ICA Final Project
Face Recognition for Attendance System

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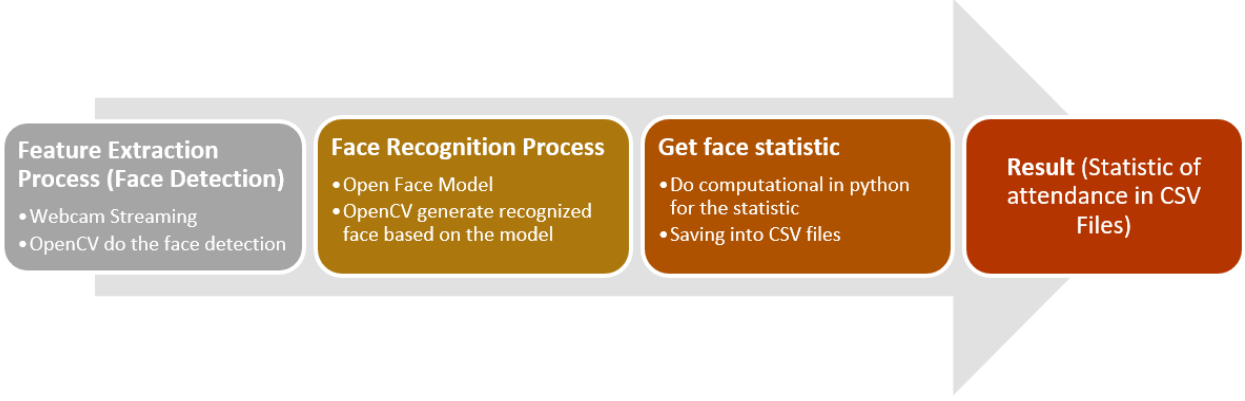
What: Nowadays face recognition already become popular in our generation. The ability of computer in recognizing human become better and better. Scientist always develops a new model for recognizing face so the computer could recognize a person's face as human recognizes others. Today face recognition becomes the most natural of all biometric measurements. Human has it's own unique and characteristic in their face. We could use the advantages to many purposes like identify and verify for many practical areas like recognizing criminals, authentication for accessing something, or even deep fake face. But in this project, we want to use face recognition for the attendance system. Where we could know how many students in the class, who is there and not there, and how long they are inside of the class. With the capabilities of face recognition, teachers hopefully will know the attendance of the class automatically without wasting time counting the students.

How: We use our laptop webcam as input to imitate the CCTV that our authorities used in the class. We will try several methods to find the most robust and efficient model. There are several approaches that we want to try in order to improve accuracy. The output of our system is a statistic of student attendance. We will use OpenCV for the face recognition part because OpenCV is one of the libraries that already well developed for this kind of purpose. With OpenCV, we then don't need to write the model of a deep neural network from scratch. For the model, we will use OpenFace from FaceNet. OpenFace project is a Python and Torch implementation of face recognition with deep learning. This implementation comes from Schroff et al.'s 2015 CVPR publication, FaceNet: A Unified Embedding for Face Recognition and Clustering. After doing all of the face recognition parts, then we will try to generate who is attending the class based on the list of the dataset. We also count the number of attendance and how long the person inside the class. Finally, we will generate the statistic into a CSV file. The short diagram of the project is shown below.



Source:
http://cmusatyalab.github.io/openface/