



UX/UI Case Study

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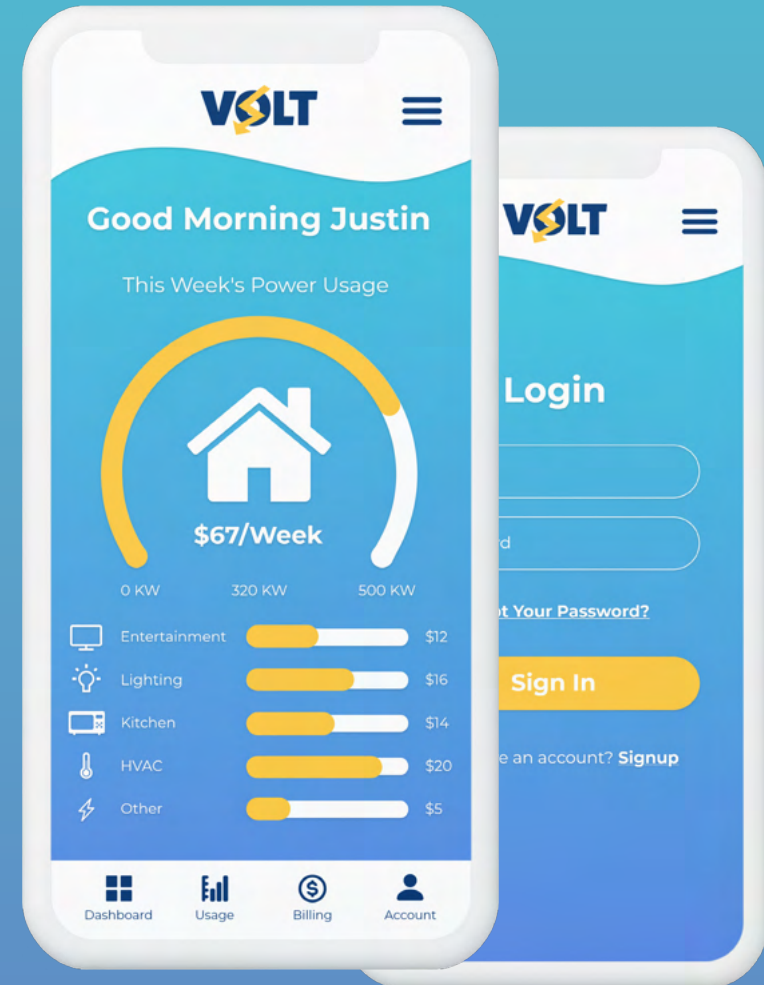


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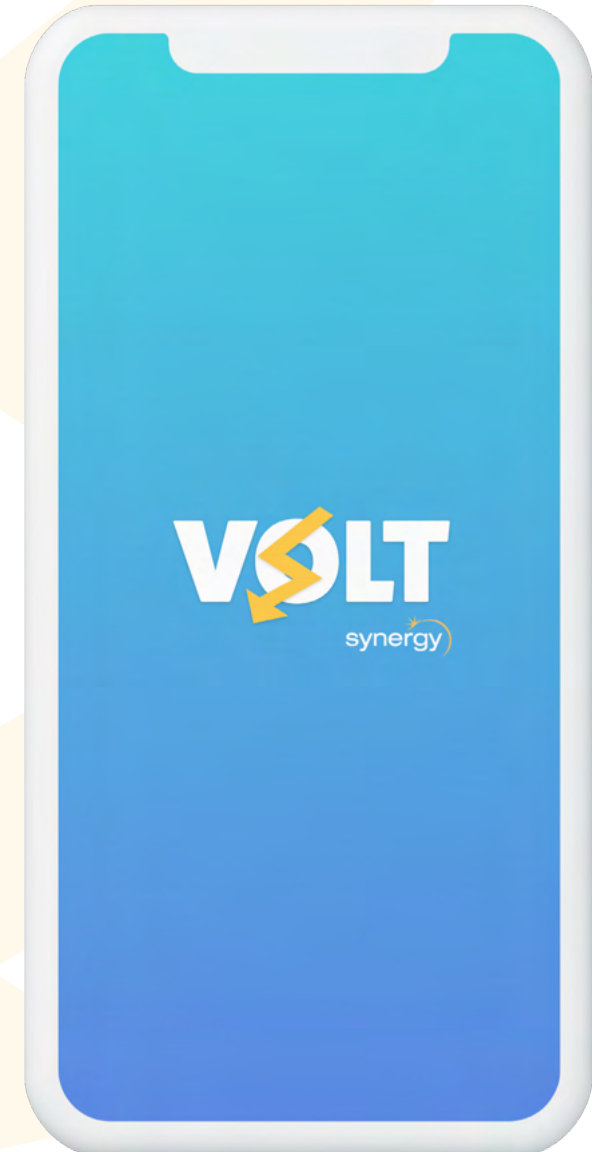
Project Brief

Introduction

Volt is an app designed to raise awareness for energy efficiency in the household.

This app aims to help households understand their power usage and allow them to take measures to reduce it. Users can check how much their power bill is costing them, check what is using the most energy and also pay for their power bill.

It acts as a visual representation of a user's energy bill making it easier to identify known hotspots of energy usage. Once those hotspots are identified users can take measures in reducing their usage all while reducing their power bill.



Client

Synergy is one of WA's largest energy providers to common households and businesses. The company specializes in generating and selling electricity and has been operating since 2006. Synergy strives to become the first choice for many when it comes to energy provision. Their company is structured around several key values that are looked for in all of their people:

- Innovation
- Accountability
- Collaboration
- Trust

With the growing innovation in renewable and efficient technology, Synergy are constantly pushing themselves to adapt and evolve to the challenges of the new energy market. With that in mind they recognise the importance of earning customer loyalty and want the best when it comes to developing and providing those services.



Project Overview

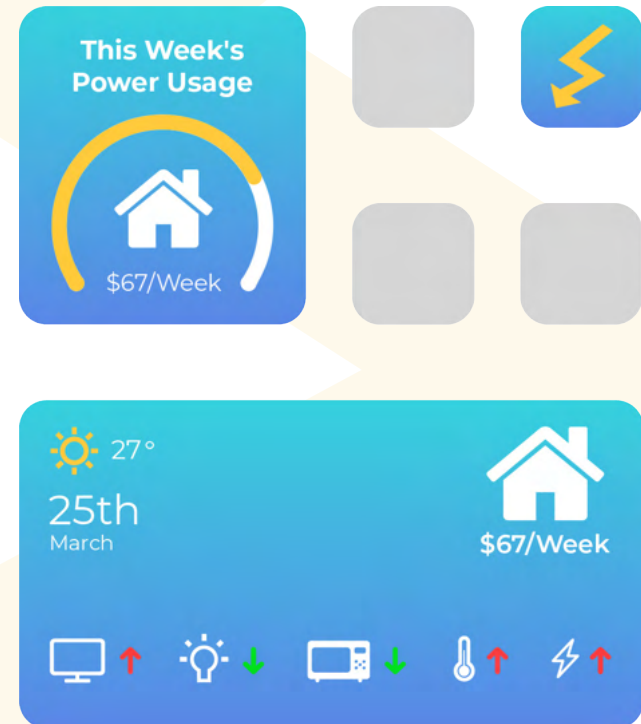
The Problem

With the growing demand for energy efficient measures to be implemented in the home, companies struggle to bring awareness to such measures due to the lack of understanding that households have on energy usage as a whole. In response to this a digital solution must be made to demystify household energy usage and efficiency.

The Solution

This design solution will aim to raise awareness to energy efficiency by providing a modern, app based platform on both Android and IOS. The app will visually show users how much they are using and spending on power.

Users will be able to see their power usage in an aesthetically pleasing but still informative manner which will appeal to a wider audience both young and old.



Research Analysis

User Survey

Purpose of the Survey

The purpose of this survey is to understand the methods in which users pay for their bills but also to see if they are aware/stay active with energy efficiency awareness. This survey also serves to convey the interest the target audience may have on an app like Volt while also gathering useful information on what they may like included in such an app.

Focus Questions

1. How old are you?
2. Do you actively try to save energy in your household?
3. How do you pay for your power bills?
4. What power retailer do you go through?
5. How much a month is your power bill costing you?
6. What information do you regularly see when viewing your power bill?
7. What information is important to you when viewing your power bill?
8. What category of power are you finding uses the most energy?
9. Would you be interested in a mobile app that tracks your weekly/monthly power usage?
10. If such an app were to be built what features would you find useful to you?

Quick Findings Report

The survey was conducted by 14 participants.

How old are you?

- The participants were aged between 24 to 51 years old, of the 14 surveyed, 5 were under 30 (36%), while the rest were between 31 to 51 (64%)

Do you actively try to save energy in your household?

- Only 4 out of the 14 (28%) of surveyed individuals had measures in place to try and save energy

How do you pay for your power bills?

- The majority of surveyed individuals paid for or contributed to their own power bill with only 2 individuals (14%) stating that they did not contribute to their bill
- Of the 12 (85%) that paid for their power bill 4 (33%) of them received their bill by paper mail while the rest received theirs via email

What power retailer do you go through?

- The range of companies individuals listed included: Kleanheat, Synergy, Western Power, Horizon and Bluestar

How much a month is your power bill costing you?

- The estimated monthly dollar of each individual's power bill varied depending on the age with the over 30s receiving higher bills due to increased dependants in the household

What information do you regularly see when viewing your power bill?

- Common answers included the total amount from the previous bill, dates due for current payment, energy amount used for that period in kilowatts, small graphs indicating peaks in usage, costs breakdown and of course the total of the bill

What information is important to you when viewing your power bill?

- In an obvious answer all participants who paid for their bills wanted to see how much the bill was and when it would be due
- 78% of users mentioned that a cost breakdown of their bill was useful for them to understand their usage
- Only 35% of users stated that the kilowatts measured was useful to them

What category of power are you finding uses the most energy?

- As it turns out nearly all of the power bills participants received did not have a breakdown by category of usage as such the answers participants gave were more assumptions
- 64% of participants stated that their HVAC systems were the main culprit of power consumption
- 21% stated that their entertainment systems and lights were the major cause for consumption


Would you be interested in a Mobile App that tracks your weekly/monthly power usage?

- 86% of participants answered that they would like such an app to use, the last 14% stated that their power bill was all they needed


If such an App were to be built what features would you find useful to you?


- 86% of participants stated that they would like to see how much their power is costing them at that time whether it be in graph form or text form
- 71% were interested to see a breakdown of how much power each household category was using


Personas



Robert Manning

Tech Knowledge 

Net Income 

Energy Usage 

"Looks like the kids have been using too much power again."

Demographics

Age: 42

Occupation: IT Consultant

Family: A wife and two kids


Locale: Lives in a 4 bedroom 2 storey house in the inner suburbs of Perth

Bio


Michael is an IT consultant at a renown mining company in Perth. At home he has a wife and two teenage kids. The family of four lives in the inner suburbs of Perth in a 4 bedroom, 2 storey house. Having such a large house paired with two teenagers means that Michael's power bill is fairly expensive. With this in mind Michael is looking for a way to manage his usage and take measures accordingly to reduce his energy bill.


Goals	Frustrations	Viewing Energy Bill
<ul style="list-style-type: none">• Earn enough money to retire• Pay off his mortgage• Efficiently manage his electrical bills	<ul style="list-style-type: none">• Viewing information purely through text and numbers• Reading small sized texts• Navigating through multiple screens on a site• Doesn't like his kids playing too many video games	<ul style="list-style-type: none">• Michael receives his bill by mail every month from Synergy• He checks the amount then compares it to the previous months bill• He pays his bill by direct debiting the amount to Synergy via BPay


Personas



Amy Baker

Tech Knowledge 

Net Income 

Energy Usage 

"How can I afford to buy those new shoes if I have to keep paying for electricity?"

Demographics

Age: 24

Occupation: Part-time personal assistant & finance student

Family: Her two parents and family dog

Locale: Currently living with her two housemates in a 3 bedroom 1 storey sharehouse

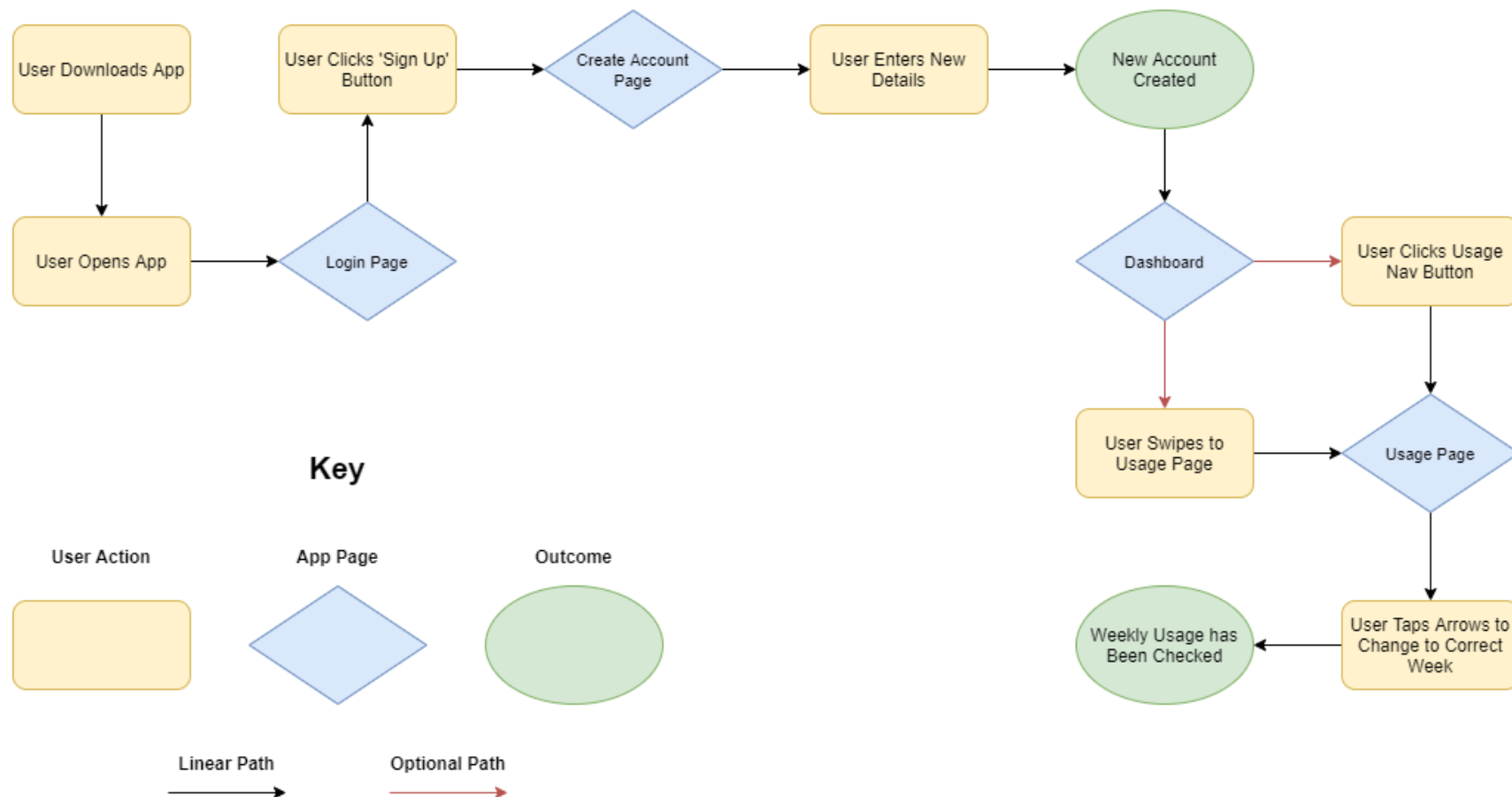
Bio

Amy is a part-time personal assistant at a local business firm in Perth. She lives in a 3 bedroom shared house with her two friends. As Amy and her housemates are all students and have part-time jobs most of their income goes towards the house, leaving little expenses for their leisure. From their recent bills they noticed that their energy usage is fairly high and can potentially be reduced. With this in mind Amy is looking for a digital experience to dissect her energy usage and make changes accordingly to save money.

Goals	Frustrations	Viewing Energy Bill
<ul style="list-style-type: none">• Graduate University and get a degree• Get a full time job in the finance industry• Move out of the share house and into her own apartment	<ul style="list-style-type: none">• Dislikes receiving and viewing her bills• Evenly splitting her energy bill with her housemates who use more energy• Wishes she could view her bill via an app	<ul style="list-style-type: none">• Amy receives her bill via email every month• She pulls up all the bills at once on her computer and checks it over• Amy evenly divides the costs in three and gets her housemates to pay their share

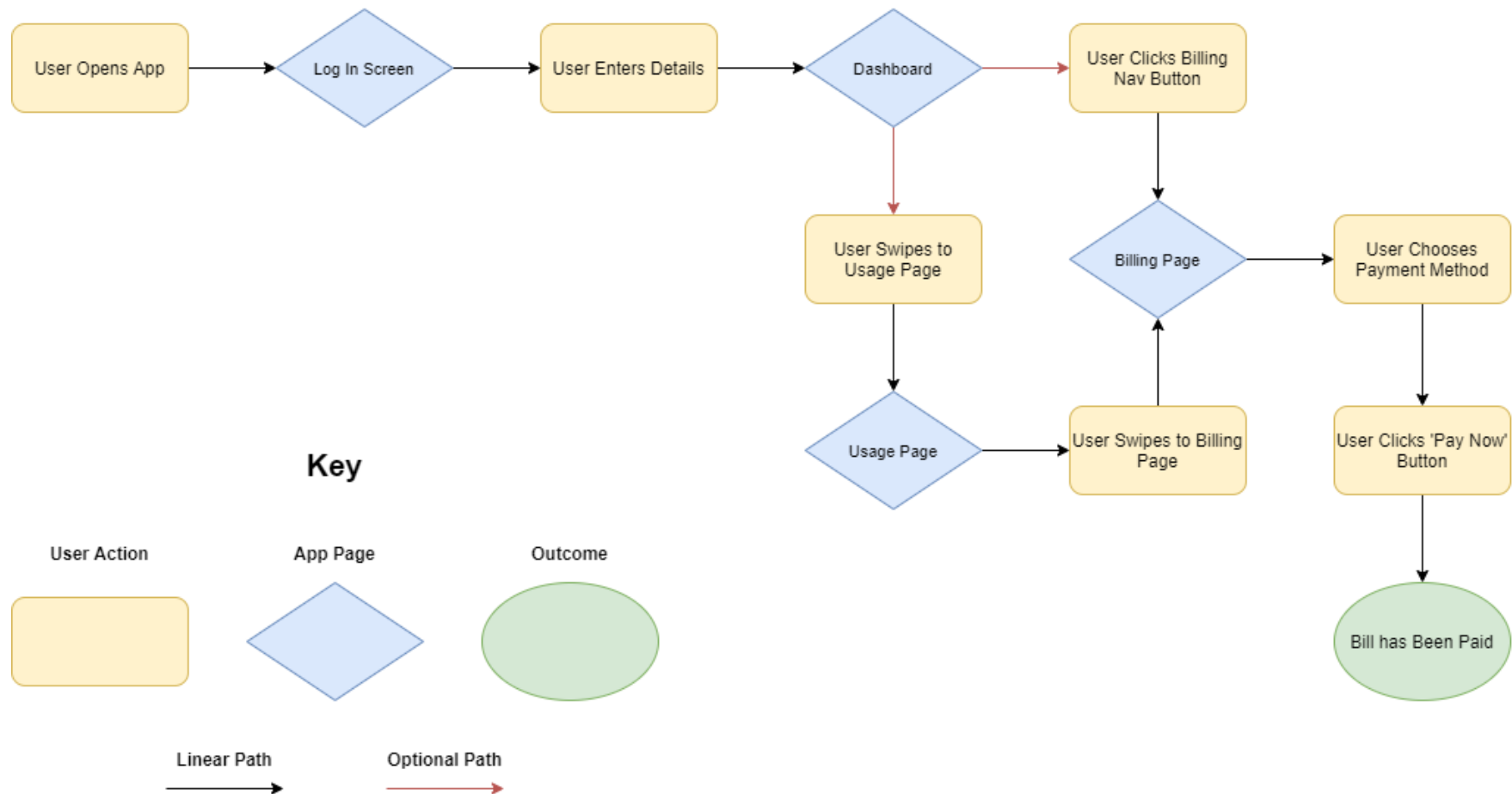
User Flow Diagrams

User Flow Diagram - Robert Signing up for VOLT and Checking his Weekly Usage



User Flow Diagrams

User Flow Diagram - Amy Paying Her Energy Bill



Usability Testing

Executive Summary

Purpose of User Testing

The purpose of this study is to identify whether or not designed pathways through the Volt App are easy to use. If some of these paths are unsuitable then revision of the app will be implemented. The study was done by giving a working prototype to 5 individual users then asking them to complete 4 tasks that would cover most of the app's main pathways. Usability was determined by the overall design of the app and whether or not it was easy to read but also easy to navigate.

The test group of 5 consisted of adults aged from 26 to 45 years old, this range is within the relevant target audience for the app consisting of adults that would normally pay for their own energy bills. Testing was done in person on a mobile device using the Adobe XD App for maximum user experience and ease of observation.

Key Findings

- In the dashboard the majority of users preferred to see their power usage divided into dollar amounts rather than kilowatts, however one expressed that having both could be beneficial for more technical users
- The iconography of each power category had mixed feedback with some users being able to identify each and others guessing what they meant
- The branding and color scheme had mostly positive feedback with notable attention to the contrast of color helping to identify the important information
- All the testers had difficulty navigating through the screens once or twice as they attempted to swipe left and right out of habit rather than use the navigation buttons

Goals

Goal 1

Learn how users feel about the overall design of the app.

This goal will help determine if the users enjoy the overall look of the app. As it is designed for a specific target audience their feedback will determine if the branding, color scheme and layout is aesthetically pleasing.

Goal 2

See if showing a powerbill's breakdown visually is more useful to users.

This goal is important to the design as Volt aims to stand out from other apps by showing power bills visually so at a glance it is easy to read. Seeing if users find the visuals useful and easy to read will be a great learning point for future adjustments.

Goal 3

Uncovering any user interface pain points in the design.

One of the main goals in this test is to see what parts of the design confuse or limit users when navigating through the app. This goal will also bring to light any missing features that may need to be added.

Goal 4

Discover what works well with the app and what may need to be changed.

Identifying what users enjoy or find useful about the app will help determine the focus of the design. Understanding the negative parts will allow for further iterations of the app.

Methodology

Introduction

All participants were given a brief introduction to the Volt App. All were notified that the goal of the exercise was to test the usability of the App to a real audience. Users were also asked questions about themselves to check if they were in the targeted age demographic.

The participants were given 4 tasks/scenarios that they would have to complete on their own whilst navigating the app. Each of these tasks mimicked common pathways users will take through the main features of the app. After the test users were asked an array of questions on how they felt about the app and experience.

Tasks

Identify the weekly dollar charge of power then identify what category is costing the most for that week.

Identify which day of the current week has had the least amount of power usage, then check the weekly power usage for the following week (15th - 21st).

Your credit card details are out of date, you need to update this first then pay for your power bill.

Post-Test Questions

1. On a scale of 1 to 10 how do you rate the overall visual design of the app?
2. On a scale of 1 to 10 how easy was it to navigate the app?
3. On a scale of 1 to 10 how readable did you find the visuals, graphs and icons? And were you able to understand them?
4. Would you find the visual representations of a power bill in the app useful in a real environment?
5. Would you find the visual representations of a power bill in the app useful in a real environment?
6. What was your favourite part of the app?
7. If you could change anything on the app what would it be?

Results

Overall Design Concept

7.6/10

Participants gave the app 7.6/10 for the overall design

7.4/10

Participants gave the app 7.4/10 for ease of navigation

6.4/10

Participants gave the app 6.4/10 for the visuals and icons

100%

of participants had an issue trying to swipe to change screen

Good

- The majority of participants enjoyed the overall design of the app
- Most participants felt that the layout was well structured and relatively easy to navigate
- Participants enjoyed the micro-animations that made the app come to life
- Most participants thought the apps color scheme was appropriate and made power bills more interesting

"I love the yellow moving bars, they stand out and make the graphs easy to read."

Bad

- Some participants found it difficult to distinguish what some of the icons for each household category were
- Some participants tried to tap the Volt logo at the top of the menu to go home only to find that it did nothing
- All participants were having issues with changing screen as they would automatically attempt to swipe left or right resulting in nothing happening

"This icon looks like a light bulb so I think it means lighting, but what is this lightning bolt icon for?"

Results

Dashboard

80%

of participants enjoyed the overall layout of the dashboard

40%

of participants could quickly identify the overall dollar cost per week

60%

of participants could identify what the highest costing household category

80%

of participants could not identify at least one of the household category icons

Good

- Participants enjoyed the visual aesthetic of the dashboard with most information being relevant
- Participants thought the bar levels of power and dollar consumption were useful
- Participants found it easy to distinguish the highest charging category bar from just the bars and cost alone

"At first glance the dashboard looks really professional, I can see all the information laid out for me."

Bad

- 2 participants pointed out that having the kilowatt per week stat as the main stat in the centre of the dash was not that useful to them
- Only 2 users could quickly find the overall dollar cost per week, possibly due to the visual insignificance it had on the dashboard
- Most participants could not tell what some of the household category icons were

"I don't really find the kilowatt/week stat to be that useful to me. I'd rather see more of the dollar costs."

Results

Weekly Usage

100%

of participants could see which day had the highest energy usage

80%

of participants found the page to be straightforward to navigate

20%

of participants could change to next week's bar graph

60%

of participants were confused by the 'Weekly Trends' icons

Good

- All participants were able to easily read the graph and understand which day was the highest
- Participants did not find the page too cluttered with information
- A few participants liked the idea of having the Weekly Trends section below the graph once they understood what it was

"I really like the graph. It can easily tell me when I blasted the heater or how much my kids are using on the weekend."

Bad

- All participants had issues with changing to the next week on the graph, many tried tapping the arrows but ultimately failed due to a possible hitbox issue
- Some participants were getting confused with the Weekly Trend icons not being straight forward on which is good and which is bad

"I see that the TV icon is green but what does it mean by 7%?"

Results

Billing & Account Page

80%

of participants were able to quickly change their account information

60%

of participants were confused by what period they were paying the bill for

100%

of participants were able to view and pay for the bill

20%

of participants wanted a option to store more payment cards

Good

- Participants thought that the billing page was very simple and straightforward to pay
- Participants found it very easy to change account information

"The process to pay your power bill is very easy, I like how it's not as complicated as my usual bill."

Bad

- One participant noted that it could be annoying to go back and forth to change credit card details and suggested to have a second card option
- Some participants were wondering what period they were paying for in the billing page, as there was no indication of the period dates
- One participant tried to click the House icon in the accounts page to go back to the dashboard

"It might seem obvious but I'd still like to know what period the allocated amount is for."

Bugs & Issues

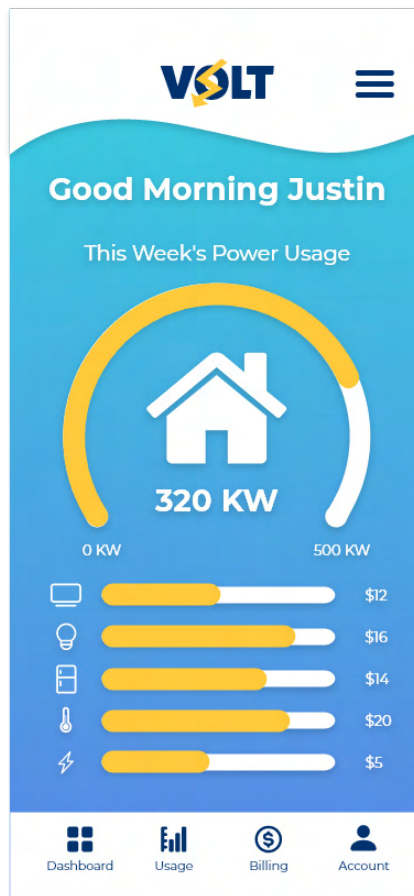
- The hitboxes on the arrows to change each graph on the Weekly Usage page were too small resulting in several users attempting to tap the arrow multiple times causing frustration.
- Transition animations between pages between the Billing and Usage pages were moving in the opposite direction causing visual confusion.

Recommendations & Action Items

- 2 Participants indicated that showing the kilowatt amount as the main stat on the dashboard was not very useful to them, rather they preferred to have a cost amount as the focus as that would be more relevant to a power bill. I'll need to focus on dollar amounts rather than kilowatt amounts in the dashboard.
- 4 out of 5 Participants noted that they did not understand at least one of the power category icons. It seems that the visual icons alone may not be enough to describe the category or the icons themselves may not fully represent the related category. I will need to either change the icons or add text next to each icon to easily identify each category.
- All testers attempted to swipe left and right to change screen out of instinct first, however the proptype app did not account for that. Even though there were navigation buttons at the bottom of the screen users preferred to naturally swipe left and right to navigate. Adding a swipe left and right feature will be necessary in the final build.

Recommendations & Action Items

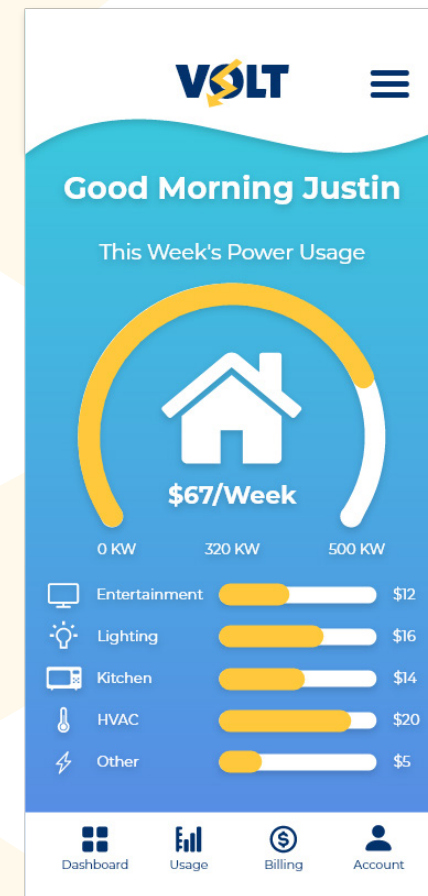
Before



Dashboard Changes

- Changed the weekly kilowatt total to a dollar amount per week in the center of the dash as suggested by testers
- Moved the kilowatt total below the dollars per week, changed the font size so it was smaller to fix visual heirarchy
- Changed the power category icons to more visually recognisable ones
- Added text next to each category to specify in words what the icon incase they're still not recognisable

After



Recommendations & Action Items

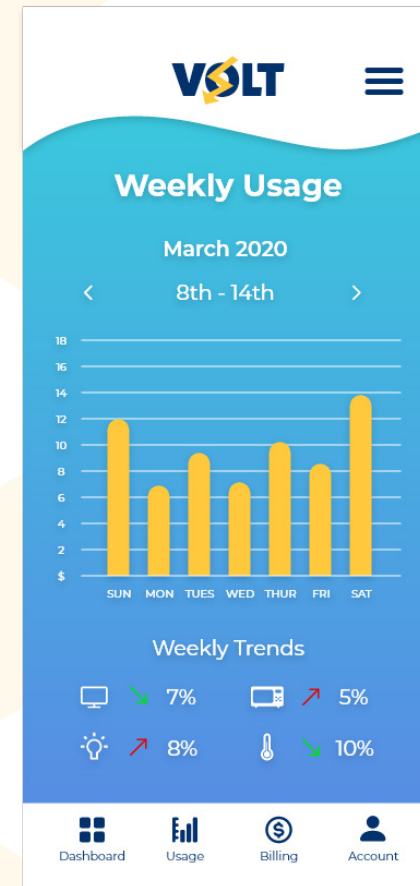
Before



Weekly Usage Changes

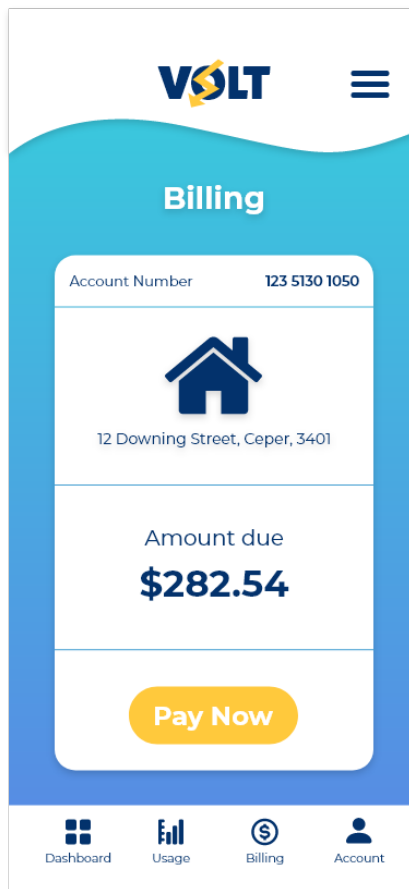
- Changed the original category icons to the new ones chosen for the new dashboard
- Changed the color of the icons back to white to keep with the design scheme
- Added colored arrows that point down for saving power and up for increased usage, green is good, red is bad
- Kept the percentage gain/loss stat
- Increased the hit box of the week changing arrows in the prototype so that its easier to tap
- Fixed the transition animations between the pages going in the wrong direction

After



Recommendations & Action Items

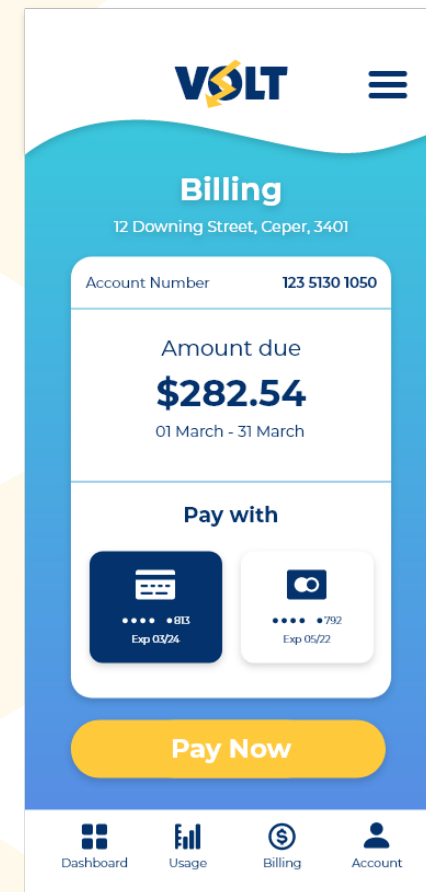
Before



Billing Changes

- Added a tab in the 'bill card' to choose with credit card to pay the bill on as requested by one of the users
- Moved the 'Pay Now' button out of the 'bill card' to make room for the pay options
- Removed the house icon and moved the address outside of the 'bill card' for better clarity
- Moved the 'Amount Due' section up on the card and added a time period of that referred bill

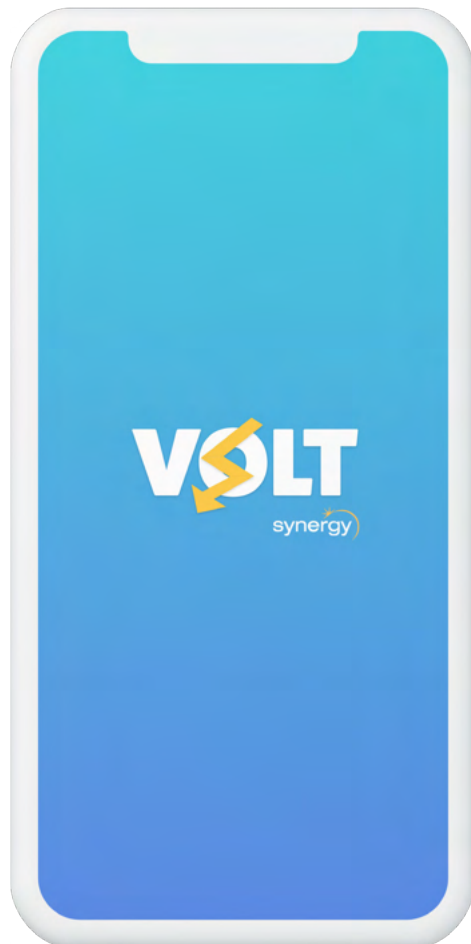
After



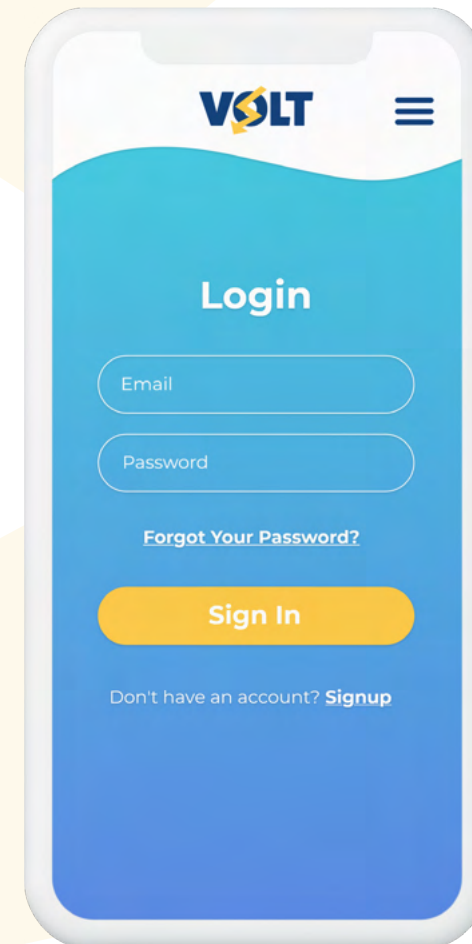
Final Design

Final App Design

Splash Page

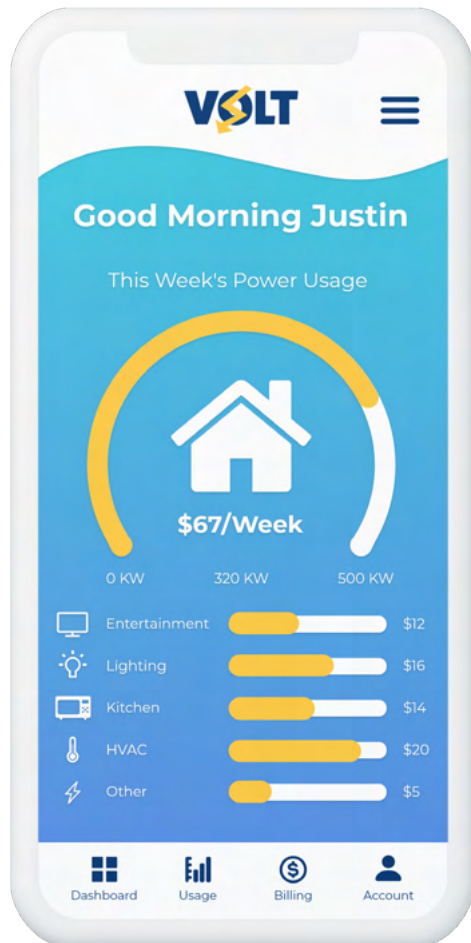


Login Page

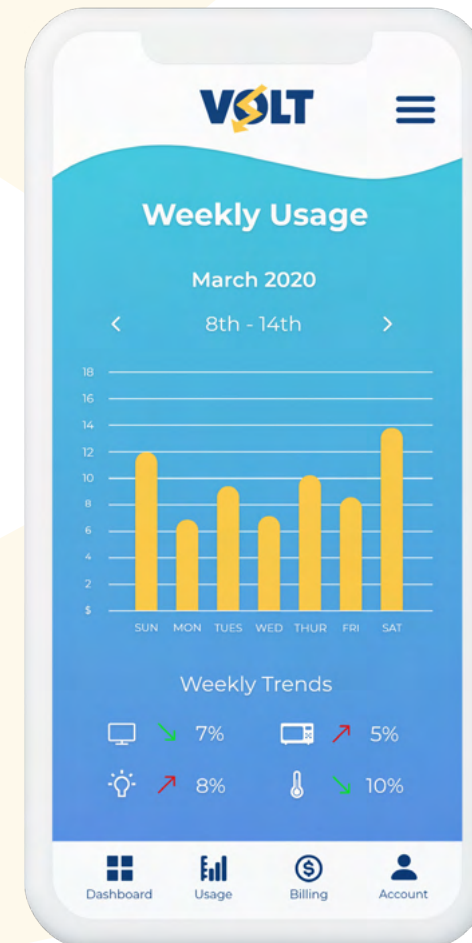


Final App Design

Dashboard

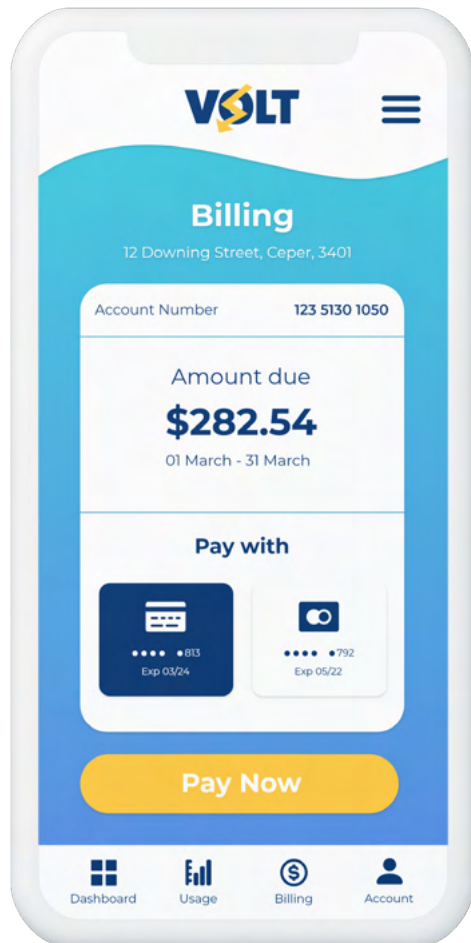


Weekly Usage Page

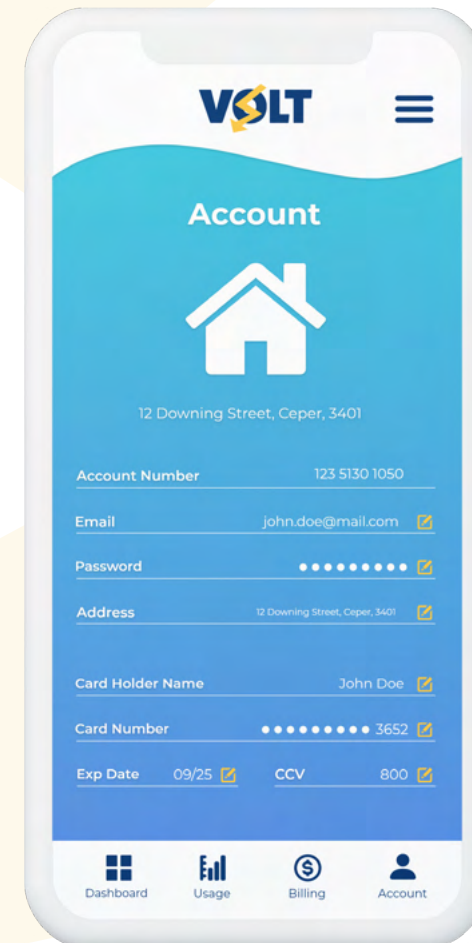


Final App Design

Billing Page



Account Page



Final App Design

Widgets

