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ATTENDANCE MONITERING SYSTEM USING FACE RECOGNITION

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Abstract:

Attendance marking in a classroom during a lecture is not only an onerous task but also a time consuming one at that. Due to an unusually high number of students present during the lecture there will always be a probability of proxy attendance(s). Attendance marking with conventional methods has been an area of challenge. The growing need of efficient and automatic techniques of marking attendance is a growing challenge in the area of face recognition. In recent years, the problem of automatic attendance marking has been widely addressed through the use of standard biometrics like fingerprint and Radio frequency Identification tags etc., However, these techniques lack the element of reliability. In this proposed project an automated attendance marking and management system is proposed by making use of face detection and recognition algorithms. Instead of using the conventional methods, this proposed system aims to develop an automated system that records the student's attendance by using facial recognition technology. The main objective of this work is to make the attendance marking and management system efficient, time saving, simple and easy. Here faces will be recognized using face recognition algorithms. The processed image will then be compared against the existing stored record and then attendance is marked in the database accordingly. Compared to existing system traditional attendance marking system, this system reduces the workload of people. This proposed system will be implemented with 4 phases such as Image Capturing, Segmentation of group image and Face Detection, Face comparison and Recognition, Updating of Attendance in database.

Keywords: Attendance Management, Computer Vision, Deep Learning, Human Face Images.

1.INTRODUCTION

Body measurements and calculations relating to human traits are referred to as biometrics. Biometric authentication, also known as realistic authentication, is a technology used in computer science for identification and access control. It can also be used to identify individuals in groups that are under surveillance.

Biometric identifiers are distinguishing, quantifiable traits that are used to identify and categorise people. These distinguishing traits are frequently categorised as physiological traits that have to do with body structure. DNA, palm prints, hand geometry, iris recognition, retina scans, fingerprints, palm veins, facial recognition, and odor/scent are just a few examples. Behavioral traits, such as typing rhythm, gait, keystroke, signature, behavioural profile, and voice, are connected to a person's pattern of behaviour. The latter type of biometrics is referred regarded by some academics as behaviometrics

Token-based identity systems, like a passport or driver's licence, and knowledge-based identification systems, like a password or personal identifying number, are more conventional methods of access control. As biometric identifiers are specific to each person, they are more reliable than token- and knowledge-based approaches for confirming identity. However, collecting biometric identifiers raises privacy issues regarding how this data will be used in the future.

Use of biometrics correctly depends heavily on the application. Based on the desired levels of convenience and security, some biometrics will be superior to others. No single biometric will be able to satisfy all of the demands of all potential applications.

The two fundamental operating modes of a biometric system are shown in the block diagram. To confirm the person is who they say they are, the system first performs a one-to-one comparison of a captured biometric with a specified template stored in a biometric database in verification (or authentication) mode. The verification of a person takes three steps. All users' reference models are created in the first stage and kept in the model database. The genuine and imposter scores are generated and the threshold is calculated in the second stage, which pairs some samples with reference models. The testing phase is the third step. A smart card, username, or ID number (such a PIN) may be used in this process to specify which template should be used for comparison. The verification mode is frequently used in "positive recognition," where the goal is to stop numerous people from using the same identity.

Second, the system attempts to identify an unknown person in identification mode by running a one-to-many comparison against a biometric database. If the result of comparing the biometric sample to a template in the database is within a predetermined threshold, the system will be able to successfully identify the person. Both "positive recognition" (where the user doesn't have to submit any information about the template to be used) and "negative recognition" (where the system determines whether the person is who she (implicitly or explicitly) denies to be) can be done using identification mode. The latter purpose can only be accomplished through biometrics because passwords, PINs, and keys are poor personal identification tools.

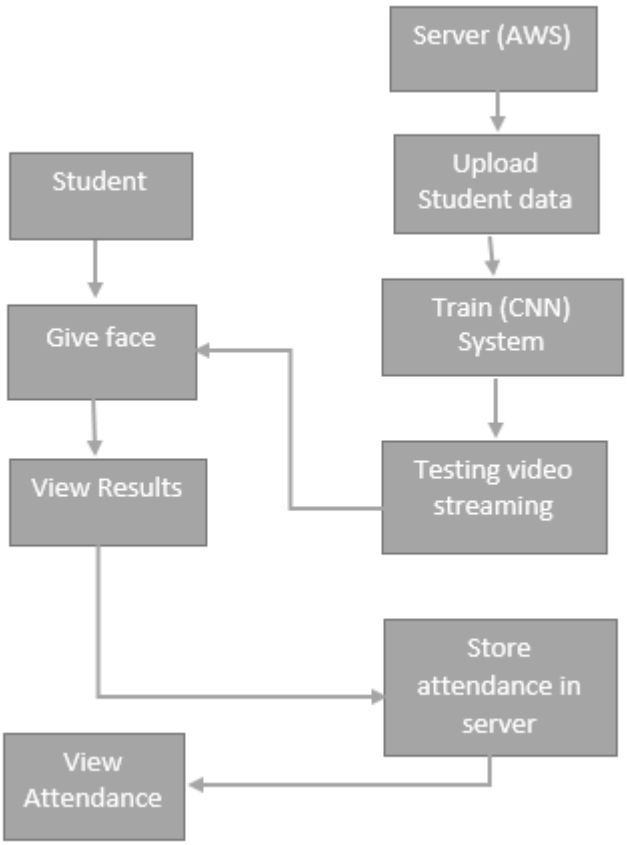
2.PROPOSED MECHANISM

We have developed a model in this paper that can use face recognition to take a student's attendance during the designated times; if the student is not recognised during the designated time, they will be marked as being late. The model can also send SMS notifications to parents of students about the timings of their attendance. Although there are several biometric procedures, face recognition is the most effective one. Here, we're utilising computer vision, a branch of deep learning, to receive and write data from the camera while using Flask to build a graphical user interface. And the public cloud server is where the entire process is developed.

Advantages

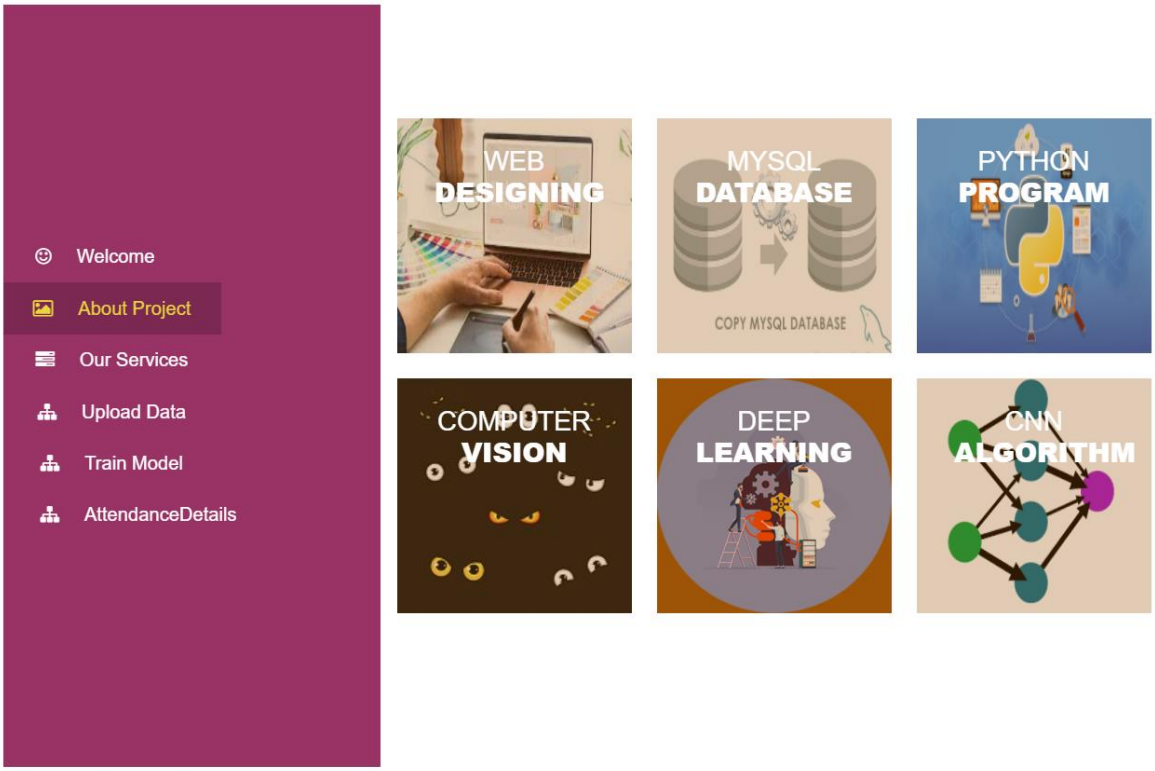
- Reliable choice.
- An increase in output.
- Use is simple and secure.
- Practical selection.
- System agnostic.

Block Diagram:

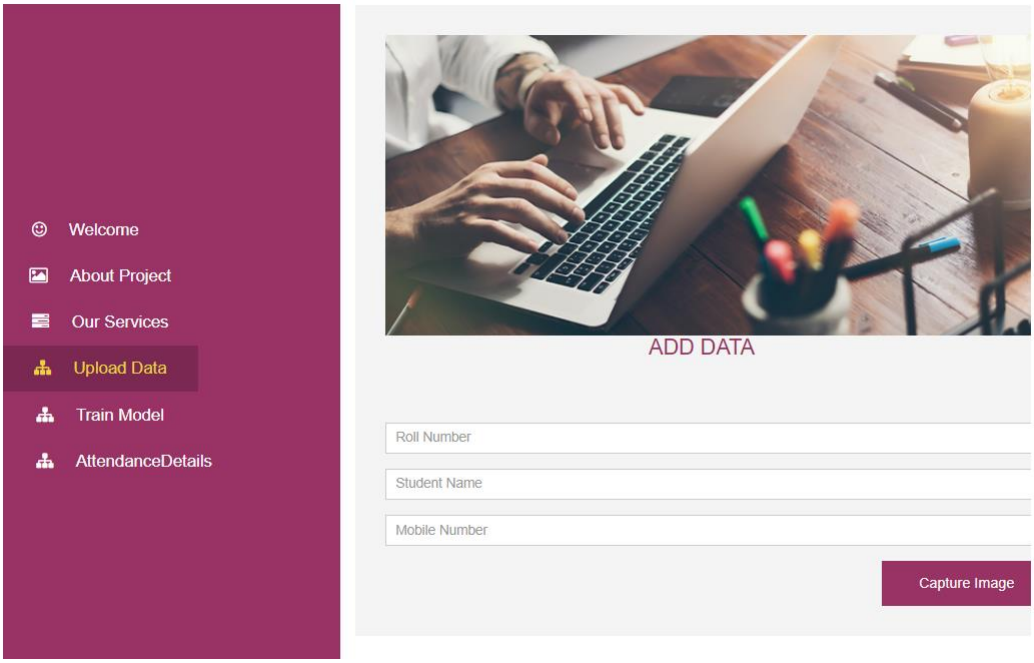


3.EXPERIMENTAL RESULTS

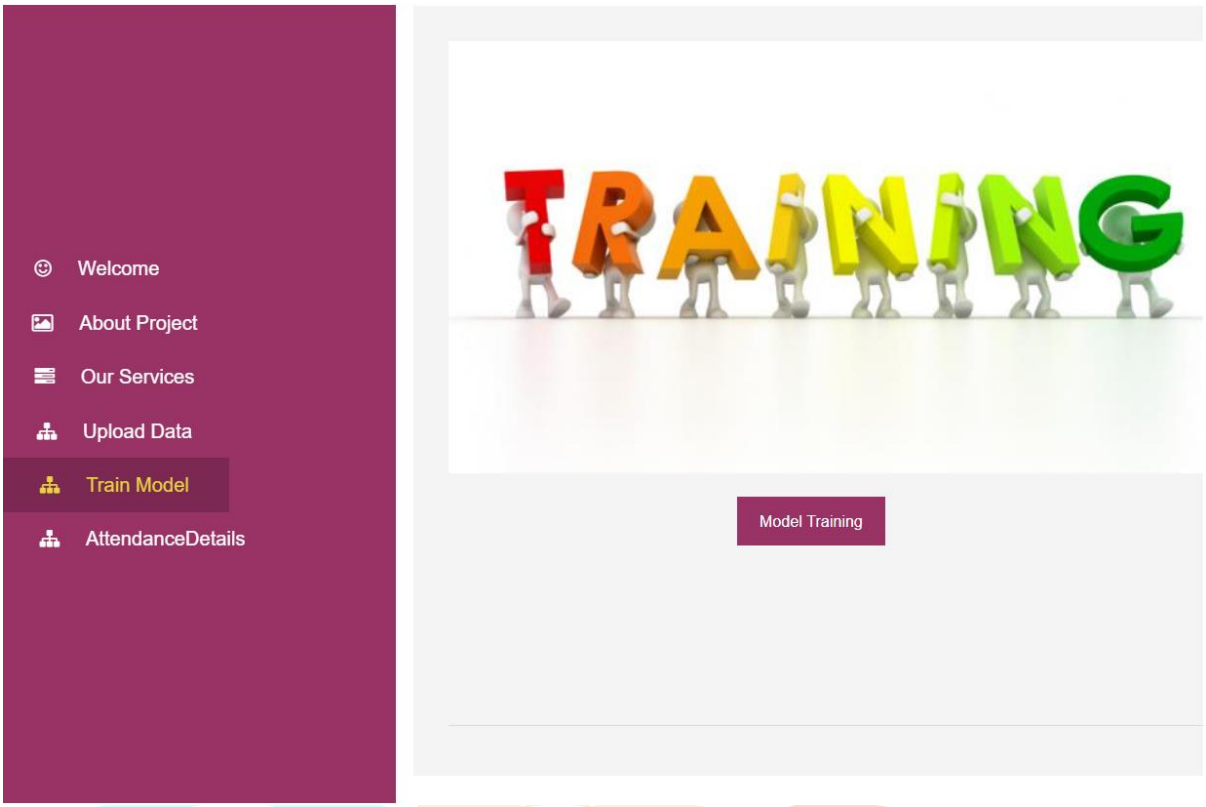
About project page: Here display the main theme of project.



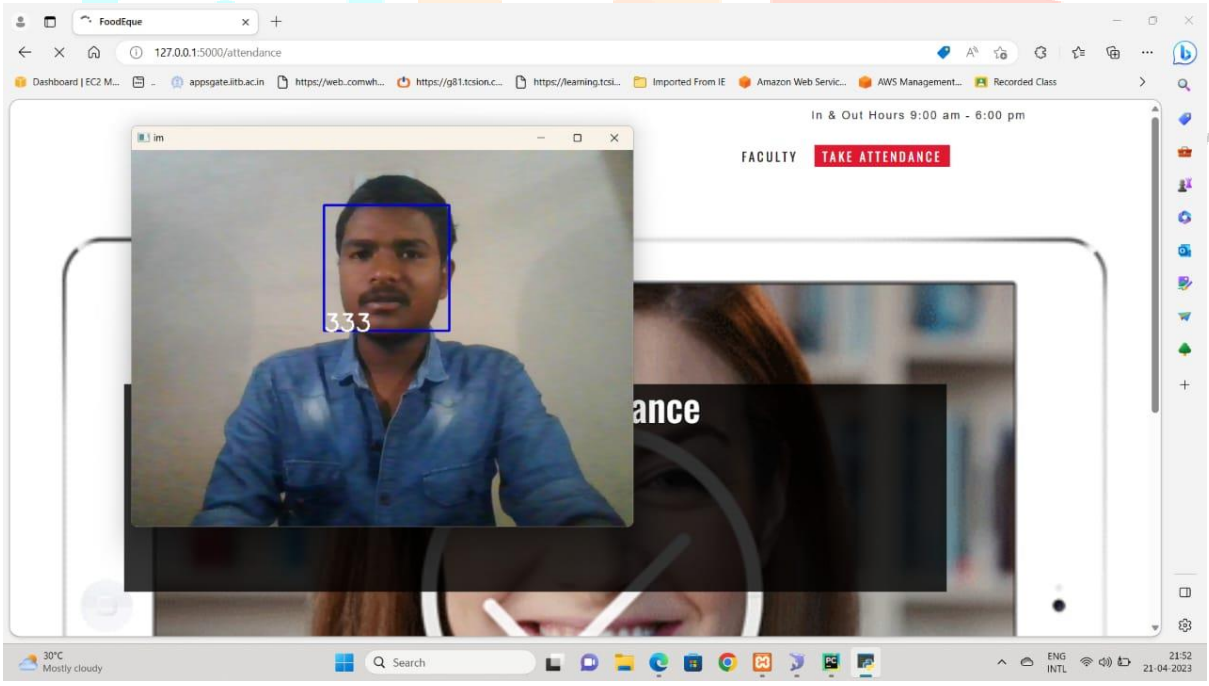
Upload data page



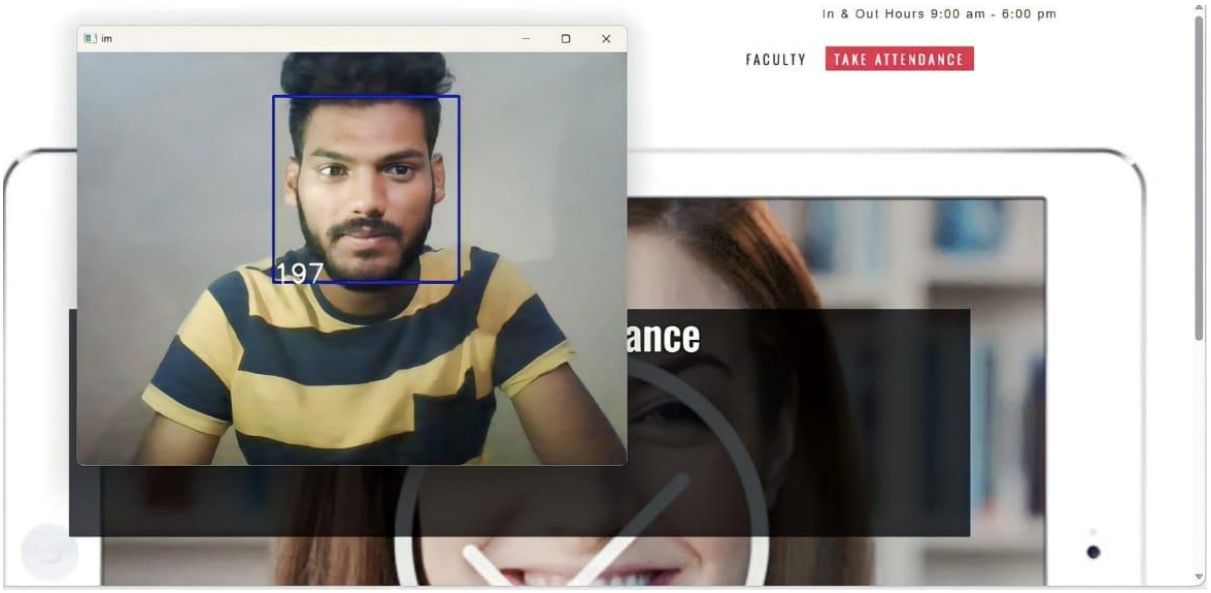
Data training page:



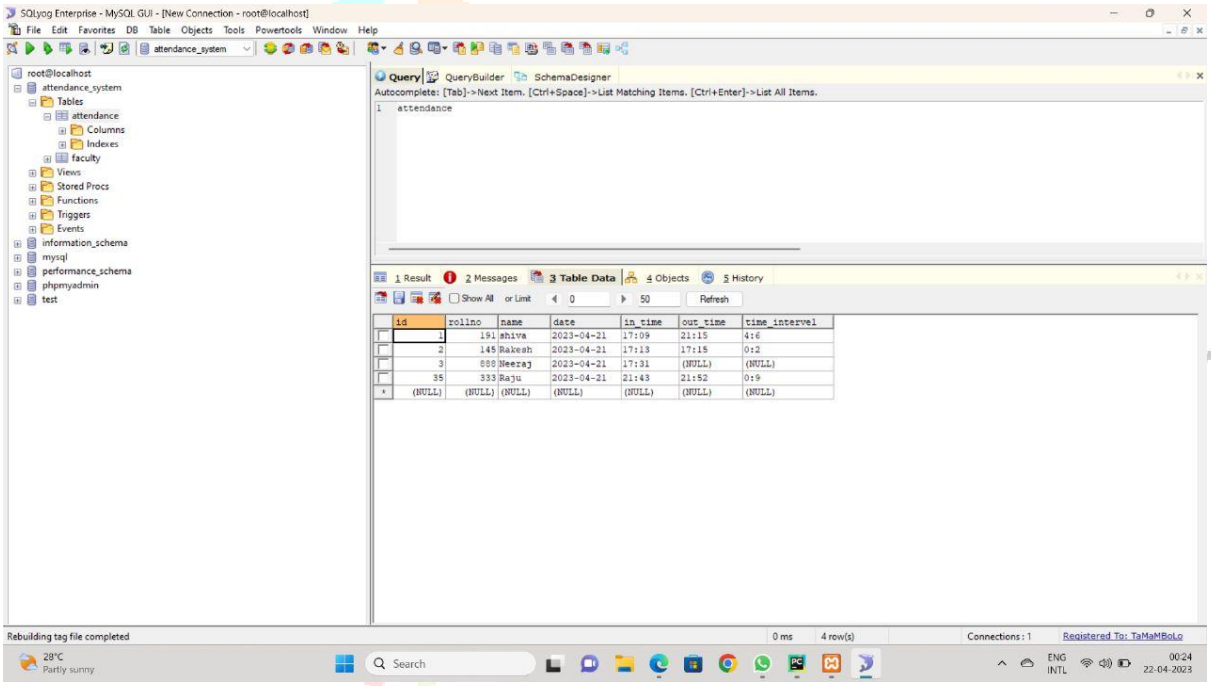
Take attendance page:



2).



Final output data in sql database:



4.CONCLUSION AND FUTURE WORK

In our proposed work, we have developed a model that can record student attendance at designated hours using facial recognition; if a student is not recorded during designated times, their attendance will be recorded as tardy. We used the Flask Framework, where the student's data were stored, a model was trained, the student's photo was taken, it was tested, and the student's attendance was tracked using the face image that was taken. Also, the entire process is hosted in the public AWS cloud.

In the future, we can broaden the concept and apply it to a variety of settings, including educational institutions, corporate offices, and numerous workplaces. Things that are simple to consider when a person has less time are there.

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