

Flinders University

Maritime Archaeology Site Digitization Project

FUMASD Project Report

*Prepared By
Jacky Chen*

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1.0 Executive Summary

The Flinders University Maritime Archaeology Site Digitization (FUMASD) project consists of two phases which aims to serve findings from the field schools on the university website. The two phases are:-

- a) Digitization of findings – This phase aims to convert all non-digital findings to digital format. Example of field schools findings are group and individual reports, dive logs, daily journals and photos. These content are to be served on web pages along side the university’s web site.
- b) Develop web query interface – This phase has not started at the end of the scholarship period. However, the aim of this phase is to define object level data within the field school findings such as Artefacts, Shipwrecks, Jetty, and etc. These objects are to be stored in a well-defined database and to be made query-able through a web interface with some visualization of the query result.

This report will only discuss the project from the first phase context in a sequential format, starting with requirement gathering, design, development and later implementation. This report will also look into some of the technologies used to develop the web page, and some of the limitation and issue faced using those technologies.

2.0 Requirement Gathering

2.1 Technology

Initial discussions revealed that Flinders University is using open source technologies to host its web pages and applications. Its web server currently supports PHP and JSP for web page rendering and PostgreSQL for database. This provides a base platform on which web site will be developed.

2.2 Use Case

In terms of the user of the web site, the pages are targeted at the general public who visits the Flinders University web site, in particularly potential students who might be interested to join a field school. On the other hand, the web site can also serve as a small depository of data and information which could be useful for current maritime archaeology students and as well as researchers.

2.3 Field School Document

As for the documents that need to go up on the web site, a large part of them consists of reports and photos from the past field schools which have been digitized and organized into well-structured field school folders. Most of the reports are in PDF format while there are some which are in Microsoft Word or Power Point format. Most, if not all of the photos are in JPEG format.

3.0 Design

3.1 Web Site

Initial web front and field school page was drafted so that a prototype can be quickly developed. Those pages were eventually refined to incorporate growing requirements. Below are the drafted web pages:-

a) Main Page

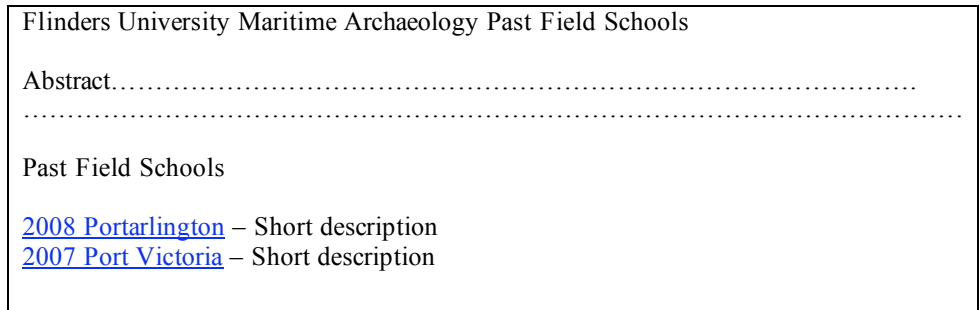


Figure 1 – Main page draft

The main page consists of a general abstract for the field school conducted by Flinders University, accompanied with a recent field school photo. The page also list all the past field school, with links to the respective page, and a short description of the field school.

b) Field School Page

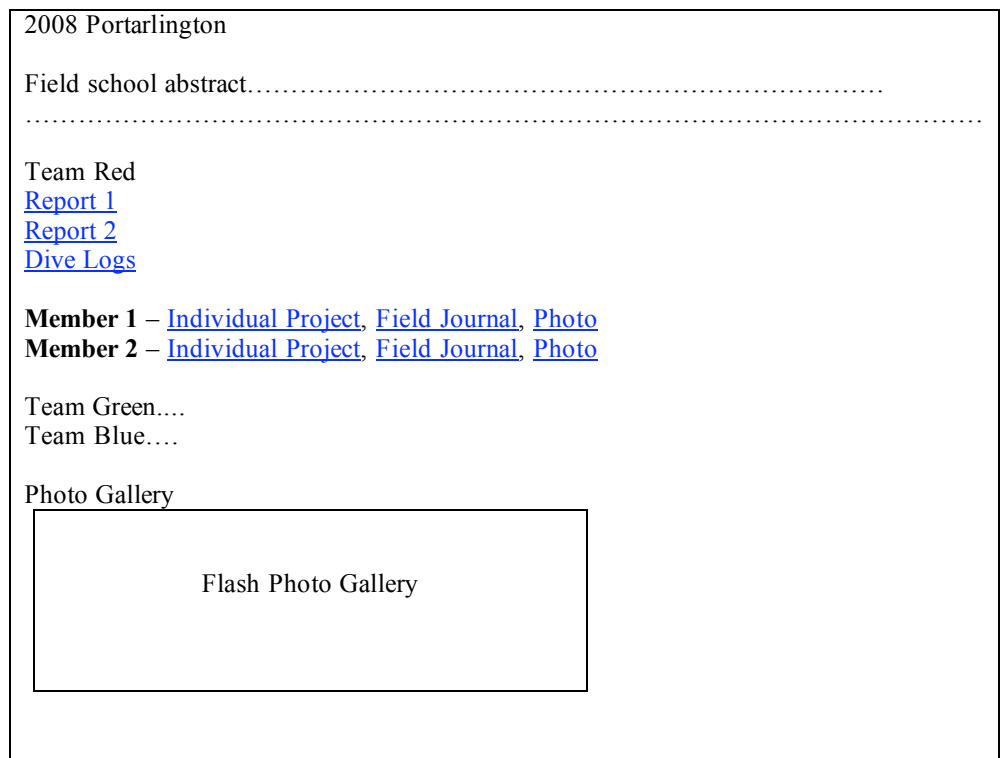


Figure 2 – Field school page draft

The field school page consists of an abstract for that particular field school and its findings. The findings are organized according to team findings and team member findings of which may be reports or photos.

The page also includes a flash photo gallery at the bottom to highlight some of the main events of the field school. The photos will be selected from the photos available to that field school.

Google Maps are also embedded into the page to allow some level of visualization of the field school findings. The Google Map embeds a Google Earth file (KMZ) to display photo, polygon, polyline, and also placemarks that are used to highlight key findings of the field school.

3.2 Database

The web site does not perform any transactions and its data does not change often, if at all. Thus there is little need to use a database to store the data. Rather, a XML will be used to store some of the data about the findings such as field school name, team name, member name, descriptions, and PDF report physical links.

A XML is also used instead of a database because XML is easier to maintain in this context. It is very scalable and updates to data can be easily made by non-IT staff. The web pages will read from these XML files and render the information.

4.0 Development

4.1 Editing Tool

For developing the XML and web pages, a simple and free tool, [TinyEdit](#) was used as an editor. It provides syntax highlighting for many programming languages and has multiple document interface.

4.2 CSS

A CSS file was created to provide styling resources for the web pages.

4.3 XML and XSL

The XML is well formatted to allow extensible data storage. There are two types of data, the first being a list of field school list to be displayed in the main page and a second being the individual XML for storing data specific to each field school. Refer to the *Web Front and Field School Data Documentation* for the XML data schema for both types of XML data.

To format the XML data, Extensible Stylesheet Language Transformation (XSLT) is used to change XML data placement and styling. The XSLT was successfully developed to display the main page and field school page according the initial requirement.

However, when additional requirement to integrate Google Map in the field school page was given, the included script for rendering Google Map were not able to load in the XSL file as how it would in a normal HTML when tested with Mozilla Firefox. The script load normally when tested with Internet Explorer.

After spending some amount of time trying to resolve the problem, the only plausible solution that came up was to rewrite and redevelop the web pages using PHP.

4.4 PHP

[PHP](#) code was written to render the main page as well as field school page. With the web pages running on PHP, the Google Maps loaded normally in Internet Explorer, Mozilla Firefox and also Google Chrome. The PHP code was tested on [Apache](#) web server.

4.5 Flash Photo Gallery

[AnySoft Flash Slide Show Maker](#) is a free software used to generate a flash player for the photo gallery section. The software will generate a flash file, configuration file, scaled down photo and thumbnails to be used for running the flash gallery. This flash file is embedded into the field school page.

5.0 Implementation

After all the web pages are developed and tested using local machine, the files was uploaded to the Flinders University's web server using a free FTP tool called [Core FTP Lite](#).

At the time of writing of this report, it is unknown whether there are code snippets for the header and side bar section. Thus, at the moment, the header and side bar section for the web pages are hard-coded into the file.

The web pages can be accessed at the following URL:
<http://ehlt.flinders.edu.au/archaeology/fumasd/>

6.0 Testing

The web pages are tested by ensuring the data renders correctly and the links to reports and photos are not broken. At the time of writing of this report, some of the require contents were not available (e.g. field school descriptions, abstracts, reports, etc). Thus, the web site may look incomplete.

7.0 Reflection

7.1 Technology

Learning and applying new skills and technology has been a really interesting part of the project. While web technologies such as XSL and PHP are very common, usage of the Google Map API is an emerging trend which can become a valuable skill in the future.

7.2 User Requirement

In this project, getting all the data for the web front would have been a good idea as there are many hidden requirements or specifications that were not revealed during project meetings such as:

There may be more than one individual project

Not all documents or reports are available for all field school (earlier field schools only have field school photo)

Other than that, an IT personnel may also have given better suggestion on the digitization part of the field school data such as folder and file naming convention, field school data storage and organization of file and folders.

8.0 Conclusion

Overall, the project went smoothly over the course of 8 weeks with a combination of close and distant collaboration between the team members. The requirement gathering process, however, was limited as the digitization of field school documents was an ongoing effort during the period of the research. As for the design phase, there were not much change made to the web front but the design for XML schema for storing field school data has been altered several times due to growing needs. Most of the time was spent learning and applying new skills and technology in the process of developing a prototype. As an end result, a web front for phase one of the project was successfully created and if given more time, phase two of the project could have been on its way.