Project plan

# Iterative enhancement plan

## Minimum goal

The minimum goal that we are going to accomplish is to distinguish between a small number of emotions in “clean” images. By “clean” images, we mean the images that have faces in the middle of the image, facing forward.

Since we have already did some research on the emotion detection algorithms of emotion detection, the point of accomplishing this goal is to implement the algorithms from the literature and add necessary changes according to our project. When we are performing the minimum goal, we also need to keep our second goal in mind so that we can expand on the base algorithms as necessary.

## Reasonable goal

The reasonable goal of our final project is to do emotion recognition on images that have one distinct face. Unlike the minimum goal, faces don’t have to appear in the middle any more. They can be anywhere in a certain image.

Since the images we have have face that locate at random position and have different size, the challenge for this goal is that we need to identify the face first, and crop the face out before analyzing it. So for this goal, we need to perform face detection before emotion detection.

## Stretch goal

Our stretch goal is to detect faces in images with multiple or no faces, and recognize the emotion of each face. The above goals deal thoroughly with single-face emotion, so multiple face detection is a natural expansion. If there are multiple faces in the given input image, we will find the location and determine an emotion for each face.

## Ultimate goal

Integrate our algorithm with some video chat software (Google Hangout for example) and apply our algorithm in real time. This would require a lot of knowledge of the Google APIs and video image recognition, so we will only try to work towards this goal if we have enough time.

# Timeline

From Feb. 2rd to Feb. 21st.

|  |  |
| --- | --- |
| **Date** | **Event** |
| Feb. 2nd | Preliminary work: find pictures,start implement basic emotion detection algorithm, demo on single test image and identify one type of emotion. |
| Feb. 5th | Support more emotion types. |
| Feb. 7th | Finish and finalize minimum goal, and start to implement reasonable goal. |
| Feb. 12th | Finish implementing and test face detection algorithm and integrate with emotion detection algorithm, start implementing multi-face detection. |
| Feb. 14th | Finish up coding and prepare slides for presentation. |
| Feb. 17th | In-class presentation. |
| Feb. 20th | Wrap up and documentation. |
| Feb. 21st | Final project due (code, report, and presentations). |