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Face Recognition Automatic Attendance System Software

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Abstract -Human beings perform face recognition automatically every day and practically with no effort. Various organizations like schools, colleges, companies, etc., require to keep the daily record of their students/employees. Manual attendance maintaining is difficult process, especially for large group of students. This paper introduces face detection method using the Viola and Jones algorithm and Face recognition using Local Binary Patterns Histograms (LBPH) algorithm, this proposed system aims to develop an automated system that records the student's attendance by using facial recognition technology. The main objective of this work is to make the attendance marking and management system efficient, time saving, simple and easy. Here faces will be recognized using face recognition algorithms. The processed image will then be compared against the existing stored record and then attendance is marked in the database accordingly. Compared to existing system traditional attendance marking system, this system reduces the workload of people. This proposed system will be implemented with 4 phases such as Image Capturing, Image Pre-Processing and Face Detection, Training Data and Face recognition Updating of attendance in database/csv file.

KEYWORDS: Image processing, Expressions, HAAR features, HOG features, Face Detection Method, Face Recognition Method, Features Extraction, Features Matching, Query Image

1. INTRODUCTION

Fidelity is the future of automated student check-in. This Artificial Intelligence (AI-powered) Touchless Facial Recognition System detects your student's face each time they enter or exit the colleges and saves the ID. Tracking student attendance in the classroom is done manually by using the traditional pen and paper or file based approach which is normally passed around the classroom while faculty member is conducting the lecture. The task of every day attendance is a real struggle as it frustrates the one who is calling each name in every class that too in every single lecture. The human effort in the existing system is much more than the proposed system. The retrieval of the information is not as easy as the records are maintained in the hand written registers. This application requires correct feed on input into the respective field. Suppose the wrong inputs are entered, the application resist to work. So the user finds it difficult to use. Our proposed system consists of a camera that captures the images of the classroom and sends it to the image enhancement module. After enhancement the image comes in the Face Detection and Recognition modules and then the attendance is marked on the database server as well as csv file. At the time of enrolment, templates of face images of individual students are stored in the face database. If any face is recognized the attendance is marked on the database from where teachers can access and use it for different purposes. Camera takes the images to detect and recognize all the students in the classroom. Two databases are displayed in the experimental setup. Face Database is the collection of face images and extracted features at the time of enrolment process and the second attendance database contains the information about the teachers and students and also uses to mark attendance.

II. RELATED WORK

Ojala et al. [10] initially used Local Binary Pattern (LBP). LBP refers unremarkably to displacement pixels with an 8-bit dual code from the neighborhood of the pixels. For a 3 square, the center component estimate is ablated from

that of each of its eight neighboring pixels and is relegated to a bit based on the indication of the subtraction result 1 or 0. The created bits are then connected for all neighboring pixels and encoded into double strings. The dual strings inferred are referred to as Local Binary Patterns or LBP codes. The decimal estimate of the center component's LBP code (xc, yc). The LBP administrator LBP (P, R) produces 2p different yield values, about 2p distinctive two-fold examples formed by the P pixels within the varying R space. It has been shown that there is a lot of information in particular examples than others. It is conceivable to simply use a set of 2p double examples to portray the surface of the photographs. These examples were named by Ojala et al. as uniform examples.

All face images are viewed as the formation of small patterns that the LBP operator could recognize successfully. For face identification, Ahonen et al. [11] presented an LBP primarily based facial illustration. They have bifurcated facial images into M minor non-covering areas R(0), R(1), ..., R(M) to compare the facial structure. The LBP histograms extracted from each sub-region are then combined into a single, spatially enhanced histogram feature..

In [12] as suggested by Ahonen et al, the texture classification LBP approach describes the occurrence of LBP codes in an image being collected into a histogram. The classification is then carried out by calculating the similarities between straight-forward histograms. However,

a loss of spatial data results in considering the same methodology for illustration of the facial image. An approach to achieving this goal is to use the LBP texture descriptors to create

III. CONCLUSION

Automated Attendance System has been envisioned for the purpose of reducing the errors that occur in the traditional (manual) attendance taking system. The aim is to automate and make a system that is useful to the organization such as an institute. The efficient and accurate method of attendance in the office environment that can replace the old manual methods. This method is secure enough, reliable and available for use. No need for specialized hardware for installing the system in the office. It can be constructed using a camera and computer.

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