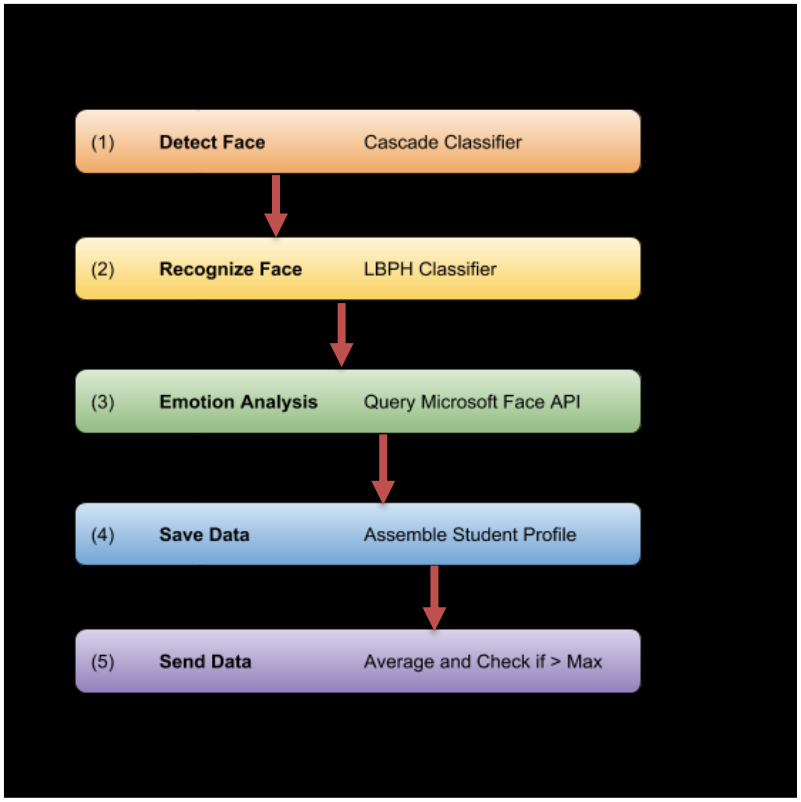

Figure: 1

The first step in the program is to receive either video footage or an image from the user. If a video is received, the program separates the video into individual frames to be processed as images. Afterwards, the program uses Haar features to detect the faces in the photo by cascading. Rectangular coordinates are specified around the corners of the face detected in the image. A rectangle is drawn around any faces that are detected. Next, the program cross-references the face in the image with all the faces in the training set. If there is a match, then the corresponding name will be displayed above of the rectangle drawn previously. If the confidence is greater than 200, and no suitable match is found, the message “ERROR: UNKNOWN FACE” is displayed on top of the rectangle in place of a name. shows how the program displays the matched person’s name with the confidence score next to it. Though the official OpenCV term for this value is confidence score, it is misleading because a lower score implies higher accuracy. The confidence score is calculated by taking the difference or root mean squared distance between the classification model and an observed feature. Thus, if it is a close match, the score will be low, but if they deviate significantly, the score will be high. This paper interchangeably refers to the confidence score as an error score.