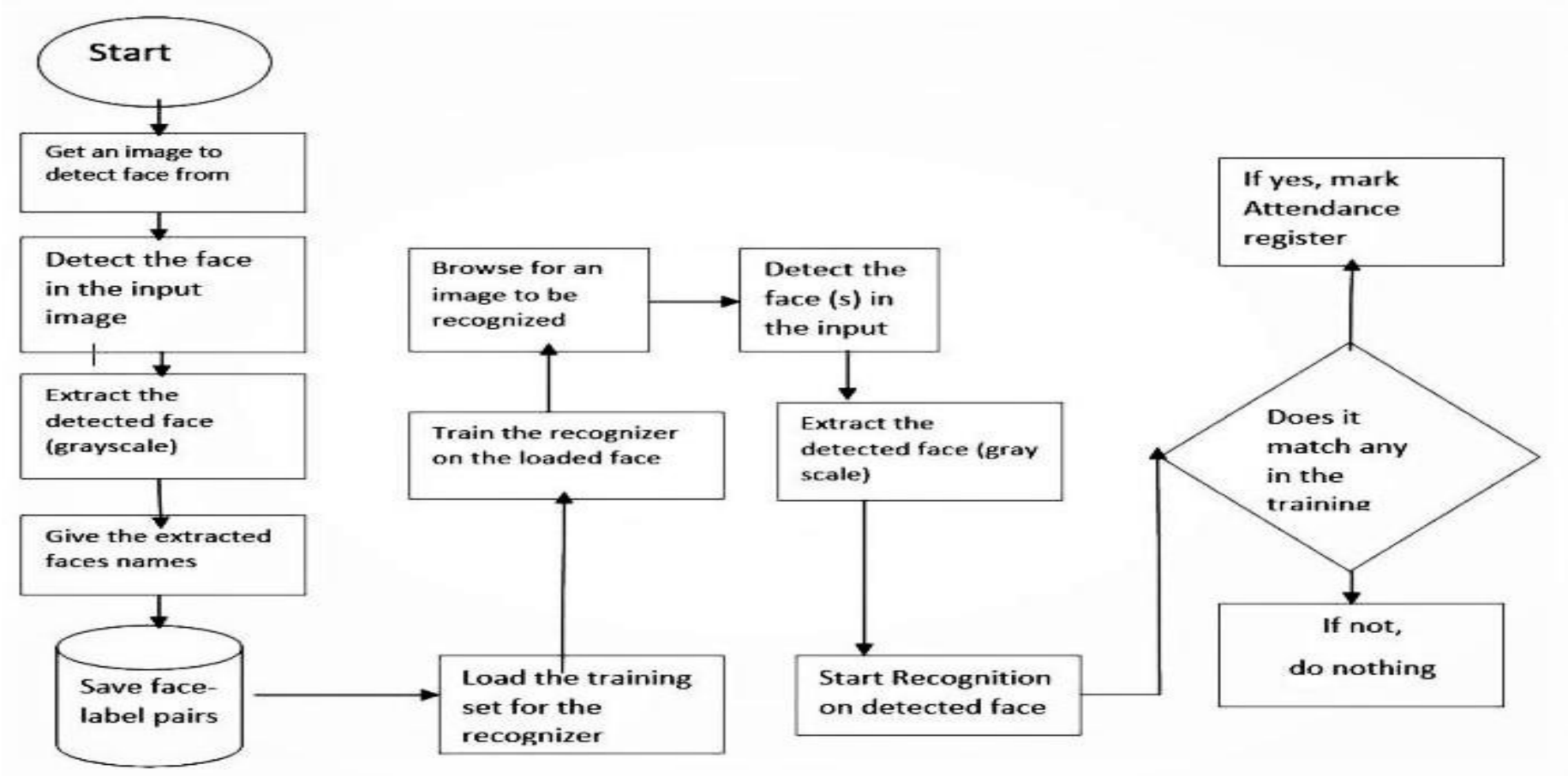
Block diagram



Marking the attendance

Once the exact match is found then it will Mark the attendance in the attendance register or in the database

Following flowchart explains the process of the flow of information throughout the process.



How do we create a Database?

Database is the collection of face images and extracted features.And the database includes name of students & registration number of each student

We created database for our group people, we took images of each person and added them to the database with an option of changing details and image.

Django is used for the backend and web interface and the Django database is used for storing images and their details while python is used for implementing face recognition process.

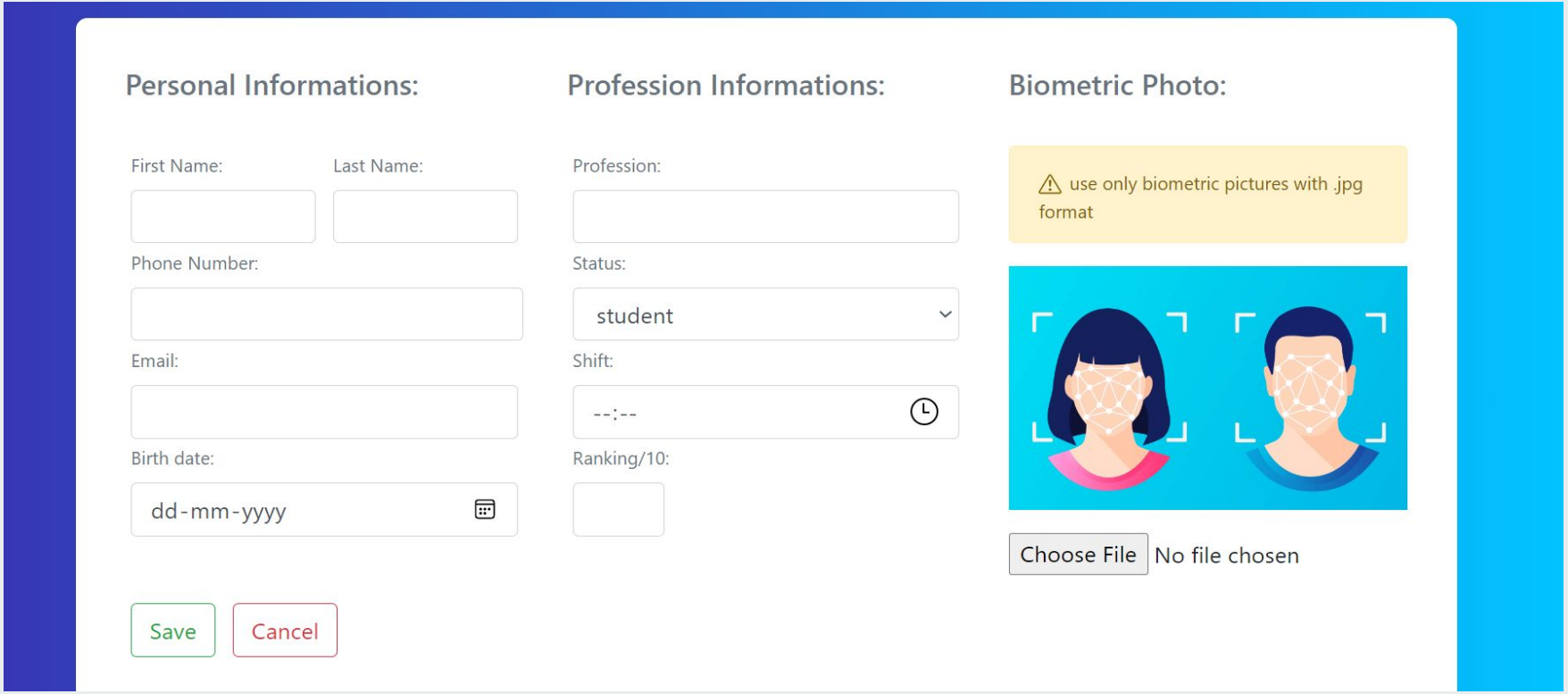
IMPLEMENTATION

THE MAIN MENU

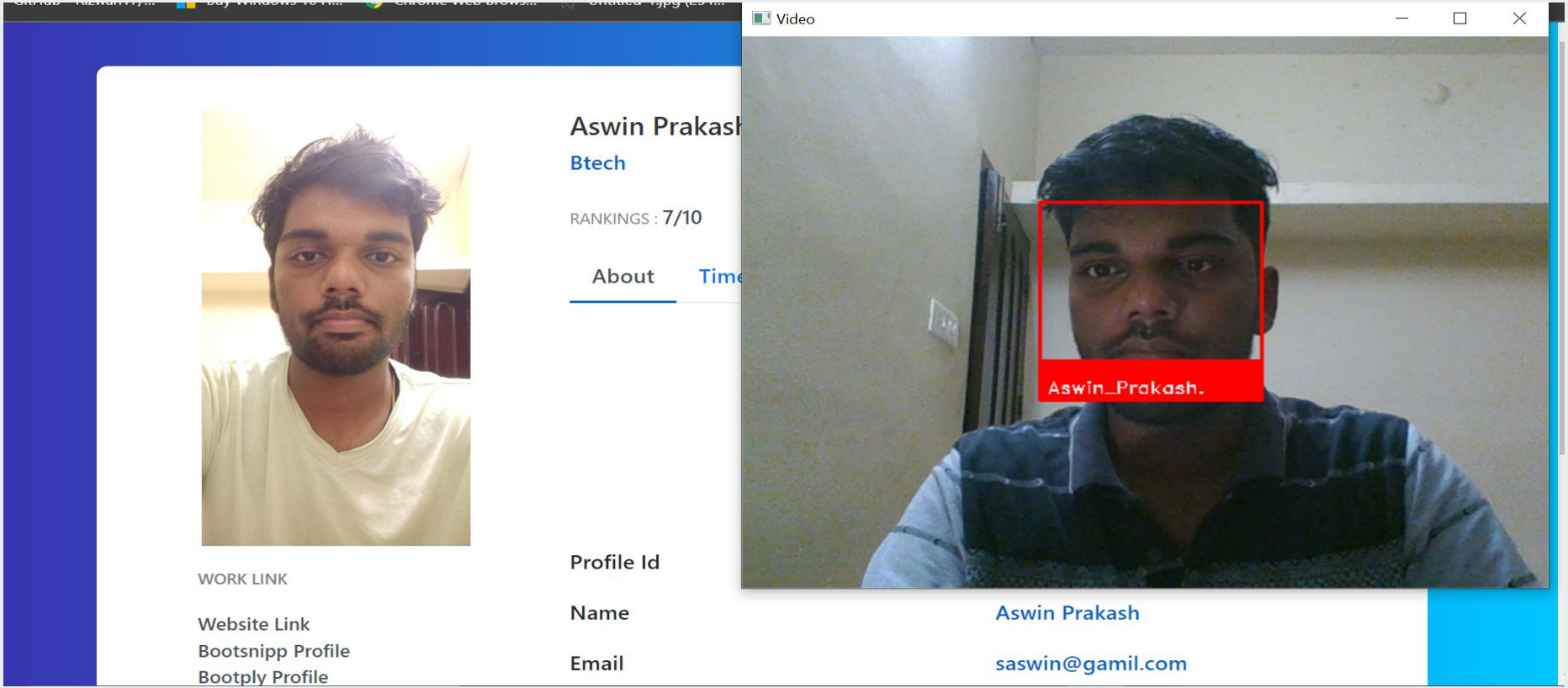
This is the first prompt to appear when program is run. It will ask user to enter their details and other essential features and also to upload an image of user in .jpg format.

WORKING

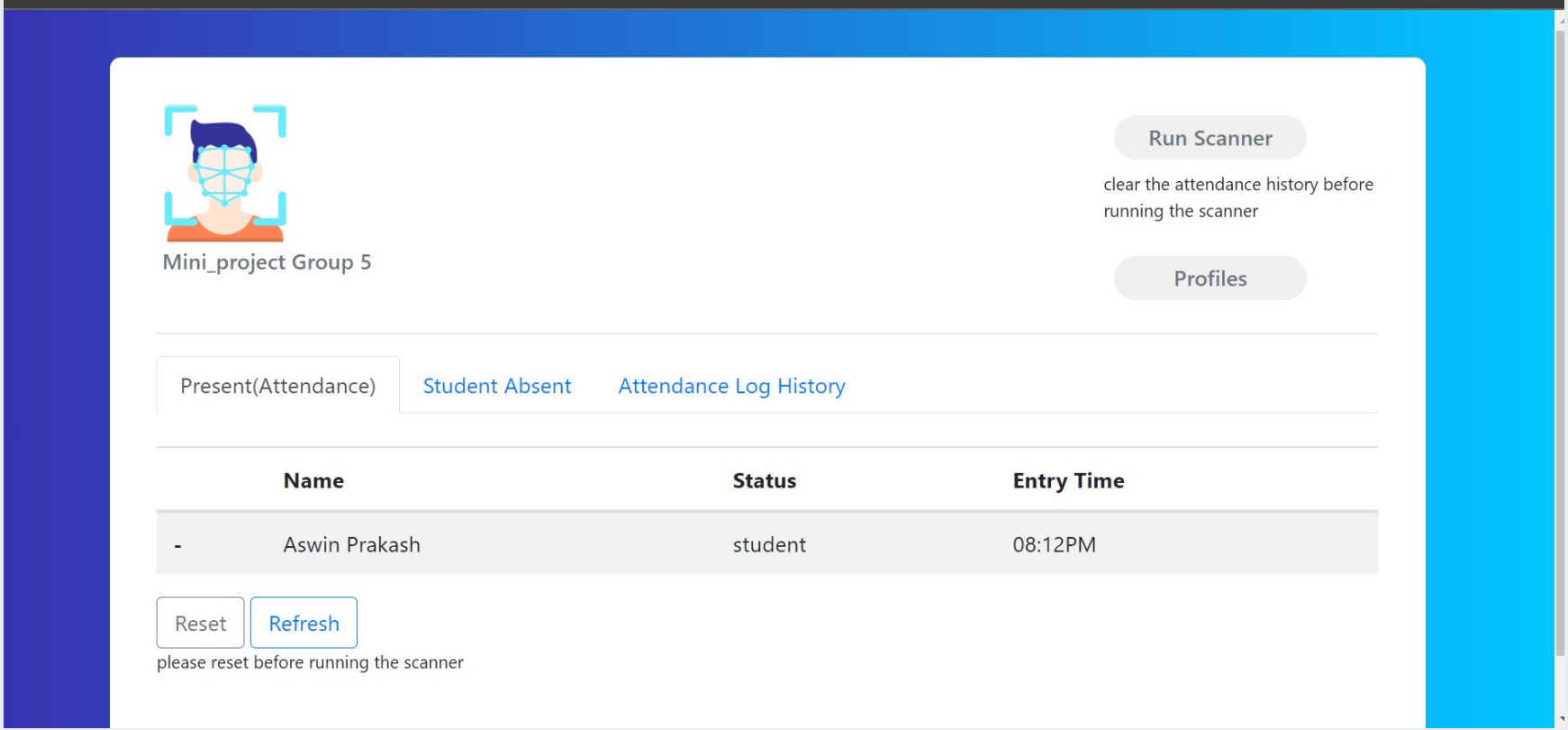
The working process is shown below



This page is for adding a new profile and also person need to upload the biometric picture



After,the face that detected by the scanner the profile of that particular person will be show in the background .



Screenshot of index page ,this page include the list of presented students and also a button to start the scanner to mark the attendance

Mini_project Group 5

Run Scanner

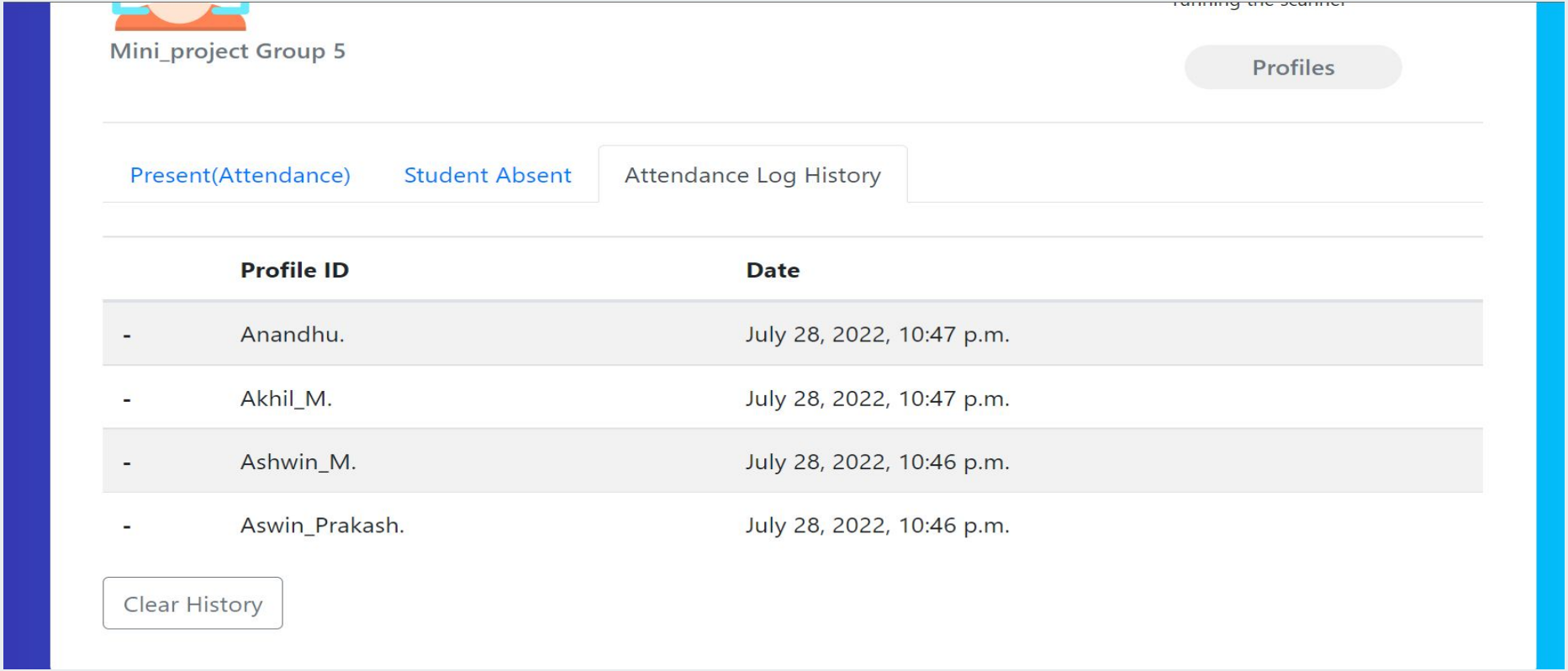
clear the attendance history before running the scanner

Profiles

Present(Attendance) | Student Absent | Attendance Log History

	Name	Status	period Time
-	Anandhu A	student	1:49 p.m.
-	Akhil M	student	3:51 p.m.
-	Ashwin M	student	5:47 p.m.

This page is to display the students that are not present(absent)



Here shows name of students that are detected by the scanner and also show duplicate entries if the person is detected more than onces

Conclusion and Future Work

To summarize,

- This system is effective for tracking attendance by facial recognition.
- Django database to store and retrieve information.
- The logic and facial recognition systems are implemented in python.
- The currently implemented system takes about few seconds approximately to recognize the faces and pull out the details from the database, this performance can be reduced in the future.

Overall, the project was successful in its showcasing how face recognition can be implemented in Django to create a web application.
Once implemented, it can be used to take attendance of students and keep track of their attendance records.

This project has the potential for further development in the future by adding more features for students and teachers. More features such as assignments, results, and grades could be added.

Methods And Tools

HTML,CSS is used for creating frontend

Python Django is used as a backend technology

Python OpenCV is used for face recognition

Pycharm IDE

Visual studio code

Reference

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THANK YOU

PROTOTYPE