ENG 4001 Project Management Plan
Forensic Engineering Science: Developing tools for human identification

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1 Project aim and scope

Human identification is an important and time consuming process in the present world. The aim of the following research project is to develop a software which visualises where different family branches geographically cluster which plays an important part in human identification. The Google Earth API will be used to pin point the locations of different family branches with the use of place markers. This is a highly beneficial strategy as the current systems involved in human identification are time consuming. The following software does not fully automate the whole process of human identification. However, it will automate the data visualisation aspect of human identification with the use of genealogical databases.

2 Background

Human identification has been present for a prolonged period of time. Presently, some of the biometric technologies such as fingerprint, DNA sequence matching, face recognition ,iris identification and retina identification are used to identify humans (Hassan et al. 2019). The main identification methods used in the present are fingerprint analysis, dental analysis and DNA analysis (Ward 2019). However, finding distant relatives of victims is hard with the use of the current methods used to identify humans (ABC news 2018). Furthermore, techniques used in the past such as visual identification take a large amount of time compared to the rest of the methods (Blau et al. 2020). Hence, the use of a software to automate the data visualisation process would reduce the time spent to do the process manually. Furthermore, with the use of the location markers in Google Earth it would be easier to locate where family branches which are needed by users geographically cluster. This would aid in simplifying the process of human identification.

3 Technical objectives

Table 1: Objectives of the project and their key specifications and outcomes.

#	Objective description	Specifications	Deliverables / outcomes
1.	To develop a code using Python to visualise where family branches cluster	• When a family name is entered the code will show where different family members of that name is located.	• The family names which the user inputs will be filtered with the specific location which is put by the user when there

		• The code will filter out the exact location needed by the user in the instance where locations have the same name.	similar named locations. This is done with the use of genealogical database.
2.	To construct a method to locate family members using Google Earth	• Google Earth will pinpoint locations where different people are born . • Google Earth will locate clusters and put coloured markers when people with the same name are found in a specific location.	• Coloured markers would be present around the cluster of family names entered on Google Earth.
3.	To develop the software needed for human identification where the code developed in Python and Google earth are connected with each other.	• Family names can be entered through the software.	• When the user inputs the family name of a person the software will show colour marks of where the family geographically cluster.

4 Gantt Chart

The Gantt chart illustrates the timeline of the project for the year. Figure 1 shows a subset of the Gantt chart. A full summary of the Gantt chart as a summary sheet is added in the appendix of the document.

	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13
To develop a code using Python to visualise where family branches cluster(Objective 1)																										
To construct a method to locate family members using																										

Google Earth(Objective 2)	
Progress report	
To develop the software needed for human identification where the code developed in Python and Google earth are connected with each other. (Objective 3)	
Seminar	
Ingenuity	
Final report	

Figure 1: Overview of the main activities of the project.

5 Resources and procurement

The following section contains the direct and in-kind costs of the project. In the context of the following project, only in-kind resources will be used as there is no need for a cash budget as the programs needs do not need a fee to be used.

Table 2: In-kind resources that will be used by the project.

#	**Item**	**Source**
1.	*JavaScript for Google Earth*	*Google Earth Editor*
2.	*Python*	*Pycharm or any other platform which can be used to code python in*

6 Project risks.

Table 3: Identified project risks, their inherent risk classifications before mitigation, and their mitigation measures.

#	Risk event	Impact	Likelihood / Consequence / Classification	Mitigation measures
1	Team member getting sick or having an emergency	Work cannot be completed on time	Medium	The other team member must do as much work as possible while maintaining a workload which they can handle. Furthermore, the coordinator and supervisor should be

				notified of the situation immediately.
2	The Python code not compiling as expected	The project cannot move forward and the project cannot be finished on time	Major	Checking the Python code at each stage to see if it compiles and putting various test scenarios to see if the code behaves in the it is supposed to work. However, in the instance where the code does not behave in the way it is supposed to after attempting to fix it the supervisor will be informed to get some guidance on how to solve it immediately so that the project can be finished on time.
3	The markers on Google Earth not being put on the location needed	The project cannot move forward and the project cannot be finished on time	Major	The Google Earth JavaScript code will be reviewed at each stage to see if it marks the locations accurately when the name and location of birth is entered. However, guidance from the supervisor will be taken in the instance when the Google Earth code does not function as it is supposed to.
4	The software made with the use of the Python code and Google Earth not functioning as it is supposed to	The project would not be finished properly	Major	The codes of both Python and Google Earth will be checked to see if there any issues. If so, the codes will be changes. However, in the instance where there no issues seen at glance the supervisor will be notified to have a look at the software developed to see if there are any underlying issues with it and get guidance on how to fix those issues.
5	Unable to obtain the resources needed to fully develop the software on time	The project would not be finished on time	Low	Seek the resources needed to develop the software as soon as possible from our supervisor, as well as using the online sources.
6	Loss of internet during the research stage and when using	The project will not be on track and would not be	Low	Making sure all the files needed are backed up in an USB so that the internet would not be required to access the

	the Google Earth editor and loss of data	finished on time		files. However, the supervisor will be notified as soon as possible as the Google editor cannot be used offline.
7	Team member being overwhelmed with work	The project will be behind schedule	High	The member will be offered help whenever needed to reduce the amount of work. Furthermore, asking "Are you ok?" to see how the member is doing and letting the supervisor know of the situation.

7 References

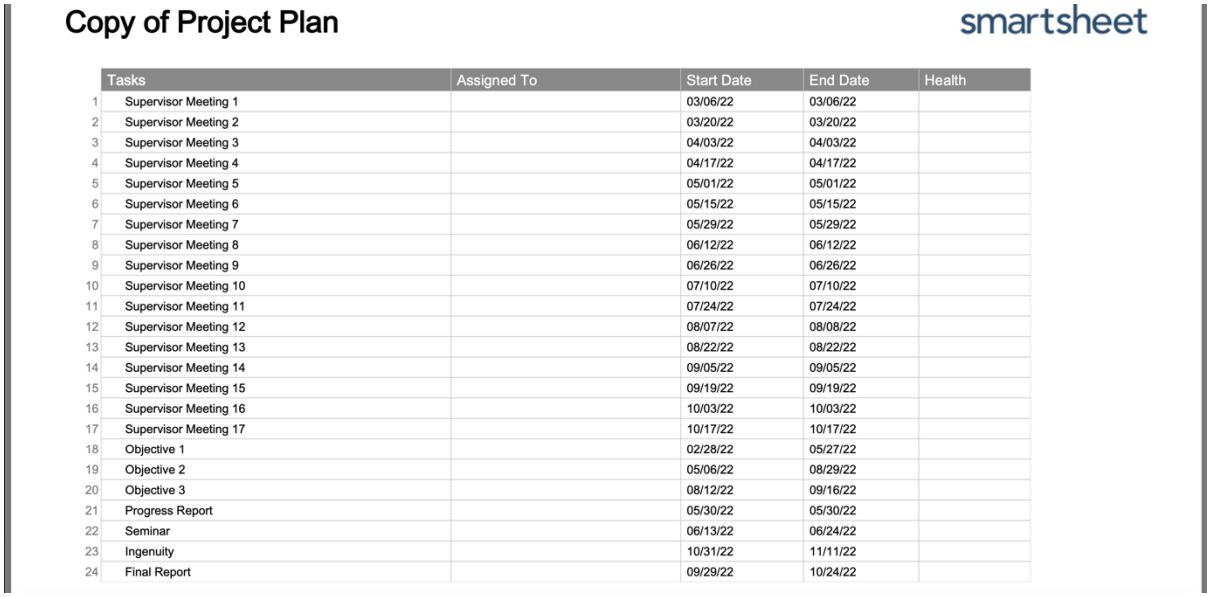
ABC News 2018, 'DNA evidence is entering a new era, thanks to ancestry testing kits', 11 October.

Blau, S, Graham, J, Smythe, L & Rowbotham, S 2020, 'Human identification: a review of methods employed within an Australian coronial death investigation system', *International Journal of Legal Medicine*, vol. 135, no. 1, pp. 375–385.

Hassan, O, Abu, N, Abdin, Z, 2019,' HUMAN IDENTIFICATION SYSTEM:REVIEW', *International Journal of Computing And Business Research,* vol.9, n0.3, pp.1-7.

Ward, J 2019, *How do we identify human remains?*, The Conversation.

8 Appendices



Copy of Project Plan

smartsheet

	Tasks	Assigned To	Start Date	End Date	Health
1	Supervisor Meeting 1		03/06/22	03/06/22	
2	Supervisor Meeting 2		03/20/22	03/20/22	
3	Supervisor Meeting 3		04/03/22	04/03/22	
4	Supervisor Meeting 4		04/17/22	04/17/22	
5	Supervisor Meeting 5		05/01/22	05/01/22	
6	Supervisor Meeting 6		05/15/22	05/15/22	
7	Supervisor Meeting 7		05/29/22	05/29/22	
8	Supervisor Meeting 8		06/12/22	06/12/22	
9	Supervisor Meeting 9		06/26/22	06/26/22	
10	Supervisor Meeting 10		07/10/22	07/10/22	
11	Supervisor Meeting 11		07/24/22	07/24/22	
12	Supervisor Meeting 12		08/07/22	08/08/22	
13	Supervisor Meeting 13		08/22/22	08/22/22	
14	Supervisor Meeting 14		09/05/22	09/05/22	
15	Supervisor Meeting 15		09/19/22	09/19/22	
16	Supervisor Meeting 16		10/03/22	10/03/22	
17	Supervisor Meeting 17		10/17/22	10/17/22	
18	Objective 1		02/28/22	05/27/22	
19	Objective 2		05/06/22	08/29/22	
20	Objective 3		08/12/22	09/16/22	
21	Progress Report		05/30/22	05/30/22	
22	Seminar		06/13/22	06/24/22	
23	Ingenuity		10/31/22	11/11/22	
24	Final Report		09/29/22	10/24/22	

Figure 2 Project Management Plan Gantt Chart Summary sheet