emission

Small eco-actions matter.

Final Thesis Project

Yun(Echo) Liu | 03035897 | Spring 2013

eMission

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Academy of Art University,
Graduate School of Web Design & New Media

Final Thesis Proposal
Spring 2013
05/10/2013, 4pm, Room 510

Table of Content

Autobiography

What I am trying to do during the past 8 years is to transfer from an engineer to a designer.

I got my BS degree in Electrical Engineering in China in 2005. During my study in college I realized that I was in the totally wrong field. I cannot imagine working as an engineer for the rest of my life. I've been loving drawing and art since I was a kid, but I didn't realize that I want to do something design related until I graduated from college with an engineering degree.

I wanted to change, bud didn't know how to. I came to US, got my MA degree in Digital Media Art and Technology, and worked as a Multi-media Designer (AKA webmaster) for 3 years. I tried to look for more creative jobs but it turned out my tech-skills are not enough as a front-end developer while my design skill is not good enough as a pure designer, it is time for me to pick my side and enhance my skills.

As I always love design more than coding, I eventually decided to come to AAU and worked to build my visual and User Experience design skills.

In the future, I want to work for a corporate or design agency as a UI/UX or interactive designer. Because it will mainly be a design related position, but also need some technical knowledge. I feel the main difference between graphic design and UI design is that you need to know what can be done under current technology limits, my technical background can then be an extra credit for such position.

Yun Liu

UI/UX Designer
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Santa Clara, CA 95050

Bilingual, innovative technology-driven designer with both web development and design research experience, focused on improving web usability. Secondary skill set in Marketing Communications.

EDUCATION

MFA Web Design and New Media
Academy of Art University (present)

MA Digital Media Art & Technology
Michigan State University (2007)

BS Electrical Engineering
Southeast University, Nanjing (2005)

RELEVANT COURSES

Color Theory
Typography for Digital Masters
Principles of Usability
Web Technology I, II
Digital Capture, Sound Specific
Interactive Infographic
Time Based Media Scripting
Motion Graphic

TECHNOLOGIES

Web Programming: HTML5, CSS3, Javascript, (jQuery, D3.js), PHP, XML
CMS & Web Apps: CMS (WordPress, Joomla, Sharepoint), Dreamweaver & Flash (ActionScript)
Graphic Design: Photoshop, Illustrator, InDesign, Fireworks, After Effects
Database: MySQL, Microsoft Access, SQL, Excel

WORK HISTORY

Creative Intern
Engine Company One, San Francisco, CA (June 2011 – Aug. 2011)
Worked with other designers and art directors to create booklets for the company, designed and developed website for the nest.

Multi-media Designer
Ace Capital Group, Redwood City, CA (2007 – 2010)
Hired as 1 of 4 technical staff within IT, leading design and development of 5 major web projects, using open source tools such as PHP and MySQL.

As part of design team, created email template via Sugar CRM and Constant Contact, and designed fliers, brochures, and collateral in English & Chinese using Adobe Create Suite.

Built PHP CMS (Joomla) with SEO plug-in to facilitate continuous content updates.

Webmaster | Student Assistant
Asian Studies Center, Michigan State Univ., East Lansing, MI (2005 – 2007)

Redesigned and managed web presence for Asian Studies Center across 2 years, concurrent with graduate studies in Digital Media and Technology.

What is eMission?

eMission is an interactive web app that helps user analyze their power usage and provide them customized energy saving tips. The goal of the app is to spread the awareness of energy saving and encourage user to save energy.

Thesis Abstract

According to IEA/OECD (Organization for Economic Cooperation and Development), average U.S. resident uses 7 time more energy than average Chinese resident.

The goal of the app is to spread the awareness of energy saving and encourage user to save energy.

eMission is an interactive web app that helps user analyze their power usage, get customized saving tips, track their monthly bill, and share saving actions with friends.

eMission tried to create the most effective and fun interactions, so user can get the maximum benefit from it with minimum actions to do.

eMission explores the new way to visualize data, interactive with user, and intrigue attention through transitions and animations.

Statement of Interest

About the Environment

Grown up in a typical Chinese family, I was always educated to save energy and other resources since back in the 80s, China always have a power shortage problem. Also, as a person who is environmentally conscious, I always try to live a green life whenever possible.

When I came to U.S. I was shocked by the way people use energy here. Buildings without windows have air conditioners on all day long twenty-four-seven. Sometimes the indoor temperature is higher during winter than summer. Water heaters are always turned on in order to provide running hot water whenever people need it. Interior lights of business place are left on in order to "prevent" theft. According to IEA/ OECD (Organization for Economic Co-operation and Development), average U.S. resident uses 7 time more energy than average Chinese resident*.

I figured out that this might be a problem that's easier to be discovered by an "outsider". And I always wanted to do something to help improve this situation. Eventually, I want to take the opportunity of my final thesis, and create a project about energy saving. When I did my research, I found that there are also a lot of people who are trying to save energy. Some of them want to save money, others simply want to help the environment. But since they are so used to the way general people use energy in US, it is difficult for them to figure out ways of saving. So I decided to focus my topic on helping user figure out useful saving tips.

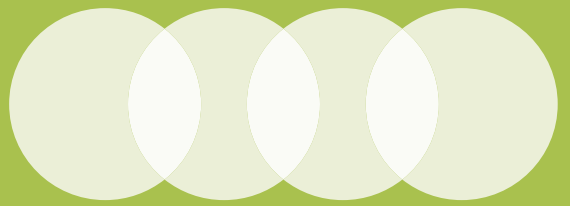
Statement of Interest

About the Design and Development

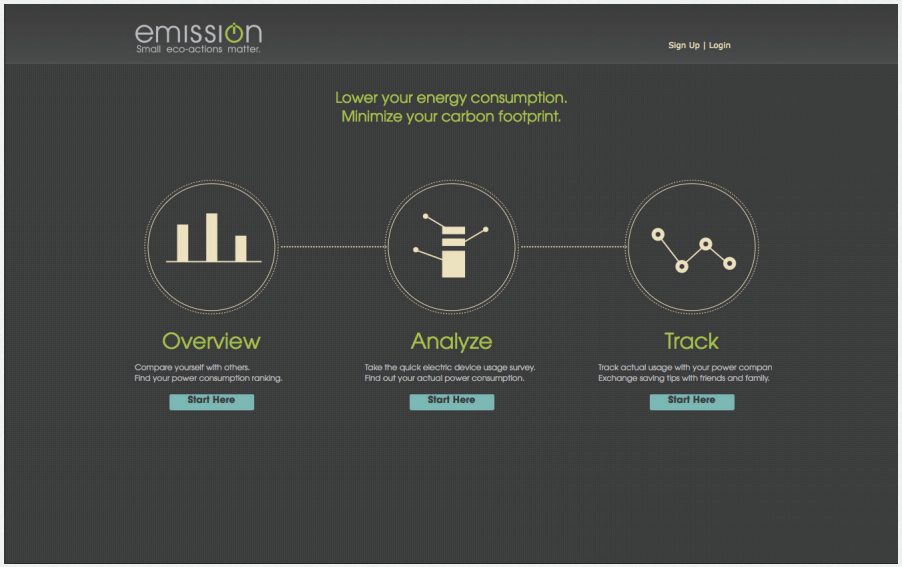
I took the inforgraphic class in AAU, and found that data visualization is a very interesting topic. Thus I wanted to explore more about it. So I tried to implement infographic into my project, and it's a quite efficient way to show the energy consumption related information. Javascript and HTML 5 is replacing the place of Flash in creating interactive websites. So I tried to make the site more interactive with jQuery, d3.js and SVG.

**http://en.wikipedia.org/wiki/Electric_energy_consumption*

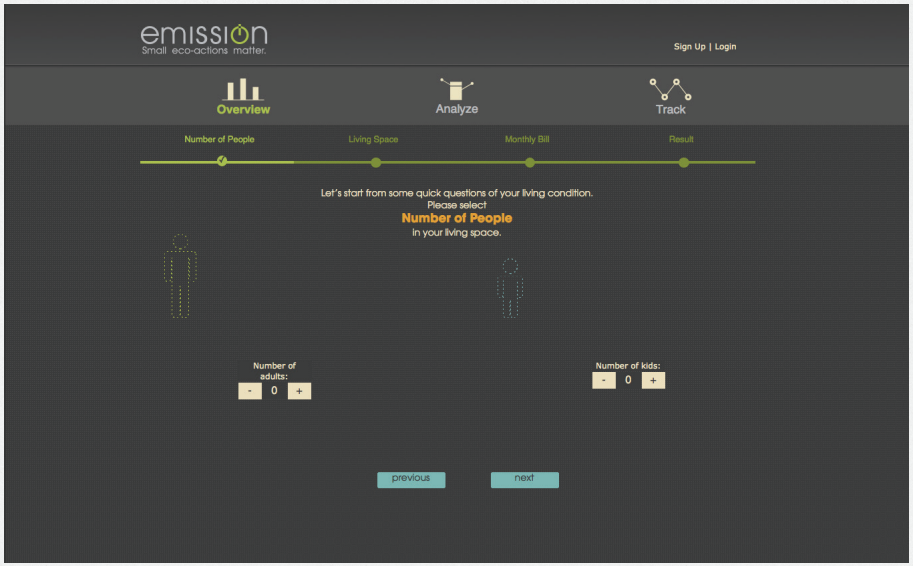
Proof of Concept



Proof of Concept - Overview 1



User check the front page.



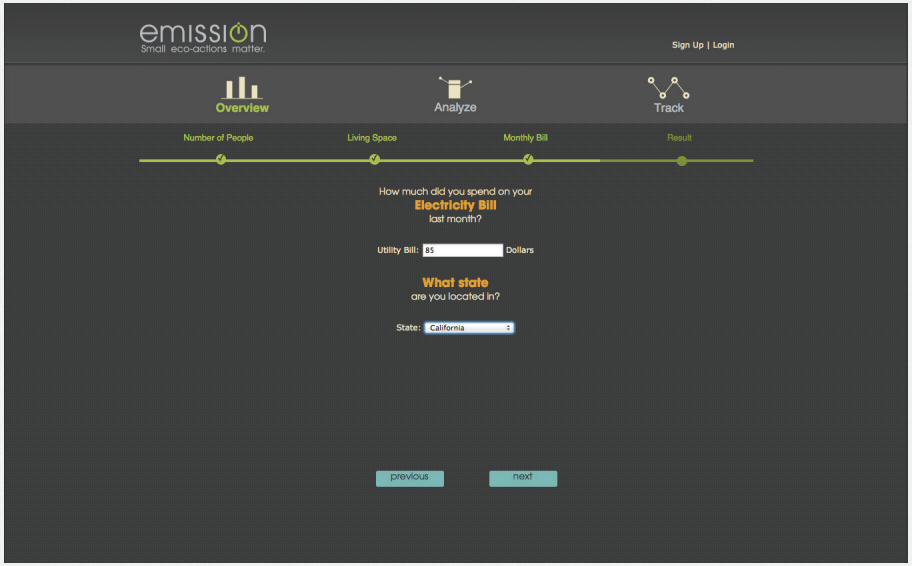
User choose the overview section.

Proof of Concept - Overview 2

User put in the number of adults and kids they have at home.

User choose the size of their living space.

Proof of Concept - Overview 3



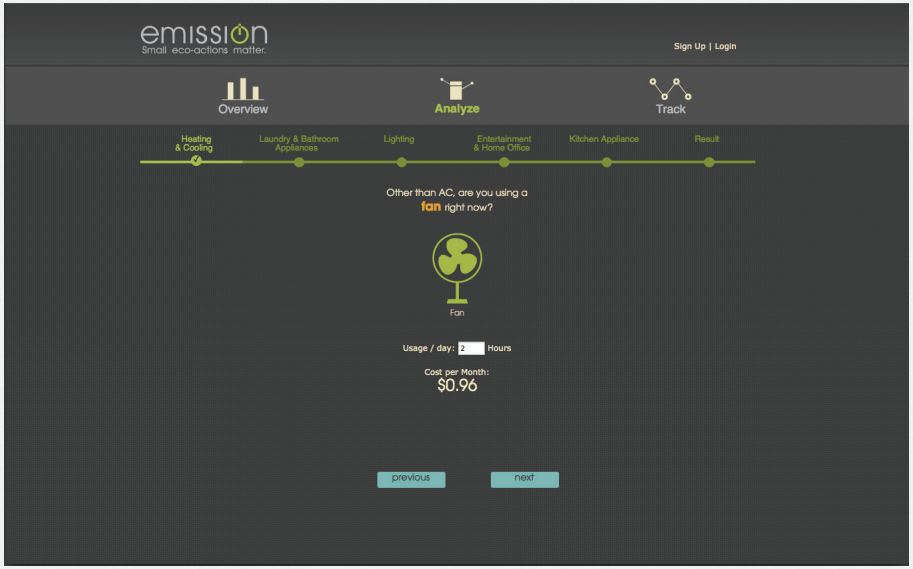
User put in the amount of this month's utility bill and the state they are at.

User get the final result, which compares their usage with U.S. average of similar homes, and eMission users.

Proof of Concept - Analyze 1

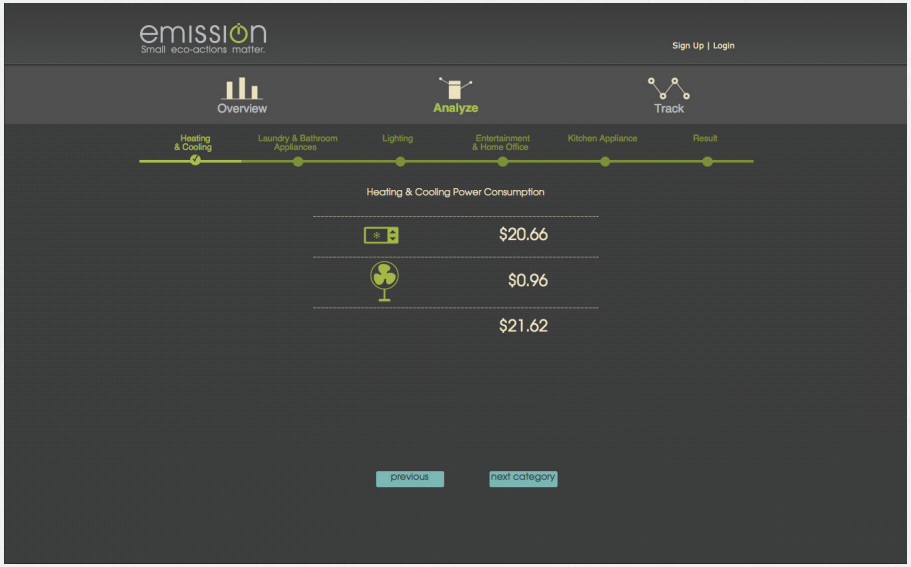
User begins to use the Analyze section. They choose the type of Air Conditioner, choose the temperature they usually set and the hours they have it on daily.

The system will help calculate the cost of AC once the data are put in.

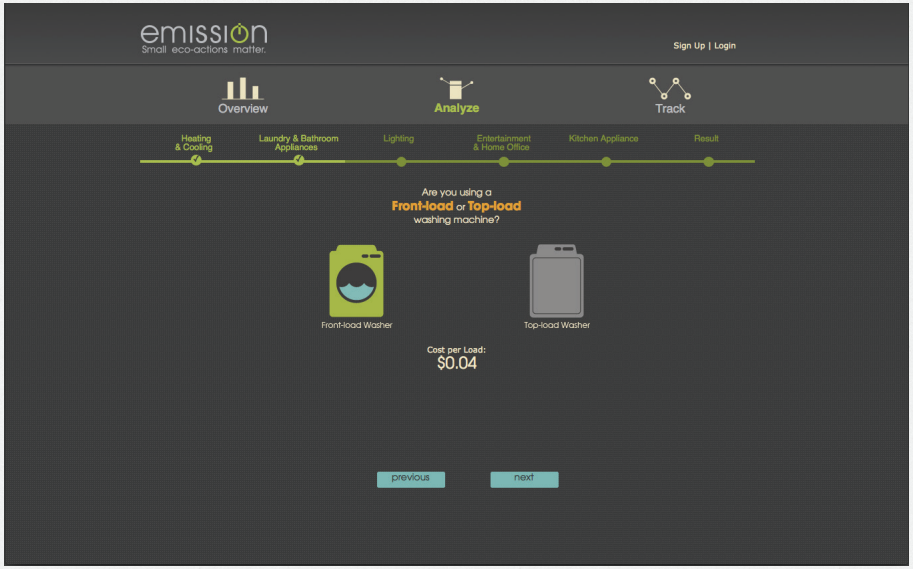


User put in data for fan usage.

Proof of Concept - Analyze 2

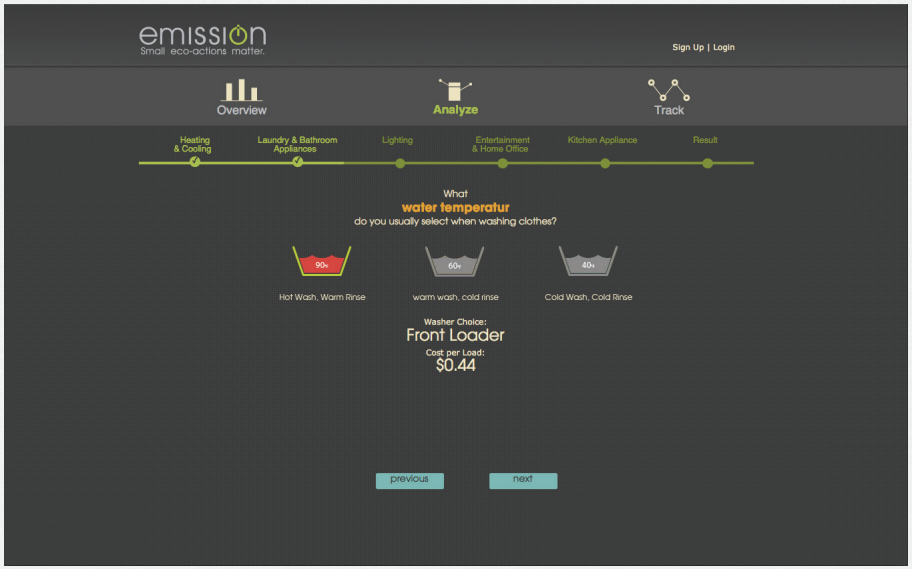


User get the result of cooling and heating category,



User put in data for laundry and bathroom appliances section.

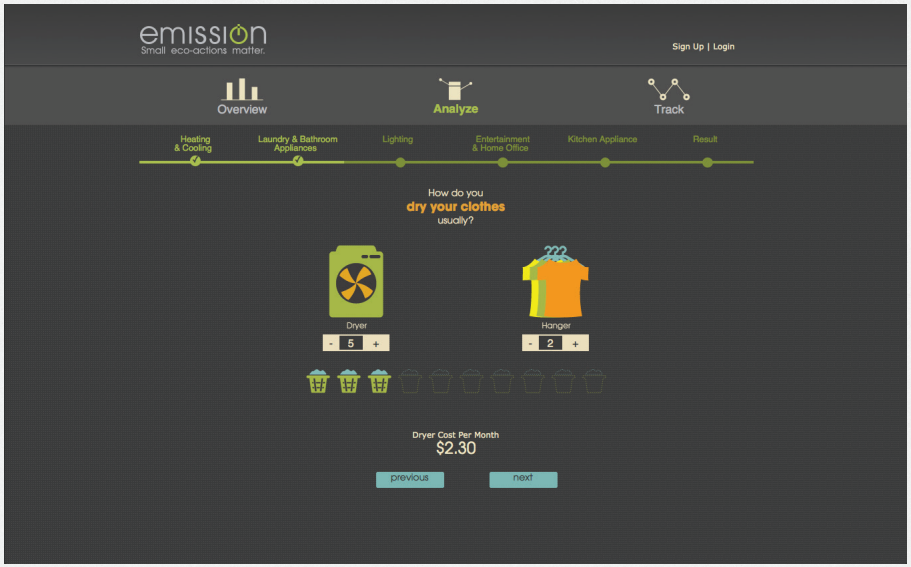
Proof of Concept - Analyze 3



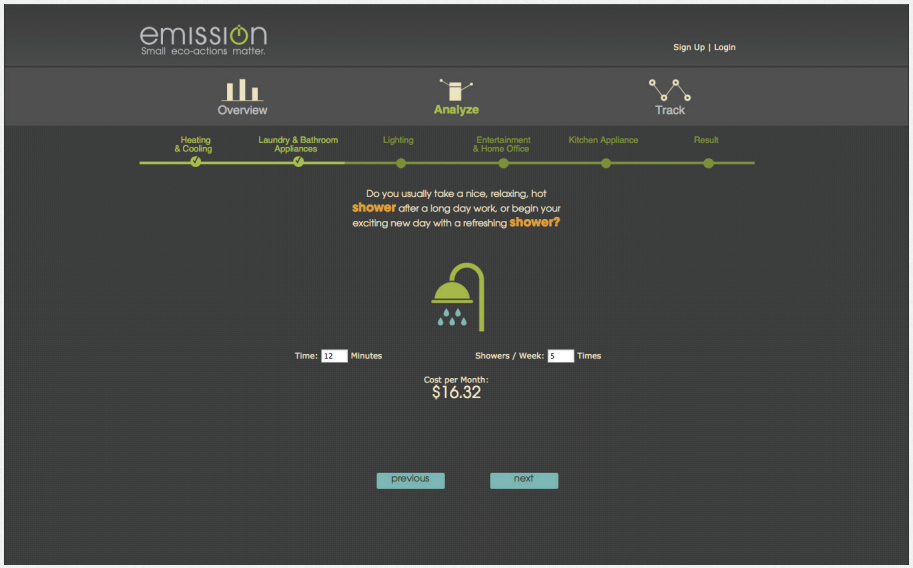
User choose water temperatur for washing machine.

User choose numbers of laundry loads they have each month.

Proof of Concept - Analyze 4



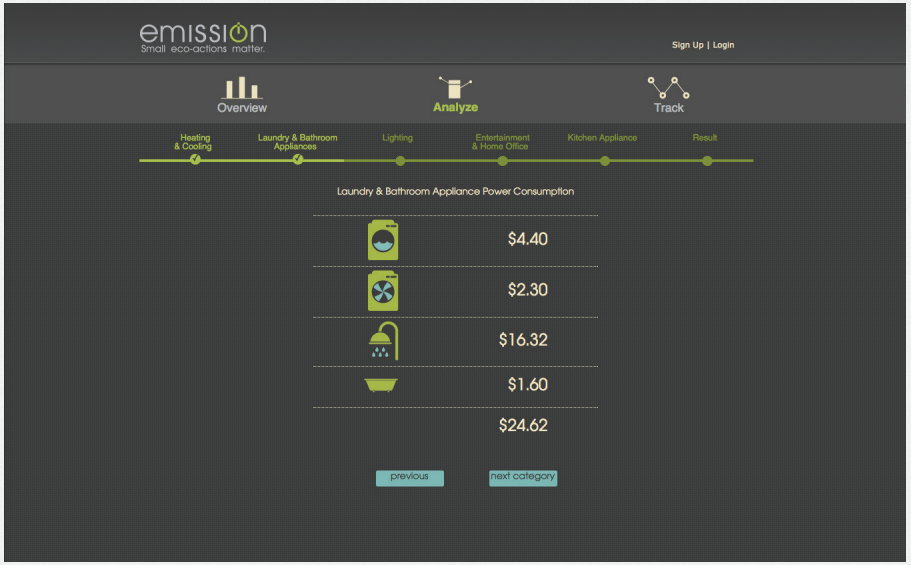
User choose the way they dry their clothes.



User put in data for shower. v

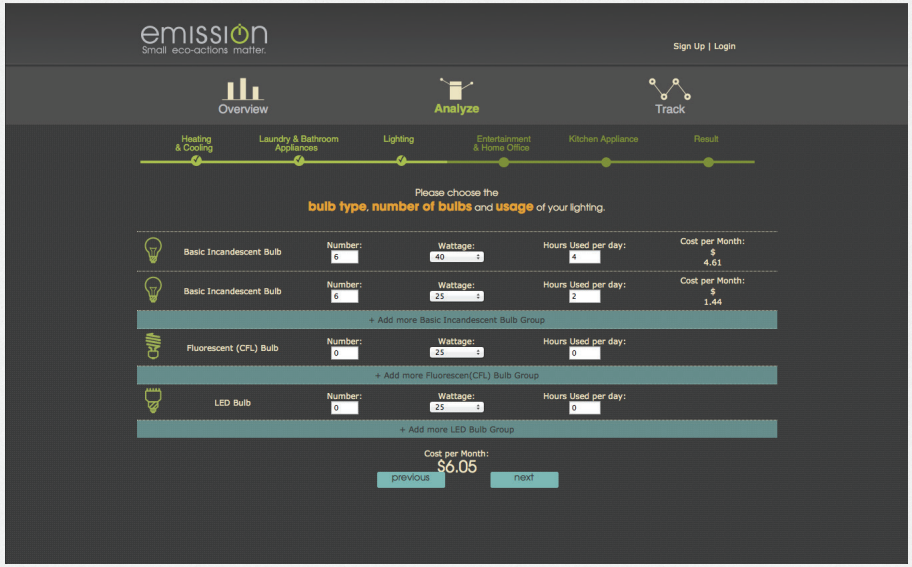
Proof of Concept - Analyze 5

User put in data for bath.



User get the result of laundry and bathroom appliance category.

Proof of Concept - Analyze 6

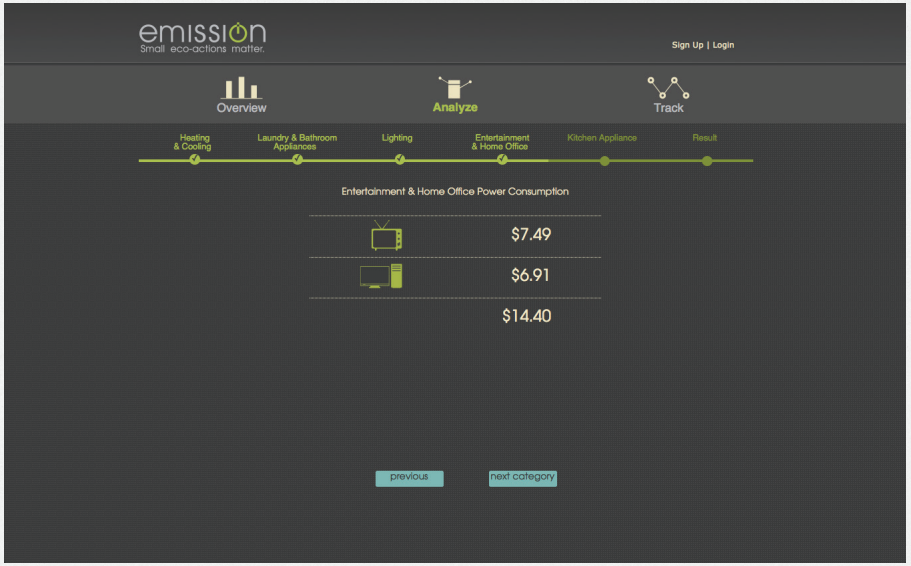


User put in data for lighting category.

User put in data for TV usage.

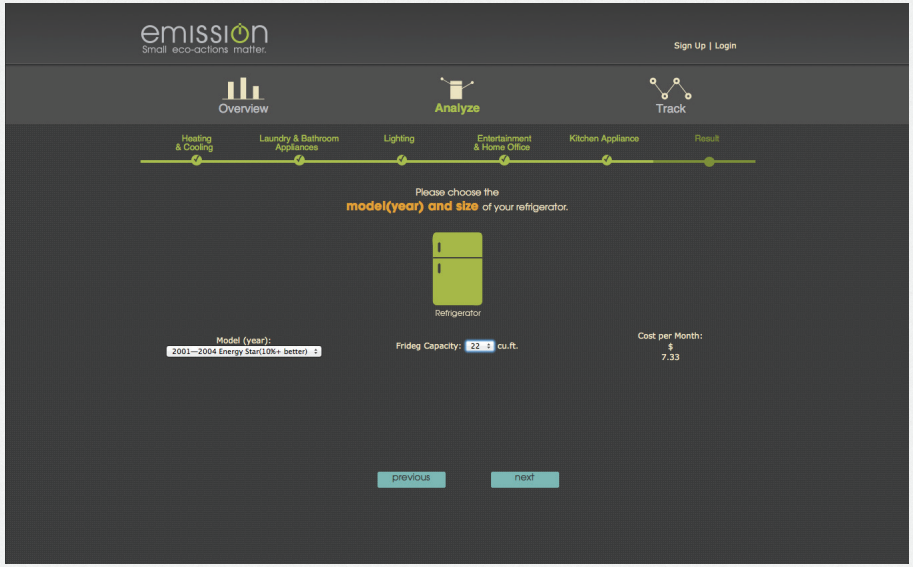
Proof of Concept - Analyze 7

User put in data for computer usage.



User get the result of entertainment and home office category.

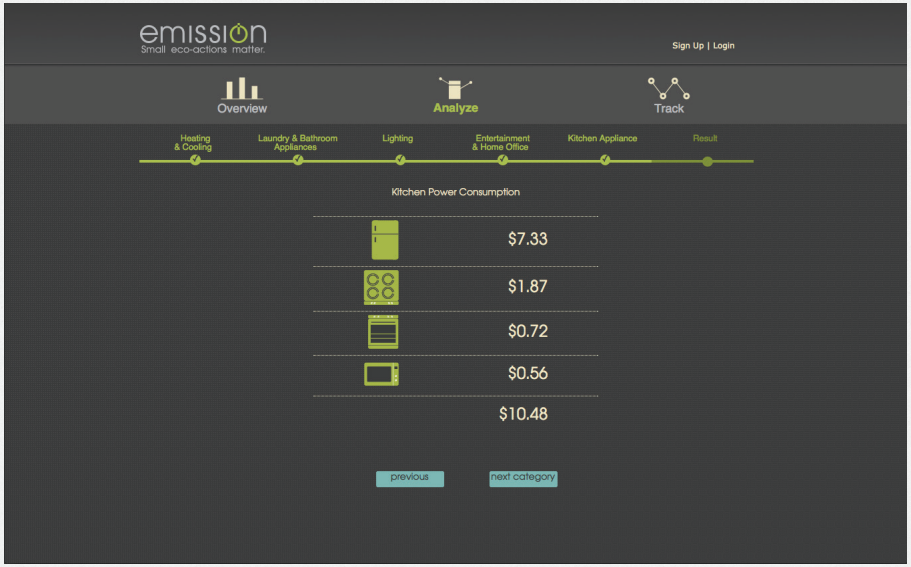
Proof of Concept - Analyze 8



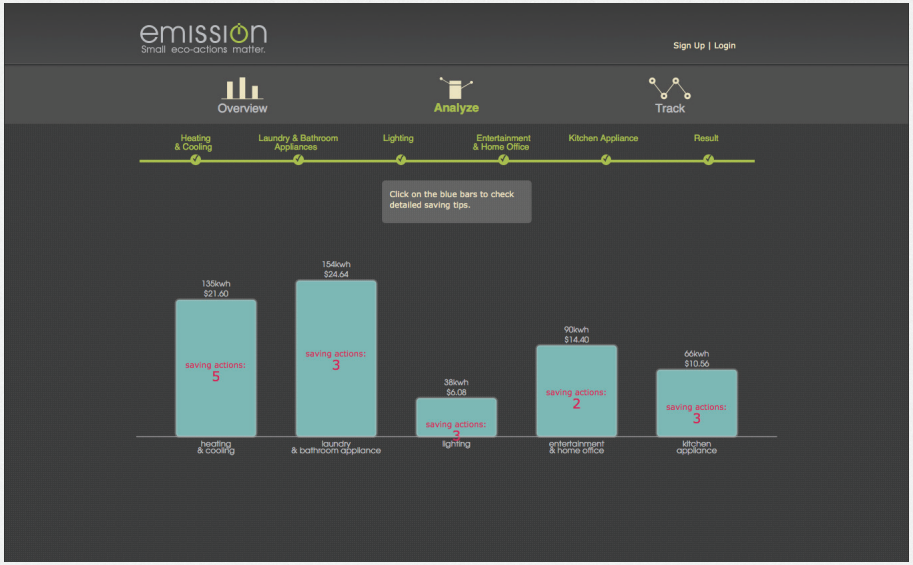
User put in data for refrigerator usage.

User put in data for cooking.

Proof of Concept - Analyze 9



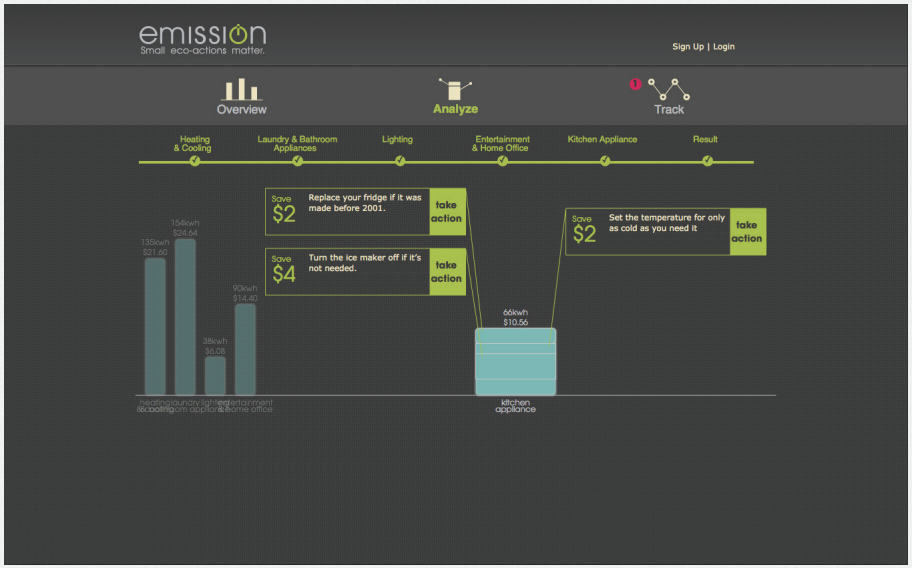
User get the result of kitchen category.



User get the summary of all five categories.

Proof of Concept - Analyze 10

User click around to see the saving actions for each category and choose the actions they want to take.



User click around to see the saving actions for each category and choose the actions they want to take.

Proof of Concept - Track

User connect their utility account to eMission, and track their monthly usage along with the saving actions they took.

User compair their consumption with their friends. Also share useful saving actions with friends.

Strategic Process

Unique Positioning

1. Spread the awareness of energy saving.

1). The app is trying to provide interesting and intuitive interactions for users to play with. Thus they can get the information in a more interesting and casual way.

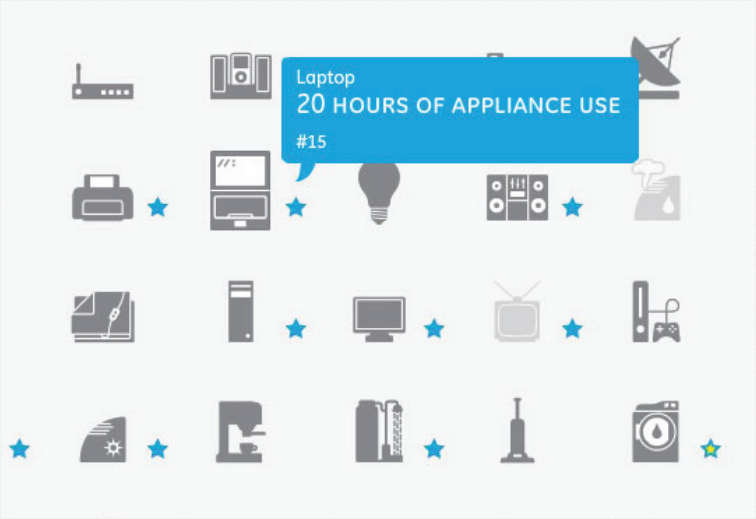
2). After finishing their test, user can choose to post a tag on to their facebook page, thus the information can be spread through their network.

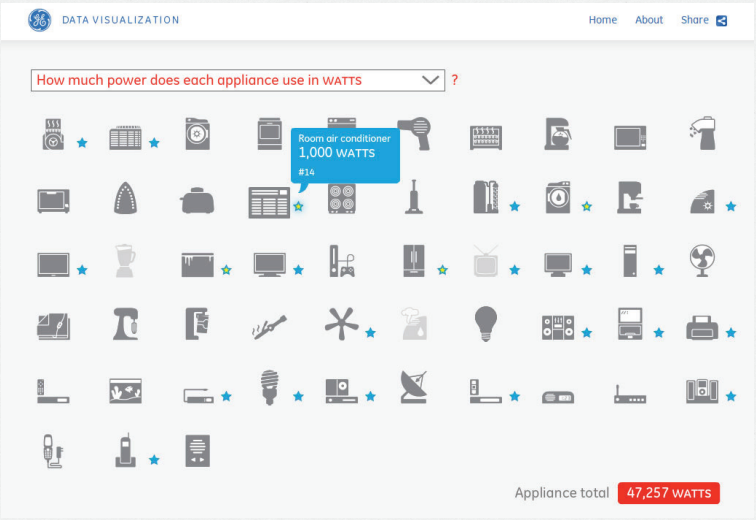
2. Encourage user to save energy and provide customized tips on how to do so.

1). After user getting their analysis result, they will see their position/ranking among the world and their friends.

2). When user chooses to save certain percentage of their energy usage, the system will let their know if it's easy or hard to achieve.

3). System will provide customized saving tips based on each user's behavior.





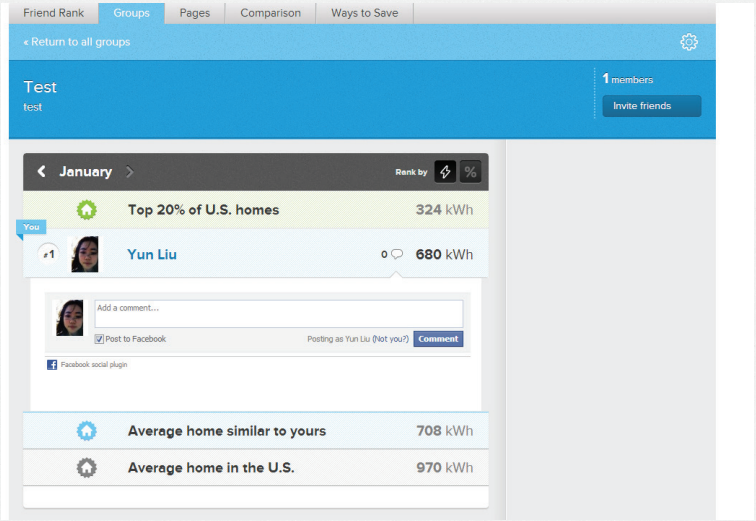
Competitive Analysis 1

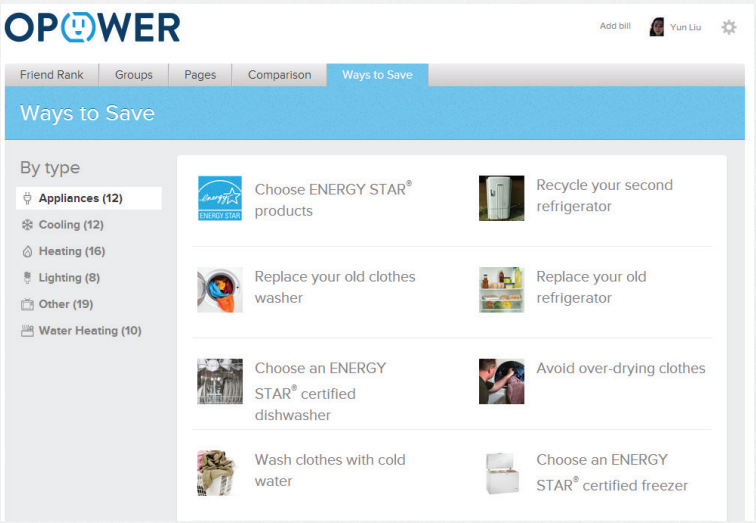
GE Data Visualization - Home Appliance Energy Use
http://visualization.geblogs.com/visualization/appliances/

This data visualization provides the power usage of electrical appliance and helps user roughly calculate their energy cost.

Pros:
Provides a nice and clean visualization for the power usage data.

Cons:
No further information provided. User can only check/uncheck appliance, there is no other customization options.





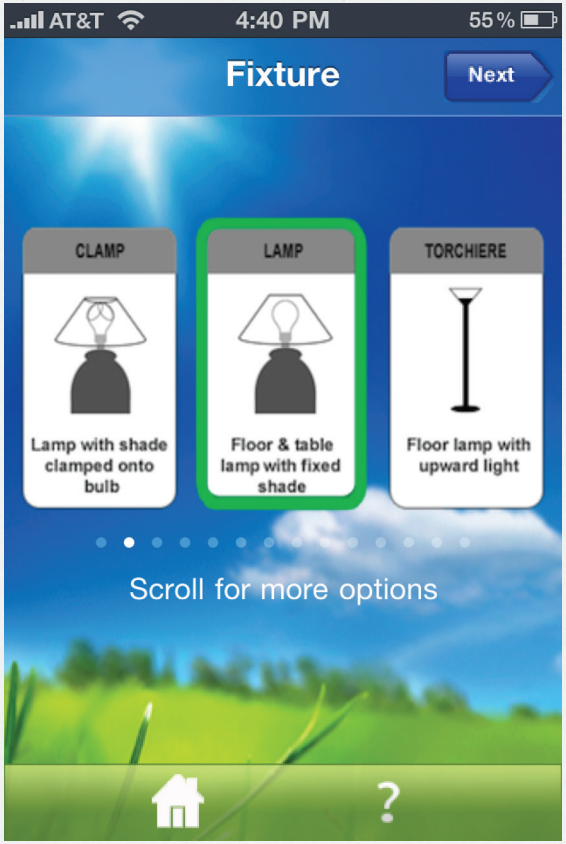
Competitive Analysis 2

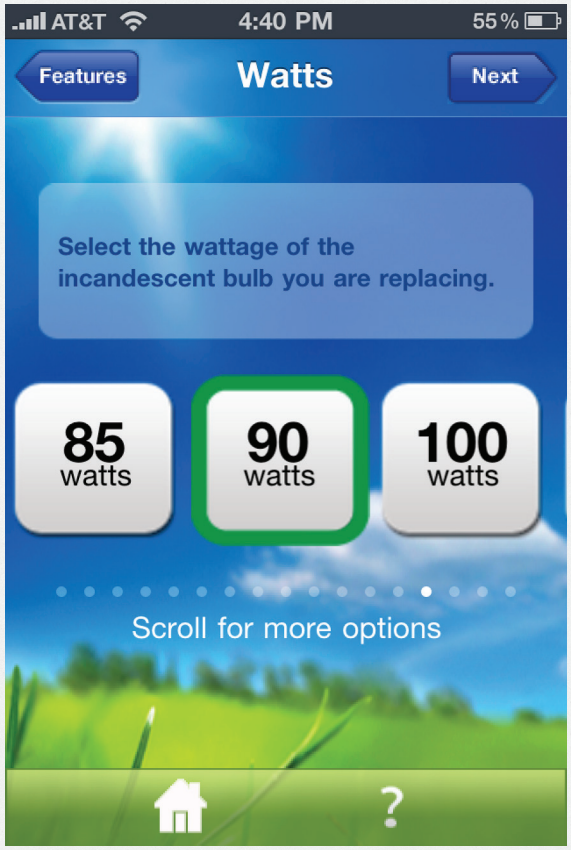
Opower Social
https://social.opower.com

The social site of opower helps user compare their usage with similar families, form saving groups, and discover energy saving tips.

Pros:
The developer of opower is trying to create a community for energy savers. It is quite easy for user to get an overview of their power usage and connect to facebook friends.

Cons:
Other then create a saving group with friends, there are no further actions to take in this site. The saving tips are static information.





Competitive Analysis 3

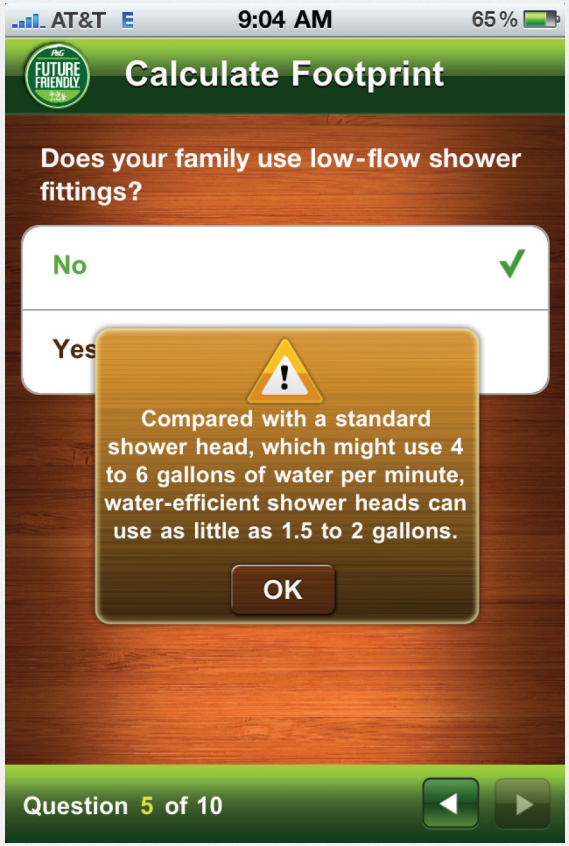
Light bulb Finder – iphone app

The Light Bulb Finder app is a mobile application that makes it easy to find the right energy-saving light bulbs for the user's home. It helps choose which bulbs to replace based on financial payback and environmental impact.

Pros:
The application chooses a niche of the energy saving market, and does a good job on helping user find the energy saving bulb.

The usage of icon and graph simplify the process of understanding the terms, which can be used in my application.

Cons:
It separates the process of choosing a bulb into too many steps, user might lose their patience while using the application.



Competitive Analysis 4

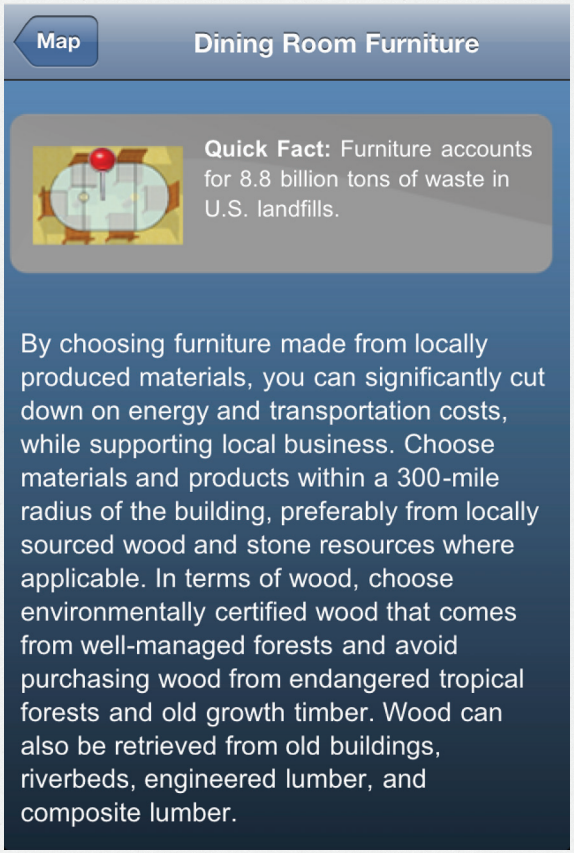
My Carbon Footprint – iphone app

My Carbon Footprint tries to show the users how day-to-day choices they make impact their little slice of the planet. User can earn badges, get helpful tips, and see how their actions continue to shape the world.

Pros:
The metaphor of personal planet is interesting.

Cons:
User has to answer initial 10 questions, and then one question per day. All questions are yes/no quiz, user might got bored quite soon.

Also after using it for a while, I find out that the planet don't change too much. So user will not be motivated to use it for long time.



Competitive Analysis 5

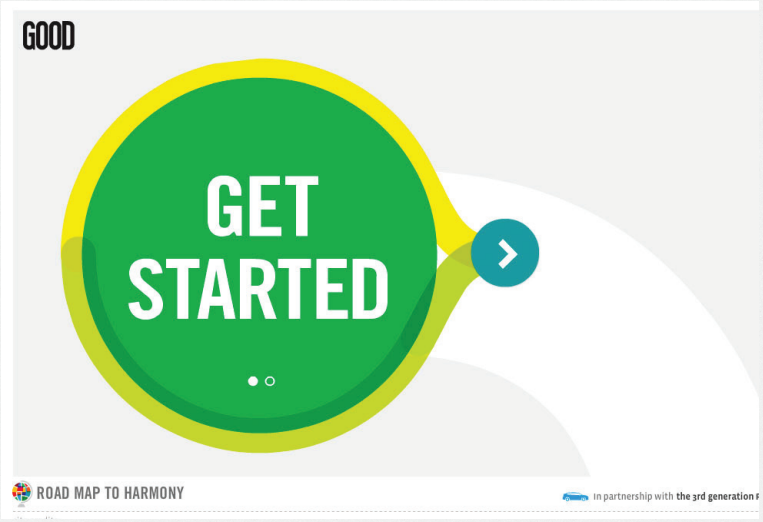
Light bulb Finder – iphone app
This is Green – iPhone app

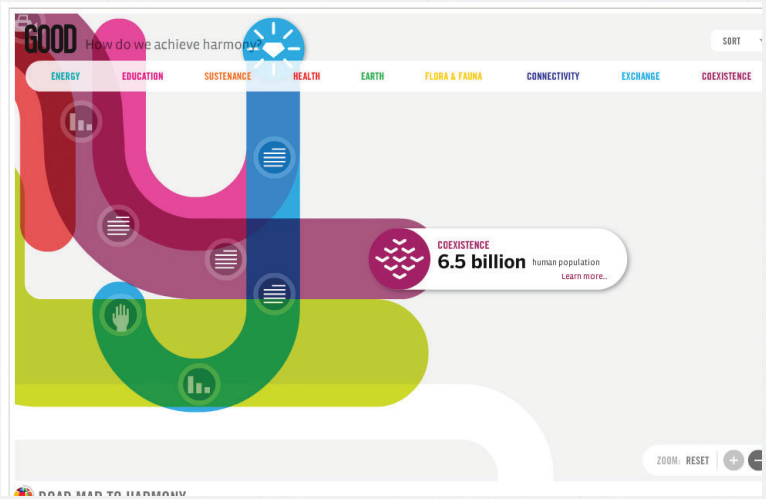
The main page of the app is a floor plan with different items like car, baby products, washer & dryer, etc. User can click those devices to get detailed information and green tips that are related to those items.

Pros:
Using a floor plan is a nice beginning, since user can then easily find out what can be done at home.

Cons:
The floor plan interface doesn't have necessary icons or legends to guide user about the interactive areas. It is hard to find out which part is clickable.

The information provided contains long text areas, user with iphone might not be patient enough to read through it on a small screen.





Inspirations 1

GOOD – Road map to harmony.
http://awesome.good.is/ecosystem

GOOD is an interactive 'road map' that shows the improvements that can be done to create a better harmonious world. When user clicks the icons, it pop up the current situation of energy, education, sustenance, health, etc in the world. User can click for more details, and it will show information about what can be done to make the current situation better.

Pros:
It is a nicely designed drill-down system. User can get a quite brief idea by clicking the icon, usually one sentence introduction about the current situation. If the user want to get more information, there will be a more detailed popup window. Under the popup window, there are even more links that shows more deeper information.

Cons:
The metaphor of a road map is probably hard to get. There are no clues why the background is designed so except it is a visually nice designed 'harmony'. It is difficult to separate the icon(button) with the background image.

Inspirations 2

Slavery Footprint
Slaveryfootprint.org

The Slavery Footprint website allows consumers to visualize how their consumption habits are connected to modern-day slavery. Users put in their personal information through step by step interactions and the system will calculate the final number of slaves that actually works for the users.

Pros:
The interface and interactions are well designed so it is quite interesting for the user to take the survey. The interactions are designed into different ways so the user won't get bored.

Cons:
User won't get the final result until they finish the survey, for my app, I might want to give user the data while they are doing the survey, so they won't quit half way due to lack of result.

	GOOD	GE	SLAVERY FOOTPRINT	LIGHT BULB CHANGER	CARBON FOOTPRINT	THIS IS GREEN	GREEN WISH
Website	● flash	● flash	●	○	○	○	●
Mobile	○	○	○	●	●	●	●
Organize	●	●	●	●	●	◐	●
Color Pleatte	grey, green, blue, yellow	grey, blue, red	grey, blue, red, yellow	green, blue	green, yellow, brown	green, blue	green
Visual Design	●	●	●	◐	◐	◐	●
Interaction Design	◐	◐	●	◐	○	○	●
Social Network	○	○	○	○	◐	○	◐
User Interaction	◐	◐	●	◐	○	○	●

Legend: ● Good/Yes ◐ Average ○ Bad/No

Competitive Analysis Conclusions

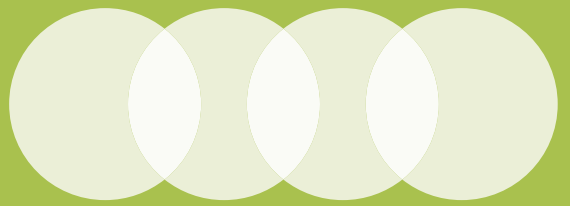
Based on the research of current green related sites and apps, the following conclusions can be reached:

Right now most green action related websites are still providing a list of static data and information. It's difficult for user to pick useful saving tips from such a big amount of information.

With pure information websites, there's no way to motivate users to pay attention to the energy problem and save energy continuously.

Some mobile apps begin to explore this area. But most of them are either too difficult to use or lacking the interactions for user to use continuously.

Visual Process

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PRELIMINARY COURSE
STUDY OF NATURE
STUDY OF MATERIALS AND TOOLS
STONE
WOOD
METAL
TEXTILES
COLOR
GLASS
ARCHITECTURE BUILDING ENGINEERING TOWN PLANNING
1/2 YR
3 YRS
2 YRS
Green Wish
ENGAGEMENT RATE
13%
AVERAGE ENGAGEMENT DURATION
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BENCHMARK
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START
1 WEEK
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CLICK-THROUGH RATE
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BENCHMARK
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START
1 WEEK
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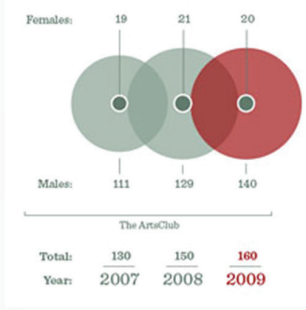
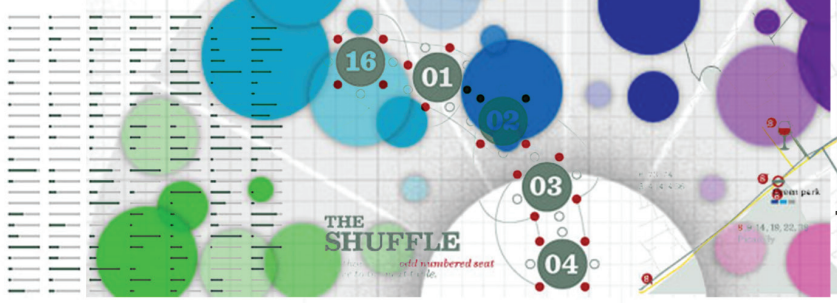
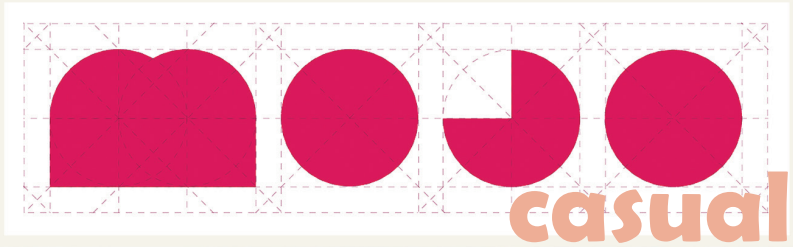
AIR: 77°F
DELICATE INTERFACE
H20: 65°F
6-8ft.
4 FT SSW @ 16 SEC
SURF!

Clean & Modern

Infographic



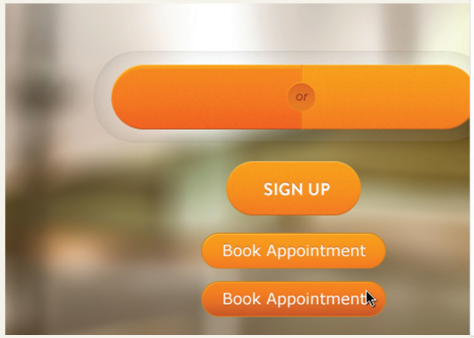


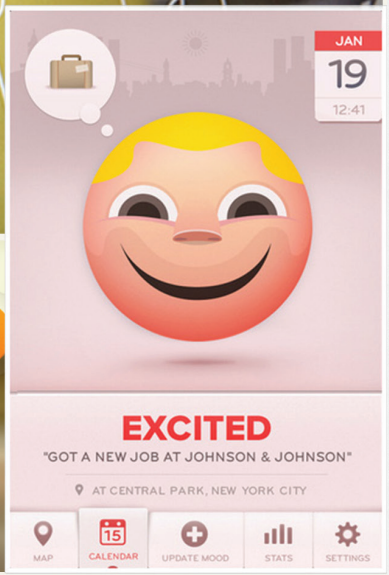

casual

GREEN WISH


Joyful


Sustainable Outcomes
Value Creation
Leadership
Training
SMU Results
FMK Results
Our Output
is robust and impactful
Our Clients
and Stakeholders
value our work and admire our results
Our People
are well trained and motivated

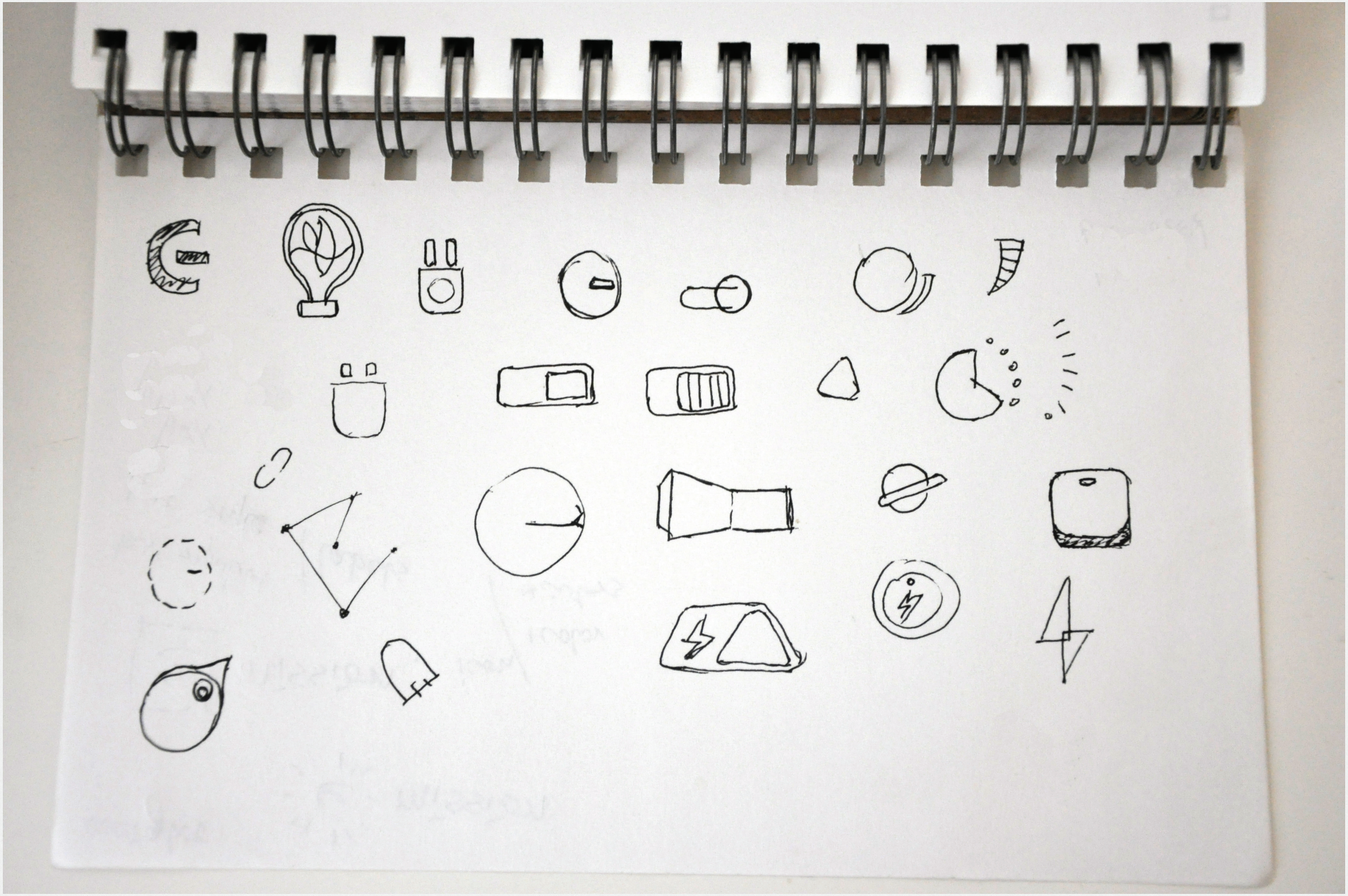

or
SIGN UP
Book Appointment
Book Appointment

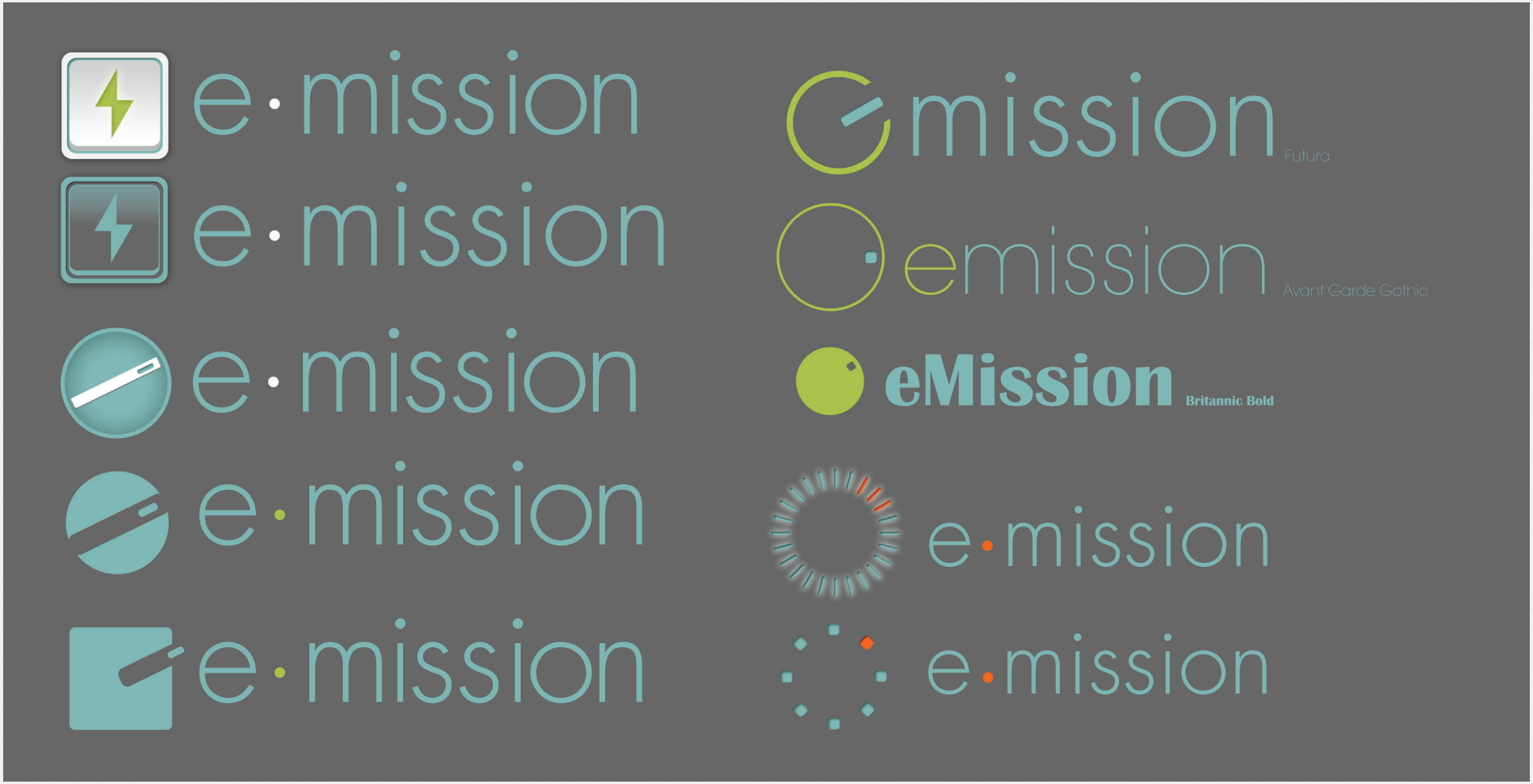

JAN
19
12:41
EXCITED
"GOT A NEW JOB AT JOHNSON & JOHNSON"
AT CENTRAL PARK, NEW YORK CITY
MAP
CALENDAR
UPDATE MOOD
STATS
SETTINGS

After doing some research on logo design, also based on the moodboard I've created, here's are the main styles I want for my logo:

1. Simple and clean, maybe minimalism style.

2. A subtle feeling of 3D or depth.




e·mission
e·mission
e·mission
e·mission
e·mission
mission
Futura
emission
Avant Garde Gothic
eMission
Britannic Bold
e·mission
e·mission

Group 1

emission

Avant Garde Gothic

emission

emission

Avant Garde Gothic
extra Light

Group 2

mission

Bangla

Group 3

mission

Futura

Regular Weight

Extra Light

Regular Weight- actural size - 240 x 40 px

Extra Light - actural size - 240 x 40 px

PRIMARY LOGO

Blue indicates Clear Space. The blue area must be kept free of other elements. Grey padding indicates Safe Zone. Magenta indicates type and element alignment and boundaries.

The minimum required Clear Space is defined by the measurement 'X' (equal to the height of the uppercase letters, known as the 'cap-height'. The width is equal to the height.)

COLOUR SPECIFICATIONS

aac051

#646464

FONTS USED IN LOGOTYPE

Avant Garde Gothic Pro Book

1234567890 !@£$%^&*()-=+

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

ALTERNATIVE LOGO VERSIONS & SPECIFICATIONS

DONT ABUSE YOUR LOGO

emission

DON'T CHANGE ELEMENT POSITION

emission

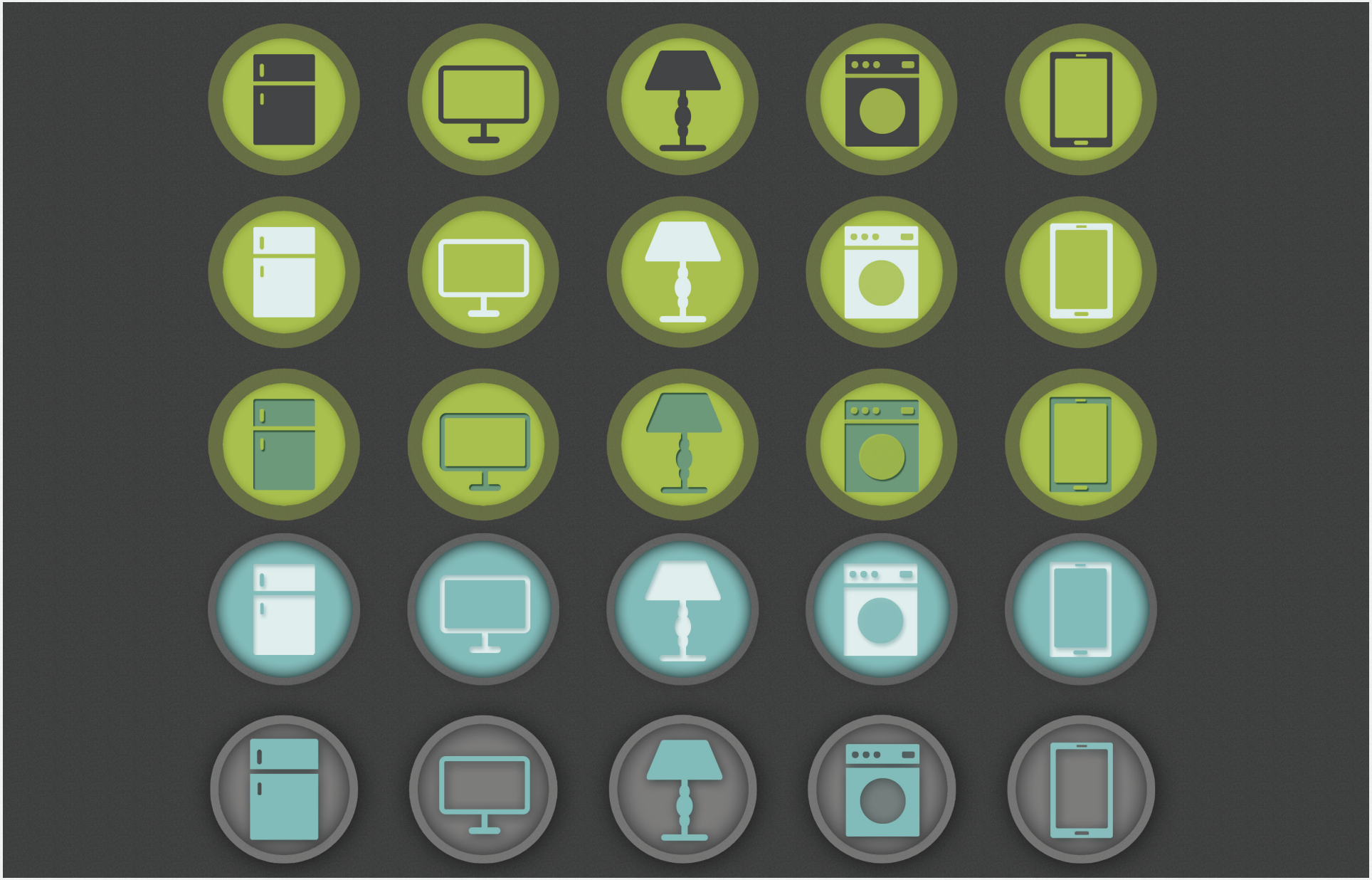
DON'T STRETCH OR DISTORT

emission

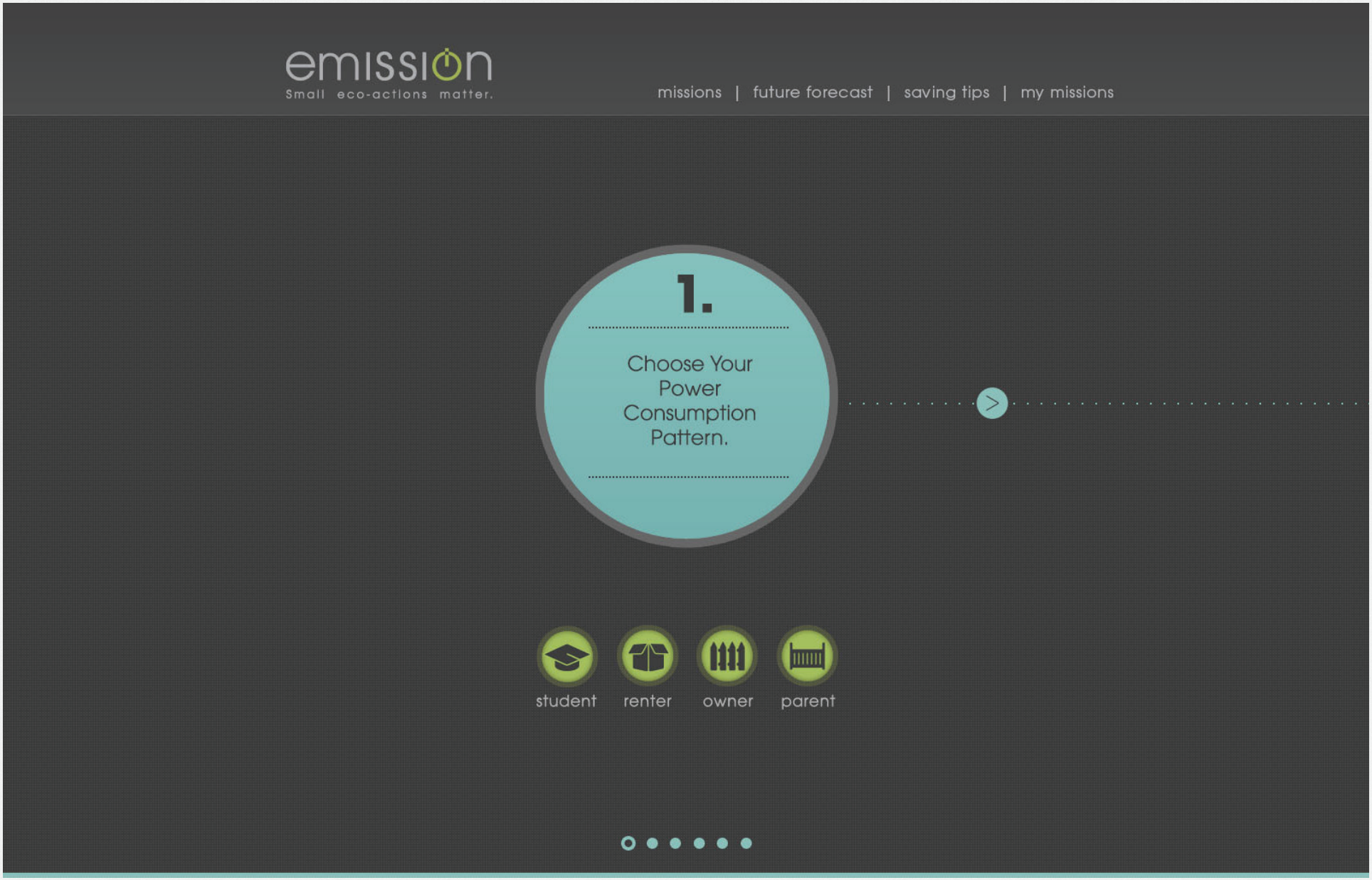
DON'T CHANGE ELEMENT SIZE

emission

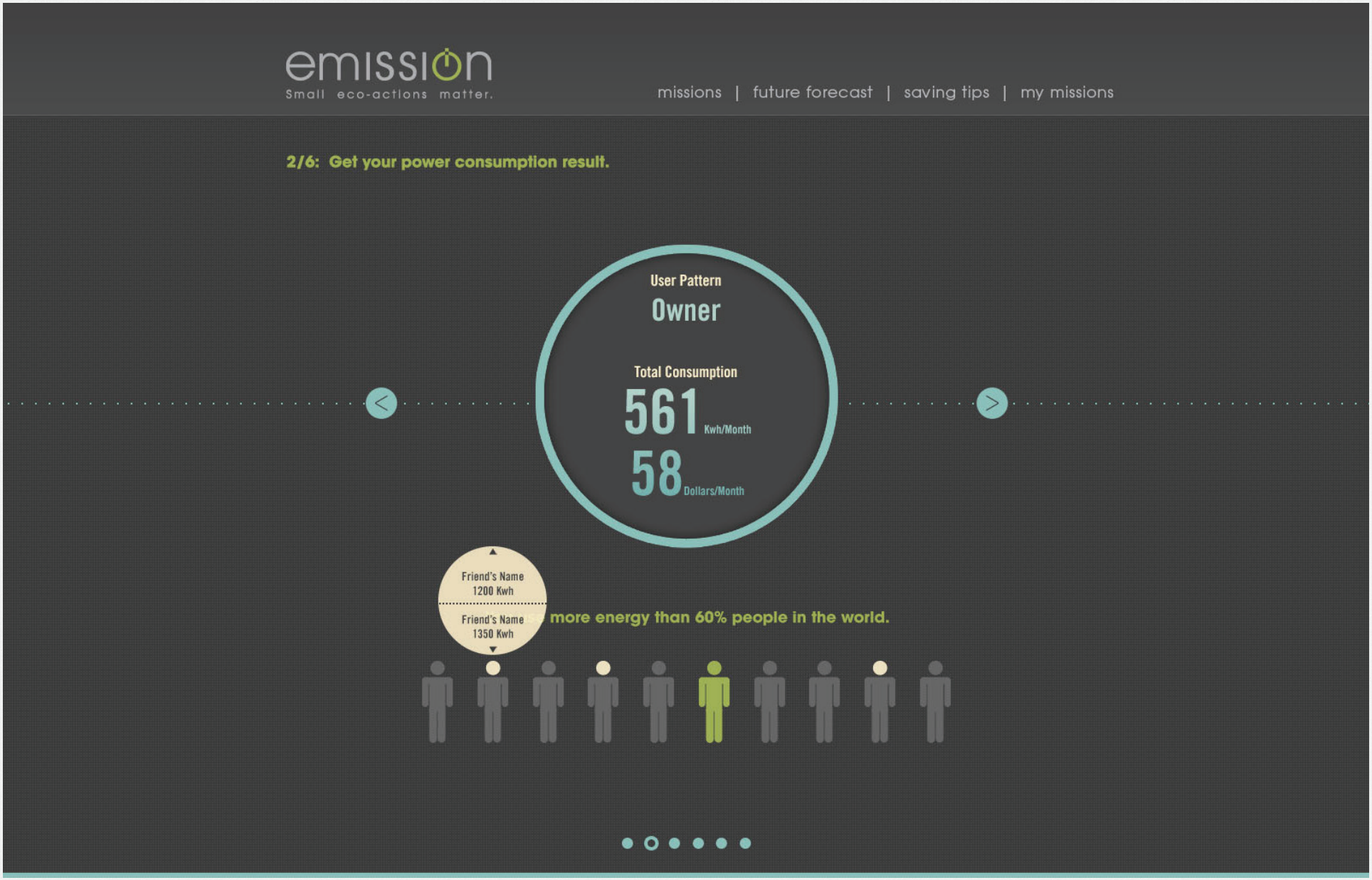
DON'T CHANGE FONTS/COLOUR

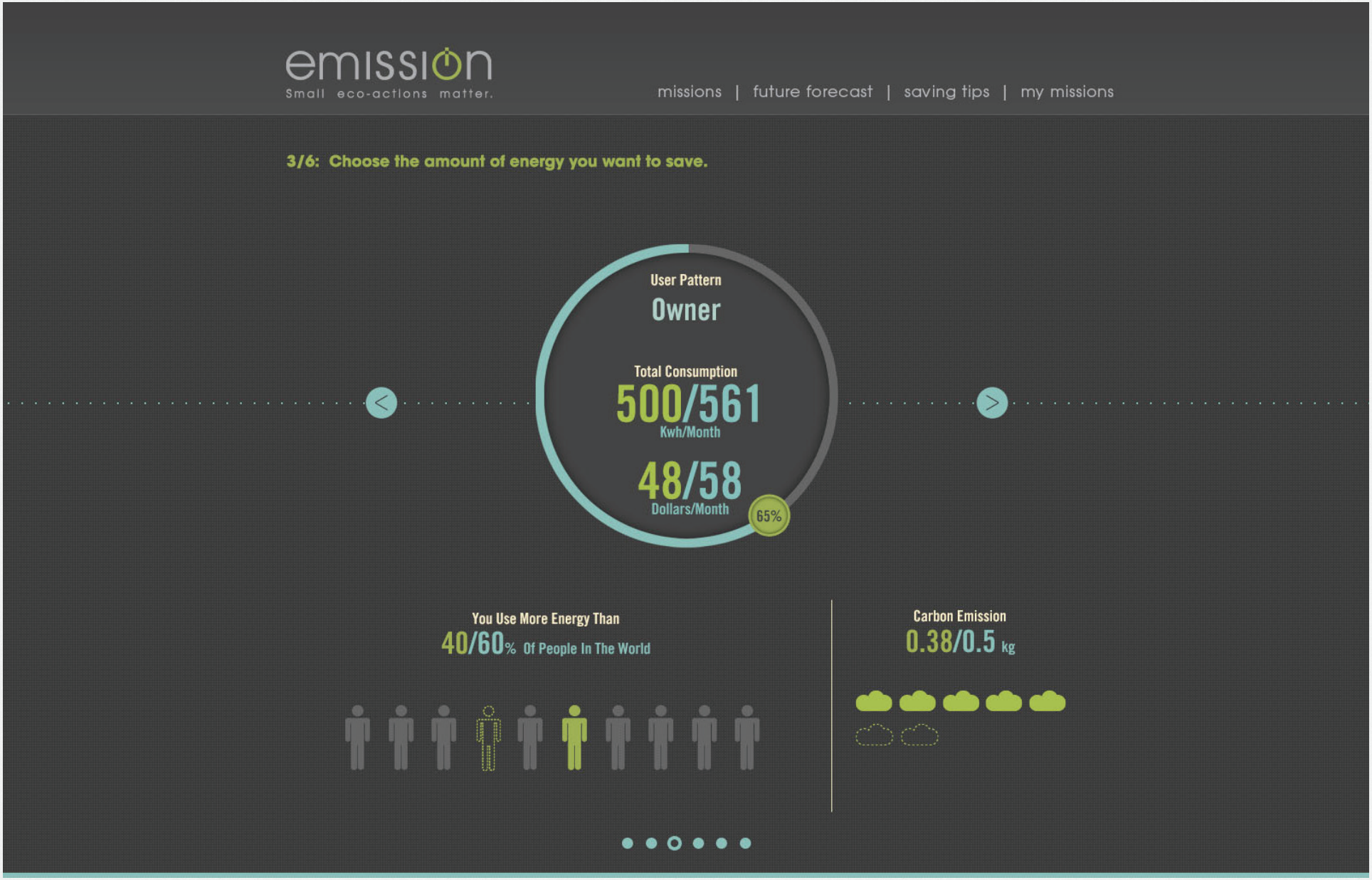



refrigerator
TV
washer
smart phone
lamp
student
renter
owner
parent


emission
Small eco-actions matter.
missions | future forecast | saving tips | my missions
1.
Choose Your Power Consumption Pattern.
student
renter
owner
parent

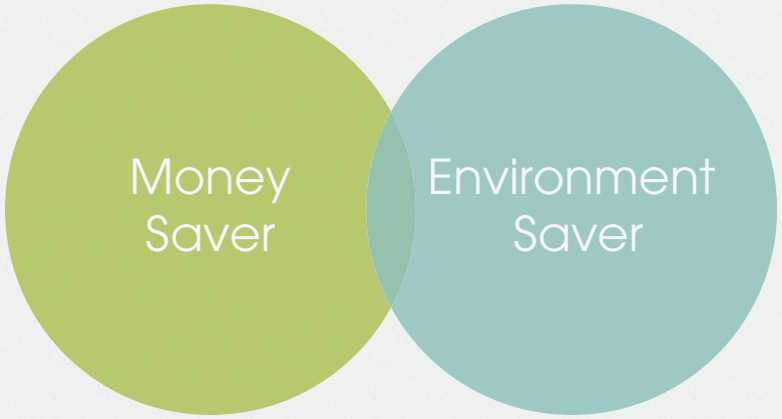

emission
Small eco-actions matter.
missions | future forecast | saving tips | my missions
1/6: Choose your power consumption pattern.
40%
Total Consumption
250 Kwh/Mon
refrigerator x 1
17.5kwh
Number of Device:
2
Usage of Device (hours/day):
3.5
TV
Refine your information to get a more accurate result.


emission
Small eco-actions matter.
missions | future forecast | saving tips | my missions
2/6: Get your power consumption result.
User Pattern
Owner
Total Consumption
561 Kwh/Month
58 Dollars/Month
Friend's Name
1200 Kwh
Friend's Name
1350 Kwh
more energy than 60% people in the world.


emission
Small eco-actions matter.
missions | future forecast | saving tips | my missions
3/6: Choose the amount of energy you want to save.
User Pattern
Owner
Total Consumption
500/561
Kwh/Month
48/58
Dollars/Month
65%
You Use More Energy Than
40/60% Of People In The World
Carbon Emission
0.38/0.5 kg

User Experience Process

Target Audience



Primary Target Audience

People with tight buget

Young people who are struggling to settle down, mid-age people who have to support a big family.

Basically people who have a tight budget and are trying to figure out ways to save money and lower their energy bill.

Age: 25-40

Second Target Audience

People who want to protect environment

Young people who don't have financial stress but would like to be green if they know how.

They are also getting used to social media and would like to share their green wishes with their friends.

Age: 20-30

Persona

Tony Walker
Software Engineer
37, Married, 2 Kids
Mountain View, CA

Psychographic Attributes:
Tech geek, Energetic

Purposes:
Compare his power usage with U.S. average.
Figure out if it's possible for him lower down his utility bill.

Brand influence and exposure:
Facebook
Apple
Intel

Technology:
Windows 7
Firefox
1280x800 monitor resolution
Broadband
iPhone 5

Tasks and Scenarios:
Tony wants to find out if the power usage of his family is normal or higher, so he can get a brief idea if it's easy for him to save more energy.

Persona

Ann Chen
Dedicated Mom
32, Married, 1 Kid
Philadelphia, PA

Psychographic Attributes:
Patient, Considerable

Purposes:
Find ways to lower down her utility bill.

Brand influence and exposure:
Amazon
Ebay
Microsoft

Technology:
Windows 7
Internet Explorer
1920x1080 monitor resolution
Broadband

Tasks and Scenarios:
The electricity bill for Ann's family is always higher than $100. She wants to find out which devices are consuming the most power, and possible saving actions to take.

Persona

Tess Green
New Grads
24, Single, 0 Kid
Seattle, WA

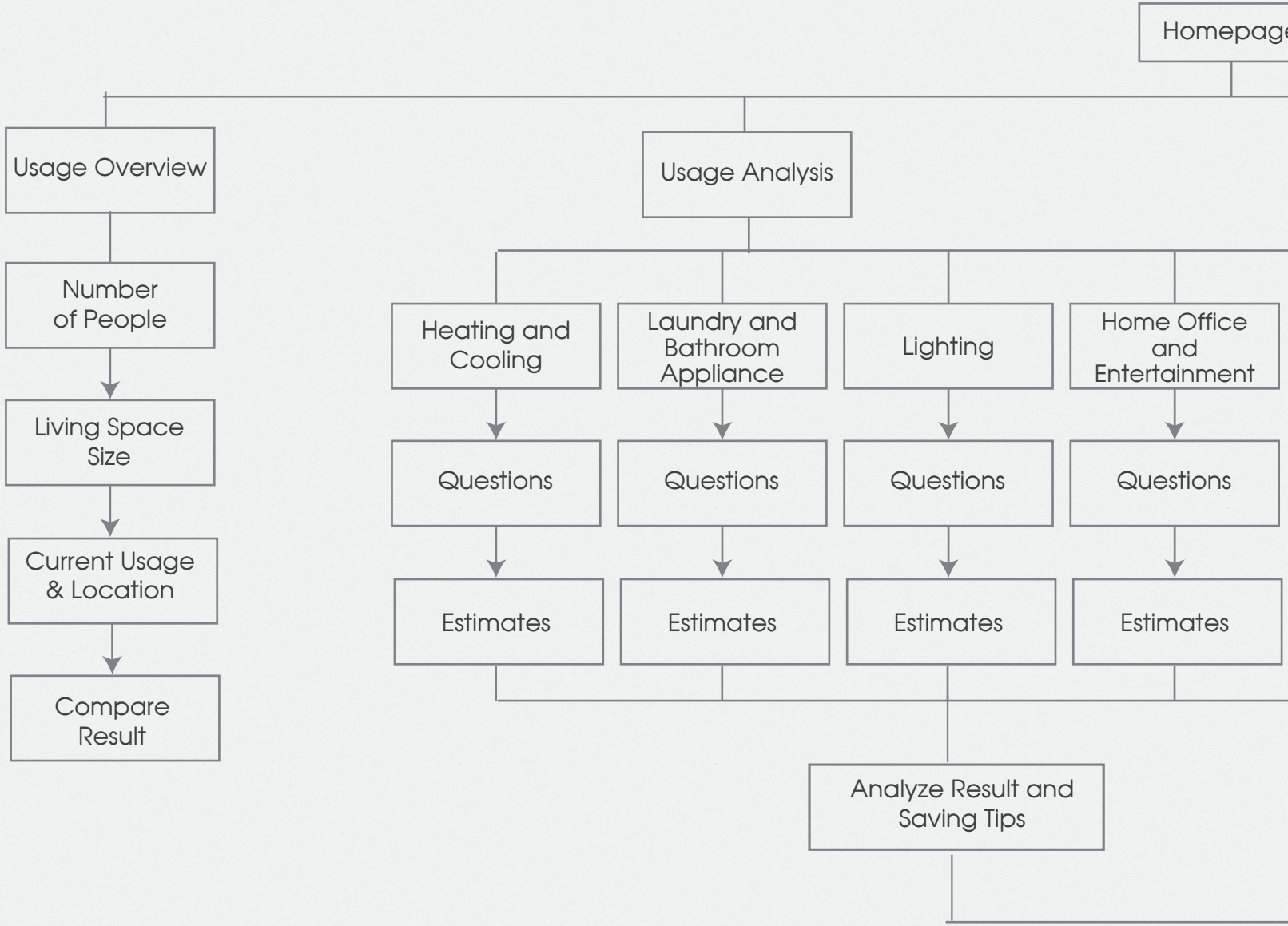
Psychographic Attributes:
Energetic, Web savvy

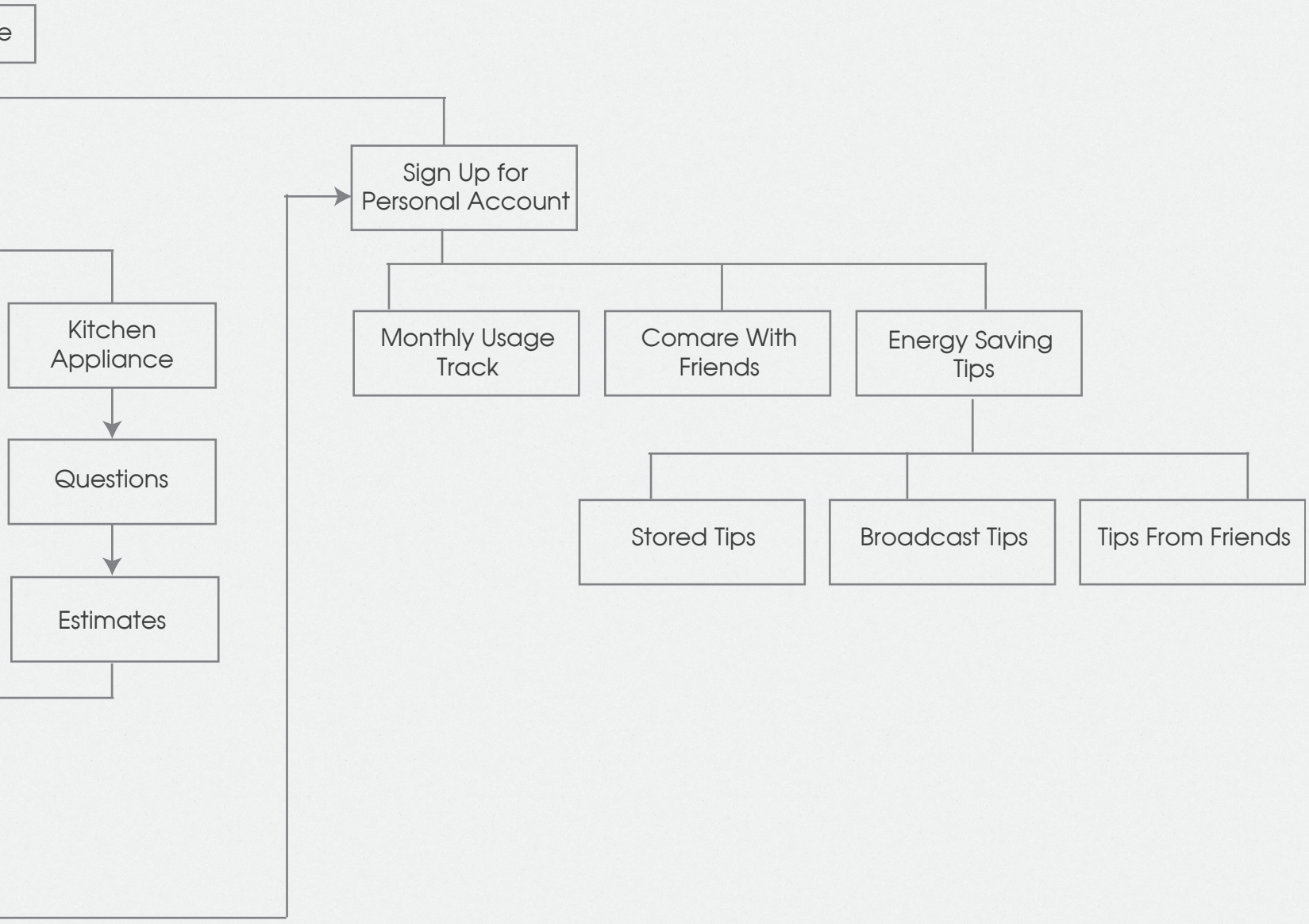
Purposes:
Find more saving actions to take, share useful actions with friends.

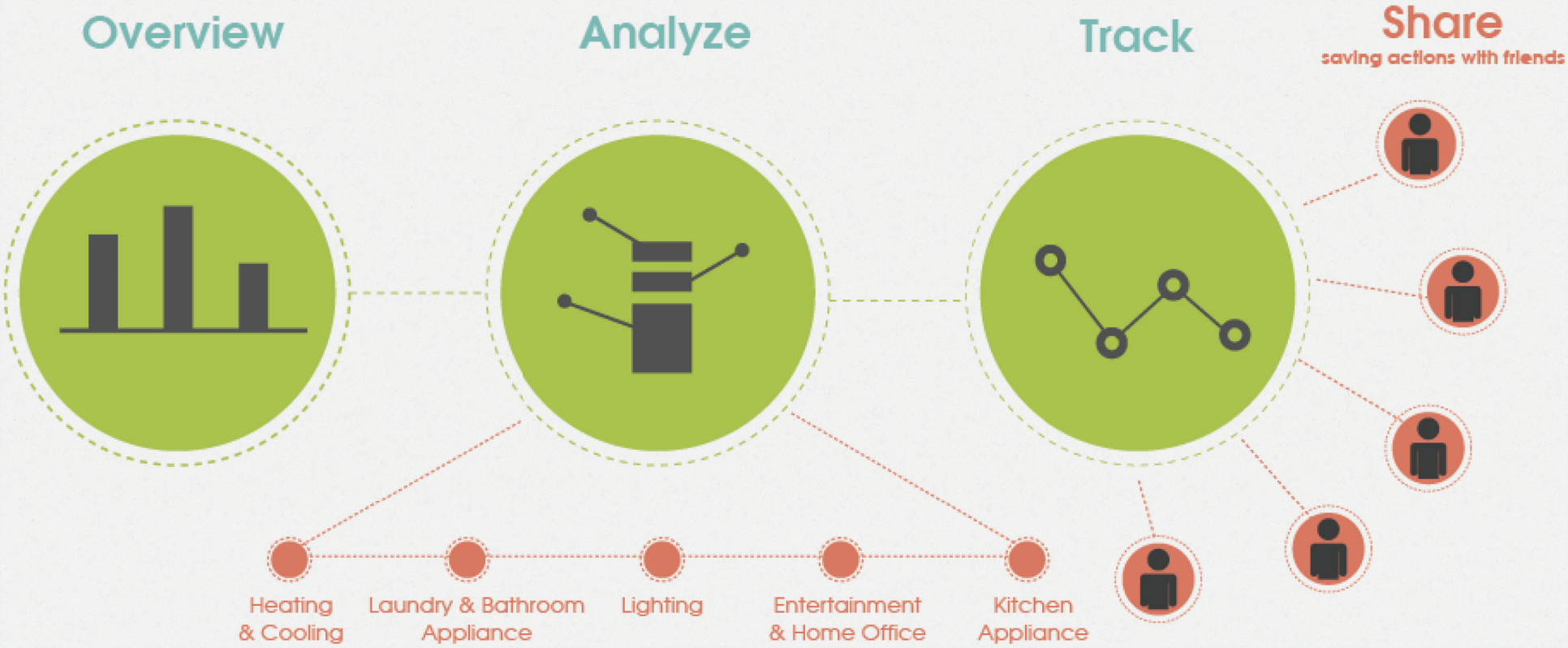
Brand influence and exposure:
Facebook
Google
National Geography

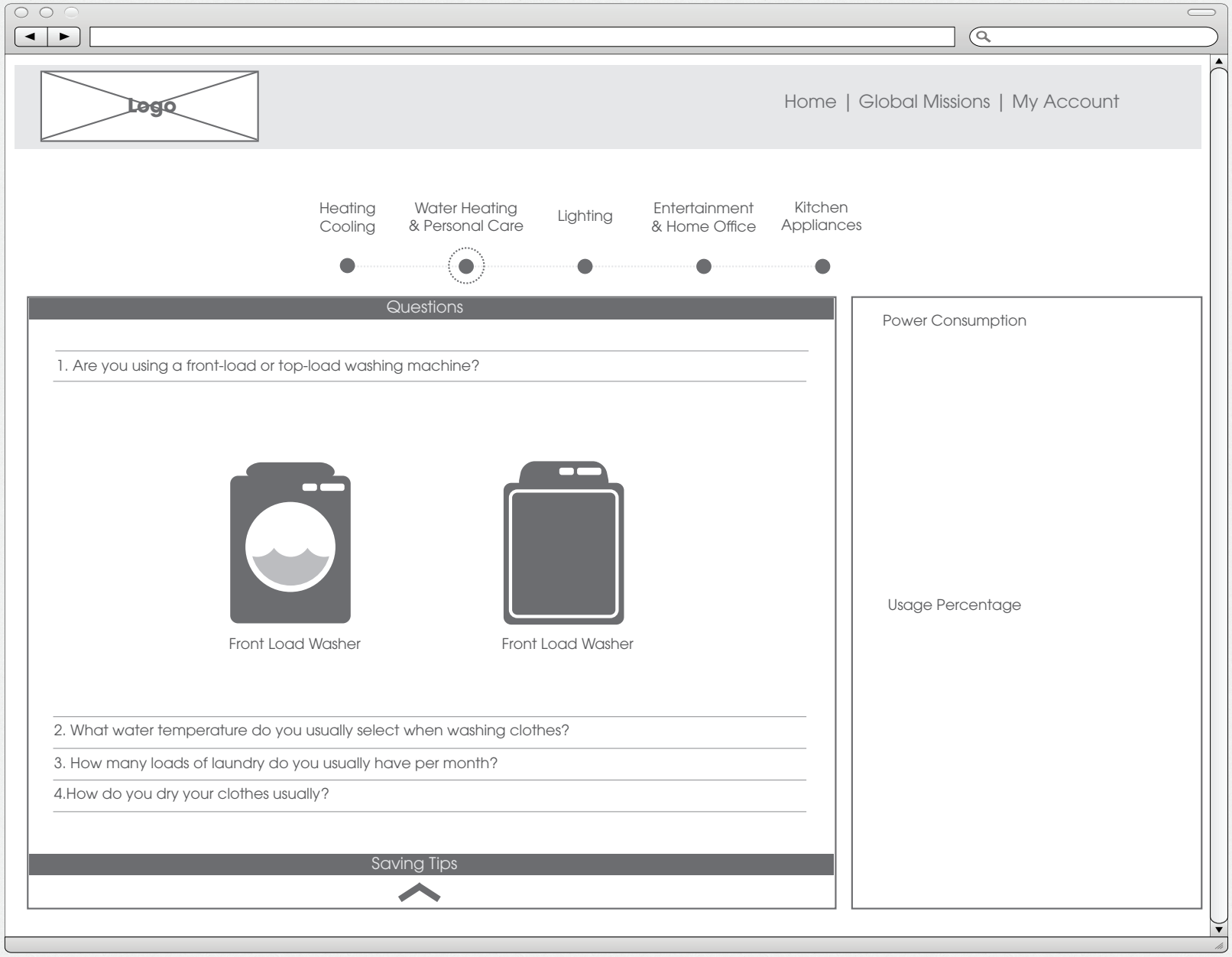
Technology:
Mac OS X
Safari 5
1920x1080 monitor resolution
Broadband
iPhone 5s

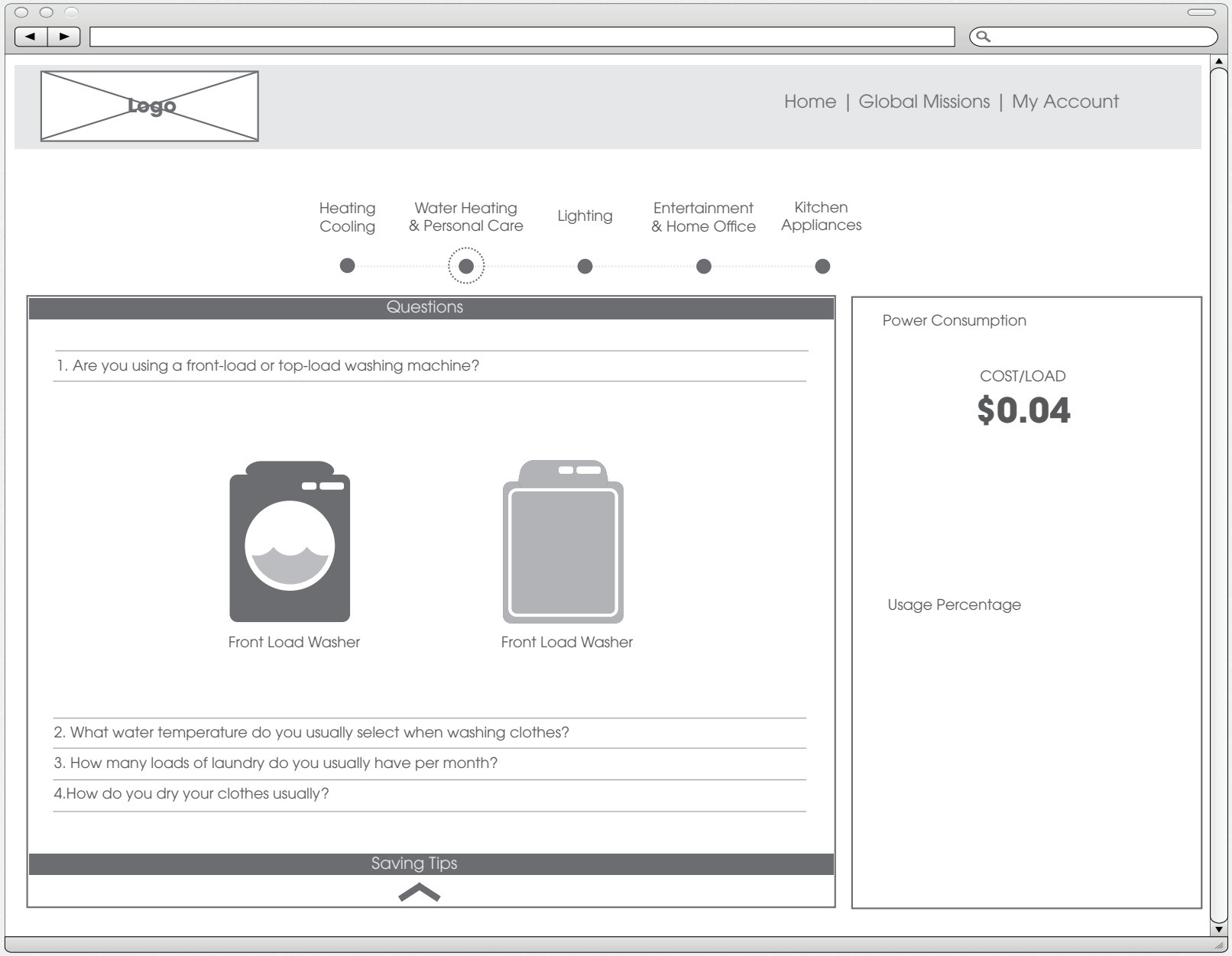
Tasks and Scenarios:
Tess is a new grads who is always quite conscious about the environment. She wants to find out possible actions to save energy and would like to share those with her friends.


Homepage
Usage Overview
Usage Analysis
Number of People
Living Space Size
Current Usage & Location
Compare Result
Heating and Cooling
Laundry and Bathroom Appliance
Lighting
Home Office and Entertainment
Questions
Questions
Questions
Questions
Estimates
Estimates
Estimates
Estimates
Analyze Result and Saving Tips


e
Sign Up for Personal Account
Kitchen Appliance
Questions
Estimates
Monthly Usage Track
Comare With Friends
Energy Saving Tips
Stored Tips
Broadcast Tips
Tips From Friends


Overview
Analyze
Track
Share
saving actions with friends
Heating & Cooling
Laundry & Bathroom Appliance
Lighting
Entertainment & Home Office
Kitchen Appliance


Logo
Home | Global Missions | My Account
Heating Cooling
Water Heating & Personal Care
Lighting
Entertainment & Home Office
Kitchen Appliances
Questions
1. Are you using a front-load or top-load washing machine?
Front Load Washer
Front Load Washer
2. What water temperature do you usually select when washing clothes?
3. How many loads of laundry do you usually have per month?
4.How do you dry your clothes usually?
Saving Tips
Power Consumption
Usage Percentage


Logo
Home | Global Missions | My Account
Heating Cooling
Water Heating & Personal Care
Lighting
Entertainment & Home Office
Kitchen Appliances
Questions
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Front Load Washer
Front Load Washer
2. What water temperature do you usually select when washing clothes?
3. How many loads of laundry do you usually have per month?
4.How do you dry your clothes usually?
Saving Tips
Power Consumption
COST/LOAD
$0.04
Usage Percentage

Logo

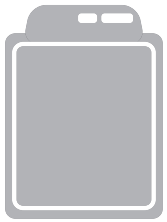
Home | Global Missions | My Account

Heating Cooling | Water Heating & Personal Care | Lighting | Entertainment & Home Office | Kitchen Appliances

Questions

1. Are you using a front-load or top-load washing machine?

Front Load Washer



Front Load Washer

2. What water temperature do you usually select when washing clothes?

3. How many loads of laundry do you usually have per month?

4.How do you dry your clothes usually?

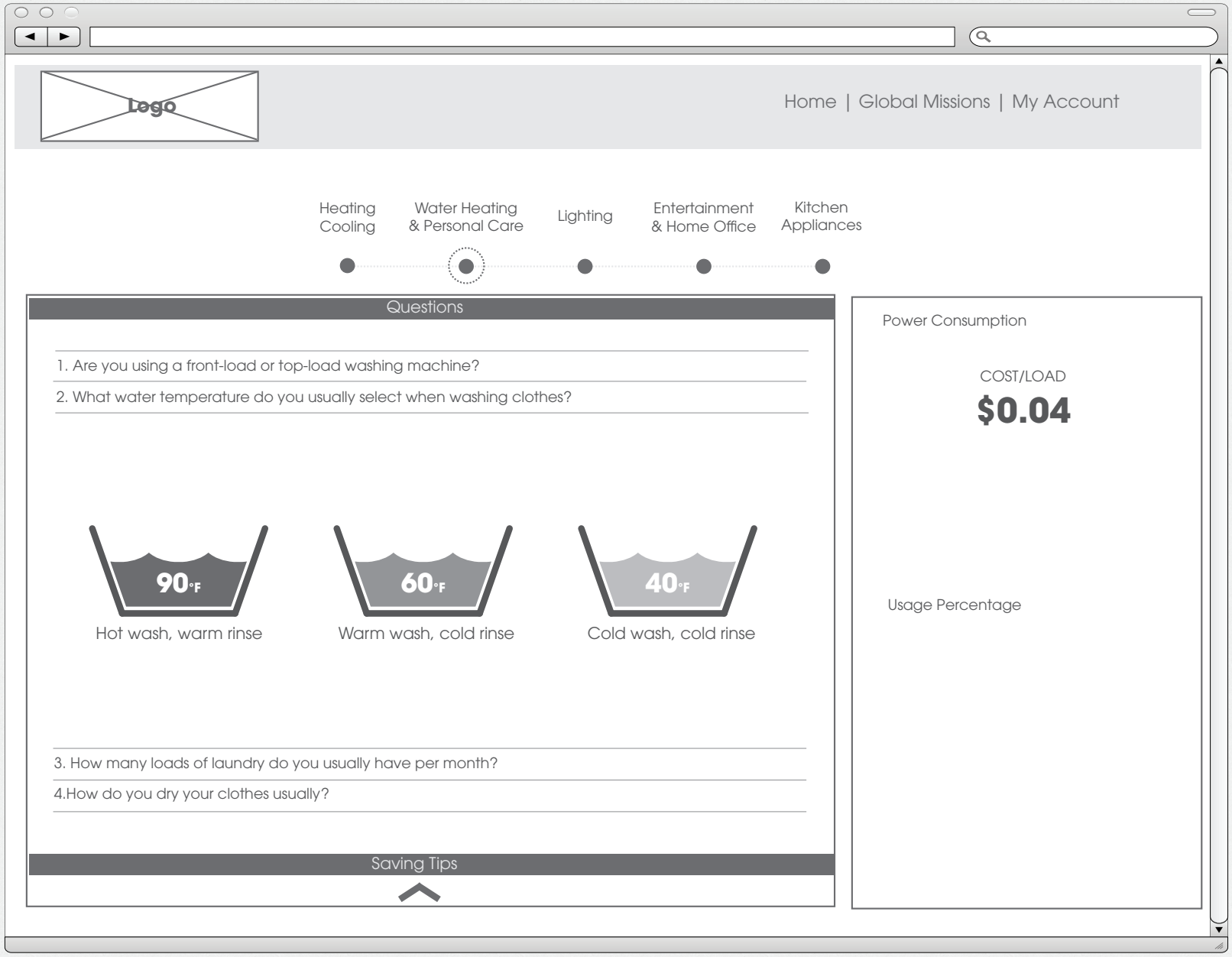
Saving Tips

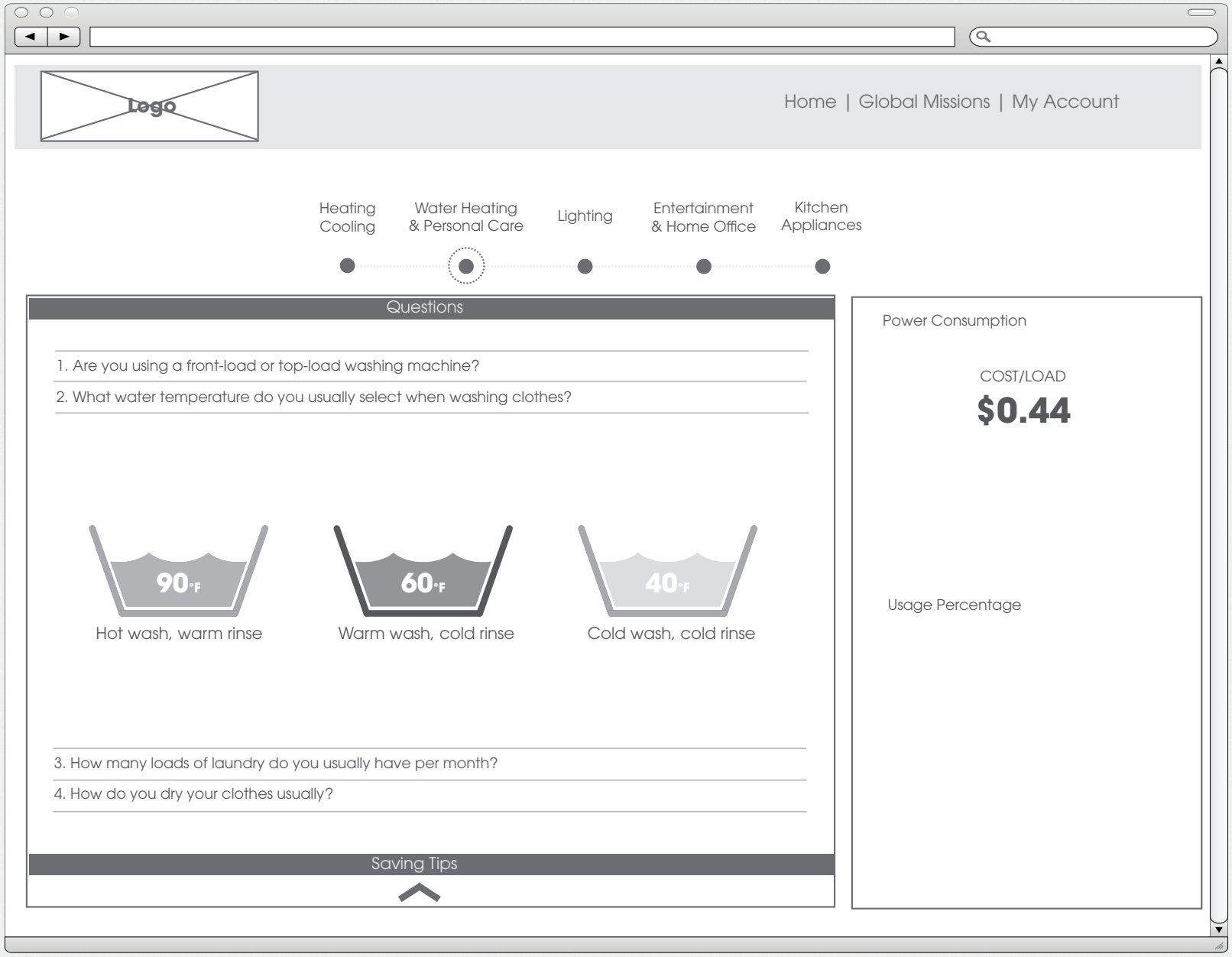
Power Consumption

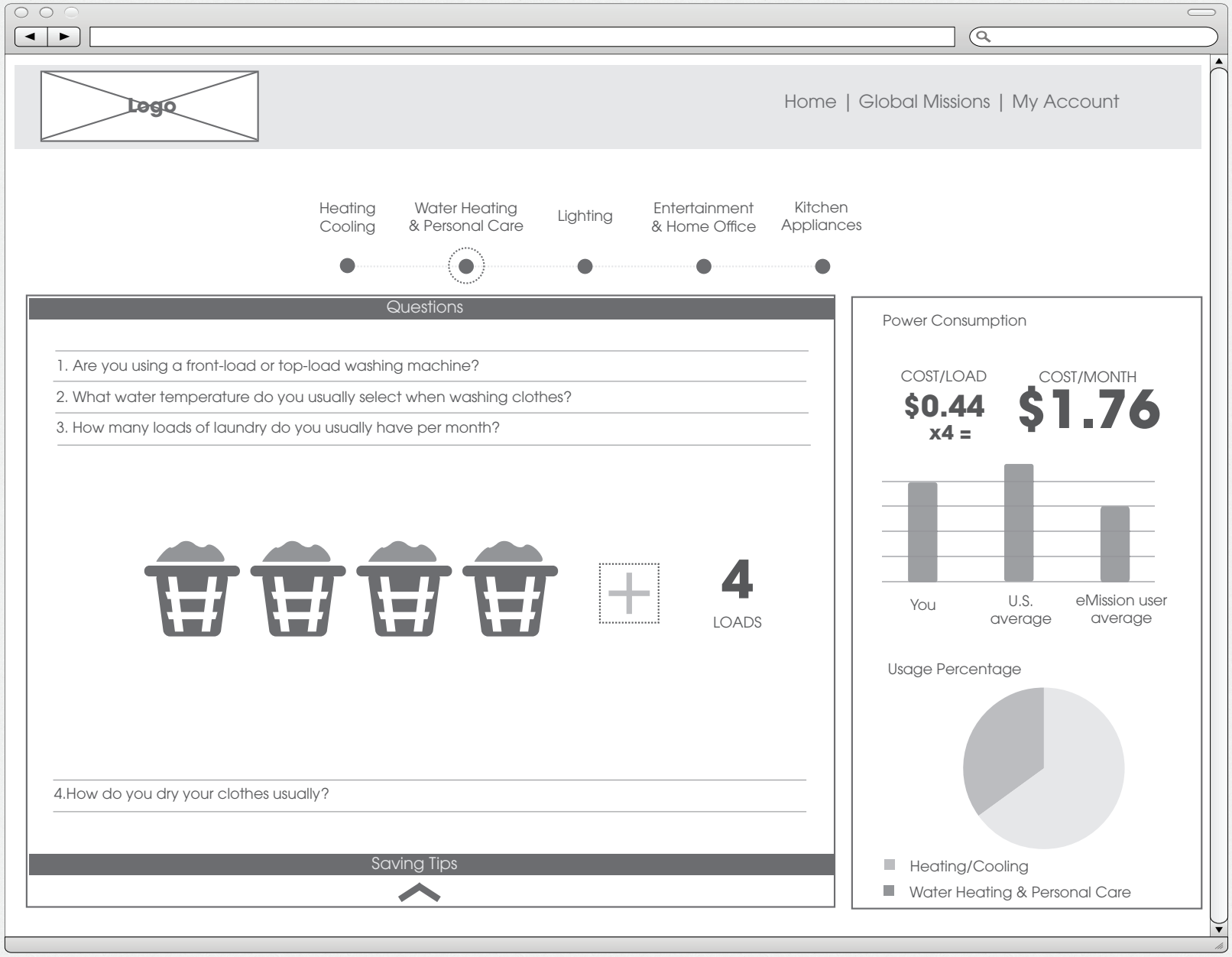
COST/LOAD

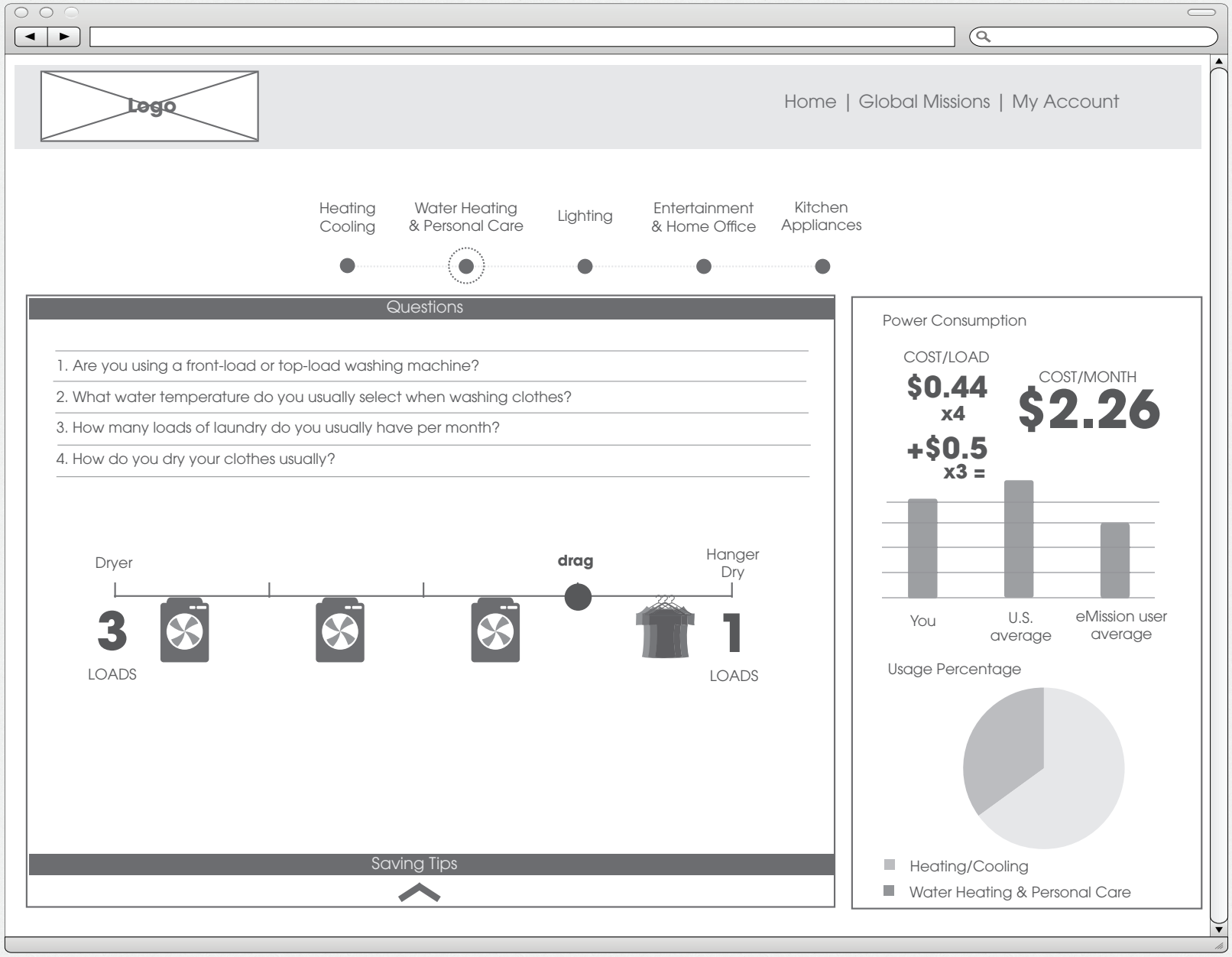
$0.04

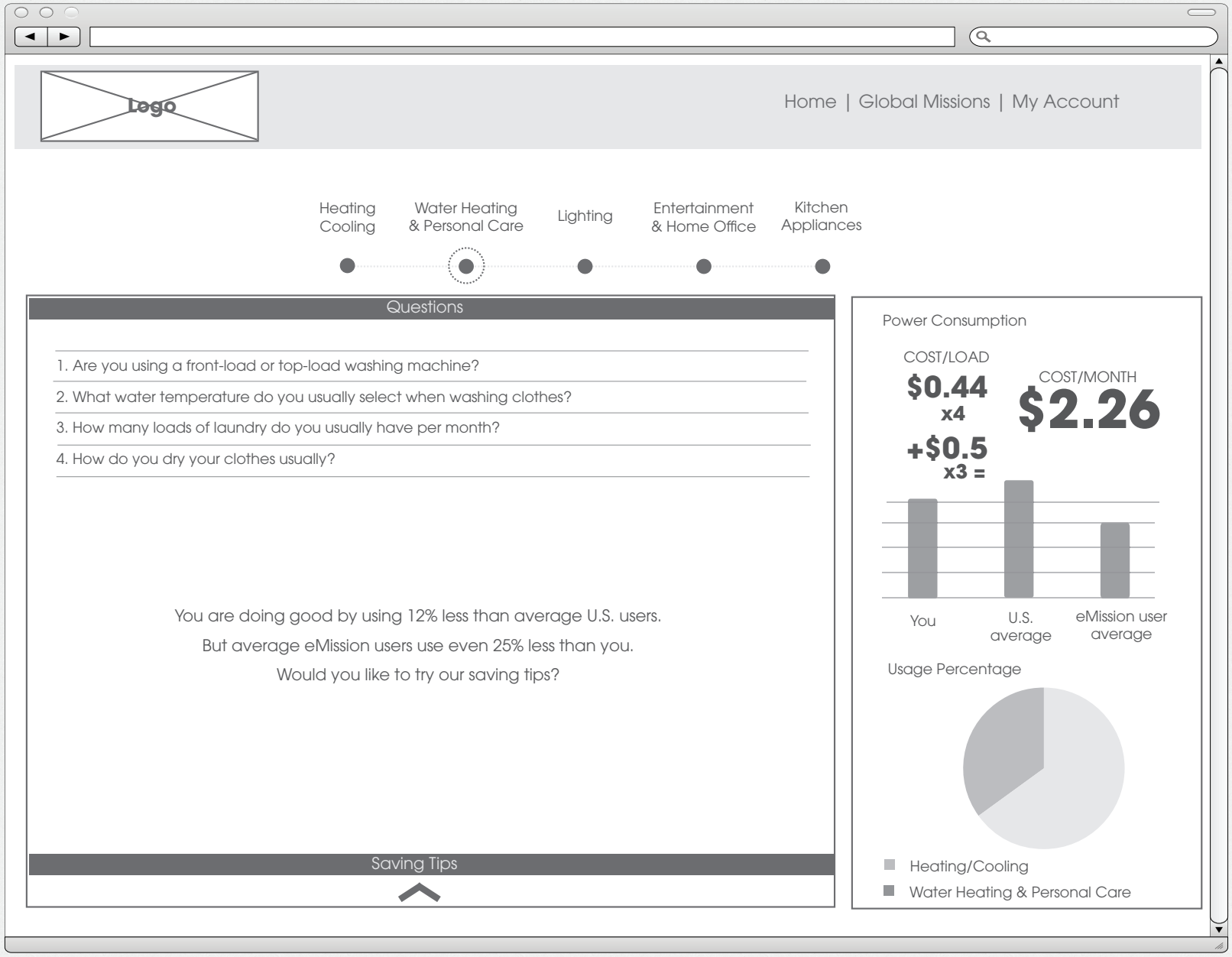
Usage Percentage

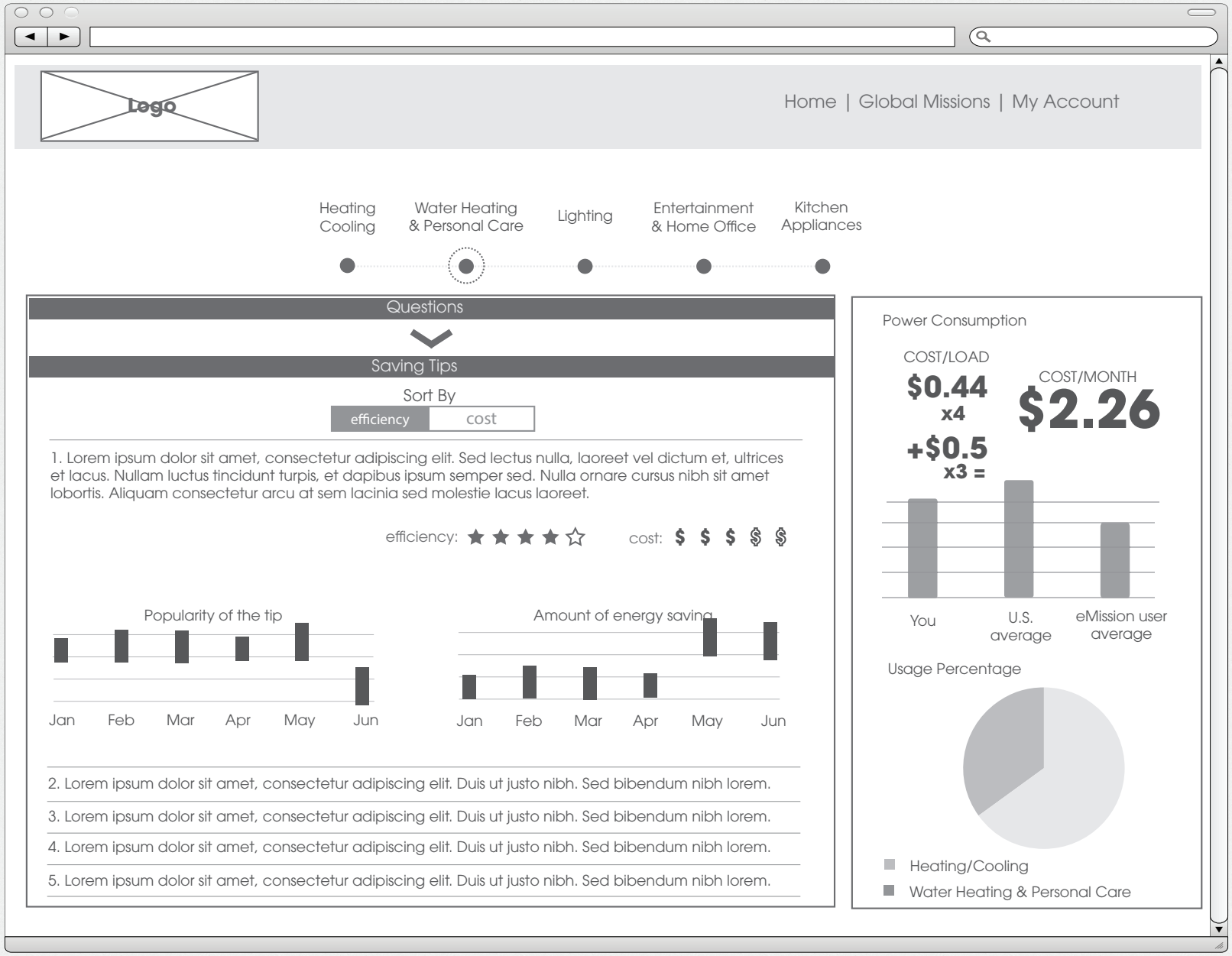

Logo
Home | Global Missions | My Account
Heating Cooling
Water Heating & Personal Care
Lighting
Entertainment & Home Office
Kitchen Appliances
Questions
1. Are you using a front-load or top-load washing machine?
2. What water temperature do you usually select when washing clothes?
90°F
Hot wash, warm rinse
60°F
Warm wash, cold rinse
40°F
Cold wash, cold rinse
3. How many loads of laundry do you usually have per month?
4.How do you dry your clothes usually?
Saving Tips
Power Consumption
COST/LOAD
$0.04
Usage Percentage

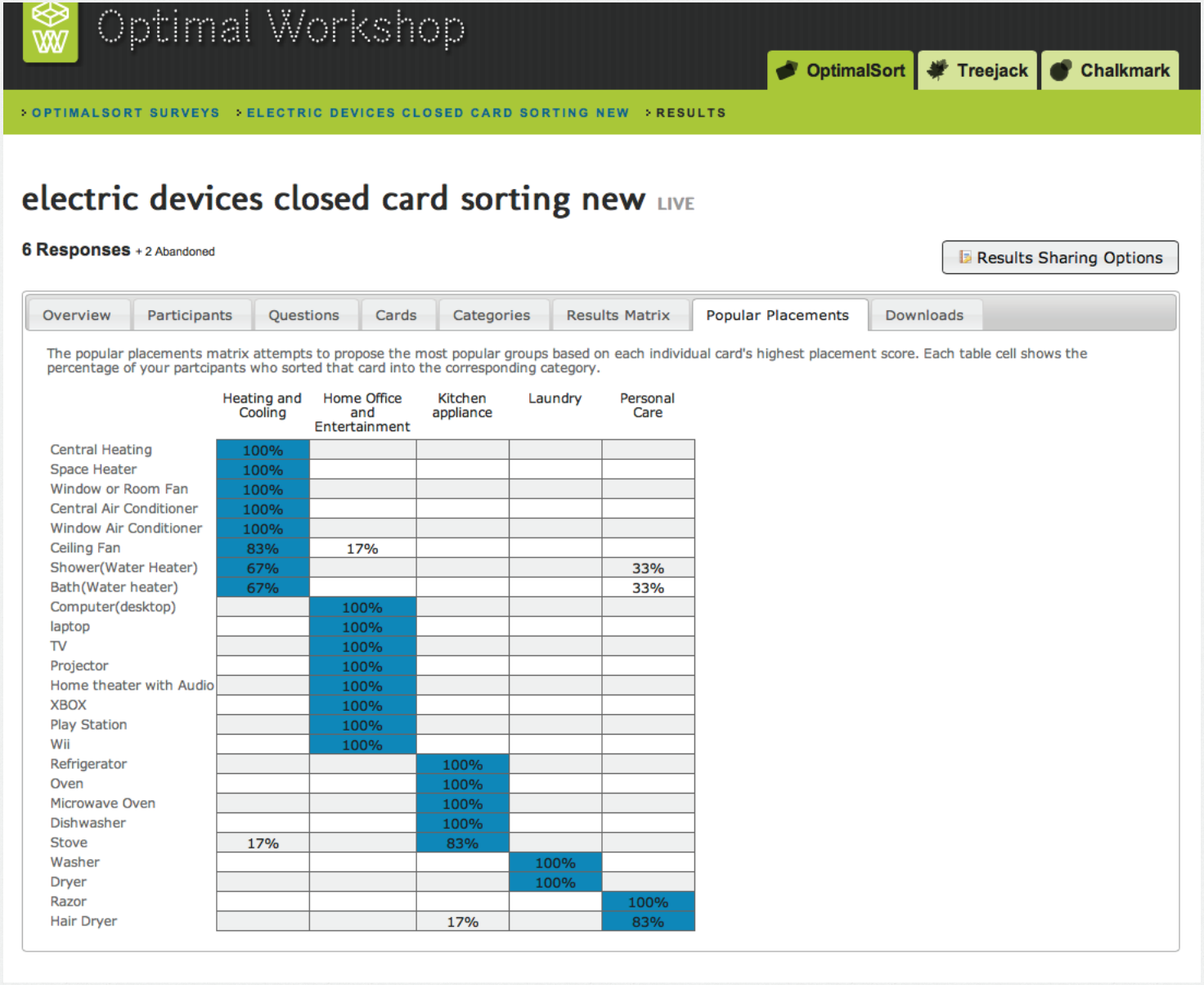

Logo
Home | Global Missions | My Account
Heating Cooling
Water Heating & Personal Care
Lighting
Entertainment & Home Office
Kitchen Appliances
Questions
1. Are you using a front-load or top-load washing machine?
2. What water temperature do you usually select when washing clothes?
90°F
Hot wash, warm rinse
60°F
Warm wash, cold rinse
40°F
Cold wash, cold rinse
3. How many loads of laundry do you usually have per month?
4. How do you dry your clothes usually?
Saving Tips
Power Consumption
COST/LOAD
$0.44
Usage Percentage


Logo
Home | Global Missions | My Account
Heating Cooling
Water Heating & Personal Care
Lighting
Entertainment & Home Office
Kitchen Appliances
Questions
1. Are you using a front-load or top-load washing machine?
2. What water temperature do you usually select when washing clothes?
3. How many loads of laundry do you usually have per month?
4
LOADS
4.How do you dry your clothes usually?
Saving Tips
Power Consumption
COST/LOAD
$0.44
x4 =
COST/MONTH
$1.76
You
U.S. average
eMission user average
Usage Percentage
Heating/Cooling
Water Heating & Personal Care


Logo
Home | Global Missions | My Account
Heating Cooling
Water Heating & Personal Care
Lighting
Entertainment & Home Office
Kitchen Appliances
Questions
1. Are you using a front-load or top-load washing machine?
2. What water temperature do you usually select when washing clothes?
3. How many loads of laundry do you usually have per month?
4. How do you dry your clothes usually?
Dryer
drag
Hanger Dry
3
LOADS
1
LOADS
Saving Tips
Power Consumption
COST/LOAD
$0.44
x4
+$0.5
x3 =
COST/MONTH
$2.26
You
U.S. average
eMission user average
Usage Percentage
Heating/Cooling
Water Heating & Personal Care


Logo
Home | Global Missions | My Account
Heating Cooling
Water Heating & Personal Care
Lighting
Entertainment & Home Office
Kitchen Appliances
Questions
1. Are you using a front-load or top-load washing machine?
2. What water temperature do you usually select when washing clothes?
3. How many loads of laundry do you usually have per month?
4. How do you dry your clothes usually?
You are doing good by using 12% less than average U.S. users.
But average eMission users use even 25% less than you.
Would you like to try our saving tips?
Saving Tips
Power Consumption
COST/LOAD
$0.44
x4
+$0.5
x3 =
COST/MONTH
$2.26
You
U.S. average
eMission user average
Usage Percentage
Heating/Cooling
Water Heating & Personal Care


Logo
Home | Global Missions | My Account
Heating Cooling
Water Heating & Personal Care
Lighting
Entertainment & Home Office
Kitchen Appliances
Questions
Saving Tips
Sort By
efficiency
cost
1. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed lectus nulla, laoreet vel dictum et, ultrices et lacus. Nullam luctus tincidunt turpis, et dapibus ipsum semper sed. Nulla ornare cursus nibh sit amet lobortis. Aliquam consectetur arcu at sem lacinia sed molestie lacus laoreet.
efficiency:
cost: $ $ $ $ $
Popularity of the tip
Jan Feb Mar Apr May Jun
Amount of energy saving
Jan Feb Mar Apr May Jun
2. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis ut justo nibh. Sed bibendum nibh lorem.
3. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis ut justo nibh. Sed bibendum nibh lorem.
4. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis ut justo nibh. Sed bibendum nibh lorem.
5. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis ut justo nibh. Sed bibendum nibh lorem.
Power Consumption
COST/LOAD
$0.44
x4
+$0.5
x3 =
COST/MONTH
$2.26
You
U.S. average
eMission user average
Usage Percentage
Heating/Cooling
Water Heating & Personal Care



Optimal Workshop

OptimalSort Treejack Chalkmark

› OPTIMALSORT SURVEYS › ELECTRIC DEVICES CLOSED CARD SORTING NEW › RESULTS

electric devices closed card sorting new LIVE

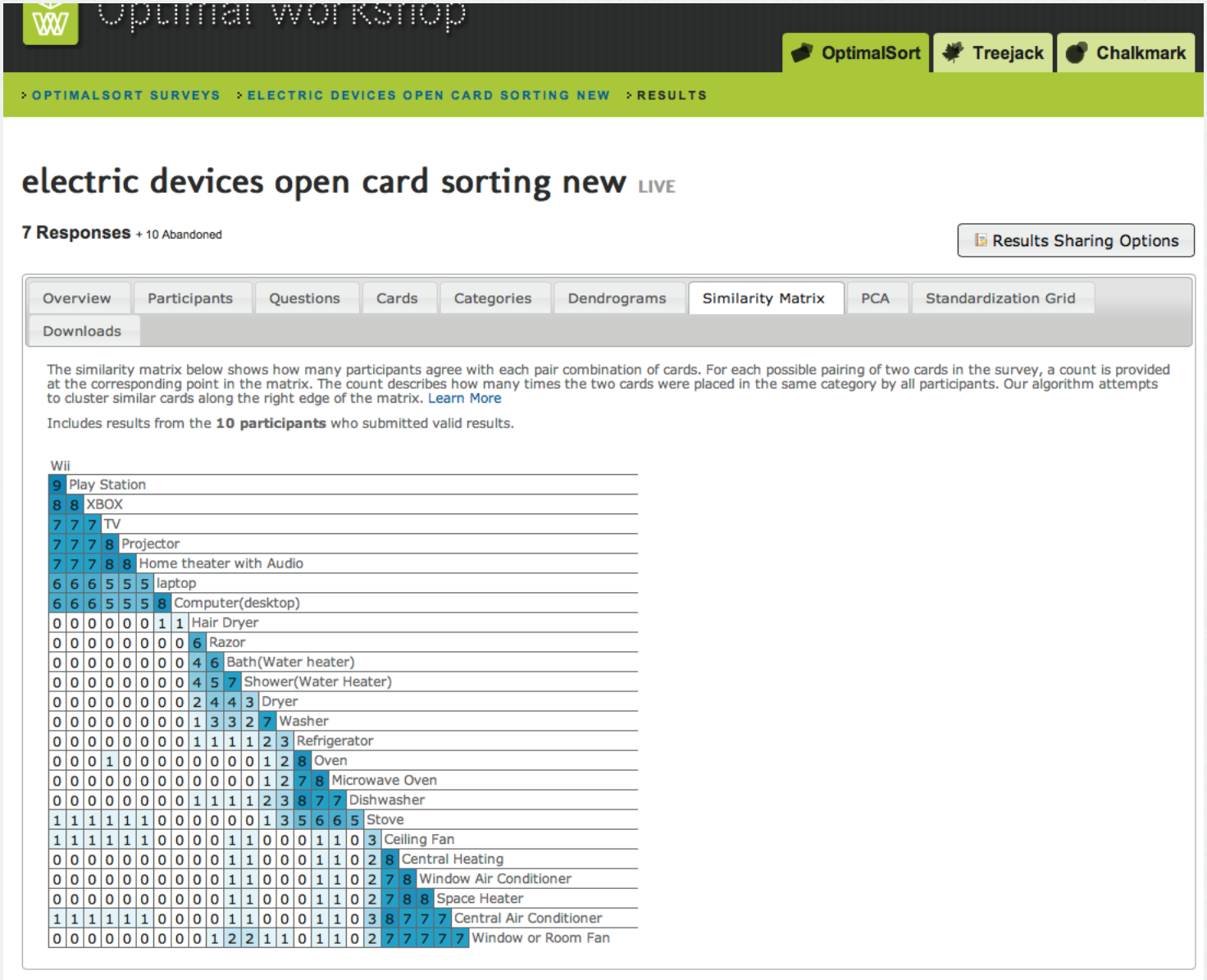
6 Responses + 2 Abandoned

Results Sharing Options

Overview | Participants | Questions | Cards | Categories | Results Matrix | Popular Placements | Downloads

The popular placements matrix attempts to propose the most popular groups based on each individual card's highest placement score. Each table cell shows the percentage of your partcipants who sorted that card into the corresponding category.

	Heating and Cooling	Home Office and Entertainment	Kitchen appliance	Laundry	Personal Care
Central Heating	100%				
Space Heater	100%				
Window or Room Fan	100%				
Central Air Conditioner	100%				
Window Air Conditioner	100%				
Ceiling Fan	83%	17%			
Shower(Water Heater)	67%				33%
Bath(Water heater)	67%				33%
Computer(desktop)		100%			
laptop		100%			
TV		100%			
Projector		100%			
Home theater with Audio		100%			
XBOX		100%			
Play Station		100%			
Wii		100%			
Refrigerator			100%		
Oven			100%		
Microwave Oven			100%		
Dishwasher			100%		
Stove	17%		83%		
Washer				100%	
Dryer				100%	
Razor					100%
Hair Dryer			17%		83%



Optimal Workshop

OptimalSort | Treejack | Chalkmark

› OPTIMALSORT SURVEYS › ELECTRIC DEVICES OPEN CARD SORTING NEW › RESULTS

electric devices open card sorting new LIVE

7 Responses + 10 Abandoned

Results Sharing Options

Overview | Participants | Questions | Cards | Categories | Dendrograms | Similarity Matrix | PCA | Standardization Grid | Downloads

The similarity matrix below shows how many participants agree with each pair combination of cards. For each possible pairing of two cards in the survey, a count is provided at the corresponding point in the matrix. The count describes how many times the two cards were placed in the same category by all participants. Our algorithm attempts to cluster similar cards along the right edge of the matrix. Learn More

Includes results from the **10 participants** who submitted valid results.

Wii																			
9	Play Station																		
8	8	XBOX																	
7	7	7	TV																
7	7	7	8	Projector															
7	7	7	8	8	Home theater with Audio														
6	6	6	5	5	5	laptop													
6	6	6	5	5	5	8	Computer(desktop)												
0	0	0	0	0	0	1	1	Hair Dryer											
0	0	0	0	0	0	0	0	6	Razor										
0	0	0	0	0	0	0	0	4	6	Bath(Water heater)									
0	0	0	0	0	0	0	0	4	5	7	Shower(Water Heater)								
0	0	0	0	0	0	0	0	2	4	4	3	Dryer							
0	0	0	0	0	0	0	0	1	3	3	2	7	Washer						
0	0	0	0	0	0	0	0	1	1	1	1	2	3	Refrigerator					
0	0	0	1	0	0	0	0	0	0	0	0	1	2	8	Oven				
0	0	0	0	0	0	0	0	0	0	0	0	1	2	7	8	Microwave Oven			
0	0	0	0	0	0	0	0	1	1	1	1	2	3	8	7	7	Dishwasher		
1	1	1	1	1	1	0	0	0	0	0	0	1	3	5	6	6	5	Stove	
1	1	1	1	1	1	0	0	0	0	1	1	0	0	0	1	1	0	3	Ceiling Fan
0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	2	8	Central Heating
0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	2	7	8	Window Air Conditioner
0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	2	7	8	8	Space Heater
1	1	1	1	1	1	0	0	0	0	1	1	0	0	0	1	1	0	3	8	7	7	7	Central Air Conditioner
0	0	0	0	0	0	0	0	0	1	2	2	1	1	0	1	1	0	2	7	7	7	7	7	Window or Room Fan

Greeting the participants

We would like to thank you on the behalf of the team and welcome you to our usability evaluation for eMission. We really appreciate you coming in today to help us out. You are participating in a usability evaluation, which basically means we are looking for ways to make the product easier to use and understand. To do this, we'll be asking you to perform some tasks. It will be really helpful if you think out loud as you go through each task. During the tasks, I won't be saying much, since we are trying to see how someone would go through these tasks as they would on their own. If you get completely stuck where you don't have any idea at all how to proceed further, you can ask for assistance.

It is important to know that we are evaluating this website and not you or your capabilities in any regard. The entire focus is on the site, so whatever happens is useful data. The key point is for you to be totally honest about how easy or difficult the product is to use. Don't worry at all about doing well or offending us.

The test will be around an hour long, and there will be one 5 minute break in the middle. After each task, there will also be a brief period where I will ask for some feedback about issues that come up. At the end of the evaluation, there will be a short 14 question survey.

You are free to leave the evaluation at any point of time.

Now before we begin, there is a simple consent form that says we won't use any of your personal information, and we ask that you don't speak about the details of the evaluation to anyone. After this, we will ask a few questions about your experience with the eMission that we would like you to answer.

Pre-test Questionnaire:

1. Gender: M F 2. Age: <25 25-35 35-45 >45

3. Which of the following status describes your current status the best?
   a. Renter b. Owner c. College Student d. Couch Surfer

4. How do you pay your electric bill?
   a. online b. check c. Other people pay it for me d. other _____

5. Do you remember the cost of your last electricity bill?
   a. < $25 b. $25-$50 c. $50-100 d. $100-$200 e. >$200

6. If there is a website or online application that helps you analysis your electricity usage, which of the following feature do you think is the most important to you?
   a. the power consumption of a certain device b. which device cost the most power?
   c. the power consumption analysis of a certain room/ my home
   d. the power consumption of my devices for certain purpose, like cooking, or entertainment.

7. If you plan to lower your electric bill, which way would you prefer?
   a. reduce the usage time. b. reduce the number of devices I am using
   c. remember to turn device off when I am not using them.
   d. change my devices to energy saving ones.

8. Which of your devices/appliances do you think used the most power?

   _____

9. Which of your devices/appliances do you use the most?

   _____

10. Are you using a smart phone? Do you have any applications that help you with your personal finance plan? If so, what's the name of the app?

    _____

Post -test Questionnaire:

"I have brought a brief questionnaire that I would like you to fill out. Please continue to think aloud as you make your selections so I understand why you are rating what you do."

Assessment of the eMission product:
Mark your satisfaction with the website you have just worked with by circling the figure that reflects your opinion.

		Strongly Disagree		Neutra	Strongly	Agree
1.	It was easy to finish the task	1	2	3	4	5
2.	The organization of information was logical	1	2	3	4	5
3.	The information presented is easy to read and understand	1	2	3	4	5
4.	The application can help me save energy	1	2	3	4	5
5.	Icons/Symbols were useful and relevant	1	2	3	4	5
6.	It is easy to navigate through the product	1	2	3	4	5
7.	Links took me where I expected to go	1	2	3	4	5
8.	I found the eMission easy to use	1	2	3	4	5
9.	The site provides me with all the services I need	1	2	3	4	5
10.	Is there any label or interaction that makes you feel confused?					

11. Your opinion of the site's overall visual design.

12. While using an app like this, what kind of feature do you expect the most?

13. Will you use this site again? If so, what feature would you consider to reuse?

14. Any overall suggestions?

Testing Session Objectives:

This test plan focuses on the user interface and user interaction of the project. My goals are to:

1. Test out whether the 4-step of analysis and suggestion system is fluent for user to understand and use.

2. Find out if the user can understand the whole navigation and progress bar system of the site.

3. Figure out if the animation and interactions of the site helps user get more involved in the process.

Test Site: http://yunsite.com/emission/index.html

1. Check front page and begin to take the survey and your power usage with others'.

Situation:
This is the first time for you to use this website. First you want to check the front page and figure out what the site is about. Then you decide to begin with the Compare function to compare your power usage situation with other people.

Task Flow:
Goal/Output:
User wants to get a brief introduction of the site. Also, user wants to compare herself with other people about power usage.
Input/Assumptions
User open the website and begin to check the front page.

Steps:
1. Home page
2. Click Compare-"Start Here" on the front page.
3. Click the "+" and "-" symbols to choose the number of adults and kids in family.
4. Click "next" button.
5. Click the "+" and "-" symbols to choose the size of living space.
6. Click "next" button.
7. Put in the amount of your utility bill, and choose California as your current location.
8. Click "next" button.
9. Get the comparison result.
Times for Expert:

2-5 mins.

Notes:
I want to figure out how much introduction information would the user like to see from the front page.

2. Do analyze for Heating & Cooling and Lighting category.

Situation:
After getting the comparison result, you want to go to Analyze page and find out more details about your device's power usage.

Task Flow:
Goal/Output:
Get an analysis of user's heating & cooling, and lighting power usage.

Input/Assumptions
User is more concerned about the heating & cooling consumption. Then user want to skip Laundry & Bathroom Appliances, and check the lighting's power usage.

Steps:
1. Click "Analyze" menu to go to analyze page.
2. Begin to take the survey. Fill out usage of AC.
3. Click "next" button.
4. Fill out the hours you are using a fan now.
5. Click "next" button.
6. Get your total power cost of cooling.
7. Go to the lighting category. (click the dark green lighting text)
8. Fill out your usage situation of different bulbs. Try to add more light bulb groups if needed.
8. Get the total lighting cost(on the same page).

Times for Expert:
5-10 mins.

Notes:
By testing the main part of the project, I want to check if the organization of different category is logical for user. Also if user can figure out that they can use the top green bar to jump between different categories.

Task 3 - Check the final analyze result.

Situation:
You finished all the analyze survey and now you want to check the final result.

Task Flow:
Goal/Output:
Check analyze survey result, and see detailed saving tips.

Input/Assumptions
User has finished the survey of all categories.

Steps:
1. Click “Result” menu.
2. Check the blue bars which shows the power consumption of each category.
3. Click on the blue bars to see detailed saving tips.

Times for Expert:
2-5 mins.

Notes:
I want to find out if it is easy for user to understand the information showed by the infographic.

Task 4 - Choose to try some of the saving tips and check them from your account.

Situation:
You want to try some of the saving tips and see what's going to happen.

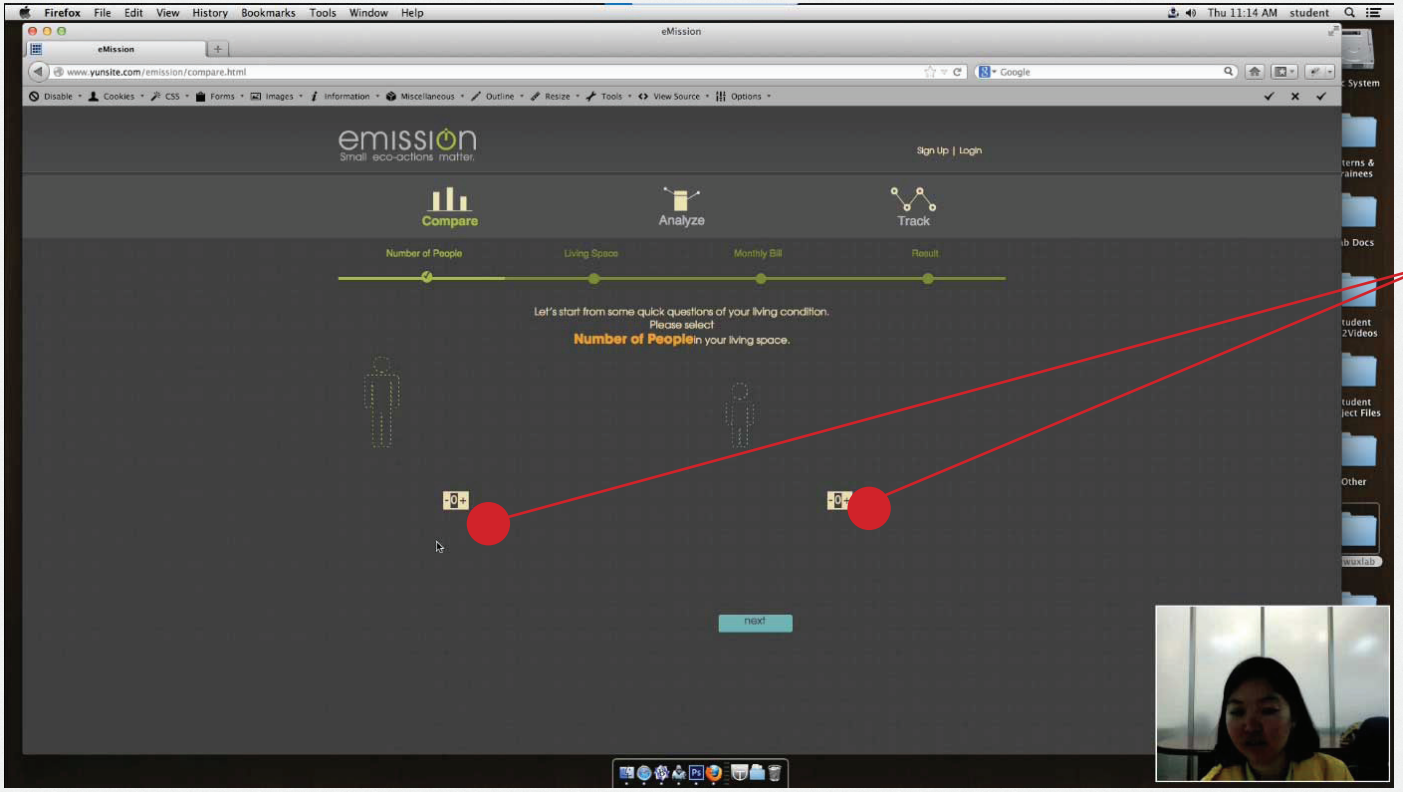
Task Flow:
Goal/Output:
Choose and save saving tips.

Input/Assumptions
User have already signed up and has her own account.

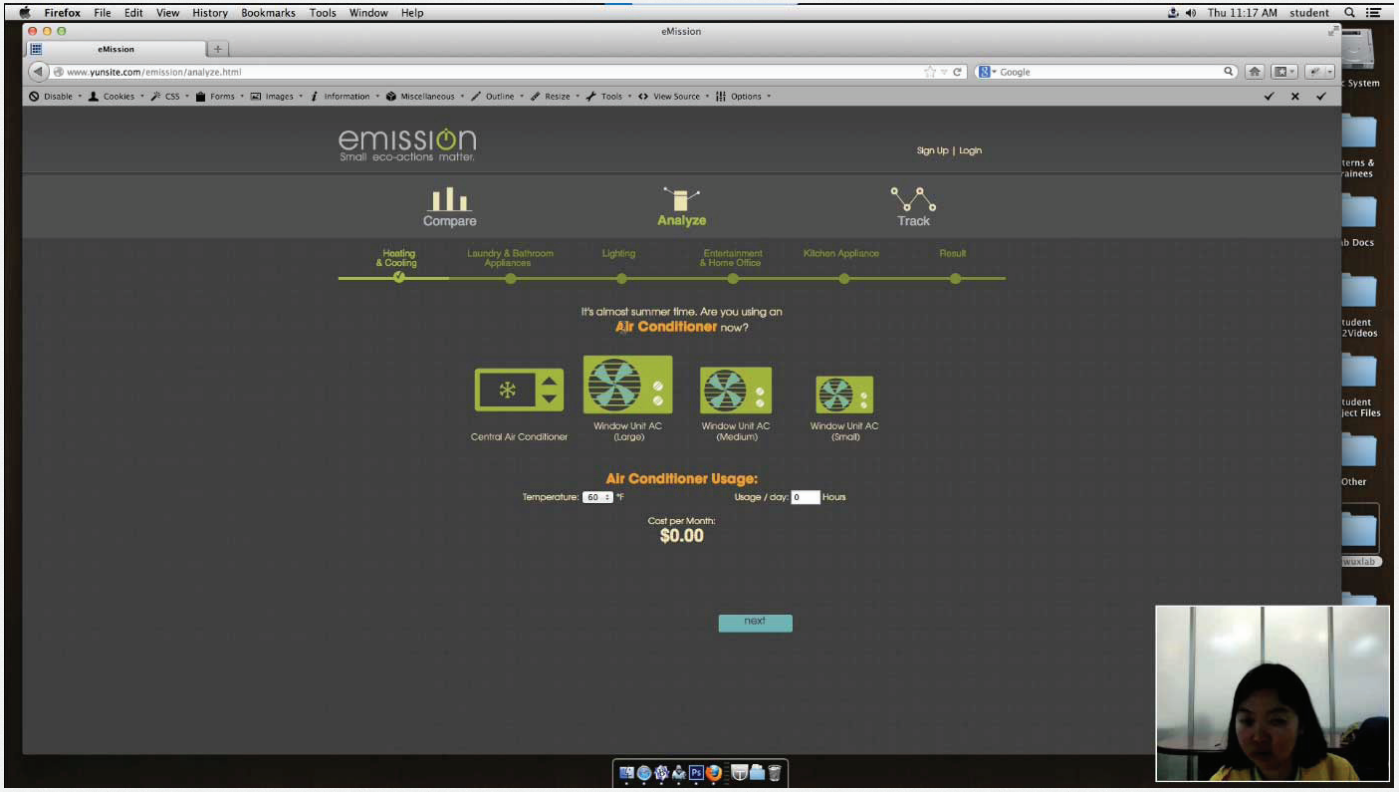
Steps:
1. Click on one of the green "try" button.
2. See the tooltip that says " Your selected tips will be stored to your track section. "
3. Click "try" of some other tips.
4. Click "Track" menu to go to your account.

Times for Expert:
5-10 mins.

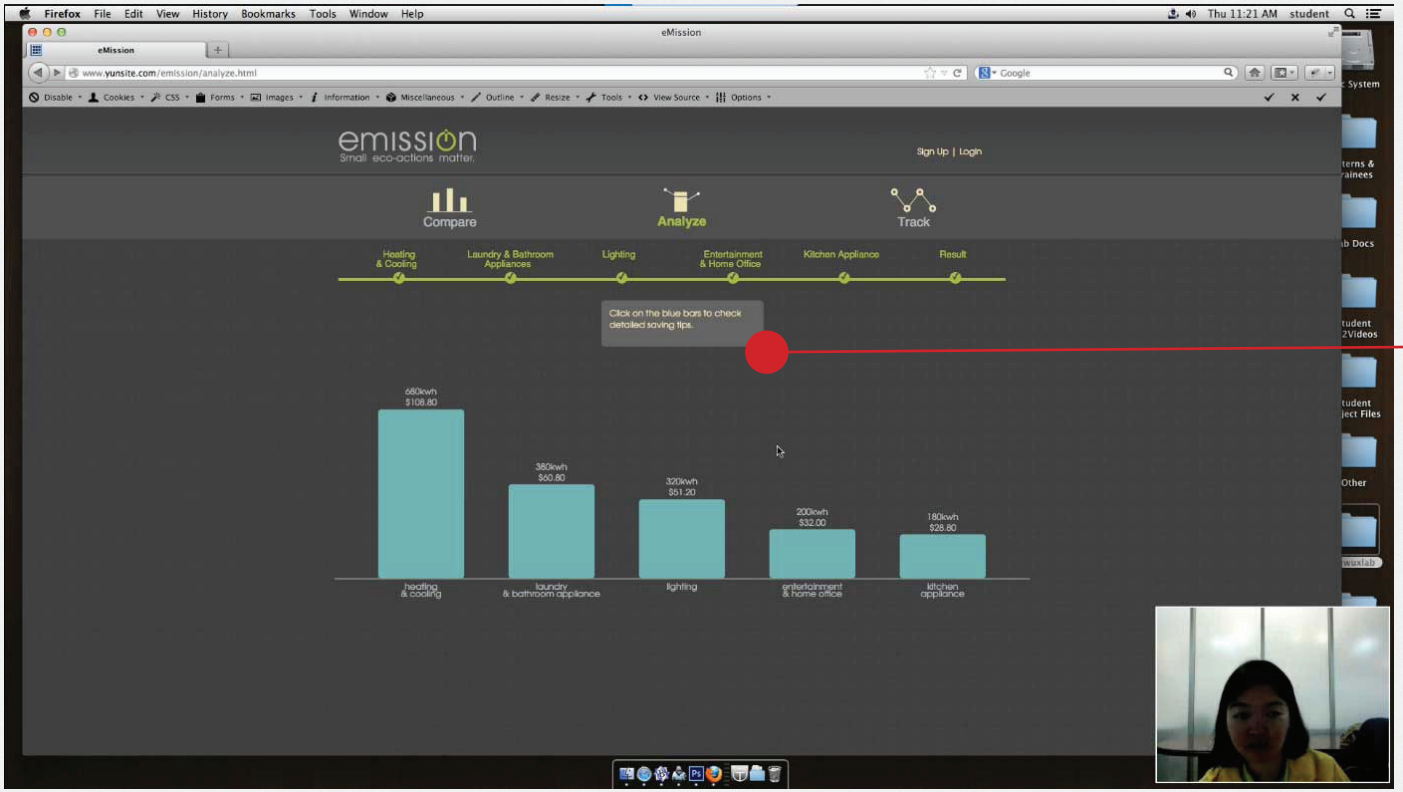
Notes:
I want to see if user can notice that the tips they choose will be stored in their account.



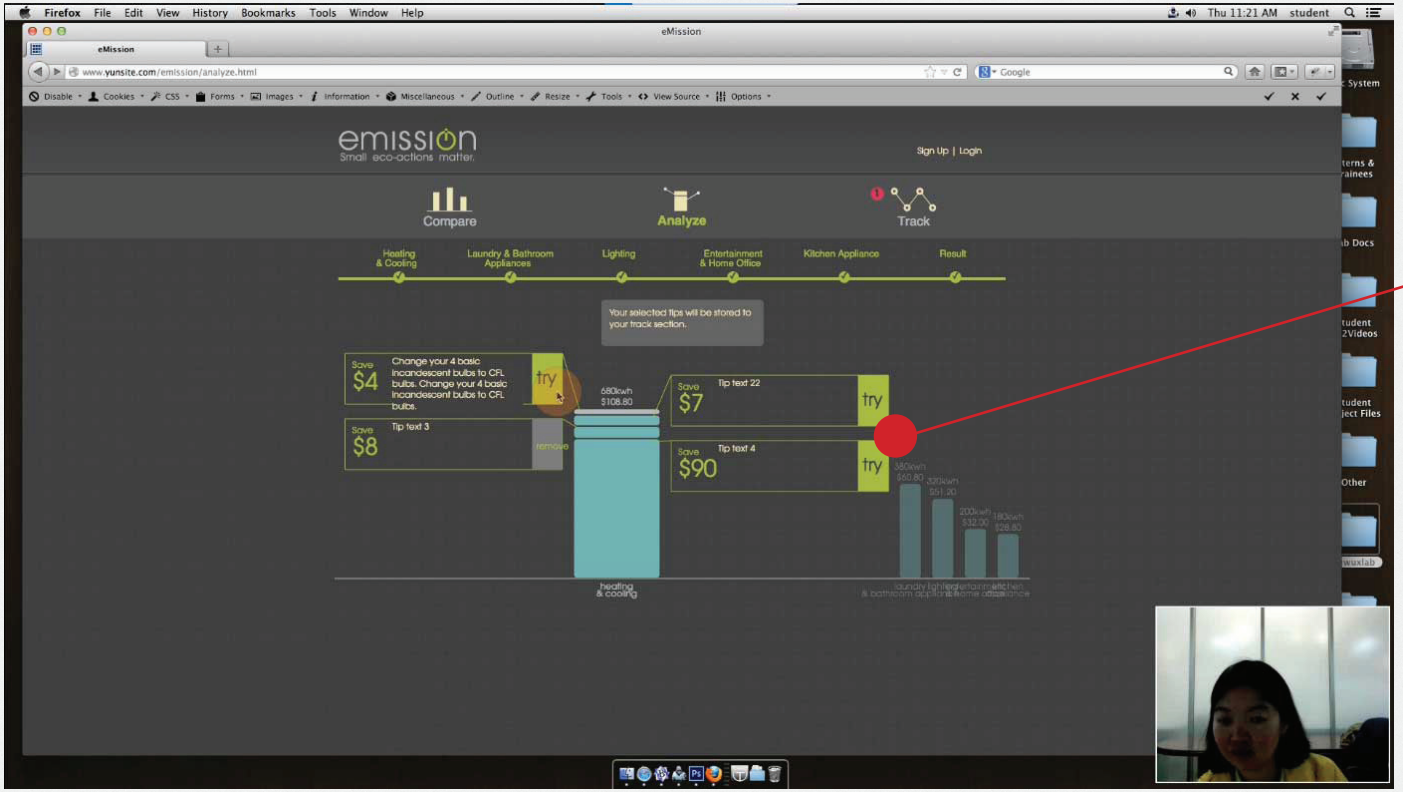
User was confused since there are no title for each icon or the button.



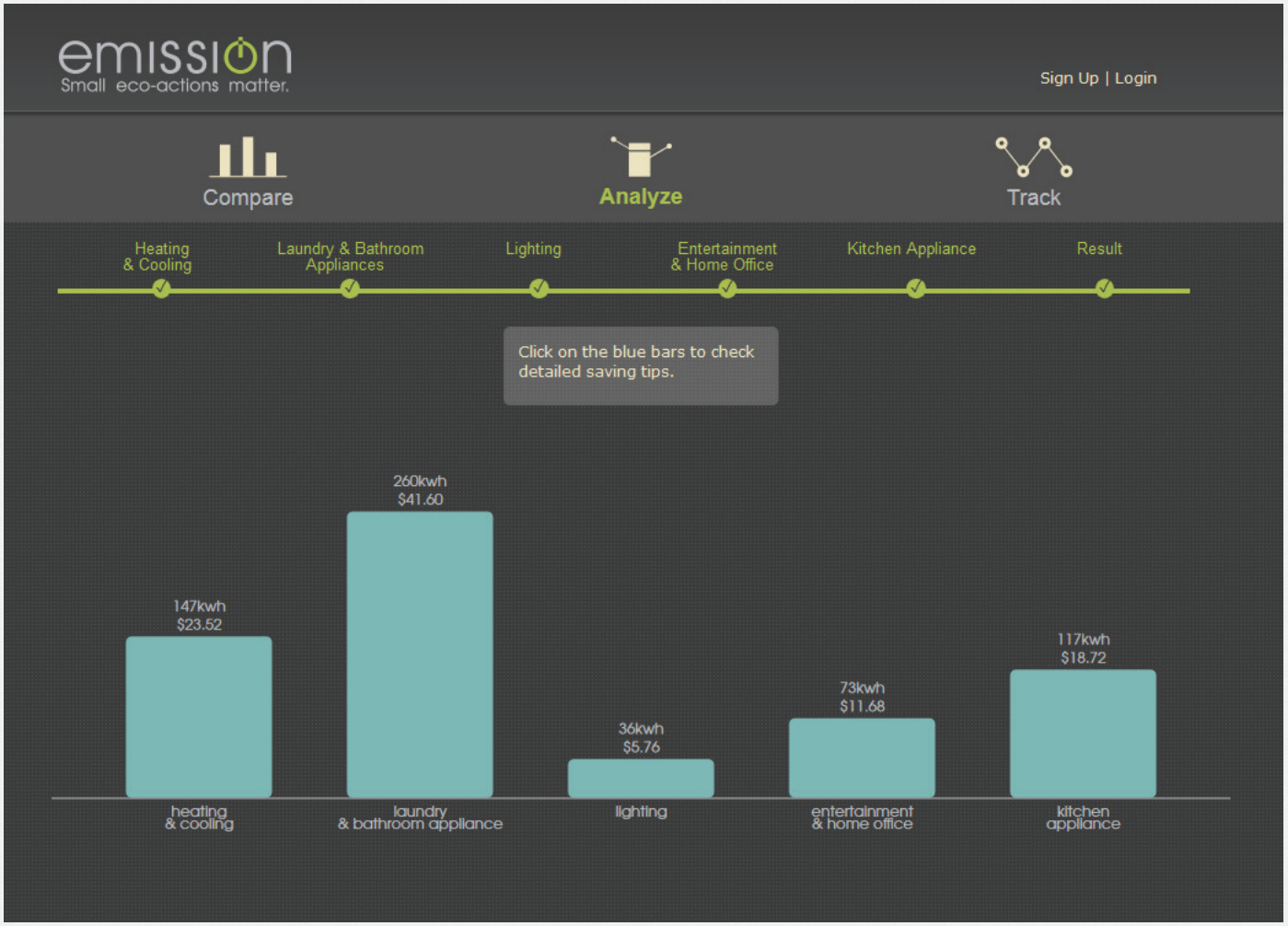
Surprisingly, user has no problem to figure out that she need to click and choose the AC type first.

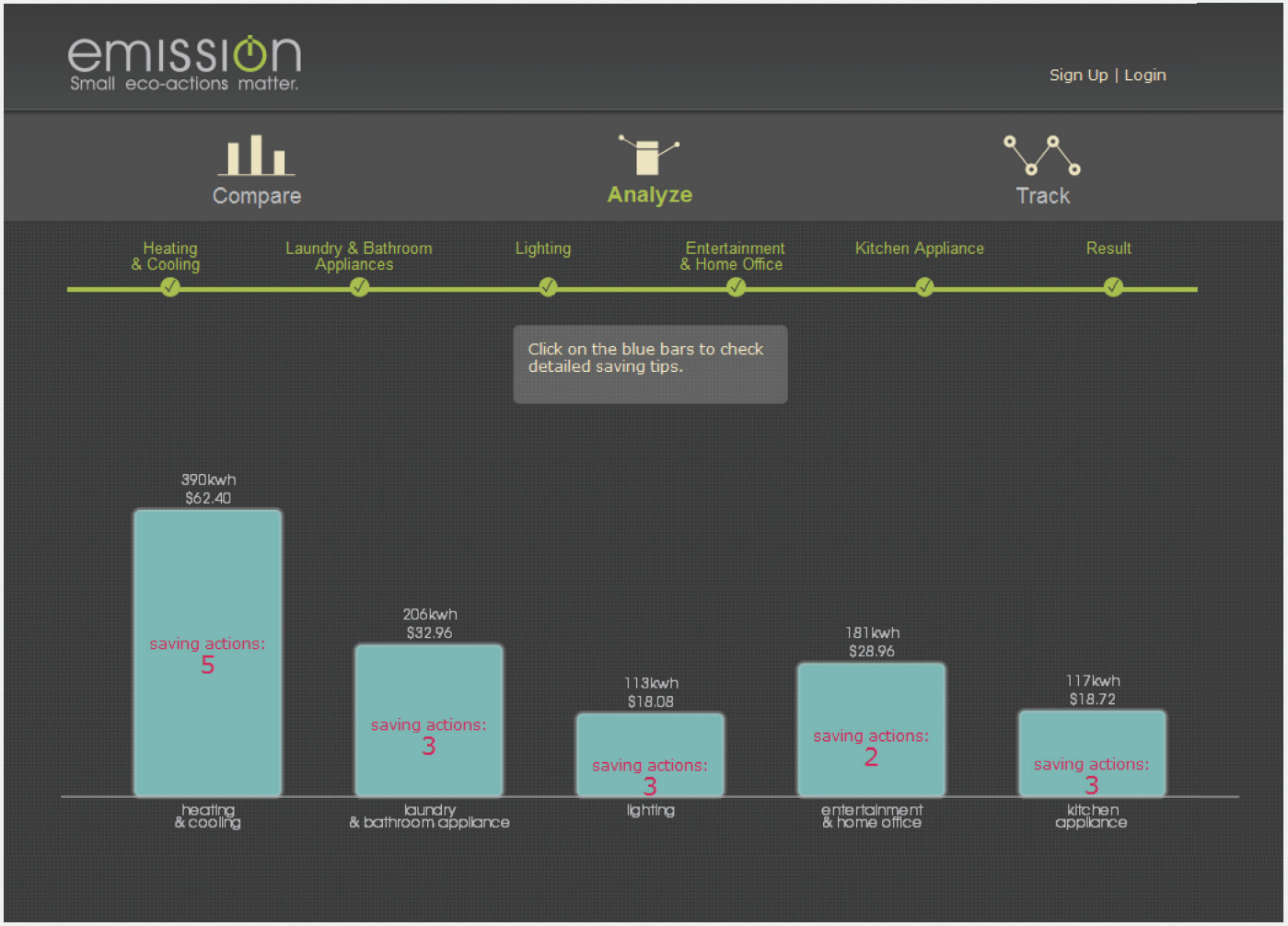


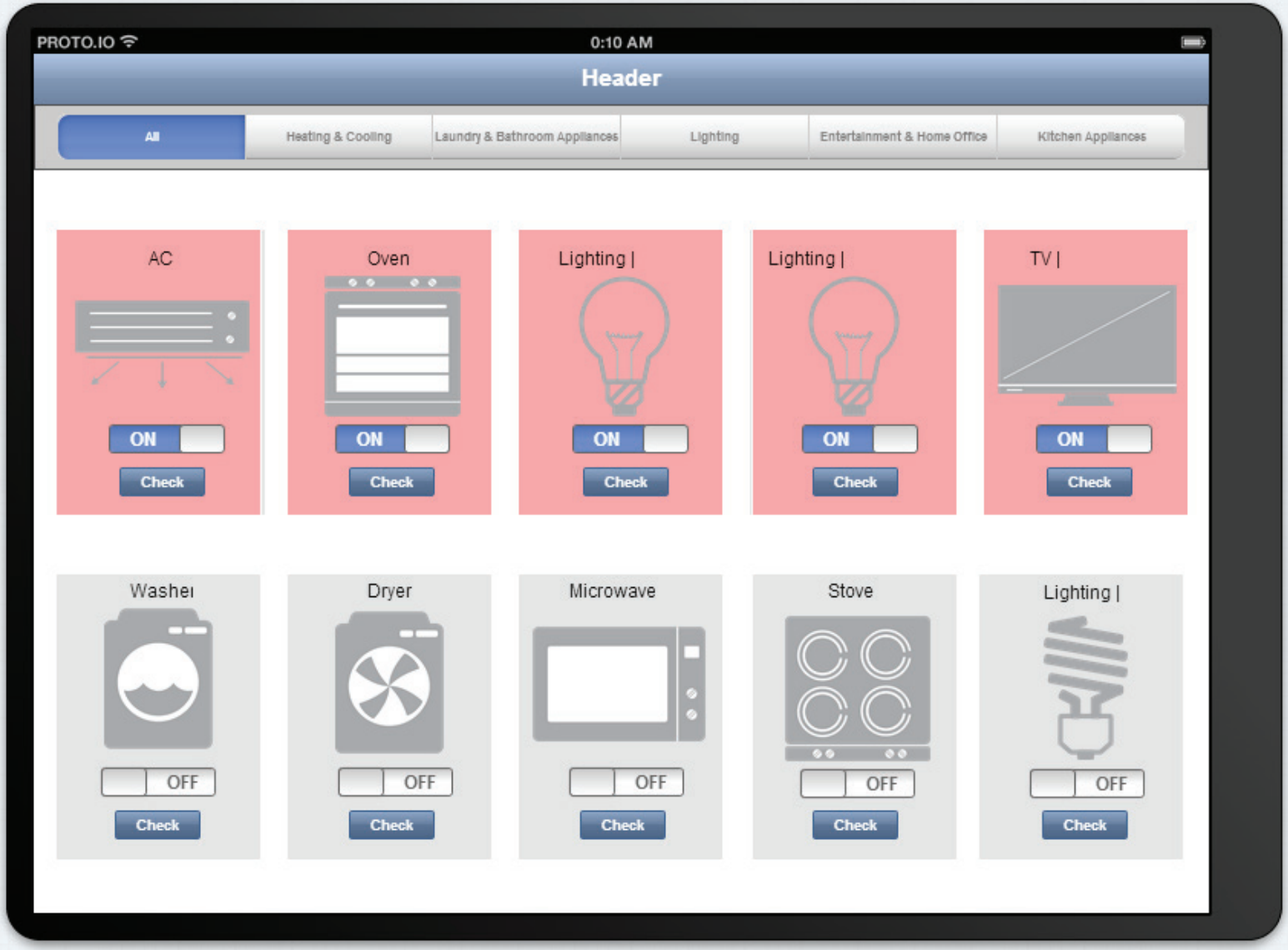
User didn't notice the pop up tip, and doesn't know what to do for the next step.

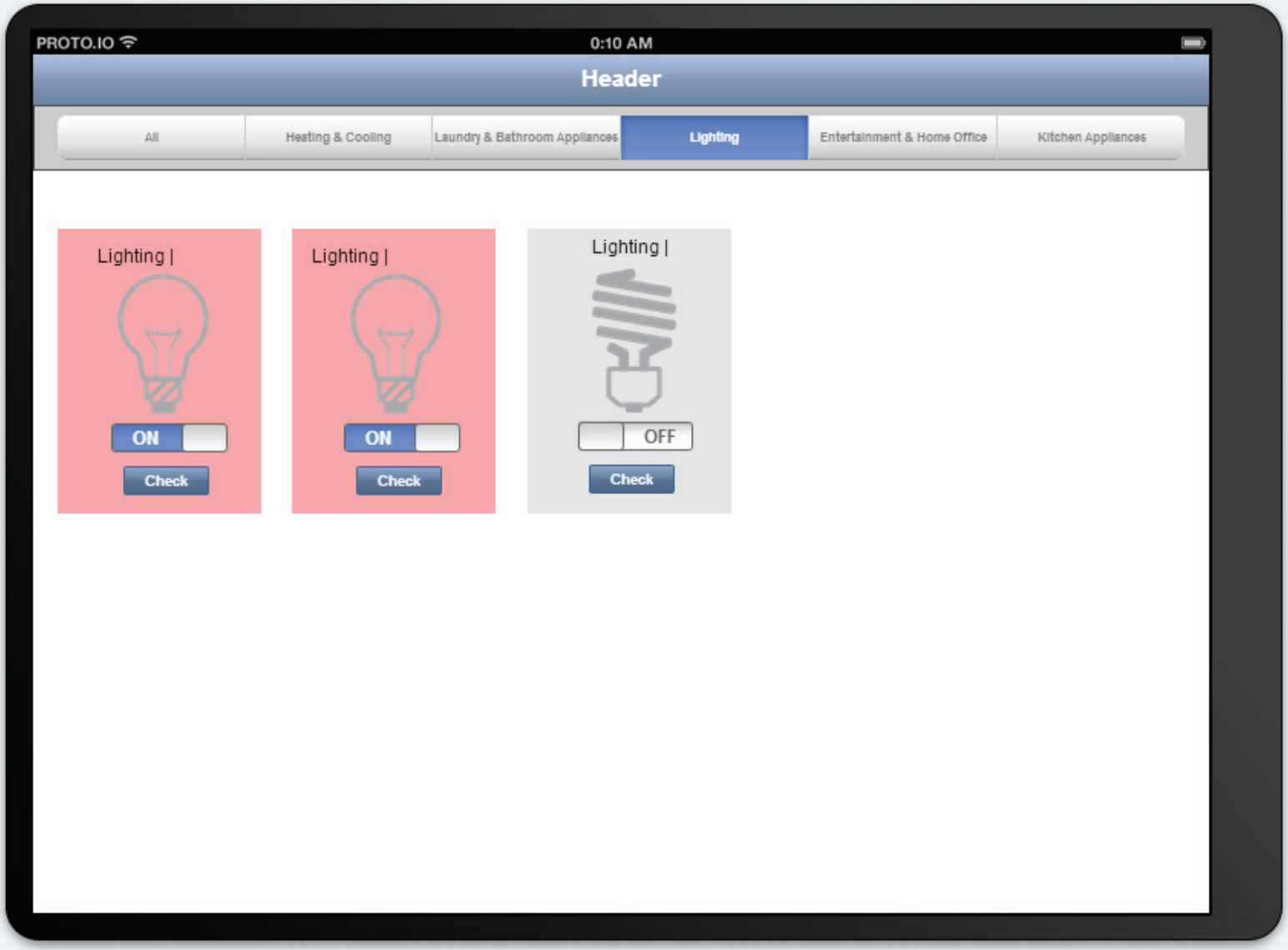


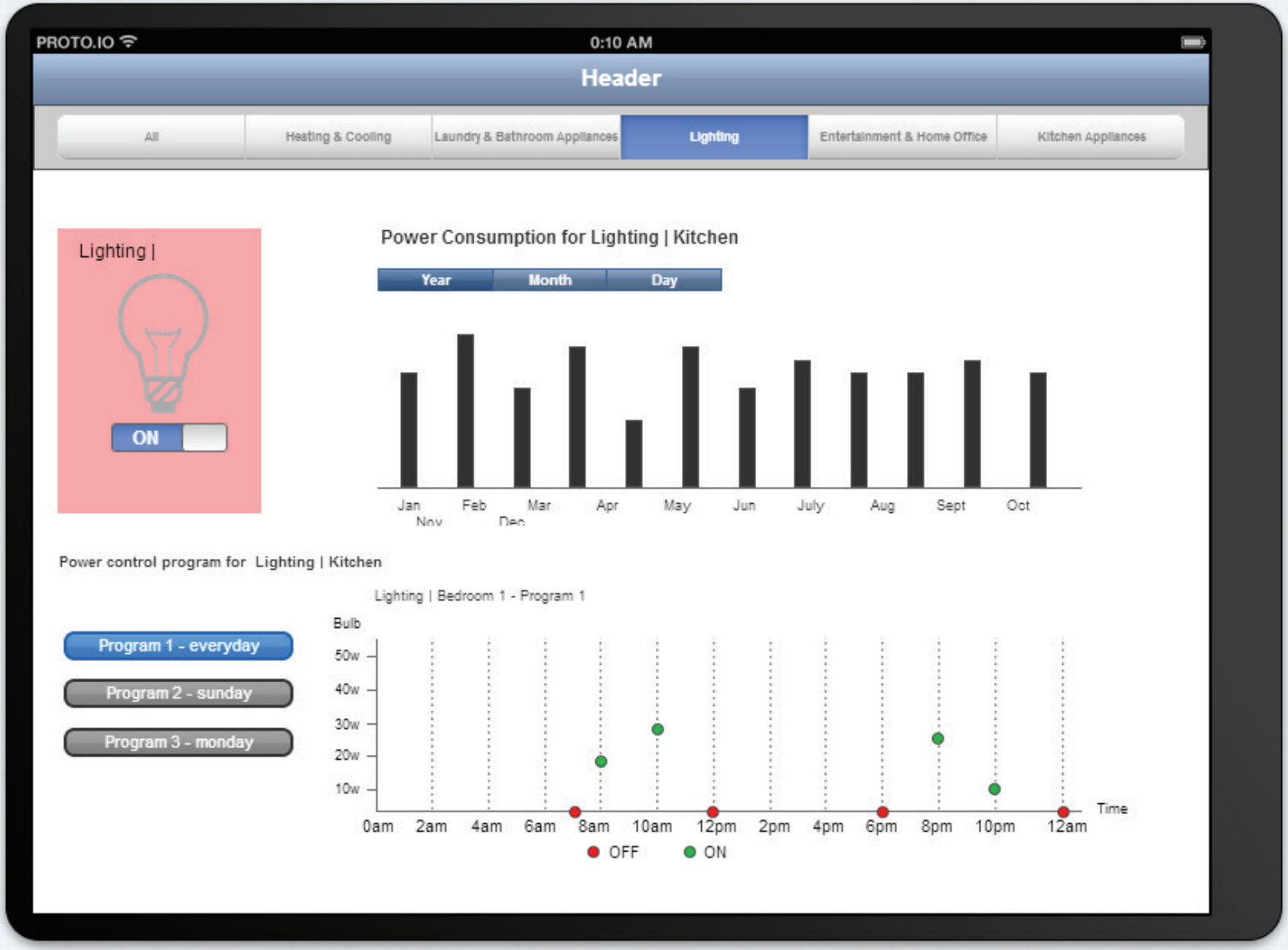
User was confused by the term: try and remove, and was not sure what to do and what to expect next.


emission
Small eco-actions matter.
Sign Up | Login
Compare
Analyze
Track
Heating & Cooling
Laundry & Bathroom Appliances
Lighting
Entertainment & Home Office
Kitchen Appliance
Result
Click on the blue bars to check detailed saving tips.
147kwh
$23.52
260kwh
$41.60
36kwh
$5.76
73kwh
$11.68
117kwh
$18.72
heating & cooling
laundry & bathroom appliance
lighting
entertainment & home office
kitchen appliance

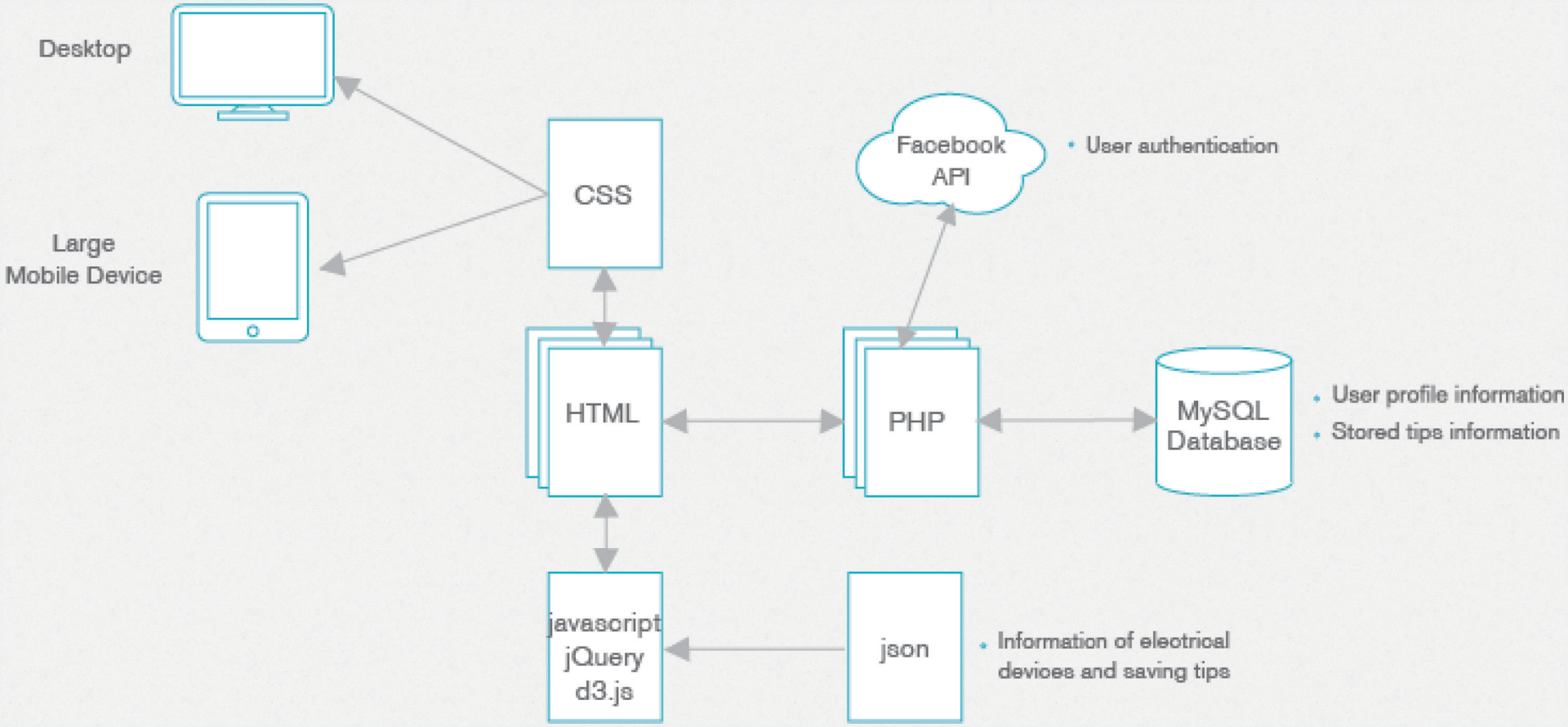

emission
Small eco-actions matter.
Sign Up | Login
Compare
Analyze
Track
Heating & Cooling
Laundry & Bathroom Appliances
Lighting
Entertainment & Home Office
Kitchen Appliance
Result
Click on the blue bars to check detailed saving tips.
390kwh
$62.40
saving actions:
5
heating & cooling
206kwh
$32.96
saving actions:
3
laundry & bathroom appliance
113kwh
$18.08
saving actions:
3
lighting
181kwh
$28.96
saving actions:
2
entertainment & home office
117kwh
$18.72
saving actions:
3
kitchen appliance


PROTO.IO
0:10 AM
Header
All
Heating & Cooling
Laundry & Bathroom Appliances
Lighting
Entertainment & Home Office
Kitchen Appliances
AC
ON
Check
Oven
ON
Check
Lighting |
ON
Check
Lighting |
ON
Check
TV |
ON
Check
Washer
OFF
Check
Dryer
OFF
Check
Microwave
OFF
Check
Stove
OFF
Check
Lighting |
OFF
Check


PROTO.IO
0:10 AM
Header
All
Heating & Cooling
Laundry & Bathroom Appliances
Lighting
Entertainment & Home Office
Kitchen Appliances
Lighting |
ON
Check
Lighting |
ON
Check
Lighting |
OFF
Check


PROTO.IO
0:10 AM
Header
All
Heating & Cooling
Laundry & Bathroom Appliances
Lighting
Entertainment & Home Office
Kitchen Appliances
Lighting |
ON
Power Consumption for Lighting | Kitchen
Year
Month
Day
Jan
Feb
Mar
Apr
May
Jun
July
Aug
Sept
Oct
Nov
Dec
Power control program for Lighting | Kitchen
Program 1 - everyday
Program 2 - sunday
Program 3 - monday
Lighting | Bedroom 1 - Program 1
Bulb
50w
40w
30w
20w
10w
0am
2am
4am
6am
8am
10am
12pm
2pm
4pm
6pm
8pm
10pm
12am
Time
OFF
ON

Technical Process


Desktop
Large
Mobile Device
CSS
HTML
javascript
jQuery
d3.js
Facebook
API
User authentication
PHP
MySQL
Database
User profile information
Stored tips information
json
Information of electrical
devices and saving tips

Technical Experiments

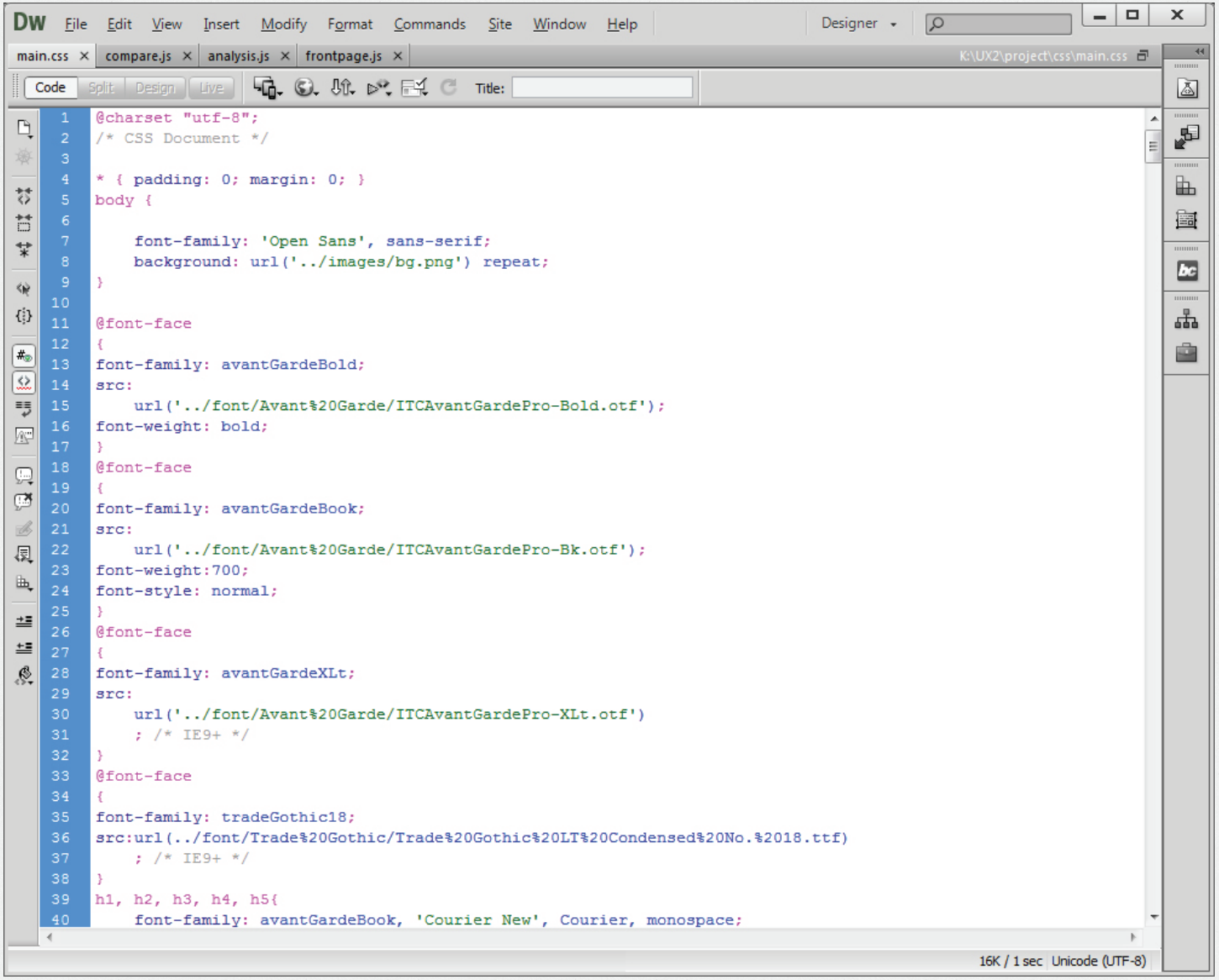
Everyone knows that Flash is dying, and it's quite possible that javascript is going to lead the role for developing interactive websites. So when I designed my site, I tried to put some interactive actions and transitions to it and would like to try to build the site according to my design.

I took this opportunity to get a deeper understanding of javascript. I used jQuery to create the interactive actions and transitions of the frontend of my project.

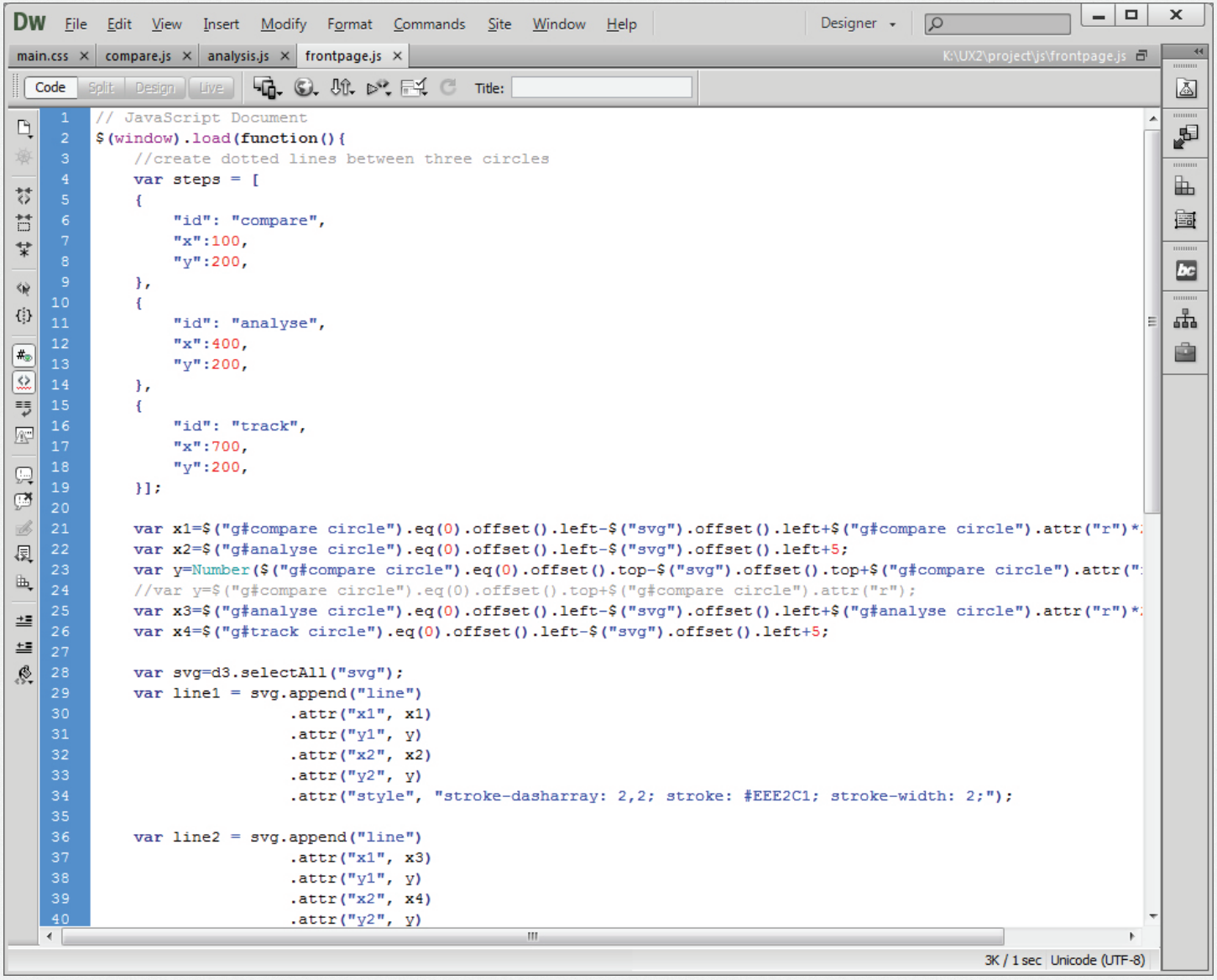
Also, combining SVG and d3.js enables me to visualize the big amount of data in my project, and make animation and transition of it.

Other than that, I used some of the new CSS3 properties to create some visual effects that were impossible for website before. Like embed my own font-face in my site to keep the typography consistent with my design, create pure CSS navigation, gradient background, and shadow.

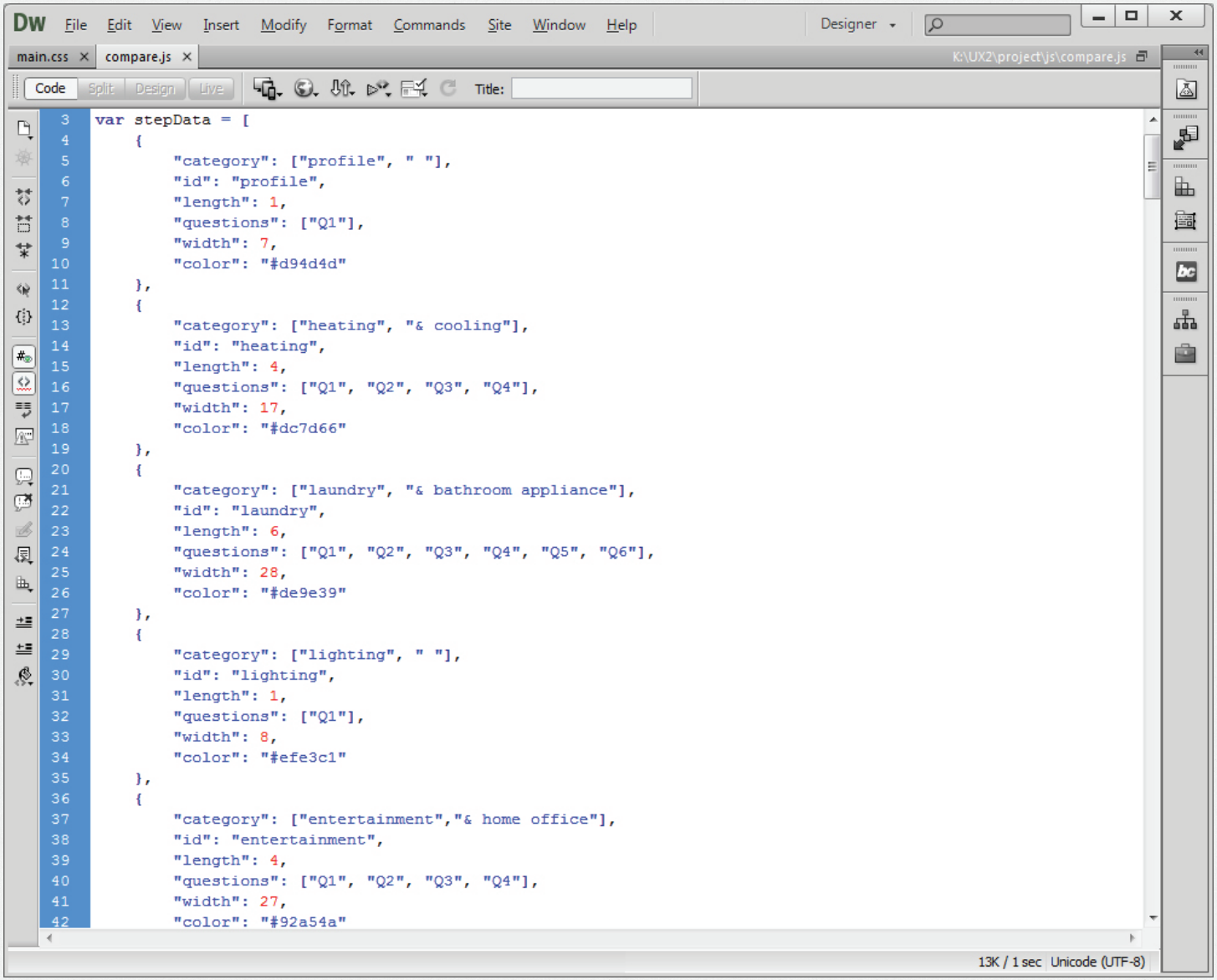
Coding Samples - CSS



Coding Samples - frontpage.js

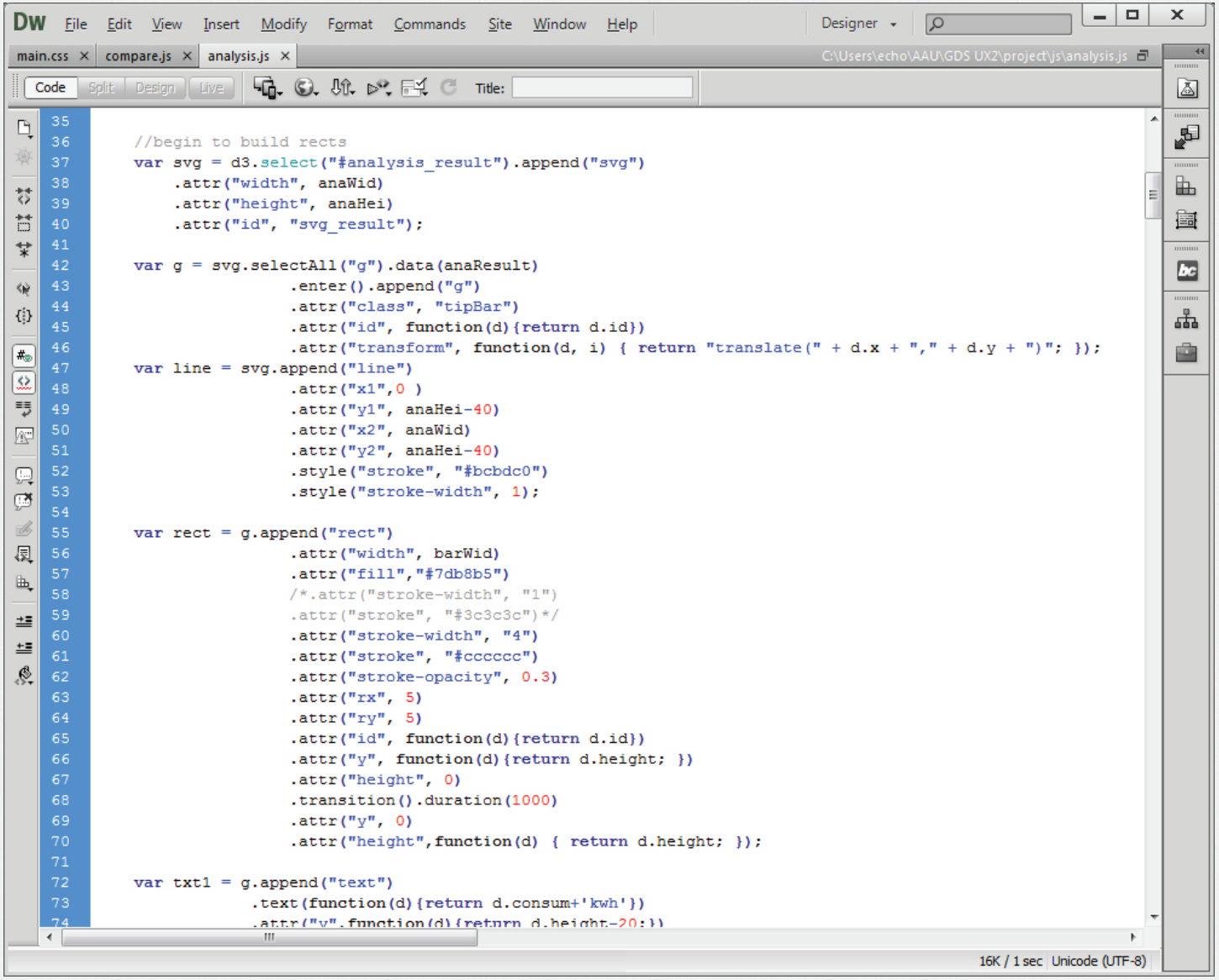


Coding Samples - Compare.js




```
var stepData = [
    {
        "category": ["profile", " "],
        "id": "profile",
        "length": 1,
        "questions": ["Q1"],
        "width": 7,
        "color": "#d94d4d"
    },
    {
        "category": ["heating", "& cooling"],
        "id": "heating",
        "length": 4,
        "questions": ["Q1", "Q2", "Q3", "Q4"],
        "width": 17,
        "color": "#dc7d66"
    },
    {
        "category": ["laundry", "& bathroom appliance"],
        "id": "laundry",
        "length": 6,
        "questions": ["Q1", "Q2", "Q3", "Q4", "Q5", "Q6"],
        "width": 28,
        "color": "#de9e39"
    },
    {
        "category": ["lighting", " "],
        "id": "lighting",
        "length": 1,
        "questions": ["Q1"],
        "width": 8,
        "color": "#efe3c1"
    },
    {
        "category": ["entertainment","& home office"],
        "id": "entertainment",
        "length": 4,
        "questions": ["Q1", "Q2", "Q3", "Q4"],
        "width": 27,
        "color": "#92a54a"
```

Coding Samples - analysis.js

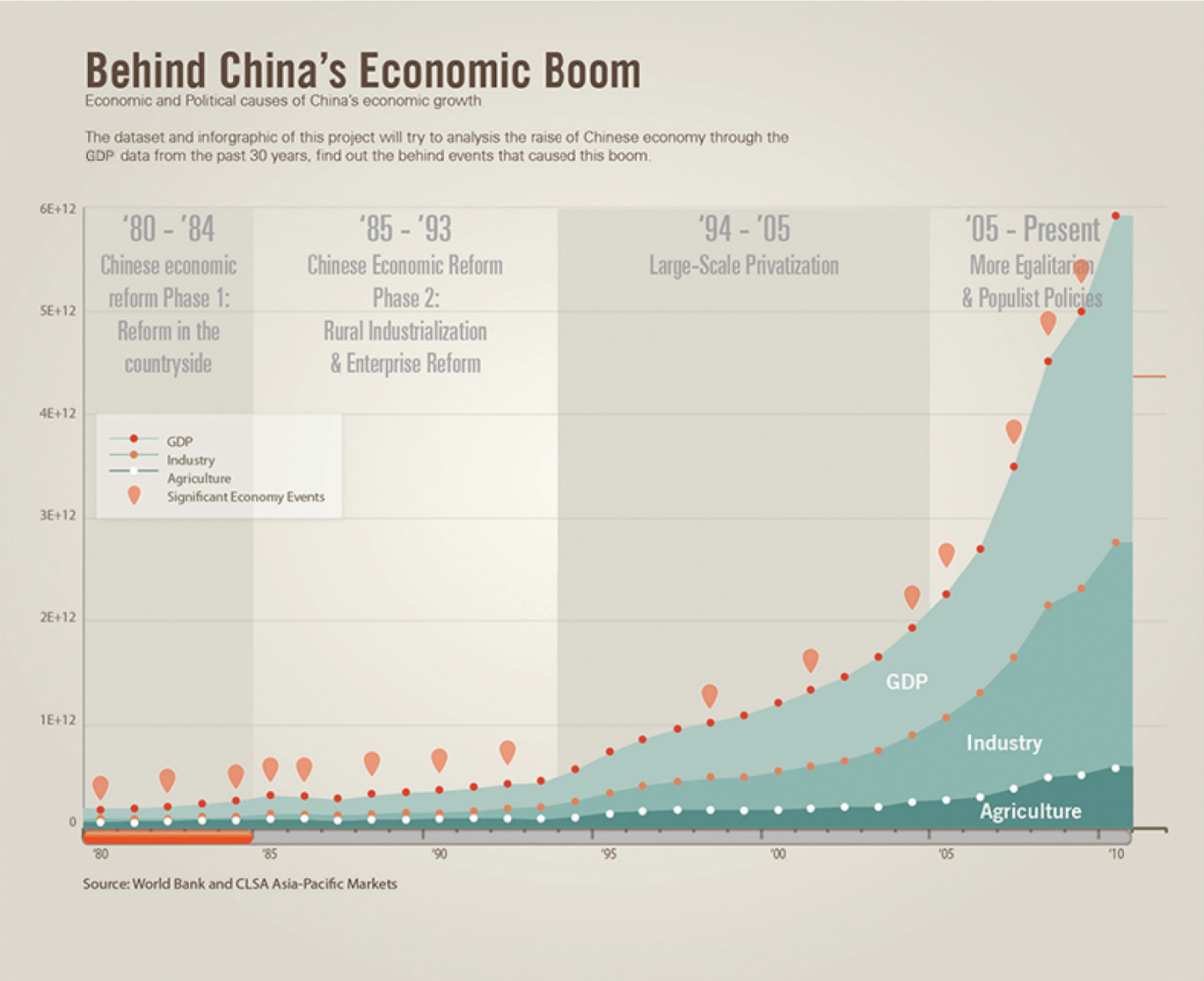


```
35
36      //begin to build rects
37      var svg = d3.select("#analysis_result").append("svg")
38          .attr("width", anaWid)
39          .attr("height", anaHei)
40          .attr("id", "svg_result");
41
42      var g = svg.selectAll("g").data(anaResult)
43                      .enter().append("g")
44                      .attr("class", "tipBar")
45                      .attr("id", function(d){return d.id})
46                      .attr("transform", function(d, i) { return "translate(" + d.x + "," + d.y + ")"; });
47      var line = svg.append("line")
48                      .attr("x1",0 )
49                      .attr("y1", anaHei-40)
50                      .attr("x2", anaWid)
51                      .attr("y2", anaHei-40)
52                      .style("stroke", "#bcbdc0")
53                      .style("stroke-width", 1);
54
55      var rect = g.append("rect")
56                      .attr("width", barWid)
57                      .attr("fill","#7db8b5")
58                      /*.attr("stroke-width", "1")
59                      .attr("stroke", "#3c3c3c")*/
60                      .attr("stroke-width", "4")
61                      .attr("stroke", "#cccccc")
62                      .attr("stroke-opacity", 0.3)
63                      .attr("rx", 5)
64                      .attr("ry", 5)
65                      .attr("id", function(d){return d.id})
66                      .attr("y", function(d){return d.height; })
67                      .attr("height", 0)
68                      .transition().duration(1000)
69                      .attr("y", 0)
70                      .attr("height",function(d) { return d.height; });
71
72      var txt1 = g.append("text")
73                  .text(function(d){return d.consum+'kwh'})
74                  .attr("y",function(d){return d.height-20;})
```

Portfolio

Behind China's Economic Boom - Inforgraphic UI design

http://yunsite.com/#china-boom



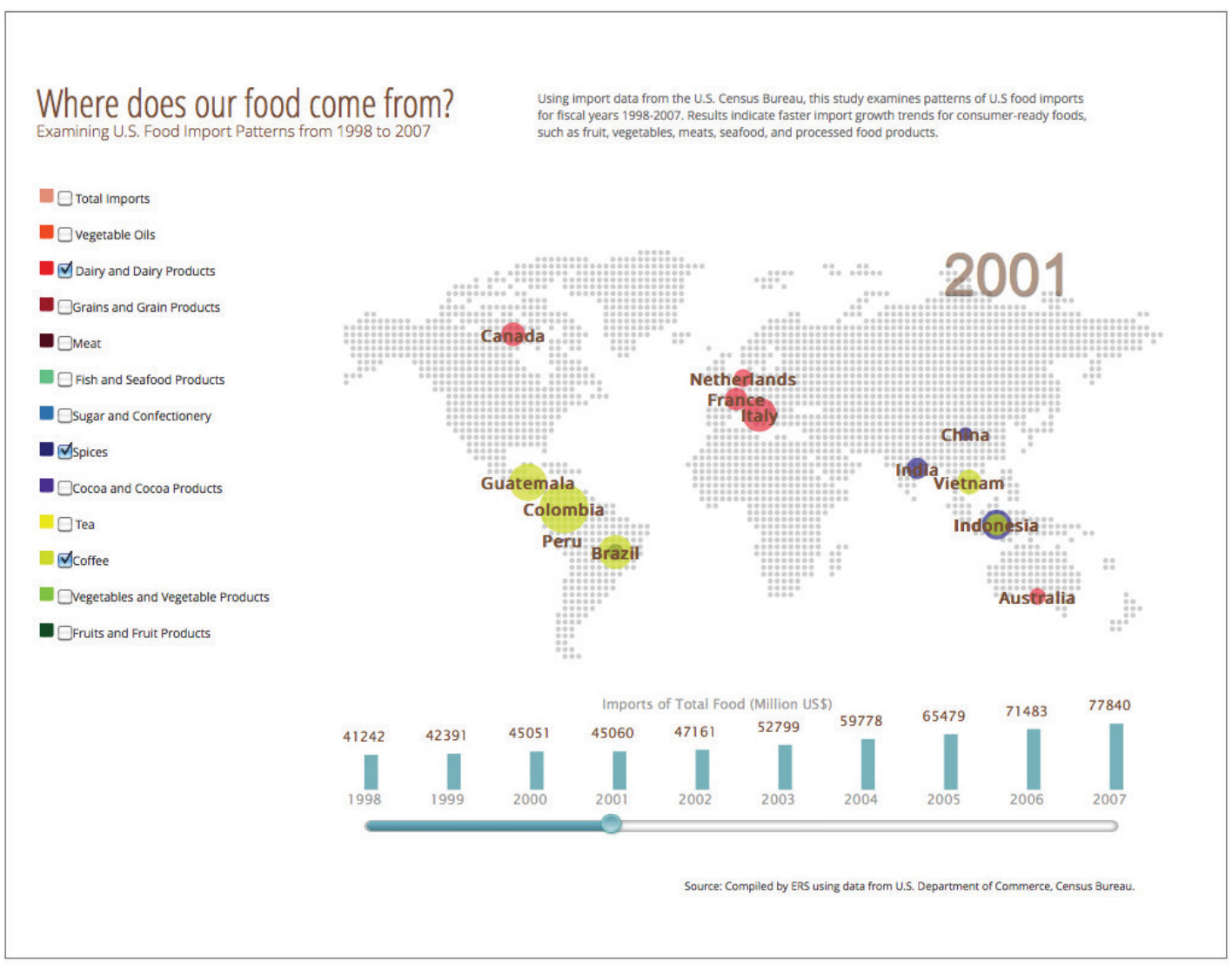
Class: Interactive Infographic
Instructor: Ryan Medeiros
Spring, 2012
Role: Personal Project, Designer

About:

The dataset and inforgraphic of this project will try to analysis the raise of Chinese economy through the GDP data from the past 30 years, find out the behind events that caused this boom.

Where does our food come from - Interactive Infographic

http://yunsite.com/infographic/usimport/



Class: Interactive Infographic
Instructor: Ryan Medeiros
Spring, 2012
Role: Personal Project, Designer and Developer

About:

Using import data from the U.S. Census Bureau, this study examines patterns of U.S. food imports for fiscal years 1998 – 2007.

Results indicate faster import growth trends for consumer-ready foods, such as fruit, vegetables, meats, seafood, and processed food products.

Food Network Bumper - Motion Graphic

http://vimeo.com/63915167

Class: Motion Graphic
Instructor: Tim Rice
Summer, 2013
Role: Personal Project, Designer

About:

This is a concept motion graphic video for food network bumper. I mainly used shape layers to do the animations.

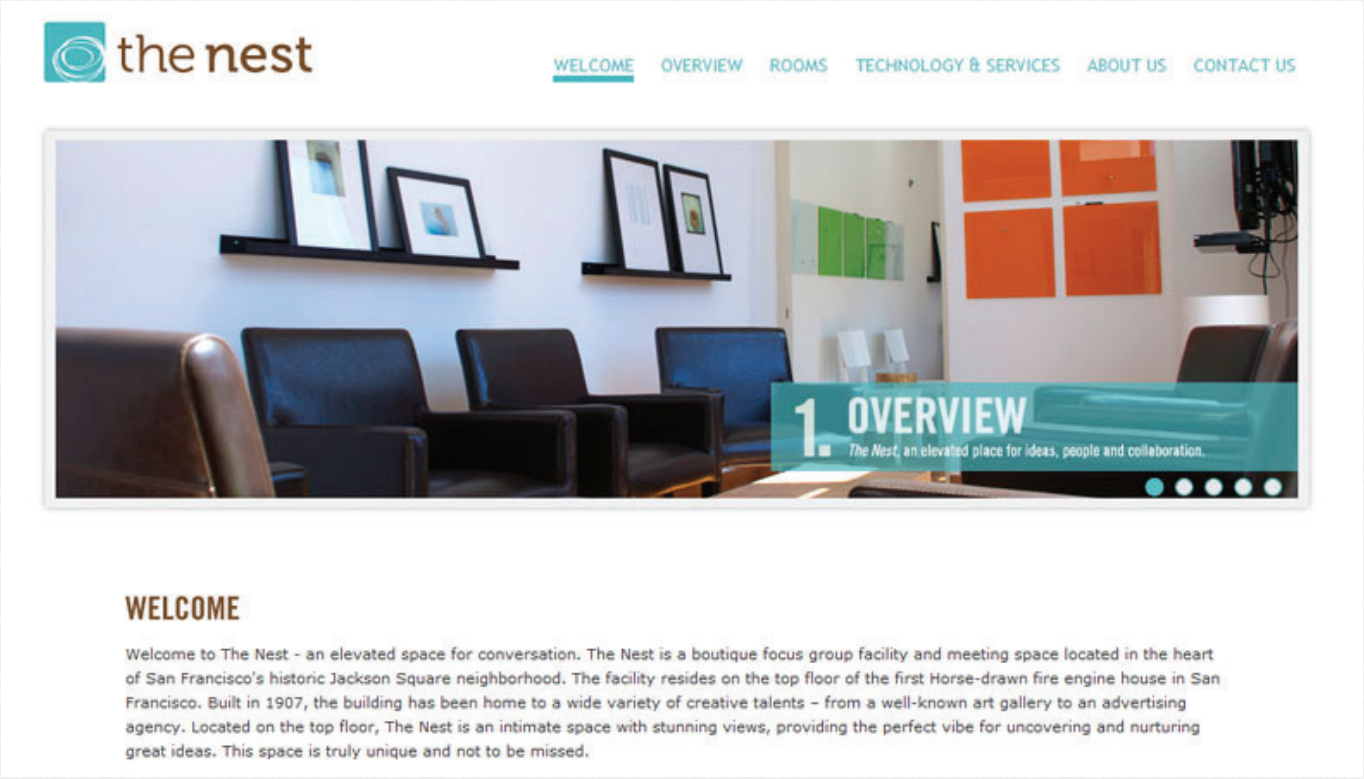
Footstamp - Motion Graphic
http://vimeo.com/63915168

Class: Motion Graphic
Instructor: Tim Rice
Summer, 2012
Role: Personal Project, Designer

About:

This is a concept video for an ipad app called Foot Stamps. The app helps user collect and organize their travel information, including their photos, notes and moods information.

The Nest SF - Web Design and Deveoper
http://thenestsf.com



Summer, 2011
Role: Web Designer and Developer, worked with graphic designer.

About:

This is a concept video for an ipad app called Foot Stamps. The app helps user collect and organize their travel information, including their photos, notes and moods information.

Challenges and Achievements

There are two major challenges I have encountered during the process of developing this project. The first one is to explore the effective ways for the interactions and transitions of this project. I've created about four different versions of wireframe and prototypes in order to simplify user's behavior and actions, and try to provide the most effective and useful information for user.

The second one is to transfer design into real code. The design of this project tries to use the new trends of transitions and animations as well as data visualization. SVG, javascript, jQeury, d3.js, transition.js are used to achieve that goal.

Links:

Project Link:
http://www.yunsite.com/emission

Concept Video Link:
https://vimeo.com/66031661

Screenshot Video Link:
https://vimeo.com/66032645

Bibliography & Credits:

http://michaelbluejay.com/electricity/

http://www.eia.gov/consumption/residential/index.cfm

http://www.eia.gov/cneaf/electricity/esr/table5.html

http://en.wikipedia.org/wiki/Electric_energy_consumption

Thank you.