

Development of a map-based web application to be used by visitors and staff at the Dyfi Wildlife Centre

| | |
|----------------------|-------------------------|
| Report Name | Project Outline |
| Author (User Id) | Michael Male (mim39) |
| Supervisor (User Id) | Edel Sherratt (eds) |
| Module | CS39440 |
| Degree Scheme | G40F (Computer Science) |
| Date | January 31, 2020 |
| Revision | 1.0 |
| Status | Draft |

1 Project description

The Dyfi Wildlife Centre is a visitor centre run by the Montgomeryshire Wildlife Trust, situated on the Cors Dyfi Nature Reserve in Powys, Wales. It's purpose is to showcase the reserve's work, and its place as an osprey conservation, engagement, and research project [1]. This project will aim to create a map-based application to assist volunteers at the centre while they aim to provide an interactive and educational experience to visitors. The application should operate from a browser on a touch-screen Windows PC, with information and details about the site presented in a user-friendly manner.

The project will develop a single-page web application to assist volunteers in providing information to visitors. Volunteers have varying levels of computer literacy, and importance must be placed on the application being easy to use and aesthetically pleasing. The interface will involve the use of a map API, such as the OpenStreetMap API [5] or Google Cloud Maps Platform [6]. An interface for adding information about specific points of interest will be developed; be that parts of the centre, public transport links, or local businesses surrounding the nature reserve. The application should also provide access to the Dyfi Osprey Project's existing webcam infrastructure, built to show a live feed of their osprey nests.

The project will also develop an administration portal, where volunteers can enter and manage information about the nature reserve through a graphical interface. Initial information, and the requirements of this administration portal, will have to be sought from the customer at some stage during the project. Information will be stored via persistent data.

The application will be used directly by the Dyfi Wildlife Centre. There is a need for the application to be maintainable and written with a view to long-term use. The project will place focus on sustainable software, along with the development of documentation for both end users and developers on how to use and maintain the application. Future use-cases for the project may involve it being used independently by visitors, or it being used on other devices such as mobile phones, and the project will consider how to allow for future iterations upon it to be as simple as possible.

The project will utilise an adapted form of Agile Development for one-person software development [7], which will be further adapted for an academic software project. The project will place emphasis on Test-Driven Development, with the construction of a CI/CD pipeline to assist in delivering working software.

2 Proposed tasks

3 Project deliverables

Bibliography

- [1] Montgomeryshire Wildlife Trust, “Dyfi Wildlife Centre — Montgomeryshire Wildlife Trust,” accessed 30 January 2020. [Online]. Available: <https://www.montwt.co.uk/projects/dyfi-wildlife-centre>
- [2] Google LLC, “Material design,” accessed 29 January 2020. [Online]. Available: <https://material.io/>
- [3] Various, “Material components for the web,” accessed 29 January 2020. [Online]. Available: <https://github.com/material-components/material-components-web>
- [4] V. K. Kotaru, *Angular: Components*. Berkeley, CA: Apress, 2020, pp. 49–70. [Online]. Available: https://doi.org/10.1007/978-1-4842-5434-9_4
- [5] OpenStreetMap Foundation, “API v0.6 - OpenStreetMap Wiki,” December 2019, accessed 30 January 2020. [Online]. Available: https://wiki.openstreetmap.org/wiki/API_v0.6
- [6] Google LLC, “Pricing & Plans — Google Maps Platform — Google Cloud,” accessed 30 January 2020. [Online]. Available: <https://cloud.google.com/maps-platform/pricing>
- [7] A. Nystrom, “Agile solo: Defining and evaluating an agile software development process for a single software developer,” Master’s thesis, Chalmers University of Technology, 2011. [Online]. Available: <http://publications.lib.chalmers.se/records/fulltext/147143.pdf>