# Log Book Notes

Entry formats should include:

**Date:**

**Any Decisions that have been made or conclusions drawn:**

**Review project progress:**

**Sources and references:**

*Important Dates:*

Date Project Commenced: 28/09/10

#### **Autumn Term**

Monday 28 September (Monday 21 September for new students) - Friday 11 December 2015

#### **Spring Term**

Monday 11 January - Thursday 24 March 2016

#### **Summer Term**

Monday 18 April - Friday 10 June 2016

First page of logbook should illustrate the following deadlines:

|  |  |
| --- | --- |
| **Technical Product** | **Delivery Date** |
| 1. Graphical User Interface | 09/10/2015 |
| 1. Capture and store images | 23/10/2015 |
| 1. Compute Face Detection | 13/11/2015 |
| 1. Compute Face Recognition | 4/12/2015 |
| 1. Integrate online database | 11/01/2016 |
| 1. Display acceptance and rejection rates | 18/01/2016 |

|  |  |
| --- | --- |
| **Examination Product** | **Delivery Date** |
| 1. PID | 9/10/2105 |
| 1. Autumn Term project and logbook review | 2/11/2015 |
| 1. Project review progress | 11/11/2015 |
| 1. Spring Term Week 6 Demonstration | 15/02/2016 |
| 1. Poster | 21/03/2016 |
| 1. SCARP Extract | 21/03/2016 |
| 1. SCARP Paper | 21/03/2016 |
| 1. Final Report | 18/04/2016 – 10/06/2016 |
| 1. Demonstration to internal Examiners | 18/04/2016 – 10/06/2016 |
| 1. SCARP Presentation | 18/04/2016 – 10/06/2016 |
| 1. Project Archive CD | 18/04/2016 – 10/06/2016 |

**28/09/2015 Monday**

**Task carried out:**

Project commenced. Researched Open CV install and setup for visual studios. Found detailed tutorials in regards to installation and setup of Open CV in Visual Studio. Began installation from online tutorials.

**Conclusion:** At this point the language of implementation for the system is still not determined. Current likely options are C++ and Java.

**Source:**

* <https://marcomuraresearch.wordpress.com/2015/04/16/install-opencv-visual-studio/>
* <http://docs.opencv.org/doc/tutorials/introduction/windows_install/windows_install.html>

**29/09/2015 Tuesday**

**Task carried out:** Completed installation of open CV in visual studio. Carried out tutorials of basic functionality of Open CV using C++ visual studios. Researched GUI implementation in C++ using MFC. Also looked at GUI implementation in Java using Swing and JavaFX.

**Conclusion:**

**Source:**

* <http://docs.oracle.com/javafx/2/overview/jfxpub-overview.htm>
* <http://docs.oracle.com/javase/tutorial/uiswing/>
* <http://depts.washington.edu/cmmr/biga/chapter_tutorial/1.C++_MFC_D3DOGL/1.StepByStepGuide/index.html>

**30/09/2015 Wednesday**

**Tasks:** Decided to develop the Face Authentication System using JavaFX and Open CV. Researched JavaFX installation and setup. Carried out JavaFX tutorials.

**Conclusion:** Familiarised myself with JavaFX library. Found that implementation of a GUI using JavaFX will be much easier and less resources. The main focus of the project is face detection and recognition.

Sources:

* <http://opencv-java-tutorials.readthedocs.org/en/latest/index.html>

**1/10/2015 Thursday**

Researched face recognition problem domain, constraints and assumptions. Made notes for PID.

* <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?reload=true&arnumber=5256630>
* <http://www.pbs.org/wgbh/nova/next/tech/the-limits-of-facial-recognition/>
* <https://en.wikipedia.org/wiki/Facial_recognition_system>
* [www.ehu.eus/ccwintco/uploads/e/eb/PFC-IonMarques.pdf](http://www.ehu.eus/ccwintco/uploads/e/eb/PFC-IonMarques.pdf)

**4/10/2015 Sunday**

**TASK:** Began PID write up. Analysed project products and broken down system into deliverables. Research into project problem domain, background and history. Partially written background of face recognition.

**CONCLUSION:** PID document commenced and background section partially written.

**SOURCES:**

**5/10/2015 Monday**

**TASK:** Continued filling in PID. Focused on Constraints, assumptions and risks of the project. Started development of GUI. Setup online version control (GIT) with student repo for code backup and to provide access to project work from anywhere.

**CONCLUSION:**

**SOURCE:**

**6/10/2015 Tuesday**

**TASK:** Continued development of GUI. Continued filling out PID.

**CONCLUSION:** Completed background, assumptions and constraints. Partially written ethics and risks sections. Constructed FX interface controller allowing communication between the controller class and FXML GUI.

**SOURCES:**

**7/10/2015 Wednesday**

**TASK:** Made changes to GUI design. Started looking at image Normalization and methods used such as histogram averaging. Produced project time plan to meet deadlines of the project for PID.

**CONCLUSION:** Have started to understand the process of normalizing image prior to image analysis and methods used such as histogram averaging.

**SOURCES:**

* <https://en.wikipedia.org/wiki/Histogram_equalization>

**8/10/2015 Thursday**

**TASK:** Make final adjustments to PID and Risk assessment sections as requested by project supervisor. Reviewed PID as a completed document and refactored sections of document

**CONCLUSION:** Completed Project initiation document and risk assessment. Proof read document before deadline date.

**12/10/2015 Monday**

**TASK:** Began developing camera feed displayed in GUI using Open CV functionality. Researched Face Detection methods such as viola-Jones.

**CONCLUSION:** Better understanding of processes involved in face detection.

**SOURCES:**

* <https://en.wikipedia.org/wiki/Viola%E2%80%93Jones_object_detection_framework>
* <http://www.cs.columbia.edu/~jebara/htmlpapers/UTHESIS/node30.html>

**13/10/2015 Tuesday**

**TASK:** Began development of image processing filters such as greyscale. Further research into methods of face detection.

**CONCLUSION:** Viola-Jones face detection is one of the most . It has four main processes:

1) Haar Feature Selection

2) Creating an Integral Image

3) AdaBoost Training

4) Cascade Classifiers

**SOURCES:**

**14/10/2015 Wednesday**

**TASK:** Continued development of greyscale and edge detection filters (Product 2). More research done into methods of face detection. Reviewed progress and content of project logbook.

**CONCLUSION:**

**SOURCES:**