CS 467
Winter 2017

# Reticulum: Project Plan

## "Reticulum" Team Members

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## Introduction

Team Reticulum will be building on the progress made in Fall 2016 by Team Rumba on the ReUse app. We will be adding functionality to the admin portal and creating an iOS version of the ReUse app. We bring with us experience with C/C++/C#, SQL, PHP, and JavaScript. Fahmy has a strong interest in learning app development and will be creating the iOS app this term while Heidi and Jeffrey make updates to the website.

## User Perspective

From a user perspective, the ReUse app and website will be used to connect citizens of Corvallis and the surrounding community with organizations that can repair, reuse, or recycle used items. The ReUse app will allow users to look up used items by category. Users will be presented with a list of businesses with contact information, hours of operation, and a map showing the business location.

## Clients

Greg Fitzpatrick is of the Reuse project and of Fitzpatrick Ecological Consulting. Benjamin Brewster is the professor for the capstone course project. Both Greg and Benjamin will be this team's clients through the length of the term's project, as well as will receive the team's weekly, mid-point check, and final deliverables.

## Client Requirements

These requirements were assumed by the previous team to work on the ReUse project in Fall 2016. Team Reticulum will follow these requirements when doing additional work on the ReUse app.

- The service will provide Corvallis and outlying community a way to easily locate businesses that will (1) take reusable items that can be sold to the public as used items, and (2) take and repair items.
- The directory service will be available to the public as a website and Android app.
- The app will allow the public to view a list of categories and then click and go to a list of businesses that take those items.
- The app will provide a map showing where the businesses are located, as well as each business's phone number, address, hours of operation, and a link to their website.
- The app will provide a link to the local recycling company, Republic Services, so the public knows what items can be recycled in case their items are unusable and unrepairable.

- The website will have an administrative side that will allow authorized users to manage the records.
- Data will be securely stored in a database.
- GoDaddy will be used for hosting, so relevant components of the project will need to comply with the requirements of the hosting plan.
- The colors used may be the colors or colors similar to those used in branding the Corvallis Sustainability Coalition, sage (#7C903A) and orange (#F89420).
- The logo used for the project can be the logo for the Corvallis Sustainability Coalition, either the rectangular version including the text “Corvallis Sustainability Coalition” or the cropped version showing only the icon with the sun rising over a hill.
- The title of the directory is “The Corvallis Reuse and Repair Directory”, but may be abbreviated to “Corvallis ReUse”.
- Businesses can be divided into the three categories of “Repair”, “Reuse”, and “Recycle”.
- No business information should be hard-coded into the app or website, including recycling center information or documents associated with a business. Therefore, this information should be added to the directory and updatable through the admin portal. The public website and app should use the API to retrieve this information.
- There should be a way to add recognition of donors or sponsors to the project. This information should be added to the directory and updatable through the admin portal. The public website and app should use the API to retrieve this information.
- Sponsors / donors should be thanked in areas where users are likely to see it, not on a special sponsor’s page.
- The following text can be added to an About page to describe the purpose of the directory: “The purpose of the Reuse and Repair app is to provide the Corvallis and outlying community a way to easily locate businesses that will 1) take reusable items that can be sold to the public as used items, 2) take and repair items, and 3) take recyclable items”.
- The website and email for the Corvallis Sustainability Coalition, which can be included as contact information, are respectively http://sustainablecorvallis.org and info@sustainablecorvallis.org. No phone number will be provided.
- There should be a Home button in the app, so that a user doesn’t have to click back many times from the business pages to reach the Home/Main page.
- Any of the images, (those currently in the img folder of the website), may be used in the project, including the mobile app.
- The text needs to be readable by the colorblind. There needs to be sufficient contrast between text color and background color, specifically in the mobile app, so that the text is readable.
- The text in the app needs to be sufficiently large that users, including those with some visual impairment, won’t have difficulty reading the text.
- Businesses and other organizations should be referred to as “organizations” rather than “businesses”.

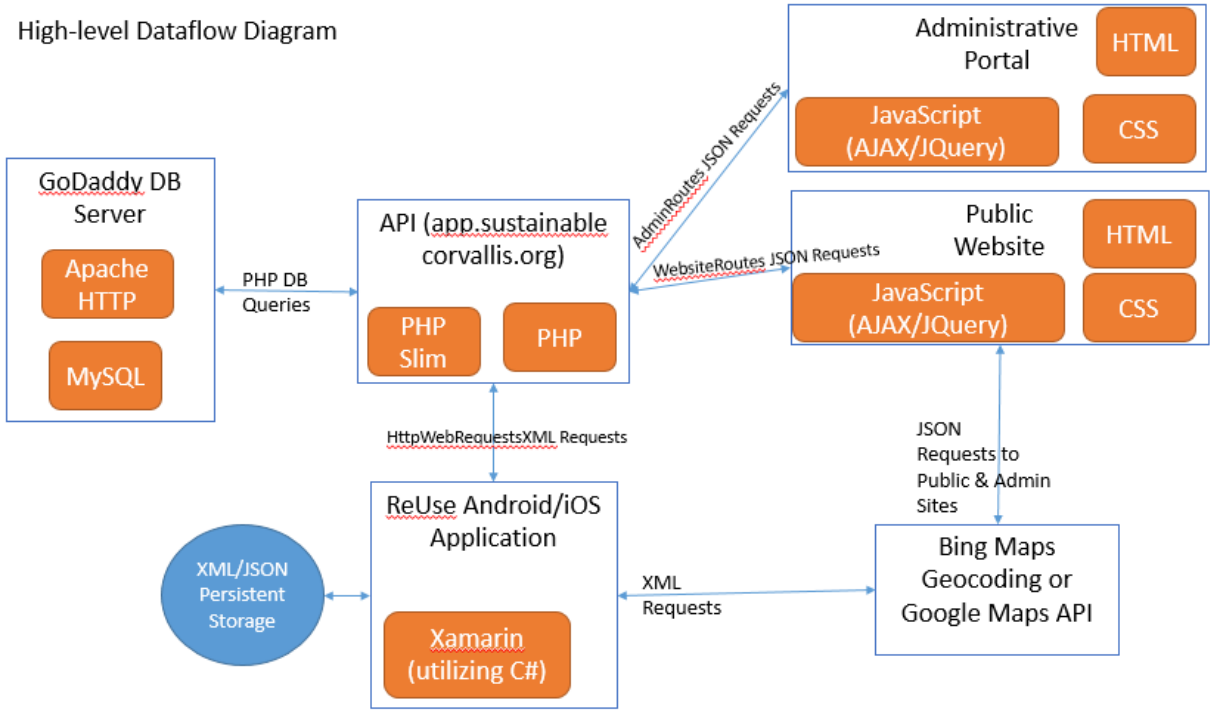
**Project Plan Description**

Based on feedback from Greg Fitzpatrick we will focus on the following aspects of the project:

- Restructure the categories database to be more useful.
- Provide a means in the website admin portal to add new businesses that include items they take and location information.
- Provide a means to integrate the ReUse website subdomain with the Corvallis sustainability coalition domain website.
- Develop an IOS app with the ReUse directory.

In addition to the tasks listed above, we will complete several of the tasks suggested by the Team Rumba in Fall 2016, as time permits once the prioritized tasks are finished. These include adding CRUD functionality within the admin portal for recycling centers and donors and improving the usability of the administration portal by adding the ability to edit categories and items accepted by organizations.

Below is a High-level Dataflow Diagram depicting the dataflow between each of the pieces of the ReUse project as understood from the project in it's current state. Added into the dataflow is persistent storage for the Mobile App as a recommendation by the previous team of the project, so data can be stored even when the device is shut off. Also added is the use of making JSON/XML requests to a geolocation API for mapping on the website and mobile application interfaces.



The following is a mockup of the form that will be used to add new businesses. Business location and contact information will be added and categories and items accepted will be indicated when adding a new business. The edit form will look similar with the added functionality to edit categories and items accepted.

**Initial Plans**

According to Team Rumba's final report in the Fall 2016 term, below are the following languages, APIs, and other tools used to create the ReUse project as of Fall 2016 and will also be utilized in Team Reticulum project along with a few additions:

*Server*

- CentOS (Linux) through GoDaddy
- Apache HTTP Server

*Database*

- MySQL

*API*

- PHP
- Slim PHP
- Bing Maps Geocoding API
- apiDoc

*Website*

- PHP
- Slim PHP Framework
- HTML
- JQuery
- JavaScript
- Bootstrap
- CSS
- Google Maps API
- Anime-JS
- Foundation Icons
- XAMPP

*Android App*

- Xamarin IDE
- C#
- LINQ

*iOS App*

- Xcode IDE
- Swift

## Team Member Tasks

### *Heidi Binder-Vitti*

| Task | Time Estimate (hrs) |
|---|---|
| Week 3 - Setup test server for development. Create schema for new categories and items database. Write and test SQL for creating new businesses. | 15 |
| Week 4 - Implement new categories schema in the database and make existing data conform to new design. | 12 |
| Week 5 - Create web page and form to add new businesses from the admin portal. | 11 |
| Week 6 - Connect new business page to geocoding api to add new businesses to the map. (According to notes in GitHub, the geocoder is not working properly.) | 12 |
| Week 7 - Add the ability to select categories and items accepted by businesses to edit business form. | 14 |
| Week 8 - Create web page and forms for adding recycling centers within the admin portal. | 11 |
| Week 9 - Create web page to add donors within admin portal and add routes to this page. | 11 |
| Week 10 - Improve usability of the admin portal by using more descriptive buttons or adding tooltips to tell user what each button does. Work on final report. | 14 |
| **Total Time** | **100** |

### *Fahmy Mohammed*

| Task | Time Estimate (hrs) |
|---|---|
| Week 3 - App UI design and functionality planning (iOS research phase). Get familiar with android app code and design | 20 |
| Week 4 - Start iOS app development. Begin adding UI Elements (Buttons, pages, etc) | 10 |

| | |
|---|---|
| Week 5 - Add functionality to app and implement error checking. Make sure buttons, links and other UI elements all work and allow navigation throughout the app | 15 |
| Week 6 - Link app to database and start displaying information that mirrors the website. Add further error checking and work on midpoint check report | 20 |
| Week 7 - Work on high priority android app improvements as specified by previous group. | 15 |
| Week 8 - Rework android app data handling. | 15 |
| Week 9 - Testing and fixing bugs | 10 |
| Week 10 - Create/Improve graphic assets to be used in both app stores. Work on final report | 5 |
| **Total Time** | **110** |

***Jeffrey Schachtsick***

| **Task** | **Time Estimate (hrs)** |
|---|---|
| Week 3 - Get setup with the public and admin websites by using the setup procedures indicated by the Rumba Team from Fall 2016.<br>- Ramp up and get familiar with the code for both sites.<br>- Create mock-ups to integrate the ReUse website subdomain with the Corvallis sustainability coalition domain website. | 18 |
| Week 4 - Implement integration of the ReUse website subdomain with the Corvallis sustainability coalition domain website.<br>- Get setup and familiarized with the API code. | 16 |
| Week 5 - Add a search-like feature within the admin portal to query data from the database and return results to the user. | 12 |
| Week 6 - Add a search feature to the site header to the public website. | 16 |
| Week 7 - Investigate device-responsiveness with different layouts for screen sizes and make adjustments where possible. | 10 |

| | |
|---|---|
| Week 8 - Look into adding error-checking for incorrect characters or empty variables being submitted into each of the websites.<br>- Refactor application layer code with JavaScript AJAX code. | 14 |
| Week 9 - Research improvements with security features with the API on the POST/DELETE/PUT requests with proper security credentials. Implement where possible. | 16 |
| Week 10 - Remove debugging functionality from the production code and perform any clean-up for future development. | 12 |
| **Total Time** | **114** |

## Task Delegation

| **Report** | **Due (2017)** | **Format** | **Assignee to Submit** |
|---|---|---|---|
| Project Plan | Jan. 20 | Written Plan in PDF form | [All] |
| Week 3 Update | Jan. 27 | Project Status Video | *Heidi* |
| Week 4 Update | Feb. 3 | Project Status Video | *Fahmy* |
| Week 5 Update | Feb. 10 | Project Status Video | *Jeff* |
| Mid-Point Check | Feb. 17 | Functional code to this point AND report with instructions | *All* |
| Week 7 Update | Feb. 24 | Project Status Video | *Jeff* |
| Week 8 Update | March 3 | Project Status Video | *Fahmy* |
| Week 9 Update | March 10 | Project Status Video | *Heidi* |
| Final Report | March 17 | Written Report in PDF form | *All* |
| Demonstration | March 17 | Zip file with code AND report with instructions. | *All* |

## Conclusion

The Reticulum team hopes to build on the fantastic work already performed from past teams for the ReUse project. We are looking forward to creating an iOS app, as well as making updates to the websites and project API. Our experience with many of the used languages and libraries we should be able to perform these tasks in approximately 324 hours throughout the course of the 8 week period.

## References


- *Team Rumba Final Report*, Lauren Miller, Colleen Minor, & Vladimir Predovic, Fall 2016.