**A Project on**

**AttendEase: Streamlining Class Attendance with an Automatic System**

***Submitted in partial fulfillment of the requirement for the award of the degree of***

Masters Of Computer Application

****

**Under The Supervision of Dr. Arun Chaudhary**

**Associate Professor**

Submitted By -

Saurabh Sharma(E23MCAG0124)

Ashish Ranjan(E23MCAG0090)

**SCHOOL OF COMPUTER SCIENCE ENGINEERING AND**

**TECHNOLOGY**

**BENNETT UNIVERSITY, GREATER NOIDA, U.P**

# School of Computer Science Engineering andTechnology - Bennett University

**CANDIDATE’S DECLARATION**

I/We hereby certify that the work which is being presented in the project, entitled **“ AttendEase: Streamlining Class Attendance with an Automatic System”** in partial fulfillment of the requirements for the award of the **Masters of Computer Application** submitted in the School of Computing Science and Engineering of **Bennett University, Greater Noida**, is an original work carried out during the period of month, Year to Month and Year, under the supervision of **Dr. Arun Chaudhary**, Associate Professor School of Computer Science Engineering and Technology, Bennett University, Greater Noida

The matter presented in the thesis/project/dissertation has not been submitted by me/us for the award of any other degree of this or any other places.

This is to certify that the above statement made by the candidates is correct to the best of my knowledge.

Names – SAURABH SHARMA

ASHISH RANJAN

# Table of Contents

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | |  | **Page No.** |
| **Abstract** | |  | **I** |
| **List of Table** | |  | **II** |
| **List of figures** | |  | **III** |
| **Chapter 1** | | **Introduction**   * 1. Motivation   2. Problem statement   3. Aim and objectives of the study | **1** |
| **Chapter 2** | | **Literature Survey**   * 1. A review of relevant literature and existing work related to the project.(with table) |  |
| **Chapter 3** | | **Project Design**   * 1. Hardware/ Software Requirement   2. Proposed Methodology   3. Details on data collection methods and tools   4. Procedures and techniques used in the project |  |
| **Chapter 4** | | **Result and Discussion**   * 1. Presentation of the findings or results of the project   2. Use of tables, charts, graphs, or other visuals for clarity. Explanation of result |  |
|  |

## Abstract

This project report details the development and implementation of an attendance system that utilizes face recognition technology to streamline the process of recording and monitoring attendance in educational and corporate environments. This system aims to provide a reliable, efficient, and secure method to manage multiple attendee databases, thereby reducing human error and increasing accountability. The technology discussed incorporates advanced algorithms and data processing techniques to ensure high accuracy in face detection and recognition.

## List of Tables

1. Table 2.1: Summary of Reviewed Literature on Face Recognition Technologies
2. Table 4.1: Comparison of Attendance Data Before and After Implementation
3. Table 4.2: System Performance Metrics

## List of Figures

1. Figure 3.1: System Architecture Diagram
2. Figure 3.2: Workflow of the Proposed Methodology
3. Figure 4.1: Graph showing Attendance Rates by Month
4. Figure 4.2: Accuracy Rates of Face Recognition over Time

## Chapter 1: Introduction

### Motivation

The motivation behind developing a multiple attendance system through face recognition is driven by the need for an automated and non-intrusive method of tracking attendance. Traditional methods are often time-consuming and prone to errors, necessitating a robust solution that leverages technology to streamline processes.

### Problem Statement

Current attendance systems primarily rely on manual entries or RFID scans, which can lead to bottlenecks, proxy attendance, and data inaccuracies. These systems do not scale well when dealing with large numbers of attendees or multiple entry points.

### Aim and Objectives of the Study

The aim of this study is to design and implement a face recognition-based attendance system that improves accuracy, efficiency, and security. The objectives include:

* To develop a model capable of accurately recognizing faces in varied lighting and angles.
* To implement a user-friendly interface for easy access and manipulation of attendance data.
* To evaluate the system’s performance and acceptability in real-world scenarios.

## Chapter 2: Literature Survey

### A review of relevant literature and existing work related to the project.

A comprehensive review of existing literature reveals various approaches and technologies employed in face recognition and attendance systems. Technologies range from 2D and 3D face recognition to hybrid systems incorporating machine learning and artificial intelligence.

**Table 2.1: Summary of Reviewed Literature on Face Recognition Technologies**

| **Author(s)** | **Year** | **Findings** | **Relevance** |
| --- | --- | --- | --- |
| Smith et al. | 2020 | Developed a 2D IR-based recognition system | Directly applicable |
| Doe and Roe | 2021 | Explored ML algorithms for accuracy | Insights into algorithm efficiency |
| ... | ... | ... | ... |

## Chapter 3: Project Design

### Hardware/Software Requirement

* **Hardware**: High-resolution cameras, servers for data processing.
* **Software**: Python, OpenCV for image processing, TensorFlow or PyTorch for implementing neural networks.

### Proposed Methodology

The system will use a deep learning model trained on a diverse dataset to recognize faces. The methodology includes data preprocessing, model training, and real-time face detection and recognition.

### Details on Data Collection Methods and Tools

Data collection involves capturing a wide range of facial images across different demographics. Tools such as digital cameras and pre-existing datasets will be utilized.

### Procedures and Techniques Used in the Project

The development follows a standard machine learning project pipeline: data collection, data cleaning, model training, testing, and deployment.

**Figure 3.1: System Architecture Diagram** **Figure 3.2: Workflow of the Proposed Methodology**

## Chapter 4: Results and Discussion

### Presentation of the Findings or Results of the Project

The implemented system shows a high level of accuracy in face recognition across tests conducted in various scenarios.

### Use of Tables, Charts, Graphs, or Other Visuals for Clarity

**Figure 4.1: Graph showing Attendance Rates by Month** **Table 4.1: Comparison of Attendance Data Before and After Implementation**

### Explanation of Result

The results indicate significant improvements in attendance management, including reduced time for processing and increased security against fraud.

## Chapter 5: Conclusion and Future Work

The project successfully demonstrates the feasibility and effectiveness of a face recognition-based attendance system. Future work could explore integration with more complex systems, enhanced security features, and scalability improvements.