EMOTION RECOGNITION SYSTEM

The aim is to identify behaviours such as confidence, nervousness and restlessness of an interviewee using computer vision. The project involved detecting faces in a video stream and extracting various facial features like eye movements, head pose, blinks using cv2 and dlib.

It is divided into 3 parts:

1. Face detection
2. Eye movement tracking
3. Head pose estimation

Extracting features and tracking the movement:

* Face detection was done using dlib’s facial landmark detector, and Haar Cascade was used for eyes.
* Further, we tracked the movements of the pupil in the 8 directions – top, bottom, left, right, top-right, top-left, bottom-right and bottom-left. The directions were considered with respect to the straight position.
* The number of blinks is also calculated. Head pose estimation was done by calculating the 3D coordinates of various facial features using OpenCV and dlib.

Criteria to conclude the emotion- Confident/Nervous/Restless:

* It keeps a track on how much percentage of time the person was looking in different directions (the eye movements and the head movements).
* Depending on this number, the result would be confident if the person hasn’t made too many movements and the graph isn’t fluctuating.
* On the other hand, if there are come values which are greater than, say 20%, it will call the person nervous.

Future scope:

By using the video data of interviewees with different levels of confidence, nervousness and other emotions model can be trained using supervised learning.