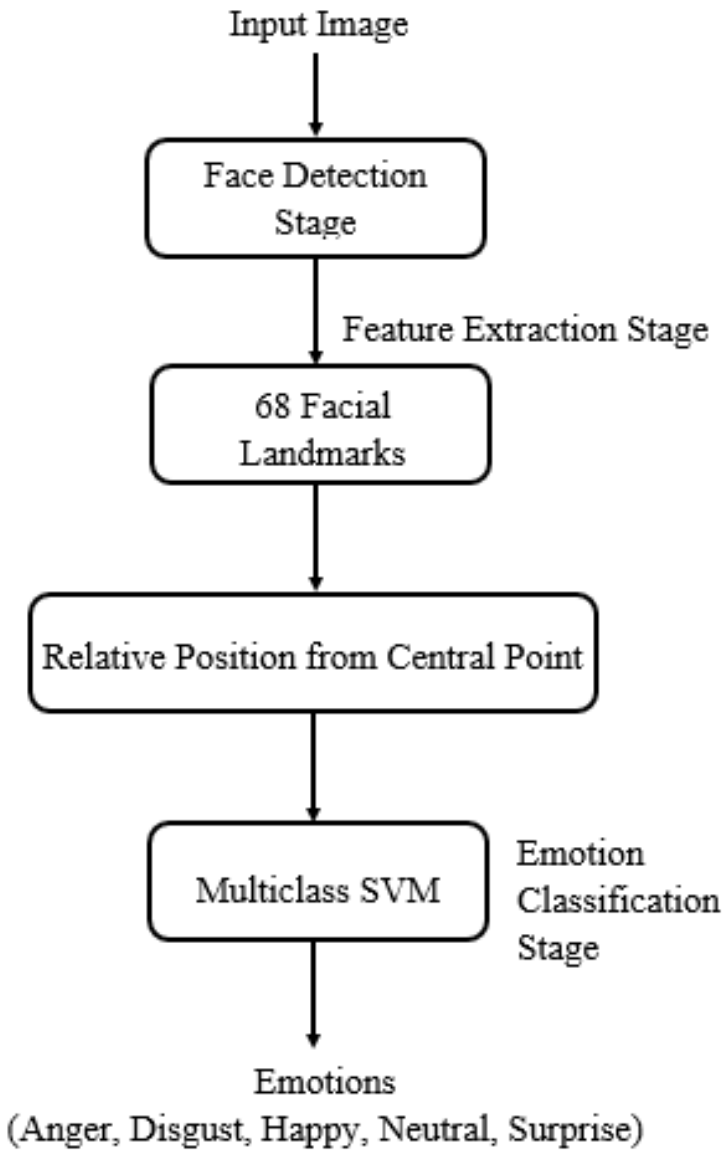
Facial Expression Recognition

Group-24
Bhavya Patwa (1401063)
Ratnesh Shah (1401010)
Karan Patel (1401113)
Yash Kotadia(1401114)

School of Engineering and Applied Sciences,
Ahmedabad University

May 10, 2017

Model


Input Image
Face Detection Stage
Feature Extraction Stage
68 Facial Landmarks
Relative Position from Central Point
Multiclass SVM
Emotion Classification Stage
Emotions
(Anger, Disgust, Happy, Neutral, Surprise)

Facial Feature Extraction on Detected Faces

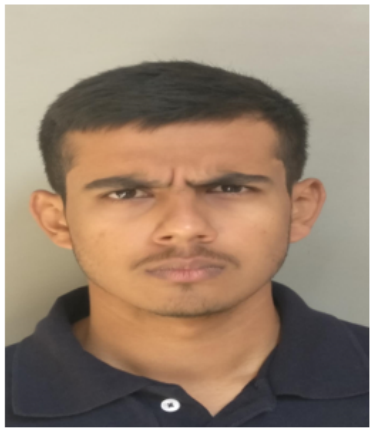
68 Facial Landmarks

Relative position from central point

Results on Class Dataset

- We obtain an accuracy of 84.1%, when classifying the data into 8 emotions.
- We then reduce the set to 5 emotions(leaving out contempt, fear, and sadness), because the three categories had very few images and this approach gives 91.10% accuracy a lot better than previous results.

Kernel	**Mean Accuracy**
linear	91.10%
polynomial	89.40%
rbf	57.20 %



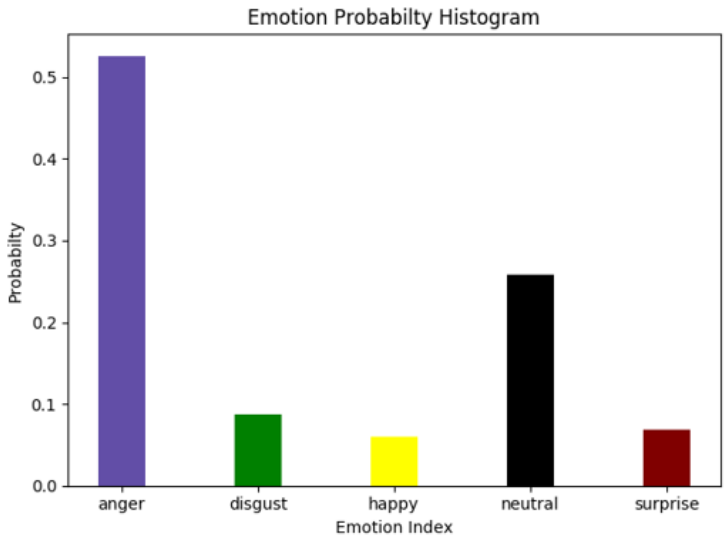


Figure: Results of Image

Live Testing of trained SVM Model

- We have implemented the above approach for live webcam, it shows five emotions:
- Anger, Disgust, Happy, Neutral Surprise
- The results can be visualized from the images shown here.

Figure: Results from Live Webcam

Refrences

- Donato, G., Bartlett,M., Hager, J., Ekman, P., Sejnowski, T.: Classifying facial actions. IEEE Trans. Pattern Anal. Mach. Intell. 974989 (1999)
- Fukui, K., Yamaguchi, O.: Facial feature point extraction method based on combination of shape extraction and pattern matching. Syst. Comput.Jpn. 29(6), 4958 (1998)
- http://www.paulvangent.com/2016/08/05/emotion-recognition-using-facial-landmarks
- www.researchgate.net/publication/227031714 Facial Expression Recog.
- Ping Du, Yankun Zhang, Chongqing Liu, Inst. of Image Processing and Pattern Recognition, Shanghai Jiao Tong University. Face Recognition using Multi-class SVM, The 5th Asian Conference on Computer Vision, 2325 January 2002, Melbourne, Australia.