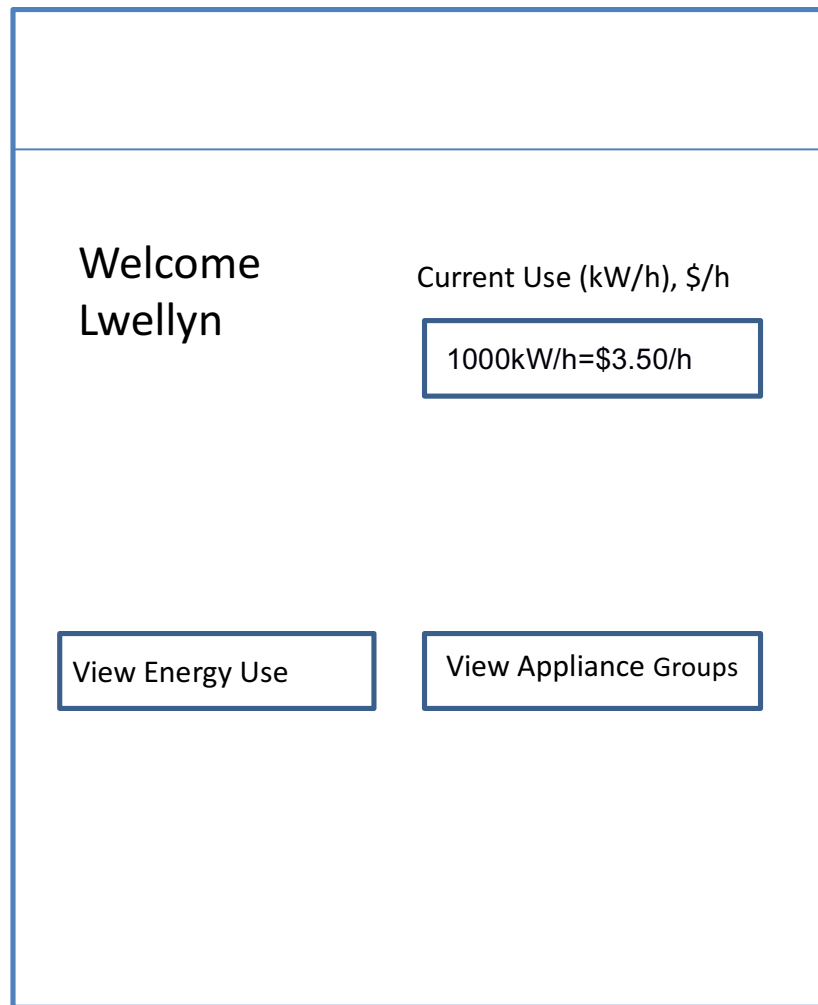


BTH Assignment 2

Home Energy Management System


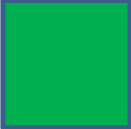


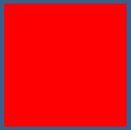







By: Dan Foster, Igor Krasnyanskiy, Michael Overall, and Tanvir Sarkar

Part A: Design Sketches:



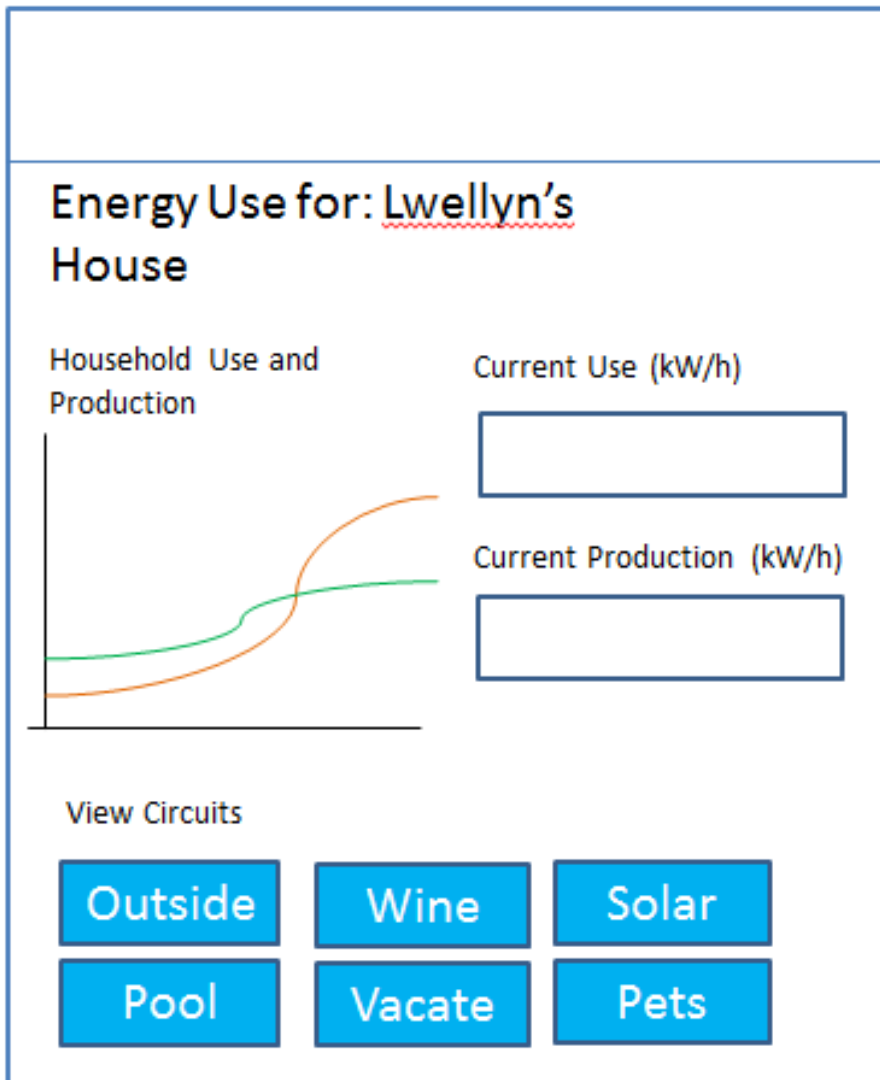
Home Screen:

This is what the user will see when they first start the app. It will display the current energy usage, and its cost per hour. It has two large buttons, one to bring the user to a view with reports on the energy usage of electrical devices that have been placed in groups, and another to view a list of all groups of electrical devices in the system.

Overview Appliance Groups			
			Current Use (kW/h) <input type="text"/>
			Current Use (kW/h) <input type="text"/>
			A <input type="text"/> Current Use (kW/h)
			Current Use (kW/h) <input type="text"/>

Appliance Groups Screen:

This page contains a scrollable list of all grouped appliances. Tapping the white box of the red and green power toggle/indicators will turn the appliance group on or off. Any appliance group that was turned on with automation, will have an “A” beside the power toggle to indicate this. Tapping anywhere else for that particular list item will take the user to a detailed view of the appliances. The user can also see the current energy use of each group.



Energy Use Screen:

Here the user can see a graph that shows energy usage over the course of the last 24 hours. The graph is a multiple line graph where each line represents a different appliance group. The user will also be able to go to a detailed view of each appliance group by hitting the appropriate button on the screen.

Details: Appliance Group: Pets

Circuit Status


Current Use (kW/h)

Change Appliances

Set Schedule

Back to Group Details

Back to Energy Use



Appliance List

Furnace
Radio
Dog-door
Water tap

Appliance group detail screen:

Shows appliances in the group, allows the user to access other functions specific to that group (set schedule, change appliances that are in the group).

Detailed Group - Pets

Appliance List

Furnace
Radio
Dog-door
Water tap



Select ON/OFF



400

Current Use (kW/h)

Turned on by Automation

AM

AM



AM

AM



Back to Group

Appliance group Schedule On/Off Screen:

Shows appliances in the group, allows user to punch in multiple on/off times for the appliance group. There is also a toggle to turn the appliance on or off manually. Below this toggle is an indicator to say whether the group is turned on manually, or by automation (the schedule). The user can add multiple on/off times, and the addition of many of these times will turn this section of the page into a scrollable section. The current prototype demonstrates the addition of schedule items, but not the scrollable section.

Appliances - Pets

Active Appliances

-Dog Door

-Furnace

-Radio

-Water Tap

Air Conditioning

Dog Door

Fridge

Furnace

Home Audio Theatre

☒

☐

☐

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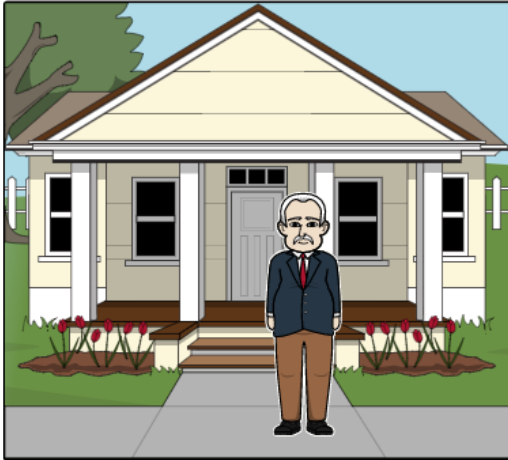
Back to Details

Appliance Group Edit Screen:

Shows a list of all appliances and allows the user to add them to the current appliance group (they access this view from a specific appliance group details screen). The list of appliances is scrollable, but because the list may be long, there is a fixed box at the top of the screen that will list all appliances that are currently selected so that the user does not have to scroll through a large list, and remember which items are checked to be included in the appliance group.

Part B: Prototype Storyboards

1. Lwellyn Smith is one of our personas from A1. He is a retiree who travels for most of the year and his goals include being able to track the energy usage of his home, as well as controlling lights and appliances remotely. In this scenario, he will be using the app to set a schedule for remotely turning on the lights in his living room, while half way across the world in his hotel room.



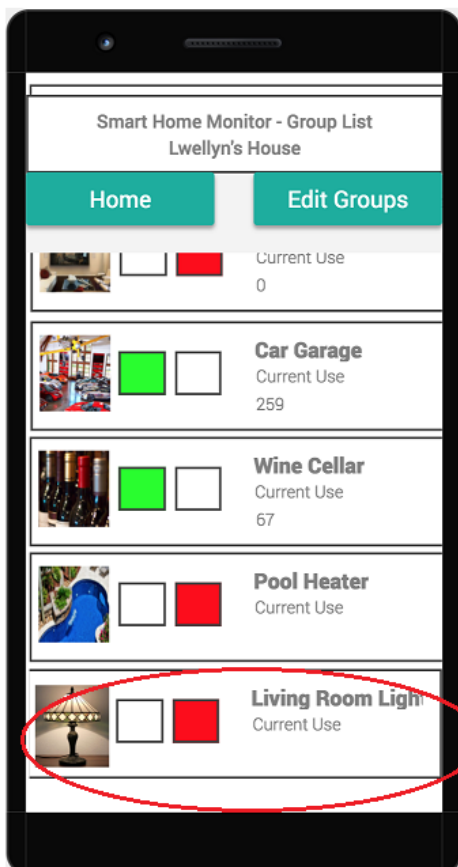
1. Lwellyn is leaving to travel and is planning to be away from home for a couple months



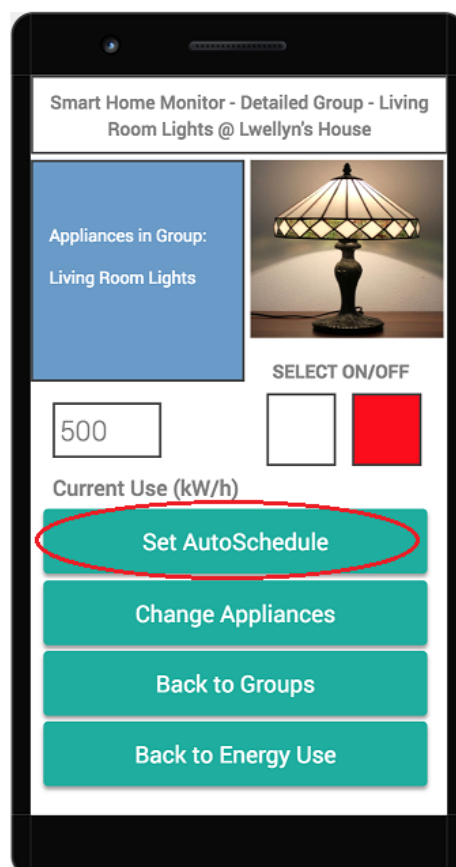
2. After he arrives at his hotel, he would like to control some lights in his house remotely so it looks like someone is still home



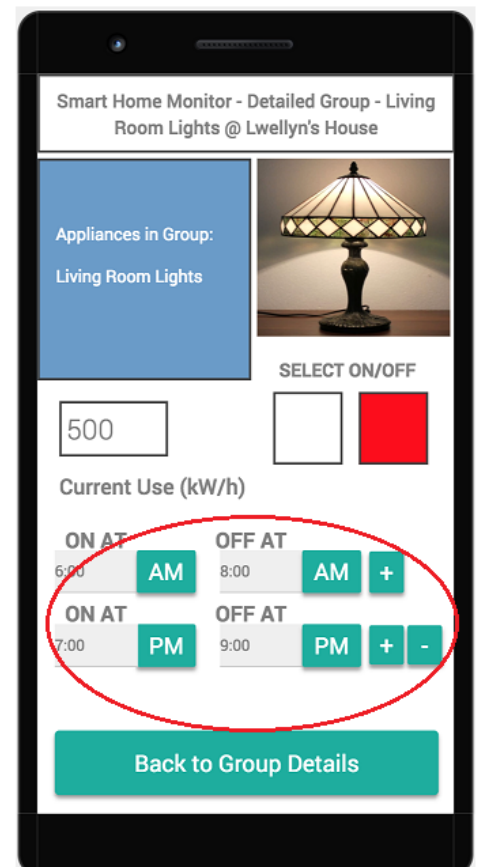
3. On the home screen, he taps on "View Groups" and navigates to the group list



4. On the group list screen, he taps on the "Living Room Lights" group

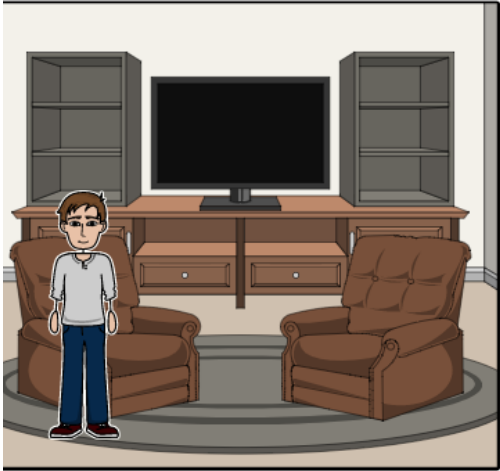


5. On detailed view screen, he taps on the "Set AutoSchedule" button

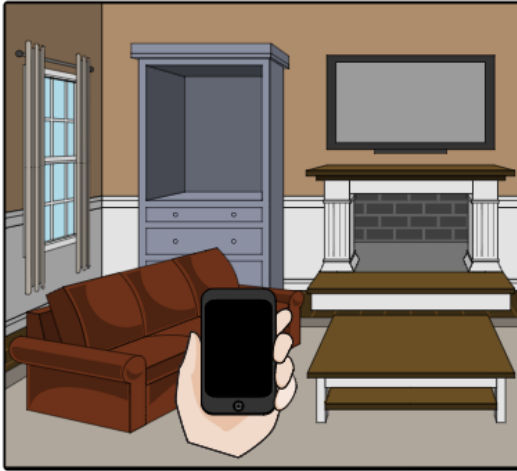


6. He chooses the time ranges that he would like for the appliances in that group to be turned on for

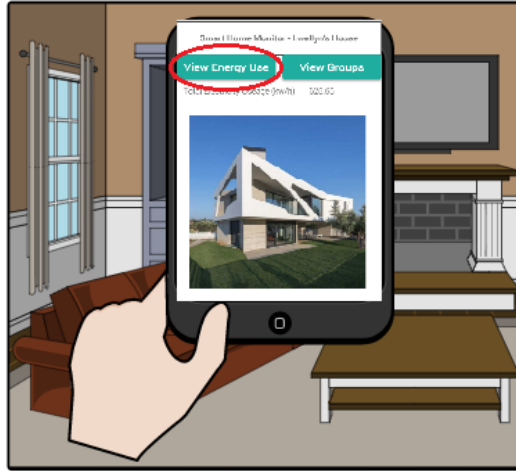
2. Linus Torvalds is our other persona from A1. He is a young, tech-savvy professional who enjoys trying out new devices and software. His goals include being able to monitor the energy usage of specific devices in order to compare their efficiency. In this scenario, he will be using the app to add new appliances to an existing appliance group so their energy usage will be tracked.



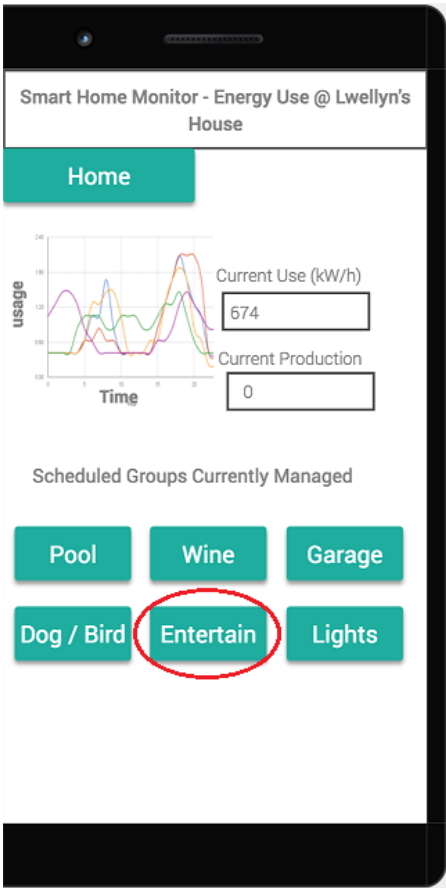
1. Linus just bought a new TV for his living room and new PC setup with the latest power supply



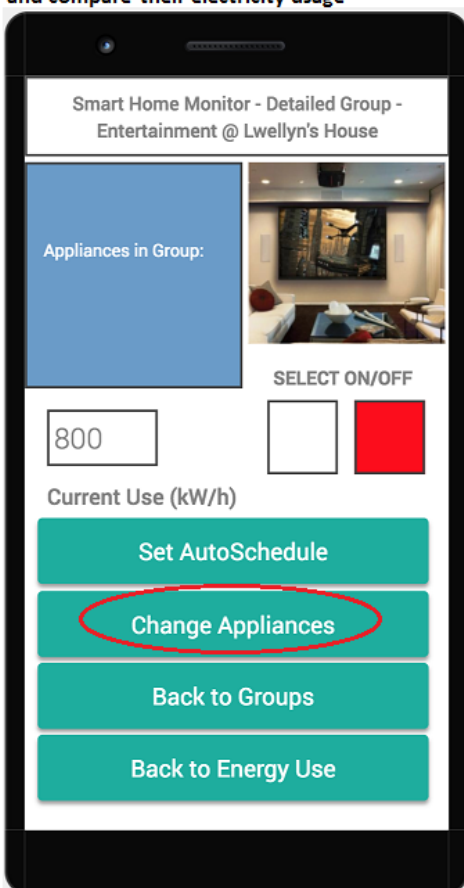
2. He would like to group his new electronic entertainment devices together so he can monitor and compare their electricity usage



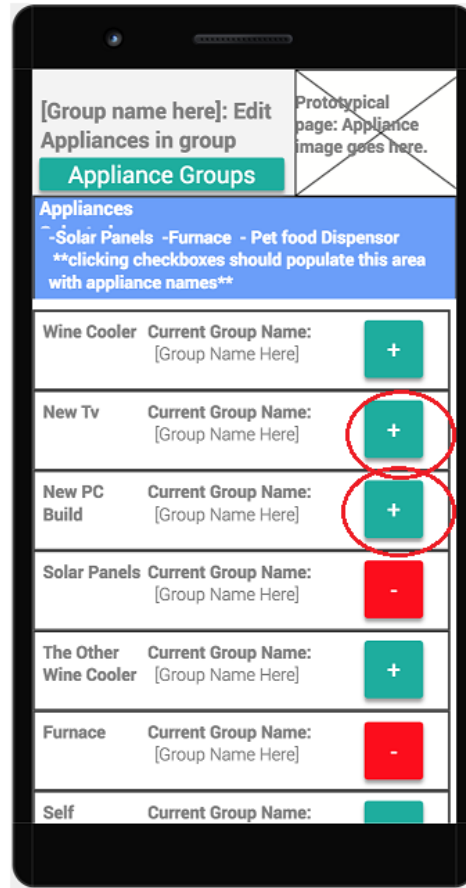
3. On the home screen, he taps on "ViewEnergy Use" and navigates to the group list



4. On the energy use screen, he taps on the "Entertainment" group



5. On the detailed view screen, he taps on the "Change Appliances" button



6. He taps the "+" buttons beside "New PC" and "New TV"

Part C: Instructions for Accessing the Prototype

The Prototype is a series of interactive webpages. Open the included “Prototype” folder, and run the “index.html” file in your web browser*. Scrollable screen sections should react to being clicked and dragged, and the rest of the functionality just consists of mouse clicks representing screen taps.

*Using **Firefox or Chromium** is suggested (Google Chrome will bother you about installing an extension for our particular prototyping software, JustInMind)