

Introduction

The built environment consumes around 40 percent of the world's energy[2]. One way to reduce the energy usage is by encouraging people to save energy. An energy dashboard is able to give feedback to users and promote environmental awareness. Consumer behavior can change based on wanting to save the environment, or wanting to save money[1]. The energy dashboard that I created emphasizes both subjects to motivate most people to save energy. Saving energy helps people save money, and helps save the environment.

Objective & Impact of Professor's Research

The goal of the research is to create an energy dashboard for affordable housing. Affordable housing units use current technology, meaning that the appliances are able to track their energy usage. An energy dashboard could help the people living in affordable housing save money, while also helping the environment.

User Interface Design

The graph shows energy usage by appliance. The user can see which appliances are using the most power and can try to use that appliance less if possible. The interface is supposed to connect to each appliance and measure the usage of its energy in Watts.

Appliances are becoming more intelligent and are able to measure their energy usage[1]. We are integrating this technology into energy interfaces

Electricity bills just show the overall price. They don't show a breakdown of the price of each appliance. This graph shows the cost by appliance. The goal of this is to show how much money each appliance costs. The graph helps the user save money by showing how much money each appliance is spending.

- Created on Figma
- The prototype as a whole has multiple interactive buttons
- The graphs are supposed to help the user understand how much energy each appliance is consuming and how much the energy costs.

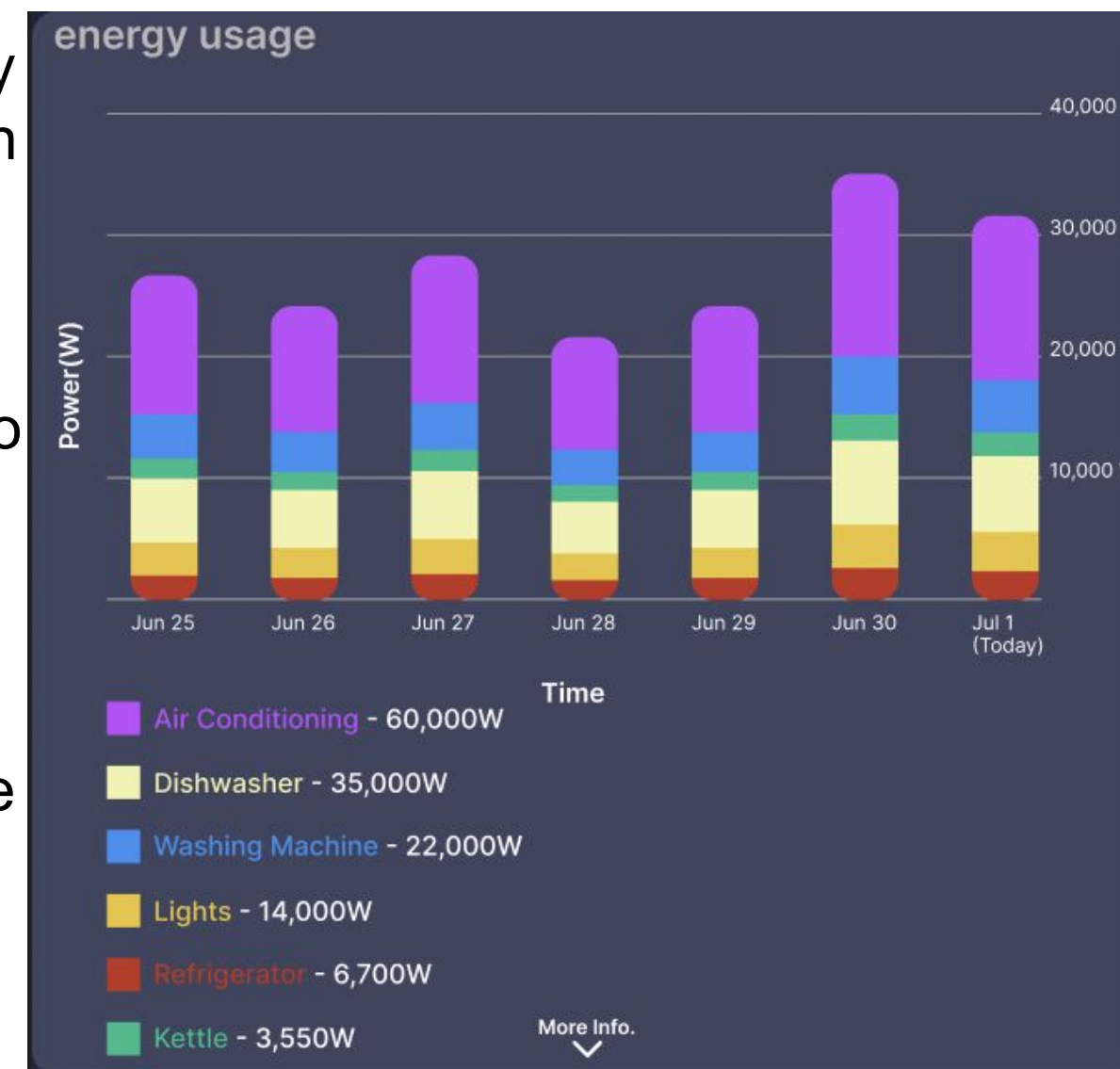


figure 1.



figure 2.

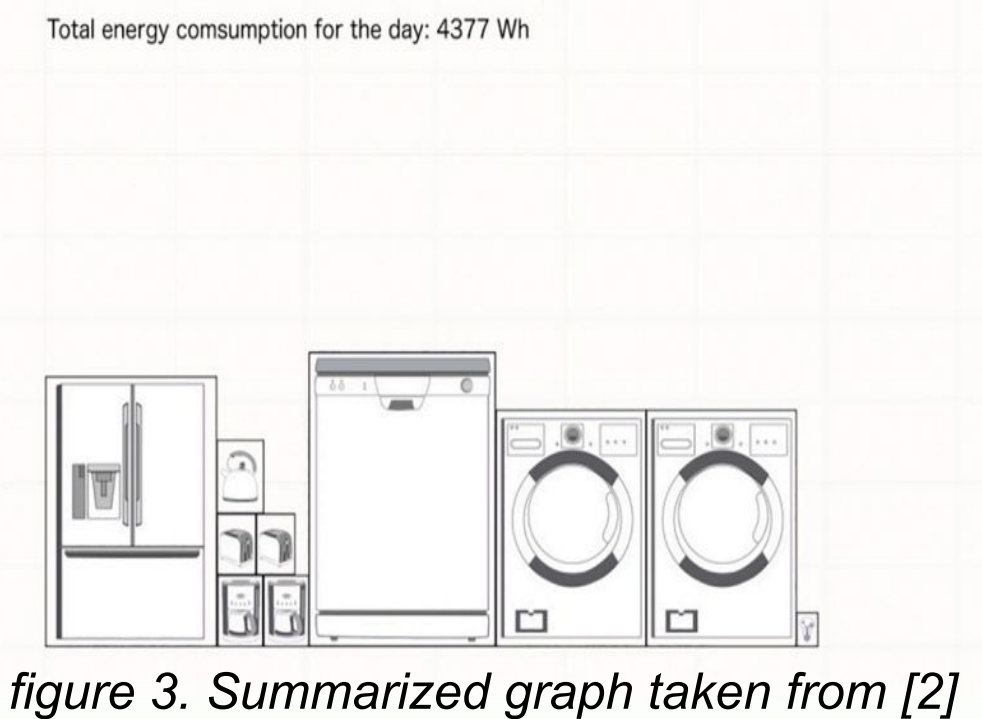


figure 3. Summarized graph taken from [2]

Experiment/Results

I compared the graph in figure 1 to the summarized graph from figure 3. I used a google form that asked questions such as "which would use more energy, a kettle(15 min) or lights(15 min)". I found that the graph in figure 1 gives users a more complex understanding of the appliances because it shows usage over time. It also provoked critical thinking, because users were able to understand how they could reduce their energy use and answer questions that the graph could not directly answer.

Citations

[1]A review of residential energy feedback studies. (2023, April 14). A Review of Residential Energy Feedback Studies - ScienceDirect.
<https://doi.org/10.1016/j.enbuild.2023.113071>

[2]Does Data Visualization affect users' understanding of electricity consumption? (n.d.).
<https://www.tandfonline.com/doi/full/10.1080/09613218.2017.1356164>