ATTENDANCE SURVEY MODEL USING FACE RECOGNITION

INTRODUCTION

•The conventional method of taking attendance is done manually by the teacher or the administrator which requires considerable amount of time and efforts also involving errors and proxy attendance.

•As the number of students are increasing day by day, it is a challenging task for universities or colleges to monitor and maintain the record of the students.

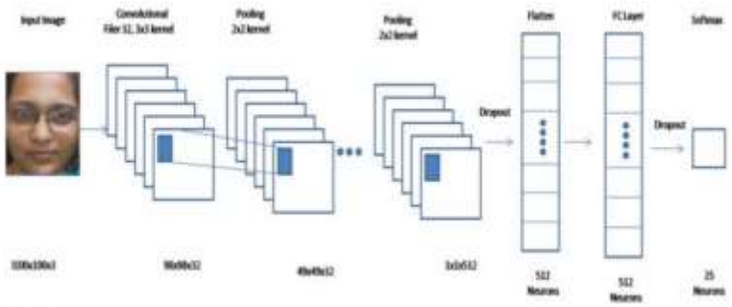
• Automated systems involving use of biometrics like fingerprint and iris recognition are well developed in the recent years however, it is intrusive, and cost required for deployment on large scale gets increased substantially.

• To overcome these issues, biometric feature like facial recognition can be used which involves the phases such as image acquisition, face detection, feature extraction, face classification, face recognition and eventually marking the attendance.

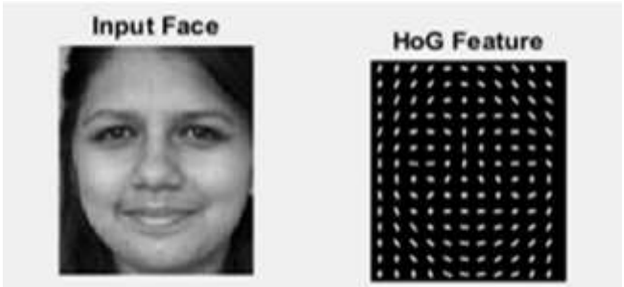
• The problem of redundancy in manual records and keeping attendance is solved by this system.

Methods to be used:

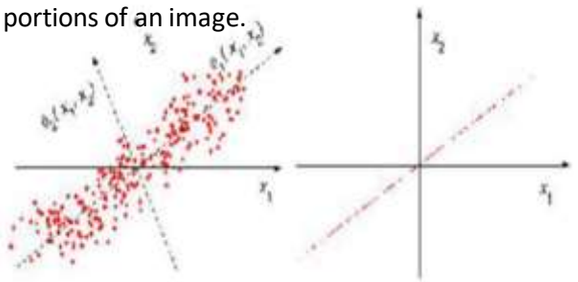
1. PCA (principle component analyses)
2. Support Vector Machine (SVM)
3. MLP (Multi-Layer Perceptron)
4. HoG(histogram of oriented gradients)



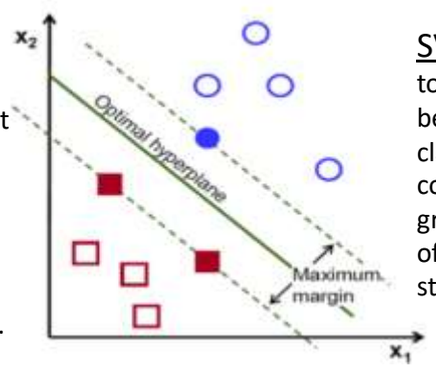
CNN is a modified version of a feed-forward ANN which is able to extract important characteristics from the input images that defines each input image. CNN excludes the need of feature extraction step. From the input images it extracts important features and hence learns through the training. CNN preserves important features and moreover accounts for spatial & temporal distortions. Also for the rotation, translation, compression, scaling like geometric transformations it remains invariable. CNN combined three architectures such as scaling, shifting and distortion invariance



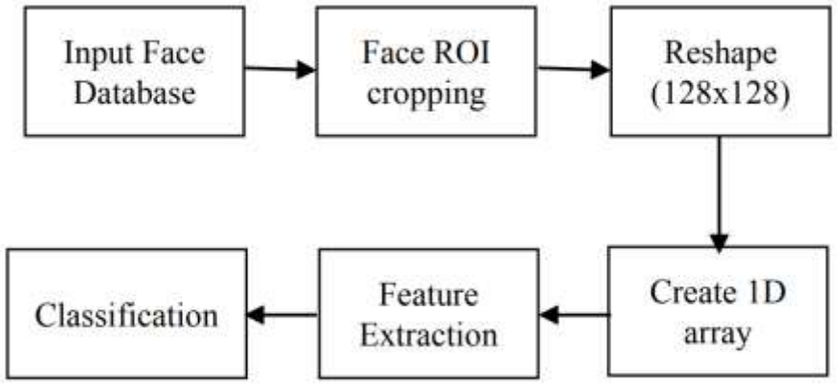
HOG Features: Object detection is accomplished using histogram of oriented gradients(HOG) ,which is a feature descriptor widely used in computer vision. It is based on counting the occurrences of gradient orientation in localized portions of an image.



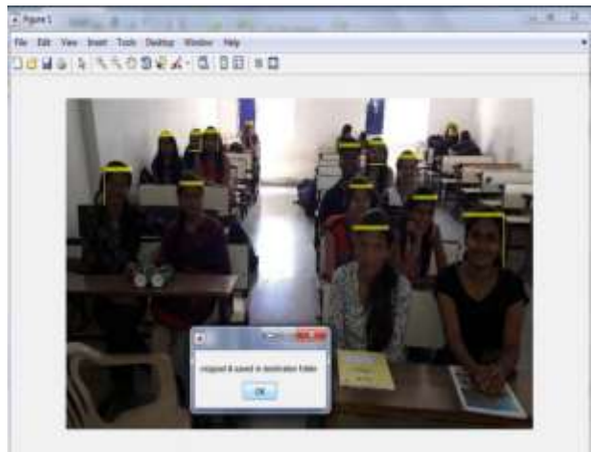
PCA : is a dimensionality reduction method but it is useful in different application like image compression, facial feature extraction, face recognition and finding the patterns from large dimension image. PCA uses Eigen faces



SVM :is an impeccable technique to discover the hyper plane between two diverse specific classes in higher dimension component space that is utilized for grouping. It is one of the algorithms of machine learning. SVM has two stages given as training & testing.



Final out put:



Conclusion

The number of students are significant and by using conventional method of taking attendance will lead to considerable time consumption and amount of manual work gets increased significantly. It provides accuracy.

•References:

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•Face Recognition Based Attendance System Using Machine Learning Algorithms Radhika C. Damale Department of Electronics and Telecommunication Cummins College of Engineering for Women Pune, Maharashtra, India radhika.damale@cumminscollege.in Prof.Bageshree.V.Pathak Department of Electronics and Telecommunication Cummins College of Engineering for Women Pune, Maharashtra, India bageshree.pathak@cumminscollege.in

•FaceTime – Deep Learning Based Face Recognition Attendance System Marko Arsenovic, Srdjan Sladojevic, Andras Anderla, Darko Stefanovic University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia arsenovic@uns.ac.rs, sladojevic@uns.ac.rs, andras@uns.ac.rs, darkoste@uns.ac.rs

By- Chandana MN
20030141cse060
B Rupa sravya
L20030141cse101