

# Attendance - Face Detection

## Project Overview

The "Attendance - Face Detection" project aims to create an efficient attendance management system using face recognition technology. This system eliminates the need for human interference, ensuring a seamless and automated process for tracking attendance.

## Objective

To develop an attendance management system that utilizes computer vision technology to recognize and verify faces, thereby recording attendance without the need for physical contact or manual entry.

## Problem Statement

Traditional biometric systems such as fingerprint scanners and ID card readers present certain challenges:

- **Fingerprint Scanners:** Issues arise when individuals have injuries on their hands, making it difficult to capture fingerprints accurately.
- **ID Card Scanners:** If an ID card is lost or misplaced, it leads to complications in tracking attendance.

## Proposed Solution

A face recognition management system addresses these issues by:

- Capturing individuals' facial images through a camera.
- Analyzing these images to verify the person's identity.
- Automatically recording attendance upon successful verification.

## Technologies Used

- **Hardware:** Camera detectors fixed on the wall.
- **Software:**
  - **Programming Language:** Python
  - **Libraries:** OpenCV (Open-Source Computer Vision Library)

## **Key Features**

1. **Installation:** Install the system at the entrance of the workplace.
2. **Enrollment:** Enroll individuals by capturing their facial images and adding them to the database.
3. **Attendance Capture:** Automatically capture attendance as individuals enter the workplace.
4. **Record Management:** Maintain and manage attendance records through the system's interface.

## **System Workflow**

1. **Image Enhancement:** Pre-processing images to improve detection accuracy.
2. **Face Detection:** Identifying and isolating faces in the captured images.
3. **Face Recognition:** Matching detected faces with stored images in the database.
4. **Attendance Management:** Recording attendance based on successful face recognition

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