ATTENDANCE SYSTEM BASED ON FACERECOGNITION

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Abstract:
Now-a-days most of the time is wasted for taking attendance in a class by a person manually. Still, students are manipulating the attendance by making false attendance, proxy and leading to incorrect attendance. We came with a proposal of attendance system based on face recognition. Face Recognition is widely used for security purpose and to verify attendance statistics of a student in the class room. The system uses a combination of techniques in machine learning. First, we detect a face in the given image then train the system with a detected face. Face detection is done using OpenCV. Training is done with a number of images of the same person taken at different angles with machine learning algorithms like neural networks, regression. During training, an image is given with details of the person. we also use focus points to distinguish people. Finally, after training system it takes input as video and detect face, identify the name and id of the person in the video and gives output as attendance to the student in excel format. To reduce wastage of time for taking attendance, false attendance and proxy we implement this project as one of the solutions.

Key words: Face Recognition, OpenCV, Machine Learning, Neural Networks, Regression, etc.

1. INTRODUCTION

The face is our primary focus of attention in social life playing an important role in conveying identity and emotions. We can recognize a number of faces learned throughout our lifespan and identify faces at a glance even after years of separation. This skill is quite robust despite of large variations in visual stimulus due to changing condition, aging and distractions such as beard, glasses or changes in hairstyle. Computational models of face recognition are interesting because they can contribute not only to theoretical knowledge but also to practical applications. Computers that detect and recognize faces could be applied to a wide variety of tasks including criminal identification, security system, image and film processing, identity verification, tagging purposes and human-computer interaction. Unfortunately, developing a computational model of face detection and recognition is quite difficult because faces are complex, multidimensional and meaningful visual stimuli. Face detection is used in many places now a days especially the websites hosting images like Picasa, photo bucket and face book. The automatically tagging feature adds a new dimension to sharing pictures among the people who are in the picture and also gives the idea to other people about who the person is in the image. Attendance is prime important for both the teacher and student of an educational organization. So, it is very important to keep record of the attendance. The problem arises when we think about the traditional process of taking attendance in class room. Calling name or roll number of the student for attendance is not only a problem of time consumption but also it needs energy. So, an automatic attendance system can solve all above problems. There are some automatic attendances making system which are currently used by much institution. One of such system is biometric technique. Although it is automatic and a step ahead of traditional method it fails to meet the time constraint. The student has to wait in queue for giving attendance, which is time taking.

2. LITERATURE REVIEW

Face detection is a computer technology that determines the location and size of human face in arbitrary (digital) image. The facial features are detected and any other objects like trees, buildings and bodies etc. are ignored from the digital image. Face detection, can be regarded as a more general case of face localization. In face localization, the task is to find the locations and sizes of a known number of faces (usually one). Basically, there are two types of approaches to detect facial part in the given image i.e. feature base and image base approach. Feature base approach tries to extract features of the image and match it against the knowledge of the face features. While image base approach tries to get best match between training and testing images.Gray information within a face can also be treat as important features. Facial features such as eyebrows, pupils, and lips appear generally darker than their surrounding facial regions. Various recent feature extraction algorithms search for local gray minima within segmented facial regions.In these algorithms, the input images are first enhanced by contrast-stretching and gray-scale morphological routines to improve the quality of local dark patches and thereby make detection easier.The main reason why grey scale representations are used for extracting descriptors instead of operating on colour images directly is that grey scale simplifies the algorithm and reduces computational requirements. Here in our case, colour is of limited benefit and introducing unnecessary information could increase the amount of training data required to achieve good performance. These assumptions made are too strict for general object recognition and therefore it didn't prove to be sufficient for face recognition. Before building the system, the above consideration is considered for developing the proposed system.

3. PROPOSED SYSTEM

Face detection is defined as finding the position of the face of an individual. In other word it can be defined as locating the face region in an image. After detecting the face of human its facial features are extracted and has wide range of application like facial expression recognition, face recognition, observation systems, human PC interface for the application of face recognition, detection of face is very important and the first step. After detecting face, the face recognition algorithm can only be functional. Face detection itself involves some complexities for example surroundings, postures, enlightenment etc. There are some existing methodologies for detection of face. Some of them are skin colour based, characteristic or feature based (feature like mouth, nose and eyes) and neural network based. Among the above techniques, the skin-based procedure is well thought-out as simplest one. The approach premeditated and applied in this thesis is the skin colour-based face detection method.

The Benefits of the proposed system are:

- Automation simplifies time tracking, and there is no need to have personnel to monitor the system 24 hours a day and with automated systems, human error is eliminated.
- A time and attendance system using facial recognition technology can accurately report attendance, absence, and overtime with an identification process that is fast as well as accurate.
- Automation will ultimately translate into more convenience and reduced costs of operation.
- Facial recognition software can accurately track time and attendance without human error.
- You will never have to worry about time fraud or buddy punching with a facial recognition time tracking system.
- The system will alert you immediately it captures an image of anyone that doesn't have permission to attend classes/seminars.
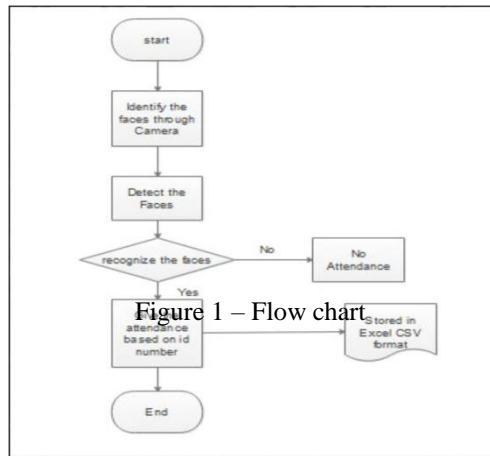
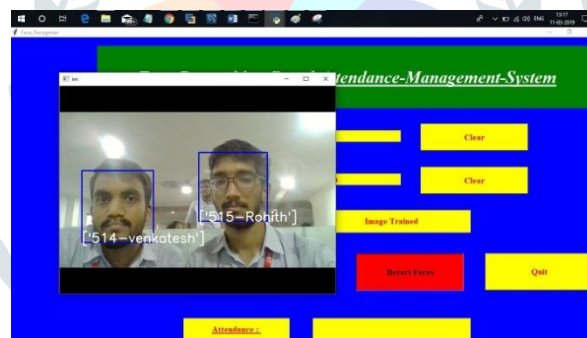Figure 1 – Flow chart

4.RESULTS

Figure 2- Home Page

Figure 3- Recognising faces of trained images

Figure 4-Excel sheet of the attendance periodically

5.CONCLUSIONS AND FUTURE SCOPE

In this project, we can detect and recognize faces of the students in an image and in a video, stream obtained from a camera in real time.We have used Haar feature-based cascade classifiers in OpenCV approach for face detection. It is a machine learning based approach where a cascade function is trained from a lot of positive and negative images.It is then used to detect objects in other images. Also, we have used Local Binary Patterns Histograms (LBPH) for face recognition. LBPH recognizer can recognize faces in different lighting conditions with high accuracy.

In future the proposed system can be implemented to capture the theft along with their information details.The proposed system can be widely used in different organization for providing security into the important storage places.The proposed system can be implemented for counting the animal population census.

REFERENCES

[1]. Machine Studies, 15:137-178Beymer, D. and Poggio, T. (1995) Face Recognition from One Example View, A.I. Memo No. 1536, C.B.C.L. Paper No. 121. MIT.

[2]. W. Zhao, R. Chellappa, P. J. Phillips, and A. Rosenfeld,"Face recognition: A literature survey," ACM Computing Surveys, 2003, vol. 35, no. 4, pp. 399-458.

[3]. Bichsel, M. (1991). Strategies of Robust Objects Recognition for Automatic Identificationof Human Faces. PhD thesis, EidgenossischenTechnischen Hochschule, Zurich.

ACKNOWLEDGEMENT