

# Facial Recognition based Attendance System

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## Index

1. Introduction
2. Objective
3. Methodology
4. Result
5. Conclusion

## I INTRODUCTION

Facial recognition technology has gained significant prominence in various applications, and one area where it finds practical use is in attendance systems. This project introduces a Facial Recognition-based Attendance System that leverages the capabilities of the ‘face-recognition’ library and OpenCV.

This system captures real-time video from a webcam, identifies faces, recognizes individuals, and records their attendance without manual input. It offers a more efficient and accurate alternative to traditional attendance tracking, improving the overall process and providing a reliable way to manage attendance, by using computer vision techniques.

## II OBJECTIVE

The primary objective of this project is to develop a reliable and efficient attendance system that eliminates the need for manual attendance tracking. By employing facial recognition technology, the system aims to automate the attendance marking process, providing a seamless and accurate solution.

## III METHODOLOGY

**Library Utilization:** The methodology employs two Python libraries, OpenCV and face-recognition, to enable facial recognition capabilities.

**Initialization of Known Faces:** The system starts by loading known face encodings and associated names

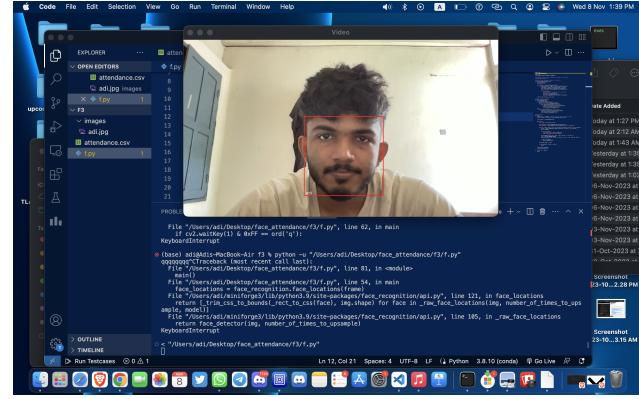


Figure 1: System recognizing face

from a specified folder. These known faces serve as a reference for the recognition process.

**Real-time Video Capture:** The system continuously captures video frames from the webcam. This process involves accessing the live feed from the camera.

**Face Detection:** Using the acquired frames, the system identifies face locations within the images. This step is responsible for pinpointing the presence of faces in the video stream.

**Face Encoding Comparison:** For each detected face, the system proceeds to compare its facial encoding with the known face encodings established in the initialization step.

**Attendance Marking:** If a matching face encoding is found, the system records the person’s name along with a timestamp. This information is stored in a CSV file, thus marking the attendance of the recognized individual.

## IV RESULT

The system successfully captures video, recognizes faces, and marks attendance for recognized individuals. The attendance details, including names and timestamps, are stored in a CSV file (“attendance.csv”).

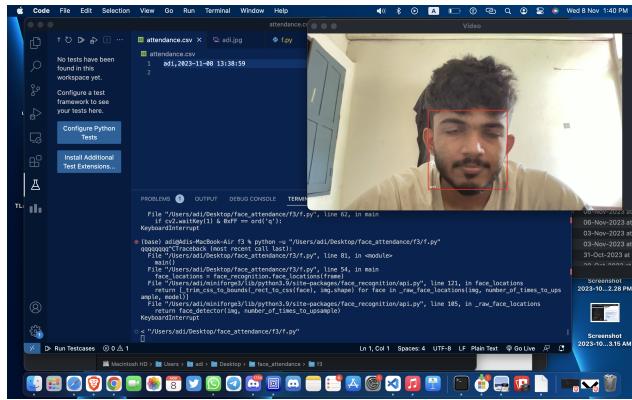


Figure 2: System marking attendance

Users can exit the program by pressing the 'q' key.

## V CONCLUSION

The Facial Recognition-based Attendance System demonstrates the feasibility of automating attendance tracking through facial recognition technology. While the system is functional, further improvements could be explored, such as optimizing face detection parameters, enhancing the training dataset, and integrating additional features for scalability.

## References

- [1] OpenCV: [https://opencv.org/]
- [2] (<https://github.com/ageitgey/face-recognition>)