CHAPTER 2

LITERATURE REVIEW

2.1 AUTOMATIC ATTENDANCE MANAGEMENT SYSTEM USING FACE DETECTION [2016]

2.1.1 DESCRIPTION

This paper is about biometric attendance management. In this method camera is fixed in the classroom. After fixing the camera the image will be captured. During the training phase all students' images are trained. In the captured image the faces are recognized and faces get cropped from the captured image. During the attendance marking phase the recognized faces are checked against the database image. And if the image is matched with the database image the attendance gets marked. If the image is not found it will ask the admin to add the student image in the database. If the attendance is marked as absent it will send an alert to the concerned student parent. For the face recognition it uses a method called Eigen face. Eigen face is one of the fastest approach. The Eigen face method decomposes images into small features. Discrete images are mapped using linear values of Eigen face.Finally all the faces are recognized using the best Eigen face value.

2.1.2 MERIT

- Hardware installation is easy.

2.1.3 DEMERIT

- Accuracy is low and face recognition is difficult.

2.2 CLASS ATTENDANCE MANAGEMENT SYSTEM USING FACE RECOGNITION [2018]

2.2.1 DESCRIPTION

This paper proposes a comprehensive embedded class attendance system with controlling the door access. The proposed scheme is based on face recognition. By using Local Binary Pattern algorithm (LBP) the face gets recognized. After capturing image it will be passed to the raspberry pi which handles the implementation of face recognition algorithm. If the student image was matched the door will be opened with the help of servo motor. In addition, the attendance result will be stored in the MySQL database. The experimental results show that higher accuracy can be achieved with our proposed one. The numerical results are provided to show the performances of the proposed scheme in different cases of face recognition.

2.2.2 MERIT

- Easily accessible.

2.2.3 DEMERIT

- Less sensitivity and not effective in darkness.

2.3 AUTOMATED ATTENDANCE SYSTEM USING IMAGE PROCESSING [2018]

2.3.1 DESCRIPTION

This paper proposes an idea of using image detection and recognition which can automatically handle the attendance system. In this paper, Viola Jones algorithm used for face detection and Fisher Face Algorithm are used for face recognition. At first video segments are captured from the classroom. Then, the face was detected by preprocessing the video input .Face cropping has been done At last; the cropped image would be compared with the database. If the cropped face matches with the database it marks the attendance and if the image is not found it will ask the user to register.

2.3.2 MERIT

- Maintains attendance in high efficient manner

2.3.3 DEMERIT

- Accuracy rate is less than 50%

2.4 REAL TIME SMART ATTENDANCE SYSTEM USING FACE RECOGNITION TECHNIQUES [2019]

2.4.1 DESCRIPTION

Generally attendance system is executed with the help of biometrics. Face recognition is one of the best methods to improve this system. This paper proposes a method to automate the attendance management system by making use of recognition techniques like Eigen face values, Principal Component Analysis(PCA),Convolution Neural Network(CNN).Firstly student has to enroll and details will be stored in the database and the camera will be fixed outside the classroom. If the face is not present in the database it prompts the student to register. In face recognition module the images are recovered from the camera inside the classroom. It will mark present for the students who are present in the class. Marked attendance is stored in the database for the future purpose.

2.4.2 MERIT

- Proxy less with high accuracy

2.4.3 DEMERIT

- Less efficient

2.5 REAL TIME ATTENDANCE USING FACE RECOGINITION TECHNIQUE [2020]

2.5.1 DESCRIPTION

This paper is about integrating the face recognition technique with Open Source Computer Vision (OpenCV) for attendance management system. It will facilitate the attendance automation process and enable staff to enquire student details based on the check in and checkout time. Firstly the camera has been installed in the classrooms. After that image will be captured and the captured image will be passed to the face recognition module. The recognized images are checked with images of the students which is stored in a database with individual id .If the image is not found in the database by performing haar cascade method student can add their image into the database. Student information and attendance are stored in Excel Sheet.

2.5.2 MERIT

- Accuracy high in smaller area

2.5.3 DEMERIT

- Detection rate is low in larger area

2.6 ATTENDANCE MANAGEMENT SYSTEM USING FACE RECOGNITION [2020]

2.6.1 DESCRIPTION

This paper describes the face recognition technique used for the attendance management system. It uses an algorithm called cascade classifier and Local Binary Pattern Histogram (LBPH) for face recognition. In this application students have to register by entering the ID and Name registered with Face recognition. This data will be stored in database. Local Binary Pattern is a basic algorithm used to detect face from front side. Haar cascade is based on Haar wavelet technique to analyze the pixels from the captured image. The recognized images are checked with images of

the students which is stored in a database with individual id .If the image is not found in the database by performing haar cascade method student can add their image into the database. Student information and attendance are stored and it will be available for the respective staffs.

2.6.2 MERIT

- Robust Against monotonic grey image

2.6.3 DEMERIT

- Take more than 5 secs to recognize.

2.7 STUDENT ATTENDANCE SYSTEM USING FACE RECOGNITION [2020]

2.7.1 DESCRIPTION

This paper describes the face recognition technique used for the attendance management system. It uses an algorithm called haar cascade classifier, K-Nearest Neighbor (KNN), Convolution Neural Network (CNN), Support Vector Machine (SVM) and Local Binary Pattern Histogram (LBPH) for face recognition. In this application attendance report will generated and stored in excel format .This system is tested against various conditions. The system developed need less installation .The recognized images are checked with images of the students which is stored in a database .If the image is not found in the database student can add their image into the database. Student information and attendance are stored and it will be available in data base.

2.7.2 MERIT

- Cost efficient

2.7.3 DEMERIT

- Less computational Complexity