Abstract

Student attendance system is manual in most part of the world with essential Roll call and answering taking significant time. The objective of this work is to propose a model in openCV that captures live stream from camera and enables multiple face detection and segmentation. The segmented faces can further be used to recognize the students. As such the system leads towards the development of automatic attendance system, where the camera can be static and periodically can take the snap of the class. Further each image is processed to extract the faces. Haar cascade is used for face detection and Gaussian mixture model is used for face segmentation. A test over 1000 images reveals a result with 83% accuracy where accuracy is measured in terms of number of actual face detected v/s the number of faces present in a scene. The test are generated in various angles and light intensity.

References

- Menser, Wien, "Segmentation and Tracking of Facial Regions in Color Image"
Sequences”, RWTH, Aachen, Germany, 1999.
- Jones, Rehg, “Statistical Color Models with Application to Skin Detection”,
- Y. Raja, S. McKenna and S. Gong, “Colour Model Selection and Adaptation in
  Dynamic Scenes”, In Proc. European Conference on Computer Vision, Freiburg,
  Germany, 2-6 June 1998.
- C. Bishop, Neural Networks for Pattern Recognition, Oxford University Press, 1995.
- M.-H. Yang and N. Ahuja, “Gaussian Mixture Modeling of Human Skin Color and
  Its Applications in Image and Video Databases”, In the 1999 SPIE/EI&T Storage and
- R. A. Redner, and H. F. Walker, “Mixture densities, maximum likelihood and the

**Index Terms**

Computer Science   Security

**Keywords**

Face Detection    OpenCV    Haar Cascade    Gaussian Mixture Model