**24/11/15 Tuesday**

Acquired face image database ‘xm2vts’. All images are normalised and greyscale (1 channel). The application will be develop to process 1 channel normalised images only for now so that the PCA algorithm can be focused on.

**25/11/15 Wednesday**

Created the database and person class to manage image sets and there properties.

Small diagram showing hierarchy.

**26/11/15 Thursday**

Started work on a simple system to read in the database images to memory and manage the data transition throughout the application. A list of file paths are read into a string array from a .txt file containing the image names.

**1/12/15 Tuesday**

Researched papers on Face recognition in preparation for dissertation literature review. Acquired a few papers that outline the salient features in which my application hopes to achieve. Need to look at research materials from other sources for a good comparison and range of discussion content.

**2/12/15 Wednesday**

There are calculations that need to be made on the image data before computing the PCA. Prior to eigen value computation the image data rows and columns need to be averaged. Met some problems attempting to manipulate matrices values within OpenCV library.

**3/12/15 Thursday**

Developed the function ‘calculateAverageAnd Difference’ in the pca class to compute averages and difference of rows and columns. Has been done using 2D arrays.

**9/12/15 Thursday**

After much thought and testing I have redesigned the user interface to group system functionality into different views. Originally the design was that the user will login through login screen and be redirected to the main application page where face recognition could be done on a real time camera but also compare a selected image with a chosen database image set.

**4/1/16 Monday**

Started implementing changes to the user interface. Created training controller and FXML file.

**6/1/16 Wednesday**

Design update diagram

**7/1/16 Thursday**

Further work on user interface training view. Produced some notes for literature review.

**11/1/16 Monday**

Created dissertation report template and started literature review. Have a range of sources for Face recognition development to compare and contrast.

**12/1/16 Tuesday**

I have met some problems with matrix maths in OpenCV due to the lack of knowledge and experience I possess. In order to get the system up and running I have started storing and managing data in 2d arrays opposed to matrices. This will be much slower when running PCA analysis on image sets but will allow me to get the application running.

**19/1/16 Tuesday**

Worked on function to calculate eigen values. A few methods attempted but settled on a third party library to manage matrix calculations. I had some difficulty trying to perform such calculations in OpenCV so have imported the math3 apache library as there online docs and material are much simpler. Focusing on a working application at this point. If enough time is available will return to implement in OpenCV matrices.

<http://commons.apache.org/proper/commons-math/>

**20/1/16 Wednesday**

Commenced development of PCA calculation function. Use a library import Jama to aid in the creation of matrices from 2D array.

<http://math.nist.gov/javanumerics/jama/>

**21/1/16 Thursday**

Created principal component class that’s implements comparable. This allows me to call a compareTo function from the current principal component.

**28/1/16 Thursday**

Worked on the training view and functionality that allows the user to load an image set from the local database to the application and display it in the training view. Also functionality for the user to select, display and add an image to the image set ready for PCA analysis.

**1/2/16 Monday**

Further changes made to the training menu screen to allow user to load an image set and select an image from file which they want to compare to the image set

**4/2/16 Thursday**

Worked on the main app screen where the user will be able to create an image set of themselves that can be loaded in the training view for PCA analysis. Edited some of the screen layout and created an add-to-set button and functionality. The created image set is displayed on the right side of the interface.

**16/2/16 Tuesday**

Continued development of PCA class. Worked on the setupPCAData function. Started connecting the piped data from the database image set into the PCA class. Also started the creation of function to calculate the weights of the detected Eigen faces.

**17/2/16 Wednesday**

Further work on image selection for recognition on training screen. Have created a FileChooser class from internet sources that have referenced in the dissertation notes and ref doc. Have not managed to get it working at this point as having problems passing the main stage details to the training screen.

**18/2/16 Thursday**