

Green Your Residence

DEC 1612

Final Report

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1 Introduction

1.1 PROJECT STATEMENT

The project is a web application for the Iowa State University Office of Sustainability, specifically for the 'Green Your Residence' Project. This is an online, interactive website focused on assisting the students to "green" their dorm room/apartment/home. It has been developed with the intention of the project being seamlessly added to the rest of the Office of Sustainability's website upon completion.

The site has a landing page to welcome the user and introduce the four features. The main attractions are the Green Living Interactive Room, which allows users to use a drag-and-drop interface to create a virtual version of their living space. Additionally, there is a quiz for the users to test their knowledge on Green Living, and to receive a ranking title based on how 'green' they are. The Sustainability Savings Cart shows the user how much money they could save if they were to replace certain household devices for more sustainable alternatives. Lastly, there is a Green Living Facts page that provides fun and relevant facts for living a 'green' life, as well as a page for additional resources the Office of Sustainability are looking to promote and support. Behind these activities, select admin accounts will be able to log into the application's admin dashboard, where website administrators are able to add and remove content on the website.

1.2 PURPOSE

This project aids young adults, especially Iowa State students, in learning how to "live green", which means to understand their responsibility in creating a better global environment by reducing their carbon footprint. It will help users create more sustainable lifestyles and help improve their communities by informing them on how to save energy, save water, reduce gas emissions, etc. By purchasing sustainable items and adopting Green Living habits, individuals will save money and help protect the environment. Ideally, the website reinforces and raises awareness on this 'green' information and encourages students to share the information with their families and friends.

1.3 GOALS

Goals
Provide fun and engaging activities for the Office of Sustainability's website
Provide up-to-date information on Green Living
Encourage and excite users to continue to use the website as a source for accurate facts
Provide drag-and-drop interactive room to build the user's virtual room and have green tips for the designed room
Provide a quiz for the user to score themselves on how 'green' they are
Provide a Savings Cart for users to selecting their current dorm appliances and view the savings of replacing them with more energy efficient appliances
Provide admin pages for the Office of Sustainability to update the information on the website for the Savings Cart, Quiz, Information Page, and the Facts Page
Provide an intuitive experience for the user and admin
Create an appealing and intuitive user interface

2 Deliverables

Deliverables
An interactive room builder where the user can design a virtual room
Drag-and-drop room will allow students to add appliances and electronics into the room
Drag-and-drop room will provide 'green' tooltips when hovering over an item
A quiz for the user to score themselves on how 'green' they are
Upon completion of the quiz, the user will be redirected to a results page telling the user their 'green' score
A Savings Cart for users to select their current room appliances and view the savings of replacing them with more energy efficient appliances
Admin pages for the Office of Sustainability to update the information on the website for the Savings Cart, Quiz, Information Page, and the Facts Page
A landing page to introduce the user to the website and the activities
A green facts page that is sortable by category
An additional resources page to cite information and provide additional information if the user is interested
Backed up to a database for easy admin abilities

3 Design

This project design began with the client's feedback from prototypes from the Fall 2015 SE 409/CS 509 course where the students presented different approaches to developing the website. All of the features of the project are a combination of suggested features from the SE 409/CS 509 prototypes, brainstorming sessions with the client team, and the original prototypes proposed by the Senior Design team. There are similar websites pre-existing for other universities (such as Notre Dame, Bentley, and Brown). However, this project has a much heavier emphasis on interaction with the users and integration of modern technologies. The goal is to provide just as much useful information as the competing websites, but all the while doing so in a much more appealing and interesting manner.

3.1 System specifications

3.1.1 SYSTEM SPECIFICATIONS

- The project shall allow users to customize a virtual living space using drag-and-drop to place features and amenities similar to their own.
- The website shall let users take a quiz that challenges a user to evaluate how green their current lifestyle is.
- There shall be up-to-date facts and tips about Green Living throughout the website.
- The website shall let administrative users login with their Iowa State authentication information.
- The website shall allow administrative users to add and delete website content to ensure up to date information.

3.1.2 NON-FUNCTIONAL REQUIREMENTS

- The website's administrative tools shall be intuitive for a non-technological user.
- The visual design shall match the design standards of the iastate.edu domain.
- The website shall have minimal loading times.
- The website shall have a simple, yet intuitive user interface using Google Materials Standards.

3.2 Design Implementation

3.2.1 ORIGINAL DESIGN/METHOD PROPOSED

The original design proposal was to have a two page web application to keep a simplistic design. The interactive living space shall be accomplished by using a drag-and-drop HTML canvas, and will be the main focus of the application. The default landing screen shall be the interactive living space. The quiz shall be accessed by a link in the page's header, and will drop down from the header on top of the living space page. The only feature that shall be on a separate page will be the "Green Living Saving Cart", where the user shall assemble a collection of environmentally friendly products to buy, and a calculator will show them how much money can be saved on a monthly basis with these purchases.

Additionally, there ideally shall be a login feature using ISU credentials and an administrative page but these shall be developed later into the project and somewhat separate from the beginning processes.

3.2.1 IMPLEMENTED DESIGN/METHOD

The actual project implementation progressed throughout the meetings with the client throughout the fall semester based on feedback of the prototype. The website is seven pages. It has a landing home page that introduces the user to the activities on the website and asks the user if they would like to take a quiz and test their green knowledge, and has a revolving slideshow of descriptions other activities on the website, which link to their relevant pages. There is a page for the interactive room builder using HTML drag-and-drop to select 2D images and drop them as top down views in the room grid. The Sustainable Saving Cart gives the user the option to select a category, then select their current item of choice and then they may select other items to see if that would save them money and a calculated result of how much. Next is a Green Tips page that allows the user to look through the tips based on category. If the user has not taken the quiz yet or they would like to retake it, they may go to the quiz tab. Otherwise, they will be directed to the results page. The last tab is for the Additional Resources page, which sorts links to other Office of Sustainability-approved websites. The website user interface design made such drastic changes because the client vision changed based on the work they saw in the weekly meetings and from the testing team's feedback. The changes did not seriously impact or delay the development process, as changes were expected by the developers. The

final implemented design more closely aligns with the Office of Sustainability's design standards and makes it easy for the users to navigate between the different activities.

Lastly, there are the administrative pages. These are accessible by HTC access, allowing users to login with their Iowa State University credentials. For each web page with an activity, there is a corresponding administrative tab. On each tab, there is a page for adding information and a page for viewing current information and the option to delete it. This effectively makes it 13 pages, including the index page for welcoming the administrator. This design keeps information from being cluttered and remaining intuitive.

4 Testing

Testing was accomplished in a two-pronged approach: internal testing and external testing.

4.1 Internal Testing

Internally, team members regularly checked the state of the website, both on the local and hosted versions of the site. Each member was responsible for testing their code on their own branch before merging it onto the master branch to avoid any other code on the website potentially being affected and breaking. This included module functionality testing, regression testing (if the member was working in the same module as another team member), and cross-platform testing (checking the site on all modern web browsers and testing it on the mobile view). The Materialize and Bootstrap libraries that the team implemented for the front-end design allowed for complete display responsiveness and compatibility on all modern web browsers.

4.2 External Testing

External testing has consisted of working with our clients, the Office of Sustainability. The client has about a dozen interns that meet bi-weekly, and the development team was able to present their progress to the sustainability team as a segment of those meetings. During that time, the development team was able to show the members what application features had been added or changed, then there would be time to gather critique and comments from them while they use the site. This critique was primarily focused on improving the website's user experience and to ensure that site navigation was completely fluid through all sessions. The development team also gathered a lot of useful feedback for the visual look and layout of the application. Considering that the sustainability team members all come from a very diverse set of academic backgrounds, including a few design students, the project was able to receive useful feedback from the target audience and potential users. The development team would not have been able to receive this type of feedback from anywhere else.

4.3 Database Testing

Database testing was a live testing process. The code needs to be checked frequently throughout the process to ensure that it is properly reading and writing to the database. To ensure that the front-end would be able to align with the back-end, the front-end developers wrote in AngularJS and read in sample data from files containing information that would populate the site. Due to this, the back-end was able to integrate into the front-end seamlessly. Conveniently, the administration pages had web pages that would read in the data and allow the admin controller to view (and delete) existing objects in the database. This functionality was very similar to the front-end display code which helped keep integration smooth.

5 Interface Specifications

This is a front-end-focused project due to the entire experience being based on catching and maintaining the user's attention. This meant that the visual quality and interface practicality was in the team's top priorities during development. Overall, the goal of the interface was for it to be:

I. Visually appealing by up-to-date design standards, and

II. Usable in a manner that any possible user, regardless of technical ability, may interact with all parts of the application. As a result of following these interface goals, the development process of the interface was highly iterative, where the look of the website was drastically changed on a regular basis due to the client and intern feedback.

5.1 Front-End Development Process

The front-end development process evolved through three phases:

5.1.1 FUNCTIONALITY FOCUS

During this phase, the goal of the user interface development was to solely focus on functionality and to get the features doing their intended tasks, regardless of how they looked while performing.

5.1.2 USER EXPERIENCE FOCUS

In this phase, most of the features were implemented, however the layout of the interfaces were still unorganized and/or confusing to the users. As a result, most of the stage was spent iterating on the interfaces to design a layout that allows users to easily interact with all parts of the website. External testing methods (as mentioned in Section 4) were a major aspect of this development phase.

5.1.3 VISUAL DESIGN FOCUS

Once the application's user experience was deemed optimal, focus was shifted to giving the site a modern design that is universal through each module, regardless of which team member fronted its development. The client required adherence to the design standards of the main Office of Sustainability website, which was provided to the team in one large design document.

However, there was much in the application that was not covered by the document. Thus, some was left to our interpretation when the client could not provide a straightforward answer. Seeking a modern visual style, the Google Material Design standards implemented with a JavaScript and CSS library (Materialize) was used to assist in creating a universal Material interface.

5.2 Back-End Development Process

The back-end development started independently from the front-end as the front-end was working on functionality first then worked toward design and modularity after achieving the desired functionality. The effect of the front-end development process meant that the process was almost reverse for back-end. The back-end development process evolved in the following ways:

5.2.1 DATABASE SCHEMA DESIGN

The first step in creating the backend was defining all of the modular attributes the website would be reliant on. After determining these attributes, database schemas were designed. This ensured that the front-end and back-end were expecting the same things from each other in the beginning through to the end.

5.2.2 VISUAL DESIGN FOCUS

The next step was creating the visual of the web pages. This was the next step because it was easier to test the backend with a user interface. Each web page was written in HTML, CSS, and AngularJS to ensure an easy integration with the Node.js backend code. This was not a challenge as the team had already determined all of the necessary attributes to communicate for each page. Creating these pages were very time consuming however because for each page on the front-end, there needed to be two pages on the back-end. One page to add objects to the database and front-end and one page to view and delete any objects already in the database and on the front-end. There needed to be two distinct pages because this kept the visual clean and easy to manage. This also helped with debugging as it helped keep the functionalities separate and easy to pinpoint the reason that something might not be functioning the way it was expected to.

5.2.3 BACK-END FUNCTIONALITY

The next challenge was bringing functionality to the user interfaces. Each page was created separately as each had different functionality and was therefore unable to be modular to a certain degree. This is when all of the backend Node.js was written to communicate with the SQL database. Each page was tested as the code to connect it to the database was written.

5.2.3 BACK-END TO FRONT-END INTEGRATION

The last step was connecting the backend and admin pages to the front-end pages. This step could not be completed until each team member had completed their code on the front-end to ensure that there would not need to be any additional changes in any member's code. Since the website was written using AngularJS throughout the project, this was an easy integration. The front-end wrote their AngularJS based on JSON in a separate file as this ensured that it was being tested against values to minimize any possible challenges faced while integrating the two.

6 Conclusion

The main goal of the project was to create an interactive website for the Iowa State University Office of Sustainability to engage young adults in expanding their knowledge on Green Living. Throughout the past two semesters, the team has implemented the project beyond its initial expectations. The team's frequent and thorough communication with their client has allowed them to quickly and efficiently adapt to new requested changes as they came up. The project evolved beyond the original design plan into a much more intuitive and user friendly website due to the diligent attention to the client and intern team's feedback. The project has significantly evolved from its more subtle origins, but the end product has grown to be something much bigger, while still retaining its approval of the Office of Sustainability.

Appendix I: Operation Manual

I. User Facing Operation Manual

HOME PAGE

IOWA STATE UNIVERSITY
Office of Sustainability

Search

Home Interactive Room Sustainability Savings Cart Green Living Tips Green Living Quiz Green Living Quiz Results Additional Resources Admin

Sustainability Savings Cart

Looking to substitute some of your household items for something more sustainable? Learn about the impact your products make and how your choices can make a difference!

Making the move from your hometown to college is a big deal! It's fun to plan out the perfect layout, colors, and pillow arrangements for your new space. As you're entering this new phase, take a moment to consider your environmental impact in your new Iowa State home. From turning off the lights to using refillable water bottles, "greening" your residence is now easier than ever! All it takes is a little creativity!

Test your Green Living knowledge!

FIND OUT HOW GREEN YOU ARE!

Upon landing on the Green Your Residence website, the user will see the home page with a photo slideshow with descriptions of the available interactive activities. Clicking on a slideshow image will redirect the user to the correlating page of the website (Interactive Room, Sustainability Savings Cart, or Green Living Tips). If the user is visiting the website for the first time, they are recommended to take a quiz on their Green Living knowledge by clicking on the green button ("FIND OUT HOW GREEN YOU ARE!") below the image slideshows. They will then be redirected to the Green Living Quiz page.

QUIZ

IOWA STATE UNIVERSITY
Office of Sustainability

Search

Home Interactive Room Sustainability Savings Cart Green Living Tips Green Living Quiz Green Living Quiz Results Additional Resources Admin

Test your Green Living knowledge!

How Green are You?

Energy Efficiency

1. I use natural light (from the windows) instead of turning on the lights.
 - Always
 - Sometimes
 - Never
2. I unplug my electronics (for example: toaster, microwave, television) when I leave my space for an extended period of time.
 - Always
 - Sometimes
 - Never

Once all of the questions have been answered, clicking the “SUBMIT QUIZ” button will show the user the quiz results. In the current quiz, there are three possible green ratings the user may receive.


IOWA STATE UNIVERSITY
Office of Sustainability

Search

Home Interactive Room Sustainability Savings Cart Green Living Tips Green Living Quiz Green Living Quiz Results Additional Resources Admin

How Green Are You?

SEQUOIA



A celebration is to be had for your expansive knowledge and commitment to sustainable efforts.

BUILDING A VIRTUAL ROOM

GREEN ROOM >>

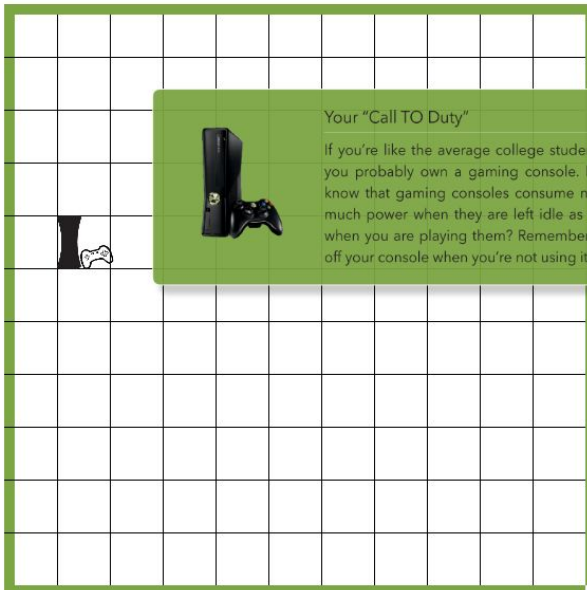
Design your own virtual living space and learn how the items you're bringing into your Iowa State home can make a sustainable difference!



INSTRUCTIONS:

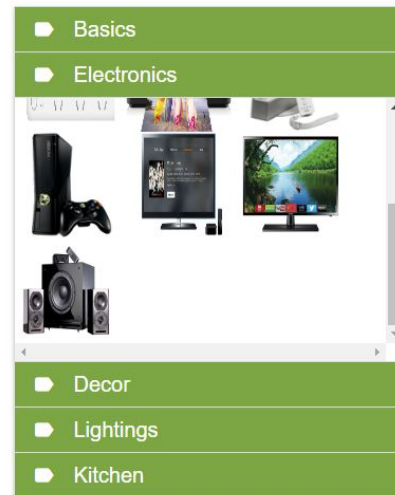
1. Select your residence hall layout.
2. Drag and drop items from the different categories into the layout to design your space.
3. Hover over items in the layout to learn sustainable tips and tricks.

MWL ▾



Your "Call TO Duty"

If you're like the average college student, you probably own a gaming console. Did you know that gaming consoles consume nearly as much power when they are left idle as they do when you are playing them? Remember to turn off your console when you're not using it.



When the user is on the Interactive Room page, they will be able to design and create their own virtual living space. They are recommended to read and follow the instructions at the top of the page. To start, they will have to select a residence hall layout by clicking on the dropdown menu ("CHOOSE YOUR ROOM!"). Now they will be able to drag and drop any item from the sidebar into the room layout. Once an item has been dropped into the layout, they will be able to modify it by clicking on it (changing its size and rotating the view of the item). Also, hovering the mouse over different items will show item-specific Green Living tips.

SAVING ENERGY AND COSTS

The screenshot displays the 'Sustainability Savings Cart' interface on the Iowa State University Office of Sustainability website. The page features a navigation bar with links for 'Home', 'Interactive Room', 'Sustainability Savings Cart', 'Green Living Tips', 'Green Living Quiz', 'Green Living Quiz Results', 'Additional Resources', and 'Admin'. The main content area is titled 'Select an item category:' and contains a grid of nine categories, each with an image and a green button: 'ALL' (globe), 'LIGHTING' (light bulb), 'REFRIGERATORS' (refrigerator), 'MICROWAVE' (microwave), 'COFFEE MAKER' (coffee maker), 'GAMING CONSOLES' (game console), 'BLENDER' (blender), 'TELEVISION' (TV), and 'STOVE' (stove). To the right of the grid is a text box with instructions: 'Looking to substitute some of your household items for something more sustainable? Learn about the impact your products make and how your choices can make a difference! Instructions: 1. Select an item category. 2. Select the item currently in your room (or the item you'd like to learn more about). 3. Select an environmentally-friendly replacement (or the item you'd like to learn more about). 4. Check out the Saving Receipt to find out how much you'll save.' Below this is a 'Current Savings' section with a 'Savings Receipt: \$0.00'.

The Sustainability Savings Cart allows a user to compare household items they own with more sustainable alternatives, and are shown how much money can be saved on energy costs on a monthly basis if they make the switch. A user may collect a full list (or “cart”) of new items, and are shown a total calculation of the possible monthly savings. The activity runs in a three-step loop. First, the user will select a category for to help them find a specific item. Second, they select the item from the list that they currently possess. Third, a calculator on the right side of the screen displays the total monthly savings the user has accrued so far, as well as a history of item choices they have made up to this point. The user is then taken back to step one, where they may select their another item for comparison. The user may also reset the calculator at any time by clicking the “reset” button at the bottom of the screen, which will then return them to step one with a cleared total savings and cart history.

IOWA STATE UNIVERSITY
Office of Sustainability

Search

Home Interactive Room Sustainability Savings Cart Green Living Tips Green Living Quiz Green Living Quiz Results Additional Resources Admin

Green Living Facts

As you're planning out your packing list, check out these tips to "green" your Iowa State home!

[Lighting](#) [Recycling](#) [Green Supplies](#) [Green Buying](#) [Electronics](#)

Free Items

First look for free items. There are often offers of furniture and other items on community swap pages and through community freecycle. Ames Community Swap on Facebook is a local resource for Iowa Staters. Trading with family and friends, especially around the holidays (when people are replacing older items) or during move out when downsizing is happening. It's a great way to save money and outfit your dorm.

Reduce Environmental Footprint

Buying items for a space can be expensive but it doesn't have to be. When you buy all new items from bedding to a mini fridge, from a futon to a television, you can easily spend thousands of dollars. It can be easy to buy really cheap as well; but remember that quality is important too. In considering your sustainability, buy an item that is well-made and can last a long time. Save money and reduce your environmental footprint.

Buy Used

Next try to buy used. Instead of buying something that uses brand new resources, you can buy something that just needs a fresh coat of paint to look good as new. Often times items are delivered to second hand shops because a newer looking product is available - vintage is in, however and vintage products can be fun, more durable, and definitely unique!

The Green Living Facts page allows a user to gain information about Green Living in a very straightforward way. From here, users are able to simply read about the subjects instead of experiencing it through an interactive activity. Users may click on different categories (which are in the blue text beneath the "Green Living Facts" header), and the correlating facts will then be listed below.

ADDITIONAL RESOURCES

The screenshot shows the Iowa State University Office of Sustainability website. At the top, there is a navigation bar with links for CyMail, Outlook, Blackboard, AccessPlus, and a search bar. Below this is a red header with the Iowa State University logo and the text 'Office of Sustainability'. A secondary navigation bar contains links for Home, Interactive Room, Sustainability Savings Cart, Green Living Tips, Green Living Quiz, Green Living Quiz Results, Additional Resources, and Admin. The main content area is titled 'Other Information' and includes a sub-header: 'Whether you live on or off campus, check out these additional resources from the ISU and Ames community to learn more about sustainable living!'. The resources are organized into four categories: General Resources (Green Living Tips, About: Green Living), Iowa State Resources (ISU Department of Residence Sustainability, ISU Dining Sustainability), City of Ames Resources (Sustainability in Ames), and Live Green Resources (Live Green! Iowa State University Website, Live Green! Newsletter, Live Green! Blog, Live Green! Facebook, Live Green! Twitter, Live Green! Pinterest, Live Green! Instagram).

The Additional Information page is an opportunity for the Office of Sustainability to promote other relevant activities, events, and organizations to the users of the application. The page displays a set of links, organized by category, that direct users to other websites that the Office of Sustainability have chosen to promote.

II. Administrative Operation Manual

INDEX

The administrator is welcomed with an index page providing a brief overview so as to not overwhelm the administrator. This page does not require a lot of information due to the intuitiveness of the administration pages.

How To Use Admin

Congratulations! You have earned the title of Admin for the ISU Green Your Residence site.

To take full advantage of the admin abilities, please note the following:

- To view or add items on any of the existing pages, select the corresponding header above.
- Once you navigate to the page you would like to manage, you will see a nav bar with the different options available for that page.

MANAGE HOME

The manage interactive apartment page allows the administrator to add or delete objects in the interactive apartment. There is a page to add items and a page to view and manage items. Selecting the trash cans will remove the item from the front-end and database.

Add Apartment Items

[Add Apartment Item](#) | [View/Manage Apartment Items](#)

Apartment Item Name

Category
Choose your Category

Home Object Tooltip

Hyperlink

Manage Home Items

[Add Item](#) | [View/Manage Home Items](#)

Item	Category	Image	Item Tooltip	Hyperlink	Delete
Lamp lighting	null		Turning off your lights while you are not in the room will save money each month!	null	<input type="button" value="X"/>

MANAGE QUIZ

The quiz page allows the administrator to add or delete questions in the quiz. There is a page to add items and a page to view and manage items. Selecting the trash cans will remove the item from the front-end and database.

The screenshot shows the top navigation bar of the Iowa State University Office of Sustainability website. It includes links for CyMail, Outlook, Blackboard, and AccessPlus on the left, and a search bar with a magnifying glass icon on the right. Below the search bar is a horizontal menu with links: How To, Manage Interactive Apartment, Manage Quiz (highlighted), Manage Savings Cert, Manage Information, and Manage Facts. A Go to Site link is located on the far right.

Manage Quizzes

A teal-colored bar containing two buttons: "Add Question" and "View/Manage Q&A".








Quiz Question

Category

Choose your category

ADD QUIZ QUESTION

Manage Quizzes

Add Question View/Manage Q&A		
Category	Question	Delete
Energy Efficiency	I use natural light (from the windows) instead of turning on the lights.	
Energy Efficiency	I turn off the lights when I leave the room.	
Energy Efficiency	I use energy efficient products.	
Energy Efficiency	I air dry my clothes rather than using an electric dryer.	
Energy Efficiency	I unplug my electronics (for example: toaster, microwave, television) when I leave my space for an extended period of time.	
Resource Conservation	I buy items secondhand.	
Resource Conservation	I purchase products with minimal or reusable packaging.	

MANAGE SHOPPING CART

The savings cart page allows the administrator to add or delete cart items. There is a page to add items and a page to view and manage items. Selecting the trash cans will remove the item from the front-end and database.

Add Shopping Cart Item

[Add Item](#) | [View/Manage Items](#)

Item Name

Monthly Cost
\$

Category
Choose your category






EnergyStar
EnergyStar

[UPLOAD IMAGE](#)

[ADD ITEM](#)

View Shopping Cart Objects

[Add Object](#) | [View/Manage Objects](#)

Name	Image	Monthly Cost	eStar	Category	Delete
Desk Lamp: Fluorescent Bulb	image.png	100	false	Lighting	
Wii	null	2	false	Gaming Consoles	
XBox 390	null	19	false	Gaming Consoles	
Playstation	null	22	false	Gaming Consoles	
Inkjet Printer	null	20	false	Printers	

MANAGE INFORMATION

The information page allows the administrator to add or delete cart information links. There is a page to add links and a page to view and manage links. Selecting the trash cans will remove the item from the front-end and database.

The screenshot shows the 'Manage Information' page within the Iowa State University Office of Sustainability system. The page header includes navigation links for CyMail, Outlook, Blackboard, and AccessPlus, along with an alphabetical directory and links for Directory, Maps, and Contact Us. The main navigation bar contains links for How To, Manage Interactive Apartment, Manage Quiz, Manage Savings Cart, Manage Information (selected), and Manage Facts, with a Go to Site link on the right. The page title is 'Manage Information'. Below the title is a teal navigation bar with 'Add Hyperlink' and 'View/Manage Information' options. The form contains three input fields: 'Information Title', 'Category' (with a dropdown menu showing 'Choose your category'), and 'Hyperlink'. An 'ADD HYPERLINK' button is located at the bottom of the form.

CyMail | Outlook | Blackboard | AccessPlus

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z | Directory | Maps | Contact Us

IOWA STATE UNIVERSITY
Office of Sustainability

Search

How To | Manage Interactive Apartment | Manage Quiz | Manage Savings Cart | Manage Information | Manage Facts | Go to Site

Manage Information

Add Hyperlink | View/Manage Information

Information Title

Category
Choose your category

Hyperlink

ADD HYPERLINK

View Information

Add Hyperlink | View/Manage Information

Title	Hyperlink	Category	Delete
Green Living Tips	https://www.greenlivingtips.com/	General Resources	
About: Green Living	http://greenliving.about.com/	General Resources	
ISU Department of Residence Sustainability	http://www.housing.iastate.edu/life/sustainability	Iowa State Resources	
ISU Dining Sustainability	http://www.dining.iastate.edu/sustainability	Iowa State Resources	
Sustainability in Ames	http://www.cityofames.org/living/sustainability-in-ames	City of Ames Resources	
Live Green! Iowa State University Website	http://www.livegreen.iastate.edu/	Live Green Resources	
Live Green! Newsletter	http://www.livegreen.iastate.edu/news-and-events/newsletters	Live Green Resources	

MANAGE FACTS

The facts page allows the administrator to add or delete cart facts. There is a page to add facts and a page to view and manage facts. Selecting the trash cans will remove the item from the front-end and database.

Manage Facts

Add Fact | View/Manage Facts

Fact Title

Category
Choose your category

Fact Description



Hyperlink
<http://www.postyoursoucelinkhere.com>

UPLOAD IMAGE

ADD FACT

Manage Facts

Add Fact | View/Manage Facts

Fact	Category	Image	Description	Hyperlink	Delete
SMART TIP TO USE A POWER STRIP	Electronics		Traditional power strips are an affordable way to expand the number of electrical outlets in your home. But their convenience can encourage you to leave electronics plugged in all the time - and many devices keep drawing power even when you're not using them! These phantom power drains can be resolved by switching to a smart power strip that accommodates to reduce your power usage by shutting down power to products that can go into standby mode.	http://science.howstuffworks.com/environmental/greentech/sustainable/smart-power-strip2.htm	
KEEP IT COOL	Laundry	null	In the battle of cold- versus hot-water washes the numbers don't lie! The kilowatt usage and cost per load for a hot-water wash are, respectively, 4.5 kWh and 68 cents, while a cold-water wash uses just 0.3 kWh and costs just 4 cents per load. This small modification to a cold wash will save nearly \$250 per year, while significantly decreasing carbon emissions.	http://ecoearth.com/eco-zine/home-and-renovation/1737-tips-for-cleaner-green-laundry.html	

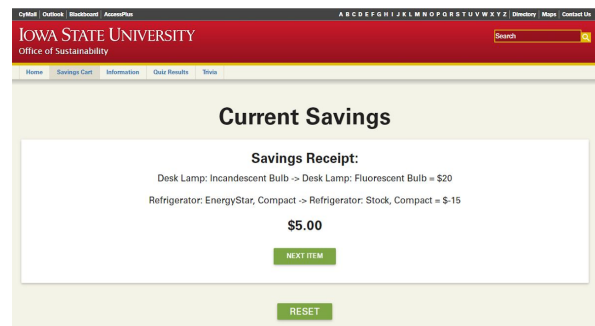
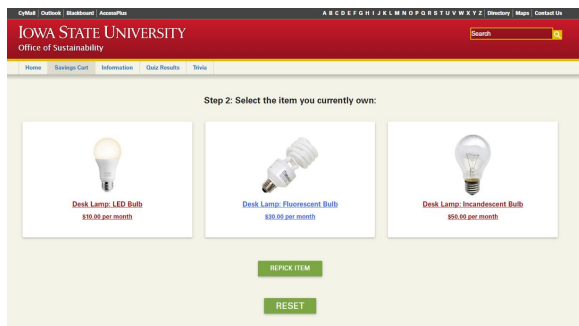
If the user wishes to navigate back to the page at any point, they may select the “Go To Site” tab on right side of the header.

Appendix II: Alternatives or Other Initial Versions of the Design

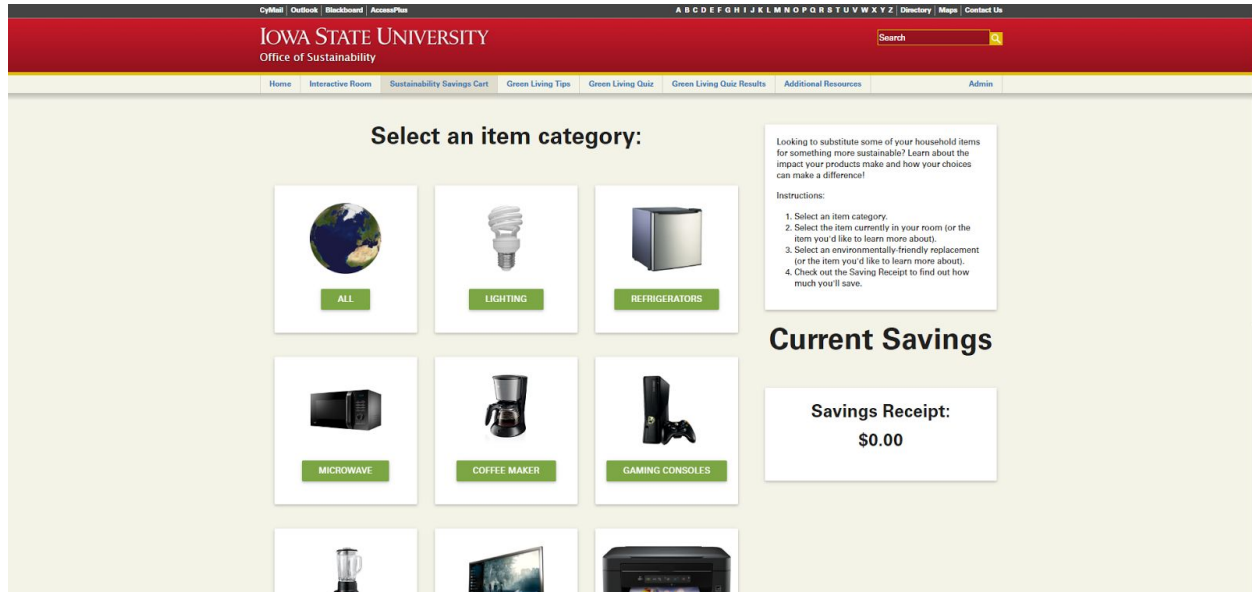
The specifications of the project were initially kept vague beyond a few ideas on the original proposal document, so the project went through many different phases to satisfy the client despite going beyond the original idea. At the start, the project was to simply be an interactive web application where users could customize a virtual room to match their own and relevant Green Living facts would show up based on what items were in the room. However, the team knew that they were capable of doing much more than that. The project transformed into an entire suite of informative Green Living online activities, and a set of administrative tools to allow the Office of Sustainability control over the activities' content independent from a web developers help.

The team's advisor pushed the team throughout the project's development to constantly test the functionality of the application in order to provide a truly robust user experience. As a result, the project saw many of its interfaces and functionalities changed, scrapped, and repurposed over the past two semesters. For instance, the Sustainability Savings Cart activity was originally built to be made up of several screens (one for each user action) that faded in and out to the next. However, the advisor pushed to have the screens be constant so that users may have a better idea of all of their actions which means that the activity is designed to be looped through several times.

Before



After



The increasing requests and requirements from the advisor and clients has kept the team on their toes and has pushed them to consistently improve upon their product, even though it was challenging to keep up with .

Appendix III: Other Considerations

At the very beginning of the project, some of the team members had very little experience in web development. A lot of research was necessary before starting to implement the project. Throughout the process, the team learned skills other than programming which will be useful in their future careers, such as creating project plans and design documents. One of the most important things learned was how to adapt communication based on audience. During the multitude of presentations throughout the semester, there was great consideration put into how presentations were worded, as the different audiences presented to had variances in technical knowledge. For instance, when the team was presenting to their advisor, they made sure to go into extra detail on the technical side of the project in order to demonstrate to him that they fully understood what was being working on. Other times, they were presenting to a large group of students, none of which had any experience in the software development field. So the team made sure to emphasize the features of the product rather than the mechanics.

Another one of the biggest challenges for the project was working as a team. From the start, the team knew that cooperation was going to be vital yet a challenge, as the team size was one of the smallest of the class. Throughout the year, the team strived to meet as a complete group as often as possible, which proved to be a major conflict due to all three team members having very busy schedules. However, the team was able to make up for the lack of physical meetings by staying in constant communication via Slack, an instant messaging application. Through Slack, the team has been able to always ensure that every team member was aware of what the other two were working on. Teamwork was the key to making this project work, and communication was what kept the team together.