

Pay It Forward

Project Plan

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1 Introduction

1.1 Project Statement

The Pay it Forward project will result in a web-based platform hosted by the City of Ames to connect donors with appropriate donation outlets. Outlets will be able to create accounts and make changes to their publicly available information as approved by administrators of the system. From there, they will be able to select which items they accept as donations. Citizens who wish to donate items can input the things they have available then search for the best outlet for them. The list of donation centers can be sorted by factors such as location, amount of items accepted, and accepting high priority donations. This application should be easy and fast to use from both web and mobile browsers.

1.2 Purpose

The City Council has made it a priority to reduce waste going to landfills, and they made our client responsible for seeing to this challenge. Beyond reducing our consumption of materials, the next two best ways to see to this goal is by reusing and recycling the items that we use. Our application will provide the residents of Ames tool to simplify the process of finding an outlet for donating their items for reuse. By making this step easier, it is expected to increase the amount of items that are reused within the community; thereby, decreasing the amount of waste being contributed to landfills. If this project achieves its goal, the non-profit organization of Ames will see an increase in donation to help them succeed while creating a healthier and cleaner system by lowering traffic to landfills.

1.3 Goals

- I. Create an extremely simple and quick donation center reference site
- II. Gain practical experience in communicating with clients and eliciting requirements
- III. Generate a sufficient and efficient design for this software system
- IV. Produce a product that fulfills the vision of the client in the best way possible
- V. Improve project management skills
- VI. Contribute to the success of an environmentally-friendly program in the City of Ames
- VII. Establish professional connections in the working world

2 Deliverables

2.1 Project Deliverables

These deliverables are necessary for completing the Pay it Forward application. These will be submitted to our client contact, Merry Rankin. These deliverables will be iteratively submitted throughout the project's development for review and will be submitted in full at the completion of the project. See Section 6 for a timeline.

- This project plan -- For review before start of the project's development.
- Multiple design documents and options -- These will include both user interface design for review by the client contact and technical design for review by the City of Ames system maintainers to ensure compatibility with existing systems.
- Complete project code meeting requirements in Section 4
- System documentation -- This will include documentation about the system, including installation and maintenance. This will ensure system maintainers with the city will be able to maintain this new system in the future. Our group will provide support for initial setup.

2.2 Class Deliverables

These deliverables will be submitted to our advisor and instructors for review by our advisor and class instructors.

- All project deliverables above
- December 2016 presentation
- May 2017 presentation
- Weekly reports -- detailing project progress
- A team website containing all project documentation

3 Design

3.1 Previous Work / Literature

A prototype was created by Jordan Harper, Arlen Burroughs, Kyle Long, and Josh Harper in Dr. Lutz's Computer Science 409 class. This client expressed interest in having a similar, easy-to-use web pages as displayed in Figure 3.1.1. This "Pay It Forward" prototype had a simple flow of item category selection page, donation center choice page, and then a page with donation center information. Also included in the prototype are sample forms for login pages, donation center request forms, and other relevant functionality mockups.

3.2 Proposed System Block Diagram

See Figure 3.2.1

3.3 Assessment of Proposed Methods

These methods will allow Ames citizens and donation centers to connect in the fewest number of clicks possible for both parties. We discussed including a login for all users to allow in depth search history and previous donation sites. However, login functionality will only be used for admins and donation centers to avoid unnecessary time for typical users. This way, users are not driven away from the site because they feel the extra login is cumbersome. It is still important that the other two actors have an account to assure that only approved non-profit organizations are using this site to advertise what they accept as donations.

We hesitate to solidify many design decisions related to the interface and specific technologies to use as we are still in discussions with the City of Ames about what platforms with which we need to integrate. Once we know what exists, we can move forward with those decisions.

3.4 Validation

We will navigate through the website, trying various end cases to test the functionality as we develop. By testing iteratively, we aim to catch as many bugs as possible before they cumulate into a more problematic situation. Once we believe that the system works, we can try to create some automated tests, such as smoke tests to make sure the system can handle the desired bandwidth in which it may need to operate. We will also confer with Merry along the way to validate that the product we are producing matches the expectations.

4 Requirements and Specifications

4.1 Functional

- Provide a list of all donation centers
- Provide profile pages for each donation center
 - Should include information about hours, contact information, location, items accepted, if pickup/delivery is available, etc.
- Give users the ability to search for donation centers
 - Allow users to enter item types to donate by category (including other)
 - (Optional) Allow items to be prioritized
 - (Optional) Allow user to save search results to recall at a later time
- Allow users to produce a summary to be saved, printed, or emailed
 - Should include information such as hours, locations, and items accepted for each donation center in search
- Provide a method to create donation centers
 - Allow existing donation centers to update their information
- Create admin user accounts
 - Allow admin to approve and delete donation centers
 - Allow admin to edit the purpose and other site details
- Gather user location to prioritize donation centers
 - Provide map with donation centers marked
- Send regards to the user from the donation center

4.2 Non-Functional

- Must be mobile accessible with logical formatting
- Should be easy to use
 - Provide a simple interface for users of all backgrounds
- Must be integratable into the existing City of Ames software platform
- Should not require users to log in for center information

5 Challenges

Our greatest challenge will likely be working with the City of Ames staff to create a tool that will work well within the existing site. As our client contact lacks extensive technical knowledge, we have to be careful to communicate in a way that the team's understanding is in sync with our client's vision. Our goal is to decrease the number of items going to landfills when they could be used elsewhere. As the general populace dislikes complicated processes, usability is an important requirement for our project. The citizens of Ames are not required to recycle or donate their items, so if they are motivated to do so we do not want to discourage them with a complicated interface. Ultimately, we will be challenged to make our product as easy to use as possible in order to achieve the goal of the project.

6 Timeline

6.1 Semester One

August:

August 26, 2016 - Project Selection

In August, our initial team is formed and we select which projects interest us. Iowa State staff then selects our project and verifies team members.

September:

September 12, 2016 - First Weekly Report

The primary focus is for the team to create a better understanding of the project as a whole. This is accomplished by meeting with the client as well as team discussions among ourselves and with the advisor.

October:

October 16, 2016 - Project Plan

October 24, 2016 - First Design Document

The project and its development plan begin to solidify. The project plan and the design document push the team into a development-planning mindset.

November:

November 07, 2016 - Project Plan Revised

November 28, 2016 - Final Design Document

The team focuses on finalizing documentation and preparing for the project presentation. This leads to a small amount of development beginning in the form of website structure and backend design.

December:

December 05, 2016 - First Project Presentation

The team presents the project's current state and further develops the project structure to prepare for Scrum development next month.

See Figure 6.1.1

6.2 Semester Two

January:

The team initiates full development with Scrum sprints of two weeks in length. The structure is completed and feature-work begins.

February:

The main focus lies within creating a rough first prototype of the software system. Most, if not all, of the features should be implemented to, at least, the most basic level.

March:

By the end of this month, the software system will have all necessary features implemented to some degree. This minimum viable product (MVP) will be shown to the client for aggressive feedback.

April:

Feedback from previous months is taken into heavy consideration, and, by the end of the month, the project is in a state that can be considered complete. The team then focuses on preparing for the final project presentation.

May:

The team presents the final product to the class.

See Figure 6.2.1

7 Conclusions

The goal of this project is to create a meaningful software system for the City of Ames in order to help reduce waste entering landfills. In achieving this overarching goal, we will need to work with our client representatives to achieve a clear and mutual understanding of the product requirements. To do this, we will develop and implement a design then present the results of that implementation to our contact. We will collect their input and repeat the cycle until the product meets and exceeds expectations. Our first semester will be spent primarily in the requirements elicitation and initial design phases. The further we progress through the year, more time will be spent on development as the client and team approach the same understanding and vision of the product. Following suit most of the second semester, we expect to perform two week sprints where we meet with the client and our advisor on alternating weeks. By following this process, we plan to deliver an exceptional product.

8 References

Harper, Jordan, Arlen Burroughs, Kyle Long, and Josh Harper. *Prototype*. Ames: Iowa State University, 3 Oct. 2016. PDF.

9 Appendices

Figure 3.1.1

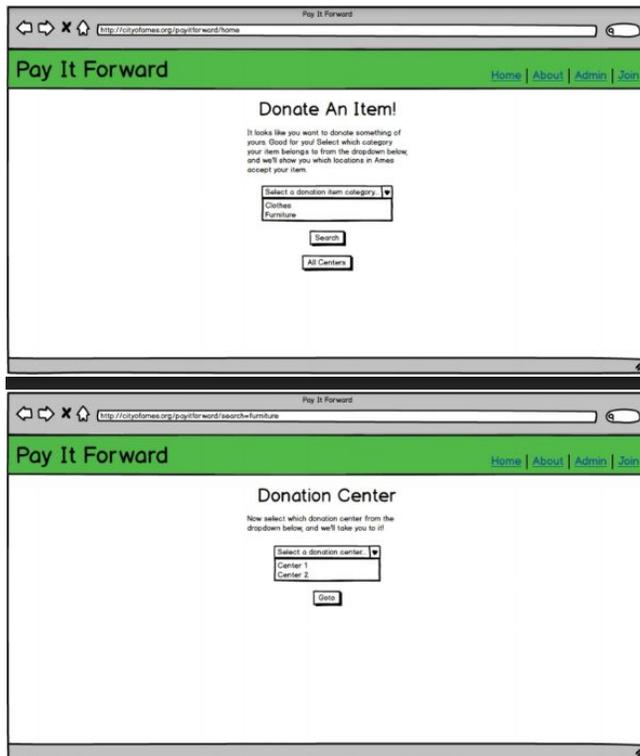


Figure 3.2.1

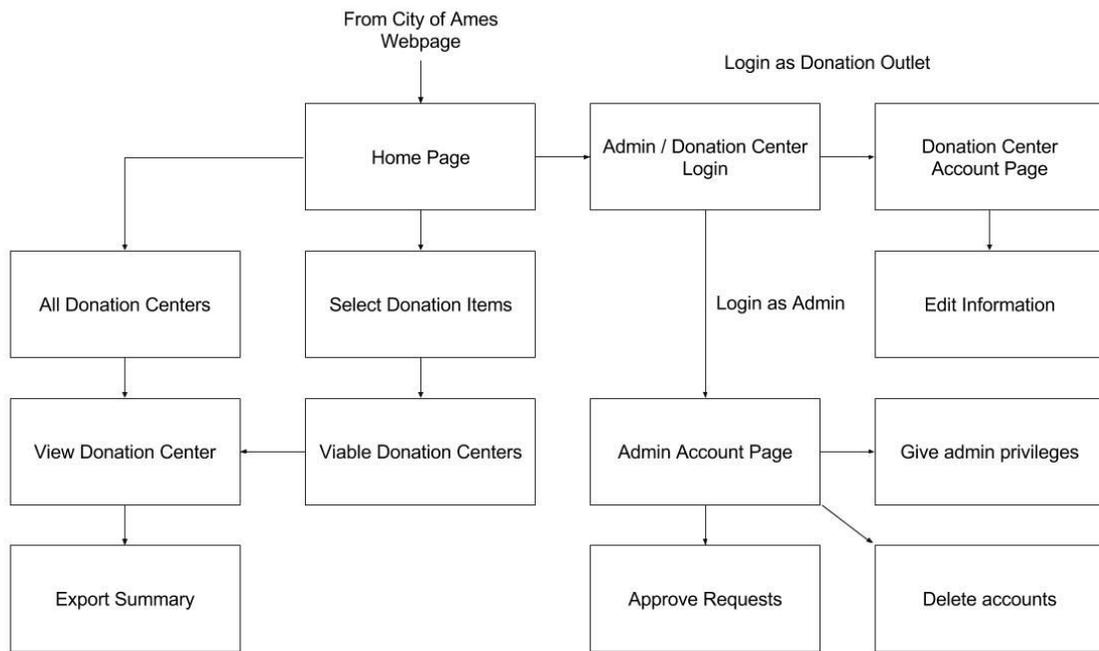


Figure 6.1.1

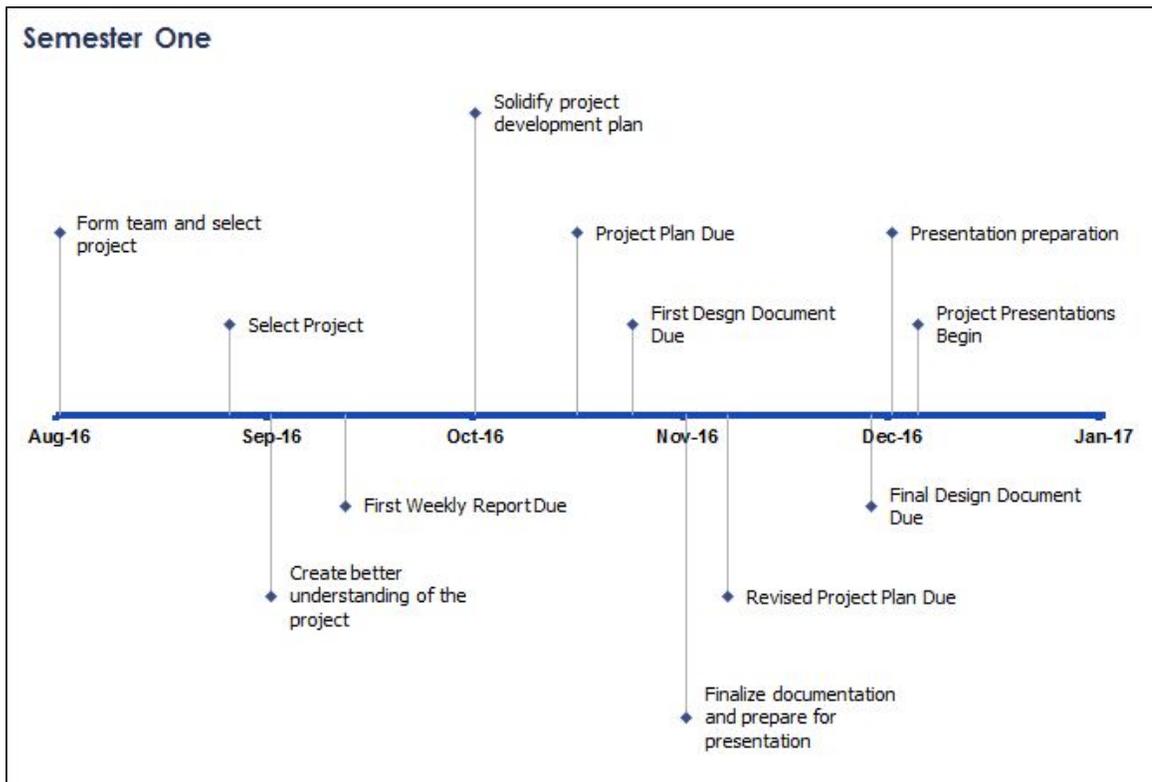


Figure 6.2.1

