EXPERIMENT NO. 2

Attendance Management System Using Facial Recognition

1 Functional Requirements

1. Registration :
Student and teacher registration and validation of college email id. At the time of registration, the system shall accept face images of the students and teachers from five different angles.

2. Login :
Validating the user identity by verifying their college email id.At the time of login, the system shall accept the email id, password and OTP (Optional) generated on the registered college email id that was previously registered.

3. Face Detection:
Capture face images via webcam or external USB camera.Faces on an image must be detected.The faces must be detected in bounding boxes.Compute the total attendance based on detected faces.Crop the total number of faces detected.Resize the cropped faces to match faces the size required for recognition.

4. Face Recognition:
Train faces for recognition.Perform recognition for faces stored on database.Compute recognition rate of the system.Perform recognition one after the other for each face cropped by Face Detector.Display the name of the output image above the image in the plot area.

5. Attendance Management:
Based on the face detection and recognition results the attendance of individual students will be marked. Attendance will be considered only for first 15 minutes after the professor enters the classroom.

6. Web Portal:
The web portal will have three types of accounts that is of students, teachers and admin. The students will be able to access their attendance records and the study content provided by the teachers. The teachers will be able to view the daily lecture's attendance percentage and upload their study content.

2 Non Functional Requirements

1. Performance:
The facial recognition will take at most time of 15 seconds. The web portal pages should maximum of 2-5 seconds to load.

2. Scalability:
The system shall be implementable in a specific domain like a college.

3. Availability:
The web portal shall be available at all times and at all places with an internet connection.

4. Reliability:
The system shall be reliable in the terms of no data leakage and secured connection between the system and the software.

5. Capacity:
The system requires large capacity storage for storing the facial images of the students and the teachers.

6. Maintainability:
The system shall be easily maintainable with only one time installation of the cameras in the classrooms and replacements only in case of failure of the cameras.

7. Usability:
The system shall be usable by anyone with a smart phone or a computer with an internet connection.