Project Plan

CS22120 GROUP PROJECT

GROUP 3

TOP KEK | LLANDINUM BLDG, PENGLAIS, ABERYSTWYTH, DYFED SY23 3DB,

Contents

1. Introduction

1.1. Purpose of the Document

The purpose of this document is to show how we have interpreted the client's specification, Reserve Plant Species Recording, into simple objectives and milestones to be achieved.

The document is set out to define the interactions of the application and the overall appearance of the end user interface.

The document will also display a comprehensive Gantt chart displaying the project's major tasks and milestones. As well as that, there will be a risk analysis section, which shall describe the main issues that could possibly be encountered throughout the development of the system and how these risks can be handled and/or avoided.

1.2 Scope

The contents of this document should take into account the details of the group project's specification.

The document includes the overview of the proposed system at hand, the choice of platforms to be used, a use case diagram entailing an overview of how the system will be expected to run, a description of the user interface design and end user interaction.

The document also includes a Gantt chart displaying start and end dates of tasks needed to complete the project. A risk analysis will also be available, displaying possible problems that may be encountered.

1.3 Objectives

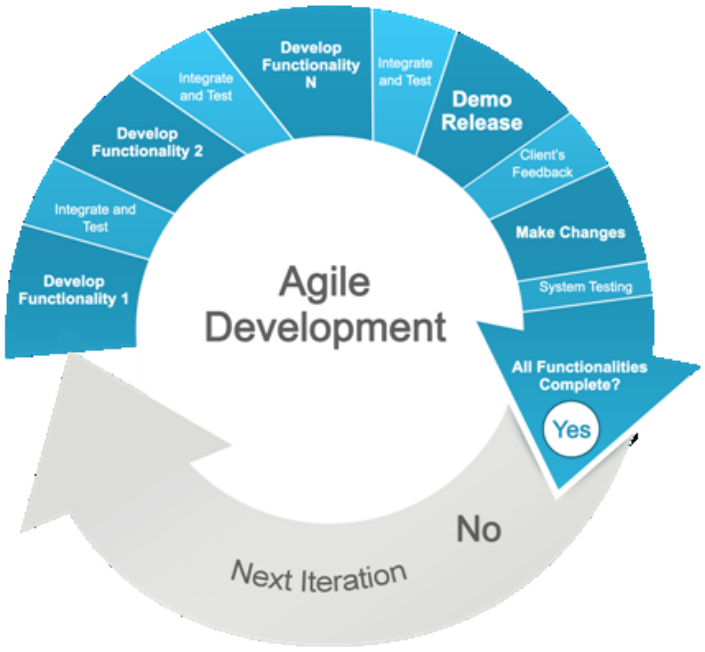
The main objectives of this document are as to show all the different fields and aspects of the application

- To show a general sense of the idea and the aspects of the application
- Record bugs and problems that have been encountered and the solution
- Display how different components interact and behave with each other
- Provide criteria and standard the application must meet
- Record and provide achievements and progress

2 Overview

The proposed system is an Android based plant species recording application with an accompanying web interface, which both utilize a backend database stored on a server.

For this project an Agile Model will be used. The Agile model encourages development in iterations; this includes specifying or implementing part of the software which can then be reviewed and updated as needed, this process will uncover further specifications and requirements that were not deemed necessary at the start of the project. This is then repeated for each iteration of the project.



Using this model has several advantages, one of which being that as this is a process of building and reviewing any errors or defects whether in design or implementation can be caught and tracked in the early development of the project, this avoids later larger issues. There are also benefits such as being able to get team and customer feedback, constant reviewing of sections allows team members to collaborate efficiently with feedback on how to improve sections; also the customer gets regular sessions with the team in order to understand how the finished product will work and give feedback on functionality issues.

This model is the most efficient way of developing our project as it allows us to review on a regular basis to ensure that the development is continuing smoothly and that there are no mistakes in the project so far. This also means we can use earlier versions of the same code or documentation if something doesn't go accordingly therefore avoiding major issues in later development. The reason we chose this model is that it co-insides with the design and implementation based development we feel works best in this sort of project and it allows us to review each section thoroughly before implementing it to the system which we believe is the most effective way of developing a system.

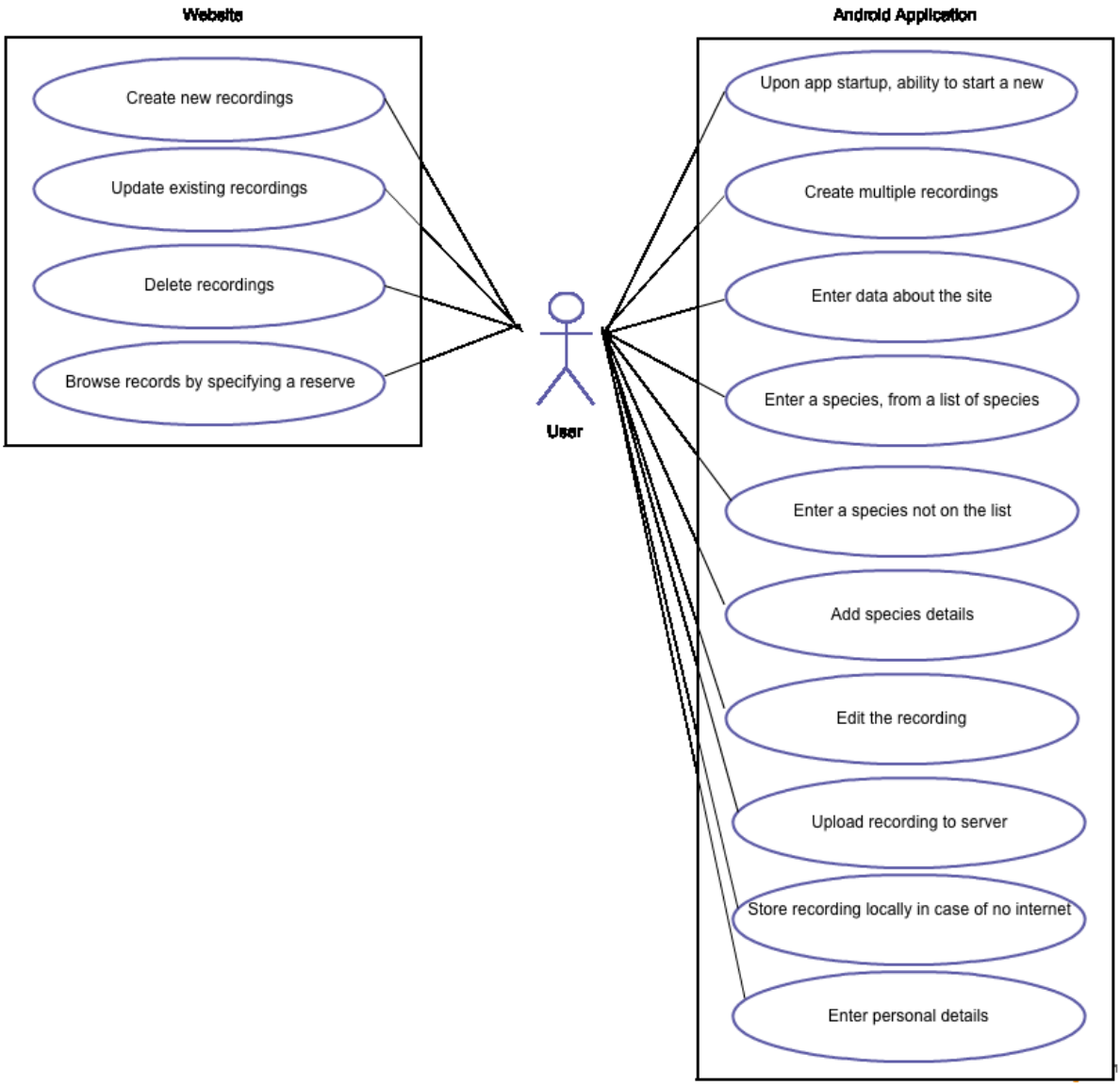
2.1 Platforms

- Android: the client specified an app written for the Android mobile operating system
- Java: as subject to the client's specification for an Android app, Java is the language natively supported by Android.
- PHP: as per the client's requirements, we will be building a website that interacts with the database. PHP is a good choice for this due to it being developed with web development in mind, so it is easier to code than other choices. Also, a significant number of members of our team are learning PHP as part of a different module.
- MySQL: MySQL is a widely supported database platform, which is free to use and acknowledged by many in the industry as one of the best free options.
- JavaScript: We will use JavaScript to ease the load on the server, and perform some simple validation tasks client-side (e.g. when editing a record, checking the data the user has entered is in the right format).

2.2 High Level Architecture

- Reserves: On the website, users will be able to enter and modify details about reserves (i.e. areas of nature users have visited and recorded plant species data at).
- Plant Species: The main requirement of this project is for users to be able to make records pertaining to plant species and their abundance. This will be the main functionality/screen of the application.
- Photos: A user can optionally attach a photo of the particular plant species and/or the surrounding area, for this we will use Android's built-in Camera and/or Gallery.
- Reserve Records: On the website, users will be able to view plant species records logged at a specific reserve, we will be using SQL calls to selectively choose this data and displaying it to the user in an attractive and readable format.
- Target User: As per the requirements specification, the target user for this application will be naturalists familiar with standard computer interfaces, and concerned particularly about accuracy of recordings. Using this knowledge, and common knowledge about mobile applications, we will strive to make our application simple and easy to use but with the flexibility to allow users to enter accurate data. People using this app will likely be outside, and of course be using their phone, so will not want to spend too long entering data into a confusing app.

3 Use-Case



3.1 Use-Case Diagram

3.2 Use-Case Descriptions

3.2.1 Android Application (RPRSrec)

Use Case	Description	Requirement
Create a recording	Upon opening the app, the user will be able to create a new recording	FR1
Create multiple recordings	The user will be able to create multiple recordings (for multiple species, or areas)	FR1
Enter data about the site	User will enter data about the site they are at (eg, a nature reserve)	FR2
Enter personal details	The User will be prompted to enter personal details, for the purpose of identifying who has uploaded which records to the database.	FR2
Enter a species	User will enter a species from a list of plant species provided by Botanical Society of Britain and Ireland (“BSBI List 2007”)	FR3
Enter a species not on the list	If the species the user has seen is not on this list, they will be able to provide a name for the species recorded	FR3
Add species details	User will add details about the species: abundance of species (using the DAFOR scale), location, and optionally a photo and a comment	FR4
Edit the recording	User will be able to edit their recordings, either by changing the details or deleting the recording.	FR5
Upload recording to server	User will be able to upload their recording to the server, which will in turn add it to the database.	FR6
Store recording locally	If an internet connection is not available, the user will have the option to store the recording locally (and upload it later when a connection is available).	(none)

3.2.2 Website (RPRSview)

Use Case	Description	Requirement
Create recordings	User will be able to create new reserve records through the website (with a name, location and description).	FR8
Update existing recordings	User will be able to update information stored in existing records.	FR8
Delete recordings	User will be able to delete records.	FR8
Browse records	User will be able to search for a reserve and browse species recordings taken at that location.	FR9

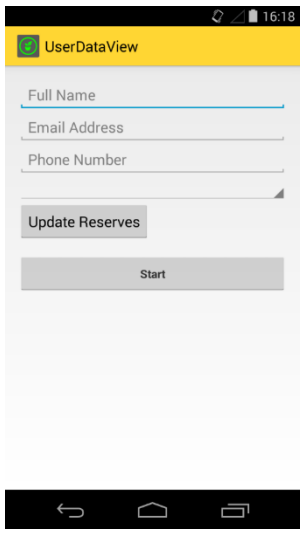
4 User Interface Design

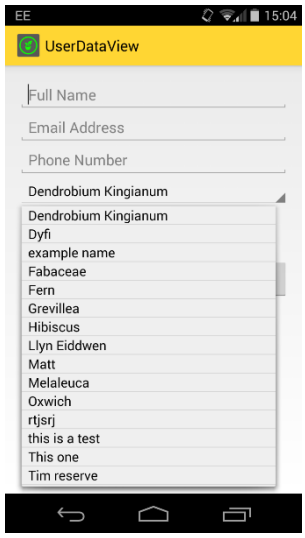
4.1 Android Application (RPSRrec)

4.1.2 User Data Page

This is the personal details page. It allows the user to in put their details on the corresponding lines. The user can only carry on to the “Add Record” page after all of the form has been filled out.

The image on the right is of the drop down list of all possible nature reserves the user can select from. Pressing start will bring up the “Add Record Page”.





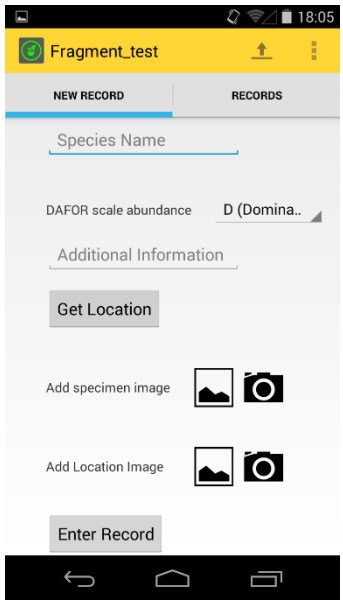
4.1.3 Add Record Page

This page will allow the user to add a record easily, the user must simply fill in the fields for the species that they are currently recording.

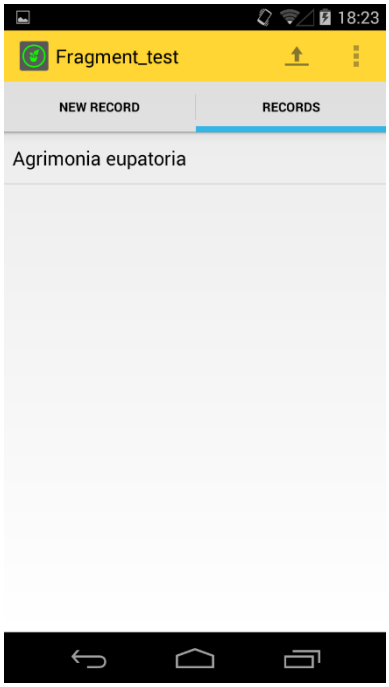
If the user has their GPS enabled they can press the “Get Location” button and this will take their coordinates and add them to the record.

Towards the bottom of the form you can add a picture of the species and/or the surrounding location. Both the symbols that link you to do this are placeholder images (and will be changed during the implementation). The camera icon will allow the user to activate their camera and take a picture to add to the form, whilst the mountain symbol will allow the user to add a picture from their current gallery to the form.

Upon completion of the form, clicking the “Enter Record” button will take the user to the record page with the newly filled out record on display.



4.1.4 Record Page



This is the page that allows the user to navigate between all of their previously added records in a list on the screen.

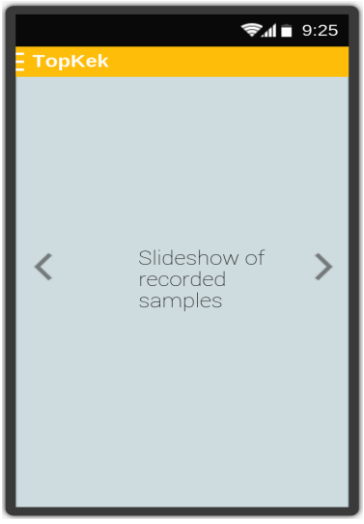
Clicking the “New Record” tab on the left hand side of the screen will allow the user to add a new record.

Clicking on the “hamburger” in the top left corner next to the place holder logo you will be able to select “Edit” which will take you to the Add Record page where the fields will already be filled with the previous information.

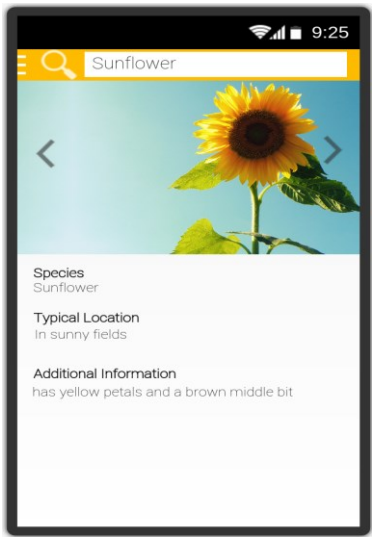
By clicking on the arrows in the picture the user can cycle through all of their current images for that specific species record, and then by pressing the image they bring up a new page which gives them a closer look at the pictures.

4.1.5 Image Viewing Page

In this page the user can swipe through all of their images for a specific record. This page is accessed by clicking on the image preview thumbnail and provides the same image full screen.



4.1.7 Edit Page



This page is navigated to by clicking on a record on the “Records” page. The page allows people to see a selection of previous local records. Records can be deleted or edited.

4.2 Web UI Design (RPSR view)

The website will focus on functionality, which is why it will use a minimal, table-based UI to display the records. This makes the system compatible with the most browsers and user groups.

4.2.1 Reserve View

This is the view the user will see when accessing the RPSRview website. It displays the name, location and description of every reserve. By clicking on a reserve's name the user will be taken to the list of plants in that specific reserve.

The “Add Reserve” button opens a page to add a new reserve to the list, the “Edit List”

Reserve Name	Location	Description
Aberystwyth Nature Reserve	SE12341234	Hilly area with lots of trees
Llanbadarn Nature Reserve	SW13451345	Flat area with lots of grass

Add Reserve | Edit List

button allows the user to edit the list of reserve (eg delete a reserve, rename a reserve).

4.2.2 Edit List View

By clicking the 'Edit list' button on the other pages the user will be able to change the

attributes of each reserve as well as select and delete entries.

4.2.3 Plant View

The plant view shows every plant recorded (sorted alphabetically) in the selected reserve and the date of their first and last recording. By clicking on a plant's name the user will be taken to the recorder view.

Aberystwyth Nature Reserve

Species	DAFOR Scale	Comments	Date Recorded	Location Photo	Species Photo	Email
Plantus Plant	A	This is an example comment	12/10/2014			kpf@aber.ac.uk
Weedus Weed	B	Another example comment	12/10/2014			kpf_420@aber.ac.uk

Adding and editing entries in the list functions identically to the reserve view.

4.2.4 Recorder view

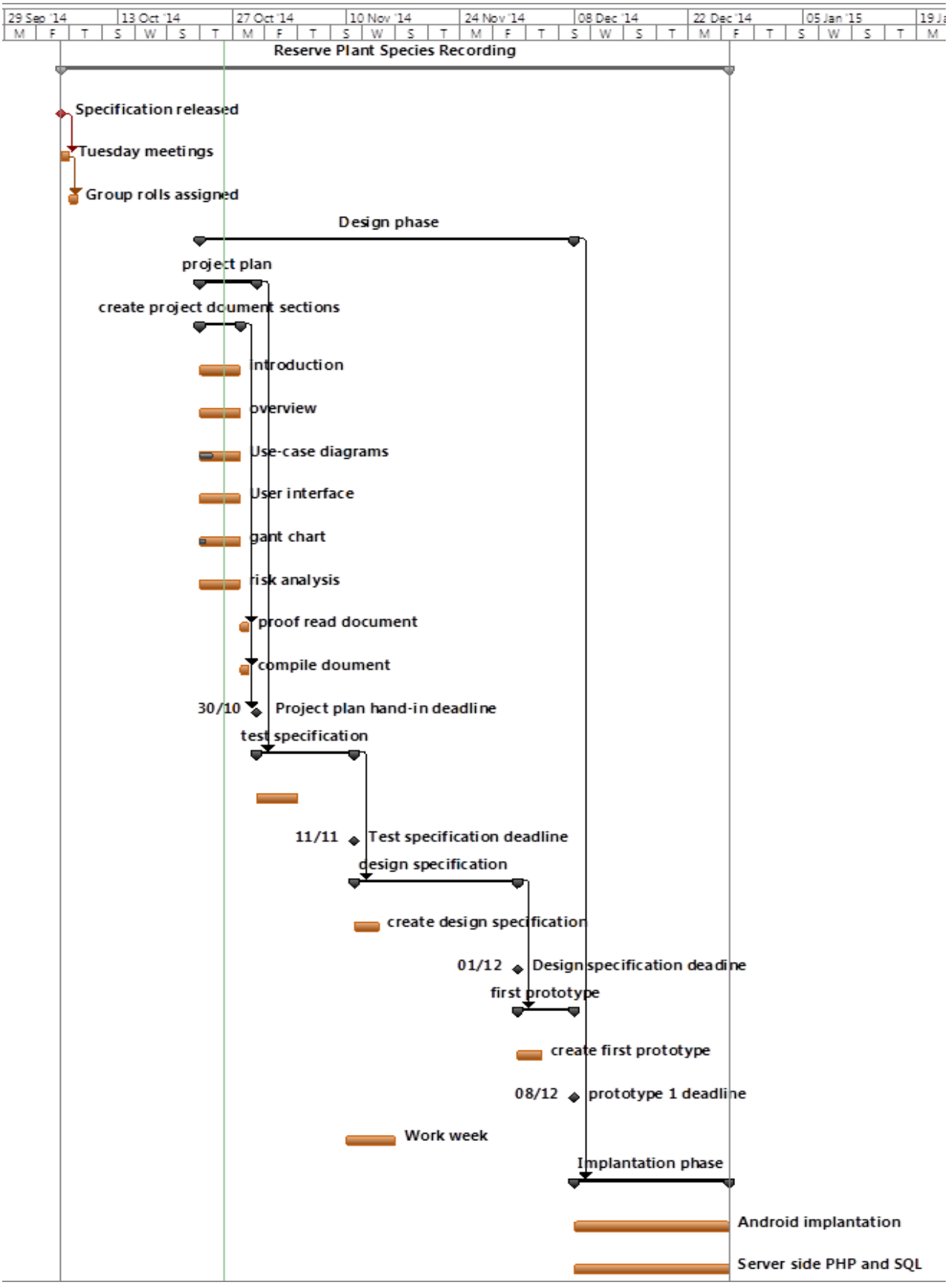
The recorder view displays the information about the selected plant in the reserve with the list sorted reverse chronologically.

Aberystwyth Nature Reserve - Plantus Plant

DAFOR Scale	Comments	Date Recorded	Location Photo	Species Photo	Email
A	This is an example comment	12/10/2014			kpf@aber.ac.uk
B	Another example comment	12/10/2014			kpf_420@aber.ac.uk

Adding and editing entries in the list functions identically to the reserve and plant view.

5 Gantt chart



6 Risk analysis

6.1 Personnel risks

Risk Event	Risk Level	Prevention Methods	Alternative Procedure
People abandon project or become ill.	Medium	Discuss with team the repercussions of abandoning the project and the correct way to alert the team to any illnesses or sudden absences.	Delegate work to other members of the team.
Unable to meet deadlines.	Medium	Make and keep to the project schedule.	Enquire about extensions for the particular deadline.
Lack of knowledge on necessary topics.	Low	Do more research on topic.	Utilize team members correctly.
Human Error.	High	Team members proof-read each other's work.	Test all work to stamp out mistakes.
Implementation does not work as expected by client.	Low	Keep to the specification.	Change the project as necessary.
Requirement change.	Low	Keep in regular contact with the client, to be prepared for changes.	Change work to fit the new requirements.
Shortage of personnel on particular tasks.	Medium	Ensure team availability.	Assign more members to a tasks possibly postponing others until the urgent task is complete.

Disagreement between team members or lack of collaboration.	Medium	Ensure the team members know how the implementation of the project will be carried out and with what tools, this removes the need for disagreements.	Discuss with management the best course of disciplinary action.
Failure in commitment.	Medium	Ensure the team understands there are repercussions for failing to commit to the project.	Disciplinary action.
Failure in management.	Low	Discuss with the group leader about worries over their management style and how they may be improved.	Disciplinary action. If such failure continues, suggest a change in leadership.

6.2 Documentation Risks

Risk Event	Risk Level	Prevention Method	Alternative procedure
Documentation late or of poor quality.	Low	Team members to proof-read each other's work to ensure high quality in all documentation.	Re-submit any documentation that is not to the specifications standard.
Lack of analysis.	Low	Plan all steps of the project in detail allowing large spaces of time to be dedicated to analysis.	Arrange a group meeting specifically for analysis and design so we may step back and look at the specification again.
Unrealistic schedule.	High	Make the schedule as a team so we all agree on the time slots and how long tasks will take.	Meet as a team to re-design the schedule to a more realistic standard.
Poor definition of requirements.	Medium	Remain in regular contact with the client to get a better understanding on what the client is asking for.	Gain constant feedback on work from the client so any changes necessary can be carried out as soon as possible.

6.3 Code Risks

Risk event	Risk level	Prevention method	Alternative procedure
Repository failure.	Low	Back up all work to private machines.	Continue work from a backed up copy.
Parts of implementation missing or incomplete.	Medium	Team members should proof-read each other's code before submission.	Complete or re-create code and the re-submit.
Lack of testing.	High	Create a testing schedule that the whole team is happy with to ensure enough testing.	Create and complete more tests.
Hardware does not work well.	Medium	Ensure hardware meets specified requirements before use.	Use university facilities in place of lesser machines.

6.4 Legend

Risk Level	Colour	Meaning
Low		This is unlikely to be an issue or will be minimal interruption to project events and tasks.
Medium		Possibility of occurring and may cause significant interruption of project tasks.
High		Likely to occur and should be the main risks focussed on by the group to prevent.

7 Document History

Version	Date	Changes made	Changed by
1.0	26/10/14	Added front page, table of contents, and introduction	Jap55, cac36
2.0	27/10/14	Added Gantt Chart	Jap55
3.0	27/10/14	Added Risk Assessment	Jap55
4.0	27/10/14	Added Use-Case	Jap55
5.0	27/10/14	Added User Interface Design	Jap55
6.0	27/10/14	Added Overview	Jap55
7.0	27/10/14	Updated table of contents	Jap55
8.0	29/10/14	Updated Use-Case Diagram and Descriptions	Kpf, yta
9.0	21/1/15	Updated web UI to reflect changes to UI, improved some formatting	kpf
10.0	22/1/15	Updated development model, and table of contents to be automatic (click update entire table if anything is added beyond this point).	Mas97
11.0	10/02/15	Changed the app design images to screenshots of the actual application where applicable.	Jap55