A

Synopsis

On

Biometric Attendance Management System using Face Detection

Submitted in partial fulfilment of the requirement for the award of Degree of Bachelor of Technology in **Computer Science & Eng.**

Submitted To

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CERTIFICATE OF APPROVAL

The synopsis on Project entitled "ATTENDANCE SYSTEM USING FACE DETECTION" being submitted by "Narendra Kumar (1900650100033), Kunal Agrawal (1900650100026), Vaibhav Agrawal (1900650100059)" have been examined by us and is here by approved for the award of degree "Bachelor of technology in CSE", for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approved any statement made, opinions expressed or conclusions drawn therein, but approved the project only for the purpose for which it has been submitted.

Project Guide	Project Coordinator
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SYNOPSIS

Project Name:

BIOMETRIC ATTENDANCE SYSTEM FACE DETECTION

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1. INTRODUCTION

1.1 What is Attendance System?

An attendance management system refers to an organization's approach to tracking time and attendance information. An accurate attendance and time tracking system helps you save time and effort in calculating your employees' working hours.

It helps to make employee more functional, improving the working hour of the organization.

In today's fast-moving world, the technologies have been taken place in each and every field. The Attendance System is one of them which reduce the register work and make it happen on local machine-like computer or can be using the cloud-based technology. It is useful as per security concern and for review of the data. It happens using the machine learning and gathering of data, labelling them and used for recognition.

1.2 Use of Face Detection and Recognition

By the use of Face Detection, we can easily specify the human faces in real environment, Face Detection is also called Facial Detection- is an Artificial Intelligence (AI) based computer Technology used in various field like security and biometrics – to provide surveillance and tracking of people in real time.

In this system we firstly create a dataset labelled that accordingly to recognize in real time.

The Recognition is used to identify the identity from the labelled set, if it exists it append the data into the database otherwise it shows the message that "Identity is not Matched".

After recognition the data is appended to the database and reflected in the database. This system reduces the amount of time for making record of employee from minutes to second, provide the correct info of the person whether the same person arrive or just appended by someone

2. FUNCTIONAL REQUIREMENTS

The system comprises of 2 major modules with their sub-modules as follows:

2.1 Attendance System:

- **Time Management:** The time of the identity while recognising should be reflected in the database on the real environment.
- **Absence and Leave Management:** There should be automatic absence option after a certain time, and the planned Leave management also.
- **Database Management:** The data received by the system recognizing the identity, absence of identity and planned leave of identity should be managed and reflected in the database on the daily basis.

2.2 Face Detection and Recognition:

- **Data Scrapping:** Data scrapping is used to extract the Data(images), Facial expression in virtual images.
- **Cleansing:** The data received should be cleaned first to train are system in more accurate manner.
- **Labelling:** The Cleaned data is labelled so that system can easily identify the identity on real environment.
- **Recognition:** Visualizing the facial expression of the identity match it from the labelled set of data to respond in accurate manner.

3. PROJECT SCOPE

This project is developed for Attendance using detection and recognition of the person. The system upgrades the Attendance model which has been used from a very old time. This technology provides the best solution as per security and for the batter utilization of the time in the organization. The

The scope of this project is analysing the biometrics and the lines, expression of the face to detect the identity. This system reduces the time to some seconds with the accuracy and least error chances. It recognises the person from the labelled set created after cleansing the row data for the accurate result. Also, at the same time, as it is automated program that means, it will append the data into the database which make it working real time project, the user won't need to worry about that. Creating and training models is a point in this project for a better outcome.

4. Hardware and Software Requirement

4.1 Software Requirements:

- Operating System: Window XP and higher
- Web Browser
- Language: Python
- Database

4.2 Hardware Requirements:

- Processor – i3
- Hard Disk – 20 GB
- Memory – 2GB RAM
- Internet Connection (at least bandwidth should be 2Mbps)
- Number of Cores - 2

5. METHODOLOGY

To achieve this work, the methodology to be the objectives of adopted is as under:

Sr No.	Duration	Task Completed
1.	18 Sept 2022 – 18 Oct 2022	Requirement Analysis
2.		System Design (Extraction & Analysing)
3.		Implementation (Extraction of Facial Expression and Scrapping of Images Data) (Cleansing of Data) (Labelling of Data) (Training the System for Defined data)
4.		Integration (Integrating the above modules together as a part of one.)
5.		Testing

6. ADVANTAGES

- The proposed system will help us int Time Saving for the workforce, no need to wait for time to get chance to manually enter their presence in the register.
- The System increases Efficiency and Capability, reduces the human error and provide the precise time record.
- Will make workplace secure by preventing unauthorized individuals.
- Easy to Automate the old system and Automated Time Tracking.
- Automation will reduce the efforts for having corelation with other system, makes Easy Integration with Other System.
- The Record maintaining became easy, can get past record easily.
- This system is user convenient and friendly too.
- Labelling will specify the facial expressions of each identity(employee).
- you may just relax and allow the biometric or mobile camera to capture your face, thereby limiting the spread of infections or illness and hence Improve Employee Wellness and Productivity.

7. LIMITATIONS OF THE PROJECT

Following are the Limitations of Twitter and News Analytics

✓ **Internet Dependency:**

The data is stored on server or on cloud we need a fix size bandwidth network connection. The processing of images from different labelled set of data is performed on server, need an internet connection.

✓ **Scanning Difficulty:**

Scanning the face biometrics may have some difficulty at some situations. The movement of head or different camera positions can cause changes of facial texture and it will generate the wrong result. Occlusion means the face as beard, mustache, accessories (goggles, caps, mask, etc.)

✓ **Adding new Member:**

Although the new member can be added by making the clean labelled set of their images, we need to also take care to append the data of newly joined individual in the database.

✓ **Website Security & Privacy:**

In today's time there are many cyber-attacks happens, the website needs to be check on timely and need to have enhancement as per the scenario.

8. FUTURE ENHANCEMENTS

- In further work, we intend to improve face detection effectiveness by using the interaction among our system, the students and the teacher.
- Our system can be improved by integrating video-streaming service and lecture archiving system, to provide more profound applications in the field of distance education, course management system (CMS) and support for faculty development (FD).
- We can further improve this system so as we can run this system with more than two students on a bench and allowing them to change their positions.
- Preparing and training the models is a plus point for better outcome.
- Creating automation will reduce the efforts for finding the records of an individual.

9. REFERENCES

URL References:

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