

**National University of Sciences and Technology (NUST), Balochistan Campus (NBC)**

**Department of Computer Science**

**Fall Semester SEP 2022 – MAR 2022**

**PROJECT PROPOSAL**

Project Title: Automated Attendance System Using Facial Recognition.

**End Semester Project of Data Structures & Algorithms**

**Team Members:**

|  |  |  |
| --- | --- | --- |
| S.no | Student Name | CMS ID |
| 1 | Muhammad Ali | 391705 |
| 2 | Muhammad | 391855 |

**Project Advisors:**

Advisor Name: **Sir Najeeb Ullah**

Automated Attendance system using facial

Recognition

12/December/2022

# Overview

## Project Background and Description

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|  | Face detection and face recognition are very important technologies these days, furthermore we noticed that they got have a variety of uses such as cellphones, army uses, and some high risk information offices. The background behind this project is to simplify the means by which attendance is taken during lectures and how much time it takes. The use of ID cards or manually calling out attendance and writing it down on sheets is not productive and efficient. This system will detect the number of faces on the class and will also identify them from the store **database**. With the face detection and recognition system in place, it will be easy to tell if a student is actually present in the classroom or not.  We decided to make an application that detects and recognize the face as a student attendance system and can be a substitute for the regular paper attendance system and finger print attendance system. The main function in our **graphical user interface** (GUI) project is going to be done using **Open Source Computer Vision Library** (OpenCV) in **C++**/**C#** programing language in **Visual Studio 2022**. Because OpenCV is the huge open-source library for the computer vision, machine learning, and image processing and now it plays a major role in real-time operation which is very important in today's systems. By using it, one can process images and videos to identify objects, faces, or even handwriting of a human. However, our project would be integrated with a database using **Sequential Query Language** (SQL) by **MySQL** which is a database management system. Therefore, the data structures and algorithm in the project are going to be used, **Linked List** and **Binary Search Tree,** **Binary Search Algorithm** whereas the linked list and binary search tree are going to be used for storing the details of students and Binary Search algorithm would be used to find a student. |

## Project Scope

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|  | A facial recognition attendance system uses facial recognition technology to identify and verify a person using the person's facial features and automatically mark attendance. The software can be used for different groups of people such as employees, students and stores the data in real-time. Most importantly, this feature can also be implement in our Campus Management System (QALAM). |

## Project Objectives

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|  | These are what we plan to achieve by the end of our project. Our project objectives are attainable, time-bound and specific that we can measure at the end of our project. The main objectives of the project are mentioned below. |

* Reducing time wastage during conventional class attendance.
* Utilizing latest trends in machine vision to implement a feasible solution for class attendance system.
* Automating the whole process so that we have digital environment.
* Preventing fake roll calls as one to one attendance marking is possible only.
* Encouraging the use of technology in daily lives.

## Applications

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|  | Large application in institute attendance system where multiple attendances are carried out for different classes. The attendance will be short timed and reduce manual errors.  Large application of computer vision in field of Communication, Biomedical, Automatic Product Inspection. |

## Affected Business Processes or Systems

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| --- | --- |
|  | Greater reliability, cost-effectiveness, greater visibility or transparency, greater employee productivity, smooth workflow management, enforces company policies and ensures compliance, flexibility and integration with Other Software are terms define how business processes or systems are affected. |

## Implementation Plan

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|  | There are many solutions to automate the attendance management system like thumb based system, simple computerized attendance system, Iris scanner, but all these systems have limitations overwork and security point of view. Our proposed system shall be a "Face Recognition Attendance System" which uses the basic idea of image processing which is used in many security applications like banks, airports, Intelligence agencies etc. |

## High-Level Timeline/Schedule

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|  | We will approach a successful completion of our project on the daily basics efforts. We mainly focus the concepts in the upcoming winter vacations (1st of January to 15th of February). Therefore, the project is expected to be finished before the end semester examination (ESE). |

# Approval and Authority to Proceed

We approve the project as described above, and authorize the team to proceed.

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| Name | Title | Date |
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Approved by: Approved by: Date: / /