SMART ATTENDANCE SYSTEM USING FACE RECOGNITION

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<u>ABSTRACT</u>

Stage 1

We have proposed an automated student attendance system based on face recognition. Face recognition system is very useful in real life applications, especially in security control systems. The airport protection system uses face recognition to identify suspects and CBI uses face recognition for criminal investigations. In our proposed approach, firstly, video framing is performed by activating the camera. The face ROI is detected and segmented from the video frame.

Stage 2

In the pre-processing stage, scaling of the size of images is performed if necessary in order to prevent loss of information. The median filtering is applied to remove noise followed by conversion of colour images to gray scale images. Next, the features extracted from the test images are compared with the features extracted from the training images. The facial images are then classified and recognized based on the best result. Finally, the attendance of the recognized student will be marked and saved in the excel file.

INTRODUCTION

The main objective of this project is to develop face recognition based automated student attendance system. In order to achieve better performance, the test images and training images of this proposed approach are limited to frontal and upright facial images that consist of a single face only. The test images and training images have to be captured by using the same device to ensure no quality difference. In addition, the students have to register in the database to be recognized. The enrolment can be done on the spot through the user-friendly interface.

Problem Statement

Traditional student attendance marking technique is often facing a lot of trouble. The face recognition student attendance system emphasizes its simplicity by eliminating classical student attendance marking technique such as calling student names or checking respective identification cards. There are not only disturbing the teaching process but also causes distraction for students during exam sessions. Apart from calling names, attendance sheet is passed around the classroom during the lecture sessions. The lecture class especially the class with a large number of students might find it difficult to have the attendance sheet being passed around the class. Thus, face recognition student attendance system is proposed in order to replace the manual signing of the presence of students which are burdensome and causes students get distracted in order to sign for their attendance. Furthermore, the face recognition based automated student attendance system able to overcome the problem of fraudulent approach and lecturers does not have to count the number of students several times to ensure the presence of the students.

Hence, there is a need to develop a real time operating student attendance system which means the identification process must be done within defined time constraints to prevent omission. The extracted features from facial images which represent the identity of the students have to be consistent towards a change in background, illumination, pose and expression. High accuracy and fast computation time will be the evaluation points of the performance.

Aims and Objectives

The objective of this project is to develop face recognition based automated student attendance system. Expected achievements in order to fulfill the objectives are:

- To detect the face segment from the video frame.
- To extract the useful features from the face detected.
- To classify the features in order to recognize the face detected.
- To record the attendance of the identified student.

Figure 1.1 Block Diagram of the General Framework