

AI BASED ATTENDANCE PLATFORM

Project Abstract

Submitted by Team Number 27

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Introduction

Replacing manual tasks of attendance taking with a comprehensive application can save a lot of precious teaching time. Our AI powered face recognition solution which uses Computer Vision and Machine Learning algorithms to mark the attendance of the employees or students of the organisation. This platform is a really convenient choice to quickly and easily track a student's attendance or their participation in any given event, program or classes. Following is the working of the application proposed.

Why This Platform?

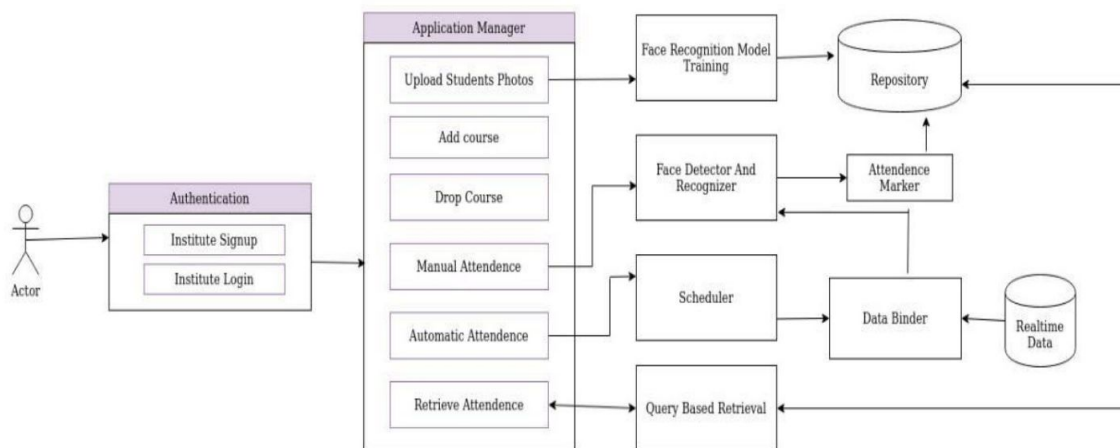
- This provides a solution to RFID cards and biometric devices used in organizations which costs organization in terms of manpower and cost.
- During the current state of the world due to **COVID19**, hygiene issues regarding traditional biometric devices have come to surface. This platform will ensure a contactless attendance system.

Who Can use this platform

Educational Institute

- Upload Photos : Institute will be given functionality to upload pictures of students whose attendance needs to be taken .
- Add course : Institute will be given functionality to add courses for which institute wants to use the platform for attendance.
- Drop course : Institute can drop courses for which the institute doesn't want to use the platform for attendance.

- Manual attendance : In manual attendance mode institute will have to upload a video of the class to the portal after which AI will take care of marking attendance using frame extraction of the video provided.
- Automatic attendance : In Automatic attendance mode, the platform will have access to cameras installed in the class and it will record a video automatically at a predefined time during the time slot of the class.
- Retrieve attendance : Institute can retrieve attendance of a course at any time.



Corporate organisations

- Add Employee : Organisations will be given functionality to upload pictures of the employees whose attendance needs to be taken .
- Drop Employee : Organisations will be given functionality to remove the employees whose attendance need not be taken further.
- Automatic attendance : In Automatic attendance mode, the platform will have access to cameras installed at the entry and exit of the organisation. Camera will provide the photo frame at every instance when a person enters or leaves the organisation.
- Retrieve attendance : Organisation can retrieve attendance of the employees.
- Working hours : Some organisations that want their employees to have at least certain working hours per week can retrieve whether that employee was present in the organisation for required working hours or not.

Basic Components Of Platform

Authentication

Different institutes will need to create their account and hence will get their unique logins to the application. The Authentication Service will be responsible to handle signup and login of the institutes.

Application Manager

This is the modules which will be visible to the institute using which they can avail the services of the platform.

Data Binder

This module is responsible to bind the input stream data of the class either coming from cctv camera or any other source and the face recognition attendance model at the scheduled time.

Attendance Marker

The module gets the results of the prediction model as input and will then be responsible to save the attendance in the database.

Scheduler

This module is responsible to run the face recognition attendance model at the scheduled time as given by the institute on the configuration file.

Query Manager

This module will be responsible to give results for the queries given by the user on the attendance database

E.g Get all students having attendance [less than or greater than K] for [list of courses]

More queries are covered in design documentation