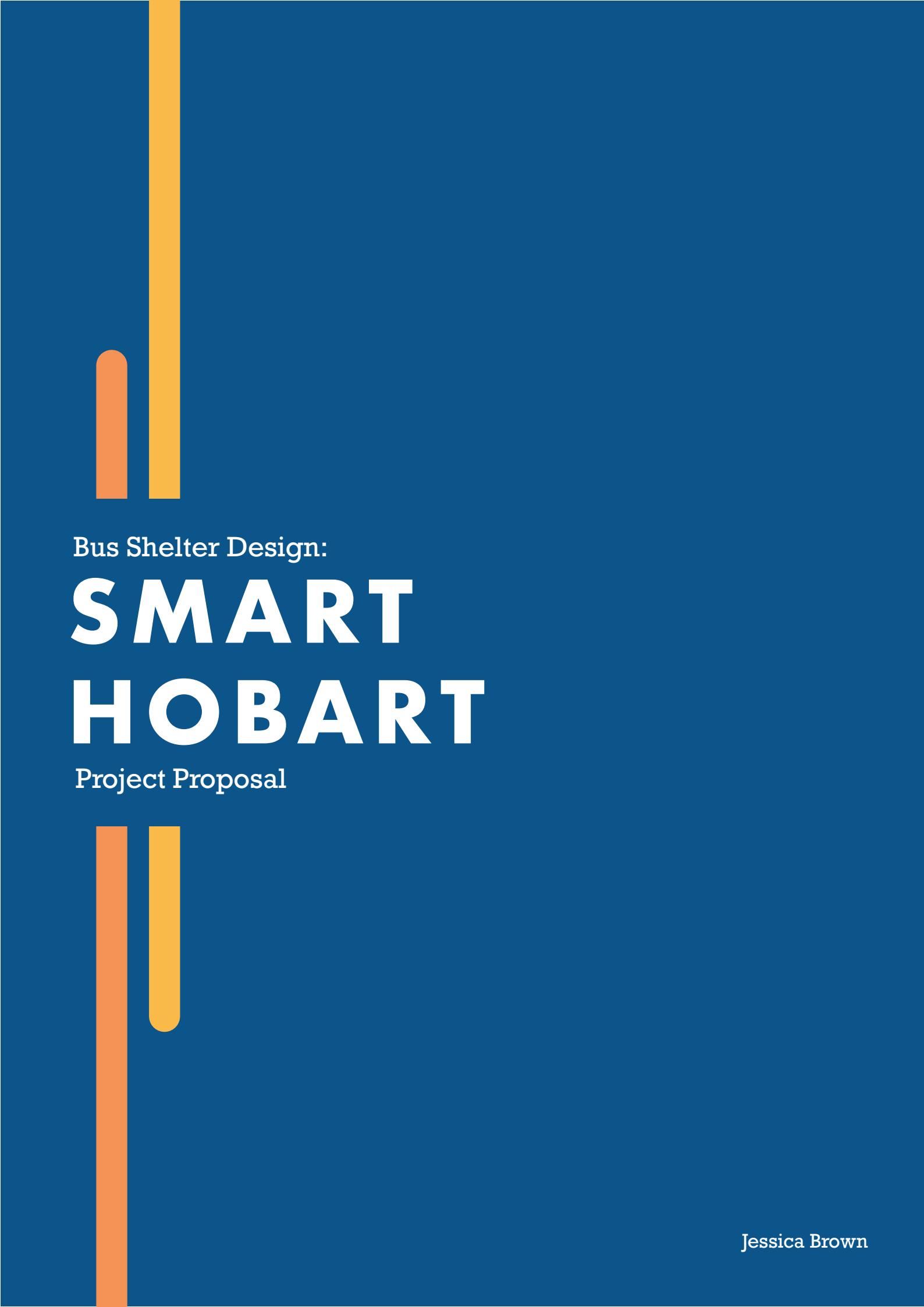


Bus Shelter Design:

SMART HOBART

Project Proposal



Jessica Brown



THE BRIEF

BREAKING DOWN THE BRIEF



1. INTRODUCTION 3/19

The City of Hobart ("the City") wishes to invite the community to create an innovative and integrated experiential bus shelter (and/or stand) capable of incorporating a range of multi-purpose technologies and digital wayfinding systems ("the Commission").

The interactive interface could also consider future use of location aware, image processing and augmented reality technologies to accommodate artistic, cultural, tourism and sponsored content.

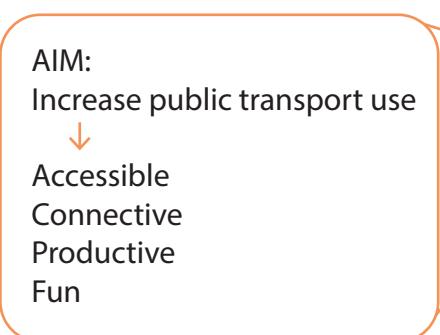
In sum, the challenge is to deliver a unique, and potentially hyper-aware, public transport service experience to a wide range of clients including residents, commuters and tourists ("the Community").

The proposed solution must address and integrate the critical design criteria:

Bus Stand - Shelter Design
Digital Interface
Various Communication Methods

"A physical design [that's] practical, low-cost, scalable, modular..."

- Features to play with:**
- Seating, lighting, signage
 - Security/Emergencies
 - Charging
 - Interactive interface
 - Communication
 - Community/cultural
 - Data collection



"...movement of people ahead of cars"

2. BACKGROUND 5/19

a. Project Aims

The aims of this project include:

- to encourage greater use of public transport by enhancing the commuter experience making it accessible, socially connective, productive and fun
- to create an integrated digital information platform to improve service connections
- to deliver a unique service-experience to a wide range of users including residents, commuters and tourists through the provision of community and cultural information, tourism, emergency management and emerging technologies
- to assist in the preparation of the City's response to improving international standards for Accessible Public Transport (OSAT) requirements in accordance with the Disability Discrimination Act
- to position public transport services in Hobart as a comfortable, legible and reliable mobility choice
- to move city **safely** through the use of functionally appropriate and contextually appropriate lighting and **Crime Prevention** through Environmental Design (CPED) solutions
- to improve the public transport experience through collecting and displaying data from bus stops including real-time arrivals and departures and environmental sensors

<https://www.legislation.gov.au/Details/TasCoas>

2. BACKGROUND 7/19

b. Digital Interface

The digital interface requires capability to provide two (2) levels of user engagement. (The Design Team may like to, but is not expected to suggest or determine the source of displayed information, only to incorporate the display of it into their design.)

Primary: Real Time Data and Information

The most crucial information is the highly-visible display of real-time bus arrival and departure information to tell a commuter when the previous bus left (elapsed minutes) and when the next will arrive (estimated time). This information may be displayed on a screen (or screens) that can be seen by bus shelter users, passing pedestrians and car traffic. Other less crucial information on this screen's may include bus route numbers, bus stop names, **targeted** LED, E-Paper or other screen options may be explored, but the expectation is that every bus stop be able to display this level of information regardless of what technology was available.

Secondary: Cultural, Tourism and Wayfinding Information (containing the **third** level)

The secondary level of information and engagement (potentially in a second screen and possibly not available on all bus stops) would support cultural and tourist information to keep locals and visitors informed and engaged. This may include sponsor content, advertising or partnered sponsorship of WiFi capabilities.

This level could also support hyper-specific location sensitivity devices, augmented reality experiences and other technologies that are essentially "over the bus shelter user". **Handheld** devices potentially via a supportive app. Design Teams are not expected to design an app, but are welcome to show imagined user experiences and capabilities.

Designs may consider the integration of Internet of Things (IoT) sensors to provide location specific insights into community usage of facilities to improve service delivery and experience. For example, motion-based light sensors could trigger Dark Sky lighting initiatives to improve safety, reduce emissions and protect the natural environment.

The Design Team should consider the technology architecture (including varying communication and power capabilities) required for both experience levels and ultimately be informed by innovation and budget limitations. You are welcome to [reach out](#).

HIERARCHY

Primary data: Bus times/info
Secondary data: Other road/travel info
Tertiary data: Cultural/tourism

3. POLICIES AND STRATEGIES 8/19

City Strategic Vision

In "Hobart: A Community Vision for our Island Capital", the community told us their vision:

We are bold: we investigate, trial and implement energy efficient transport and technology alternatives for the community. We are to everywhere accessible, efficient, safe, healthy and environmentally friendly ways to move and connect with people, information and goods, and to and through spaces and the natural environment.

We seek out and respond to transport and technological opportunities to reduce emissions. We are open to investigating, trialling and implementing new or reinvigorated transport modes.

Our cityscape is easy to access and move through, encouraging the movement of people ahead of cars. People have easy access to effective and efficient transport options.

Technology and information systems support enhanced transportation options, increasing ease of use, efficiency, reliability and uptake.

We build and maintain safe and connected connectivity solutions through collaborations with all levels of government, education, private industry, and wider stakeholders.

We make active and public transport easy, planning and building the infrastructure needed to make these modes convenient and effective. We respond to new opportunities for energy efficient transport and design

4. PROJECT STRATEGY 9/19

4.1 Relevance to Connected Hobart Action Plan

This Commission addresses a number of initiatives within the Connected Hobart Action Plan, which, along with its corresponding Framework, will be a useful document for the Design Team to understand, and can be downloaded here:

<https://www.hobartcity.com.au/Community/Connected-Hobart>

Hobart City Lab (CCRoA):
A "field lab" where community members, industry and technological stakeholders can co-design and trial creative initiatives and solutions that address significant urban challenges. City Lab provides a physical location for innovation and problem solving through infrastructure initiatives before the City invests in larger scale production and implementation.

Digital Upgrade to Major City Centre Bus Stop (CTRa):
The City is a key mediator in the delivery of last mile transport into and around Hobart. Our **co-**inner city bus stops are not just shelters but an untagged backbone for the city. A connected bus shelter can be an integral part of the solution for making the city experience for thousands of commuters.

Goals: To enhance Hobart's bus shelters as places to find information. To take advantage of the number of shelters around the city to improve **Smart Cities** performance.

Product / Results: Agreements with Metro to upgrade city centre bus shelters, including digital wayfinding, CCTV infrastructure, public WiFi, environmental monitoring.

Community benefit: Improved access to information. Improved **seating** in bus shelters. Enhanced environmental opportunities for businesses and other stakeholders.

Digital Wayfinding and Multi-functional Information and Service Kiosks (CIViC):
The integrated digital technology platform designed as a part of this Commission may also support the initiative contributing to the Connected Hobart ecosystem via creating new ways of navigating and spending time in the city.

citylab.com/transportation/2019/07/diy-bench-seat-creative-idea-bus-stop-public-transit-shelter/

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massstransitmag.com/technology/passenger-info/signage-and-displays/

press-release/112019/ma

massachusetts-bta-brings-realtime-information-to-bligh-leadership-bus-stops

REWRITING THE BRIEF

Client

City of Hobart - Connected Hobart Initiative

Challenge

To design a digital experience to be implemented in bus shelters, that will increase the use of public transport and will aim to improve accessibility, connectivity, productivity and fun.

Background

The digital upgrades to major city centre bus stops in just one part of the Connected Hobart City plan. The plan aims to improve connectivity in the city, ensure equal access to transport for all residents/visitors and to consider social, environmental and economic facets of the transport industry.

The design of the bus shelter should leverage current and innovative technologies and should be able to integrate with the broad range of urban services offered in places across the city.

Objectives

- To increase user enjoyment in the public transport system
- To create a more connected community and city
- To make sure the public transport system is accessible to all
- To find information easily, including real time bus information
- To improve safety and crime prevention in the city

Deliverables

Digital experience that can be implemented on bus shelter

Optional:

- Accompanying app
- Physical shelter design
- Emerging technologies considerations and mapping

Target Audience

Residents, commuters and tourists of Hobart City

Scope

Bus shelter design should be able to accommodate two users at any given time. Potential for design to be applied city wide or in specific locations. Standing proposal to include digital wayfinding, CCTV infrastructure, public Wi-Fi, environmental monitoring and LCD displays.

Dates and Timing

Research and Analysis complete by Friday 18th September

Ideation completed by Monday 28th September

Final prototype and user testing completed by Monday 9th November

THE TOPIC



THE CLIENT

City of Hobart

The City of Hobart, also known as the Hobart City Council is local governing body in Tasmania, who have been presiding over the central metropolitan area of Hobart for over 150 years. Their current focus includes an annual plan with the following 8 key areas:

1. Sense of Place
2. Community Inclusion, Participation and Belonging
3. Creativity and Culture
4. City Economies
5. Movement and Connectivity
6. Natural Environment
7. Built Environment
8. Governance and Civic Involvement

The Connected Hobart initiative falls under area 5, Movement and Connectivity. (City of Hobart Annual Plan 2020-21, <https://www.hobartcity.com.au/Council/Strategies-and-plans/Annual-Plan>).

Connected Hobart began in September of 2019, supported by ongoing research and engagement with stakeholders and the community. The aim of the plan is to be "...Australia's most economically, social and environmentally connected community by 2030" (City of Hobart - Connected Hobart, 2020).

Key Takeaways

- Mission Statement: Working together to make Hobart a better place for the community
- Government thinking should be forward-thinking instead of reactive
 - The most advanced solutions aren't always the best solutions
 - Aim for a smart city: Connected community leveraging new technologies

THE TOPIC

Bus Shelters/Transport

Bus shelters are traditionally small covered seating areas, erected at bus stops to provide a place to sit, shelter from the elements and an opportunity for print advertising (for everyone passing by). They are essentially designed for periods of short wait time. (SmartCities World, 2017). A study conducted by Gökçen Firdevs Yücel Caymaz found a significant correlation between user satisfaction and bus shelter design. The following factors were considered: the difficulty of getting on and off buses, the cohesion between the bus shelter and the surrounding environment, the potential of the shelter for summer use, the comfort, adequacy of seating and the state of the bus shelter (how well it has been maintained).

Key Takeaways

- Key purposes:
- Seating
 - Weather protection
 - Advertising opportunity

EXISTING SOLUTIONS



Eye Stop Concept -http://likecool.com/Eye_Stop_Concept--Concept--Gear.html

- A sleek bus shelter design that emphasises being able to navigate home easily and clearly.
- Interface is confusing. Icons are not consistent with user expectations and are poorly mapped (Lidwell et al. 2010).
- Features of interest: Touch screens, design applied to bus shelter and bus stop post, screens showing information of outside of bus stop



Detroit LED Bus-stop -<https://www.behance.net/gallery/3346199/DETROIT-LED-BUS-STOP>

- Bus Shelter concept that generates power from foot traffic over haptic pads on sidewalk
- Important information is not immediately visible, bad signal to noise ratio (Lidwell et al. 2010). Map on road side of shelter can't be seen by users in shelter.
- Features of interest: Eco friendly energy generation by haptics, walk through design



- Bus Shelters with interactive screens where users can play games while they wait
- Employing Zeigarnik effect (Lidwell et al. 2010), to gamify waiting experience. Creates user satisfaction and makes design sticky.
- Features of interest: Touch screen, gamification

Yahoo Game Bus Shelters -<https://www.ohgizmo.com/san-franciscos-got-video-game-equipped-bus-shelters-its-official-my-city-sucks/>

EXISTING SOLUTIONS



- Interactive bus shelters decorated as living spaces to promote Google Home. Each shelter has an interactive screen with prompts to ask Google. The bus shelter responds to the prompts i.e. changing light/heat levels, playing music or speaking information like a definition or fact
- Good example of signal to noise ratio (Lidwel et al. 2010). Screen design is minimal and only show top level content for user to interact with. No functionality for bus information though (privately funded for advertising). Using sound as feedback could clash with noisy environment.
- Features of interest: physical bus shelter responding to interactions on the digital interface, cohesive and appropriate aesthetic

Google Smart Bus Shelters JCDecaux -<https://www.jcdecaux.com/smart-bus-shelter#concept>

REPEATING FEATURES

- An interactive screen (usually touch) inside the bus shelter
- Displays inside and outside the bus shelter to broadcast primary level information
- Innovative energy sources that don't require using the city grid e.g. converting kinetic energy, solar panels
- Creating a physical immersive environment e.g. heating and cooling, control of lights and ambience, air steriliser/smell manipulation
- Sleek and modern design
- Gamification to combat boredom during wait times

EMERGING TECHNOLOGIES & TRENDS

- Extended Reality (XR), includes virtual, augmented and mixed reality
<https://www.digitalpulse.pwc.com.au/infographic-six-emerging-technology-trends/>
- Computer Vision, including biometrics and identifying specific elements of a visual
<https://www.forbes.com/sites/bernardmarr/2019/09/30/the-7-biggest-technology-trends-in-2020-everyone-must-get-ready-for-now/#17c6534b2261>
- More sophisticated haptics and motion sensor technology
<https://online.rmit.edu.au/blog/what-will-be-big-vr-trends-2020>
- Anticipatory design/ "AI", predicting and catering for user's needs before they reveal them
<https://www.forbes.com/sites/bernardmarr/2019/09/30/the-7-biggest-technology-trends-in-2020-everyone-must-get-ready-for-now/#17c6534b2261>

USER RESEARCH



TARGET AUDIENCE

Residents, Commuters and Tourists of Hobart City

Hobart, Tasmania's capital city is known to have some of the most laid back and relaxed locals. The culture and sense of community is quite strong in the city, likely resulting from everything being close together. The city is abundant with natural beauty and is relatively safe and environmentally friendly compared to other Australian capital cities. The weather is sporadic and varying but doesn't make life uncomfortable by being extremely hot or cold.

Hobart draws tourists interested in a getaway that isn't too fast paced and can appreciate natural beauty and local culture. One of Hobart's most popular attractions is the MONA (Museum of Old and New Art), which houses major summer and winter festivals which attracts visitors from all over Australia.

Because of Hobart's tight-knit nature getting around the city centre and inner suburbs is relatively easy during week. Buses run through the city and can get you anywhere. Traveling outside the city is more difficult, as there are no trains, trams or ferries outside the city. Traffic is minimal and although Hobart is quite hilly it is common for locals to walk or bike around the city and suburbs.

Source:

Carol Raabus ABC Radio Hobart 2018

<https://www.abc.net.au/news/2018-02-28/things-to-know-about-hobart-for-mainlanders/9491882>

USER GROUPS

Residents - Local Families

Demographics

- Teenager to Older Adults (15 - 70 year olds)
- Mid socio-economic status
- Families, students, full time workers and retirees
- Australian citizens
- Live in Hobart or surrounding suburbs

Psychographics

- "Laid back locals"
- Connected with nature
- Strong sense of community

Tourists - Leisure seeking Australian Retirees

Demographics

- Middle aged to older adults (40-70 year olds)
- Australian citizens, live on "mainland"
- Mid to high socio economic status
- Families, couples or retirees

Psychographics

- Interested in nature, arts and culture
- Sick of fast paced city life
- Environmentally conscious
- Looking for escape and relaxation

Commuters - City Workers and Students

Demographics

- Young Adults to Middle Aged (20 - 55 year olds)
- City workers, students
- Australian citizens, live in inner suburbs or surrounding suburbs of Hobart
- Mid to high level income

Psychographics

- Invested in city culture
- Deep roots and sense of community
- In a rush and stressed

QUICK FINDINGS AT A GLANCE

- 1** Waiting is boring, users need something to entertain them
- 2** Communication between the user and the bus driver isn't always clear
- 3** A real time bus tracker is important to users
- 4** Isolated and dimly lit bus shelters feel unsafe
- 5** It is important to be protected from the weather
- 6** Colour and art are important to users
- 7** Existing methods for checking which bus to get are straight forward, but recording and carrying this information is not
- 8** Social media is a good way to stay up to date with the community, it is transparent, local and regularly updated
- 9** It is hard to catch the bus in new places because information is difficult to find, and the process and routes are foreign
- 10** Deciding where to visit on holiday is largely based on social media attention
- 11** Regular commuters feel a sense of rapport with the people they see on the bus often
- 12** Remote bus shelters should accommodate for how user's get to them

QUICK FINDINGS REPORT

1 Waiting is boring, users need something to entertain them

Implications

- Users go straight to their phones and checking social media, draining battery
- Limited sources of entertainment outside phone: advertising (usually static print)
- Users could be listening to music/videos to pass time and not hear bus
- This process is enjoyable and make the journey feel longer

Design Ideas

- Gamification of environment, competition between users or personal best/progress system
- Artwork or content available to browse
- Charging stations
- Interactive simulations e.g. water plants, play an instrument, cook a meal

Design Principles

- The Zeigarnik Effect (Lidwel et al. 2010)
- Stickiness (<https://medium.com/threefold-digital/stickiness-a-ux-metric-71fefa740604>)
- Mapping (Lidwel et al. 2010)

Interaction Point

- User enters bus shelter and connects their phone (physically to charge or via wifi/bluetooth if not). Game progress from previous day (stickiness) loads onto bus shelter interactive screens.
- User continues to play game, for example, using virtual kitchenware (mapping) to cook a meal, invested in finishing the dish (Zeigarnik Effect).
- User saves progress and catches their bus once it arrives

2 Social media is a good way to stay up to date with the community because it is transparent, local and regularly updated

Implications

- Content is short, part of users mobile routines (scrolling through feed) and easy to consume
- It provides informative information as well as a sense of connection and "gossip"
- It is collaborative, allowing users to be readers and providers of content
- It can reach users who aren't directly involved, through anticipatory design and their friend's engagement

Design Ideas

- Digital community pin up board, a visual representation of all the information on the facebook page with interactions mimicing the real world (pinning up a flyer, taking a phone number etc.)

Design Principles

- Mapping (Lidwel et al. 2010)
- Matching system to real world (Nielsen, 1994)

Interaction Point

- User enters bus shelter and can view the digital community board.
- Connects their mobile, they can now post something up and interact (e.g. vote, comment)
- Possible link to online version so user can continue to access/ save information for later

QUICK FINDINGS REPORT

3 A real time bus tracker is important to users

Implications

- Real time location information can help user's time when to arrive at the bus stop/leave house
- Reduces the consequences of buses being late or early by keeping user informed

Design Ideas

- Could be used in a social aspect to share location/ETA with loved ones or employers
- Tracking at bus stop and mobile, so information is readily available anywhere
- Opportunity for personalisation (e.g. saved routes, integrated with smart devices and calendar so when the user wakes up they can be informed what time they need to be at the bus stop)

Design Principles

- Feedback - Visibility of system status (Nielsen, 1994)
- Help users recognize, diagnose, and recover from errors (Nielsen, 1994)
- Recognition over Recall (Nielsen, 1994)

Interaction Point

- User is getting ready for work, checks to see where the bus is (visibility of system status). If the bus is early or late they can adjust their schedule of when to leave the house accordingly (Error recovery)
- Once at the bus stop, the visual for when the bus arrives is clear (using location tracking), so the user knows exactly how much time they have to fill
- User can save certain routes/buses for later so the information is available at a glance

4 Communication between the user and the bus driver isn't always clear

Implications

- In the suburbs the bus stopping is wholly dependent on communication between the user and the driver (getting off the bus or hailing the bus)
- If this is ineffective user can miss their stops, miss their bus or not be able to exit the bus because of accessibility issues (driver hasn't heard that a customer needs the ramp put down)

Design Ideas

- The bus shelter has a hailing and stopping system built in digitally
- This status is then clearly displayed so users and the bus driver know when to stop

Design Principles

- Visibility of system status (Nielsen 1994)
- Control (Lidwell et al. 2010)

Interaction Point

- When user arrives at the bus stop they can elect which bus they want to stop for them, the same process can be completed from the bus (Control)
- Whether the bus is stopping or not is then displayed to the driver, at the shelter and on the inside and outside of the bus (Visibility of system status)

QUICK FINDINGS REPORT

5 It is hard to catch the bus in new places because information is difficult to find, and the process and routes are foreign

Implications

- Lack of familiar landmarks and routes makes it hard to know when to get off the bus
- Language barrier makes it hard to know which stop is which
- Knowing where to look for important information like timetables, fares, payment methods and where the numbers are on the bus can be difficult

Design Ideas

- A notification/countdown system for when to get off the bus so familiar landmarks aren't needed
- Visuals to accompany stops so user's know what they are looking for
- Clear feedback of which number bus is arriving on shelter so user's aren't searching bus exterior

Design Principles

- Recognition rather than recall (Nielsen 1994)
- Highlighting (Lidwell et al. 2010)

Interaction Point

- User is at bus shelter waiting for bus. They can see on the shelter that their bus number is arriving (Highlighting) so they get on the bus.
- They log which stop they need to get off at, their phone then gives them a countdown linked to the bus tracker to notify them when they should exit the bus (Recognition over recall)
- Alternatively they are shown of what the view will look like out the window when they are nearing their stop, so they know to exit soon (Recognition over recall)

6 Isolated and dimly lit bus shelters and stops feel unsafe

Implications

- Users feel safer when surrounded by people, whether this be a crowd, a way to contact people (public phone) or in a residential area where there are lots of occupied houses
- Bus stops are a place of shelter so can attract people at all hours
- Users feel most unsafe when riding at night and alone

Design Ideas

- CCTV and clear signage that patrons are being filmed
- Tag in system so their is a record of everyone at the bus shelter at any given time
- Panic button, physical and linked to mobile to alert transport authorities or police based on severity of issue

Design Principles

- Signal to Noise Ratio (Lidwell et al. 2010)

Interaction Point

- Past 7pm (nightfall), other entertainment features get lower hierarchy and panic button/CCTV signage get higher priority (Signal to Noise Ratio). Makes safety a bigger concern and creates the feeling of people being there watching/listening if user needs help

QUICK FINDINGS REPORT

7 Deciding where to visit on holiday is largely based on social media attention

Implications

- Users feel inclined to visit/research places they have seen on their friend's social media
- Posts by location (e.g. searching up a town's posts) can reveal good places to eat and see
- The more social media attention something has the more likely users are willing to see it
- Word of mouth, location and personal interests also factor into the sightseeing decision process

Design Ideas

- Displaying social media posts under certain tags or locations in travel section of digital bus shelter
- Showing which sights are on the bus routes and linking that to social media posts
- Electing personal interests and bus shelter recommending relevant results

Design Principles

- Anticipatory Design (<https://uxdesign.cc/design-experiences-that-are-one-step-ahead-2254e98d07b2>)
- Flexibility and Efficiency of Use (Nielsen 1994)

Interaction Point

- User arrives at bus shelter and is shown most popular sights (Anticipatory Design) and places to eat in Hobart
- When one takes their fancy they can explore it further and similar posts. They can also filter searches by applying tags for the type of things they are looking for e.g. thrill-seeking, relaxation, history, local delicacies etc. (Flexibility and Efficiency of Use).

USER GOALS

1 To know exactly when their bus is arriving

This includes:

- Knowing when the bus will get to the shelter
- Knowing which bus is the one they need to catch
- Knowing when to get off the bus
- Being able to hail and stop a bus, and receive confirmation of this

2 To feel safe and comfortable riding the bus

This includes:

- Having a place to sit if they wish
- Being sheltered from the weather
- Feeling safe from road hazards
- Feeling safe from other people/patrons

3 To be entertained when waiting for the bus

This includes:

- Having something to pass the time
- Being visually stimulated by the bus shelter
- Have access to a phone charger

USER PERSONAS



Jason Katzamakis

"I'm going to need another coffee"
#hardworker #coffeeaddict #citylife

DEMOGRAPHICS

Age: 24

Occupation: Junior Accountant in a big firm

Locale: Has an apartment in North Hobart, a 10 minute bus ride away from the city centre

Family: Lives with his fiance, family lives in the outer suburbs where he lived most of his life

GOALS

- To get as much work done on his phone as he can commuting to work
- He MUST have a coffee before work
- To avoid being late

FRUSTRATIONS

- Juggling all his devices he does work on
- Running down his phone battery playing mobile games

MORE ABOUT JASON

- Music lover
- Addicted to coffee
- Wants to be a full chartered accountant
- Addicted to mobile games in his downtime

CATCHING THE BUS

- Jason likes to be at the bus stop 10 minutes early, just in case the bus is early
- He passes the time by listening to music or playing games on his phone
- He offers his seat to older passengers on the bus, even though he likes to sit to check his emails
- Catches the same bus every work day, morning and afternoon

Technological Competence



Free Time



Community Involvement



USER PERSONAS



Tara Reegan

“Dibs the window seat!”
#friends #summerfun #schoollife

DEMOGRAPHICS

Age: 16

Occupation: High school student (Year 10)

Locale: Lives in family house in Tolman's Hill, 45 minute bus ride from city centre

Family: Has two younger little brothers who are super annoying, a dog and both her parents

GOALS

- To have fun during the school holidays with her friends
- To start practicing for her driver's license test so she can drive to see her boyfriend

FRUSTRATIONS

- Has to spend 1 hour on the bus to see her boyfriend who lives on the other side of the city
- Gets so bored at the bus stop
- Doesn't feel safe catching the bus home at night once she passes her friend's stops

MORE ABOUT TARA

- Loves catching up with her friends on the weekend and going shopping
- Is currently bugging her Mum for a new phone because hers doesn't hold charge anymore

CATCHING THE BUS

- Tara and her friends always try to sit at the back seat and fight over the window, they laugh a lot
- Tara hates waiting for the bus so tries leaving as long as possible before she goes out to her stop
- Her mum bought her pepper spray for when she comes home late on the bus, she's never had to use it

Technological Competence



Free Time



Community Involvement



USER PERSONAS



Linda Moore

“We must catch up soon!”

#supportlocal #coffeewiththegirls #mumlife

DEMOGRAPHICS

Age: 47

Occupation: Stay at home Mum

Locale: Lives in family home in Blackmans Bay, an hour south of the city centre

Family: Lives with her husband and three girls aged 6, 8 and 11. They have two dogs.

CATCHING THE BUS

- If shes' alone Linda likes to check her phone and look out the window on the bus
- If she's with the girls she is usually chatting with them and making sure they behave
- She stresses about missing the bus and makes sure to wave it down with both hands so the bus driver knows to stop

FRUSTRATIONS

- Keeping her girls entertained when waiting for the bus
- Hates catching the bus into the city because she never knows where to get off

MORE ABOUT LINDA

- Loves walking the dogs and catching up with the other mums in the neighbourhood
- Is involved in the local council and cares about the community

Technological Competence



Free Time



Community Involvement



USER PERSONAS



Juan Ronan

"Well, you can't find that view anywhere else"
#retiree #relaxation&recreation #travellife

DEMOGRAPHICS

Age: 60

Occupation: Retired town planner

Locale: From Melbourne, travelling around Australia

Family: Travelling with his wife of 35 years, has three kids all in their 30s with young children

GOALS

- To see all the best thing Hobart has to offer
- To get around the city comfortably without it being too expensive

FRUSTRATIONS

- Travel research, hates going through travel sites and wants to just get out and explore
- Finding the best places to have a meal and a glass of red

MORE ABOUT JUAN

- Loves good food and fine wine
- Loves nature and feels connected to the environment, him and his wife go on lots of nature walks and hikes
- Wants to experience the genuine culture of a place instead of the tourist side

CATCHING THE BUS

- Juan and his wife spend lots of time planning which buses they need to catch and when and find it hard to remember and record all this information
- It took them awhile to get used to when to get off the bus, because everything was so unfamiliar
- It's difficult to get to places they want to see that aren't near bus routes

Technological Competence



Free Time



Community Involvement



USER SCENARIOS



Catching the bus to work

Jason works 9am-5pm at an accounting firm in Hobart city centre and is trying hard to progress up the corporate ladder. He only lives 10 minutes from the city so catching the bus is the easiest option for him to get to work on time.

Jason wakes up and gets ready for work. He checks his MetroTas app to make sure there haven't been any changes to his regular bus time. He usually gets a coffee before walking to the bus station from his local cafe, but was running a little behind today so decides he'll have to suffer through the instant coffee at work. He arrives at the bus stop near his house and brings out his phone to pass the time. He checks his emails but doesn't reply because he likes using the keyboard on his laptop or tablet, which he can't be bothered getting out of his bag. After he checks his emails, he plays games on his phone accidentally draining his battery down to 60% already. He reluctantly puts his phone away and tries not to drain it anymore while he waits.

The bus is over 5 minutes late now, and Jason is annoyed because he could've got a coffee and not missed the bus. Once the bus arrives, Jason tags on using his green card and sits down. He brings out his tablet to check more emails, but makes sure to keep an eye on the passing landscape. Last week he had got absorbed in some work and had missed his stop to get off at. He ended up being 20 minutes late for work and getting in trouble with his boss. He didn't get his coffee that day either. He was not happy about it.

Getting home at night



Tara often spends her Thursday afternoons at the local shopping centre with her friends. They catch the bus straight after school and spend the afternoon shopping and catching up. Recently, Tara and her friends decided to get dinner at the food court and stay for some late night shopping.

The girls left the shopping centre at 9pm and caught a late bus home. They were waiting at the bus shelter, messing around when two drunk men walked past. The girls huddled together and commented on how they were glad they weren't alone. They boarded the bus and tagged on without any issues and one by one the girls got off at their respective stops. Tara's stop was last so she was alone when she left the bus. The bus stop she got off at was quite dark and in front of a park. Tara felt a little scared and rushed past the park until she was in front of the houses of her neighbourhood. She couldn't decide whether to look at her phone and look like she was texting someone or stay alert in case someone was there. Tara was relieved and felt a little silly when she got home. She told her mum about it, and the next day Tara's mum gave her some pepper spray for next time, "just in case".

USER SCENARIOS



Getting around a new city

Juan and his wife, Cleo have just settled in to their accommodation in Hobart. They had a taxi booked from the airport but weren't keen on using taxis to get around the city. Juan does a quick google search to find the bus timetables and maps for them to get around. He visits the MetroTas website and finds a lot of type heavy information. After a long day of traveling they decide to figure it out the next day.

Juan and Cleo get up early to explore the city. They decide to catch the bus into the city centre to find a place to get breakfast. Juan uses the journey planner on MetroTas to plug in their current address and then selects "Hobart Central" from the dropdown for destination. This journey planner loads and comes up with an error message saying

"An error occurred while searching for directions.
This may be due to no services matching your criteria.
Please, try again."

After trying several different options the journey planner still isn't working so Juan gives up on it and tries to find which bus stop is closest to them on the maps page. All the routes are listed but the only way to see a map is to download one, so Juan does that, although he's not sure if he should download the one labeled "Northern Suburbs", "Southern Suburbs" or "Eastern Shore" so he gets all three and tries to find their location. The maps look more like train lines and it's very hard to pick out any discernible locations. After spending some time looking for the right suburb names and wandering the streets, Juan and Cleo find the nearest bus stop. It's a little drab and it makes Juan miss the bus stops in Melbourne covered in modern and local art.

Juan tries to make sense of the timetable at the bus stop but it just says times and unfamiliar stop names so they decide to ask a local, who helps them find the right number bus to get on. Juan and Cleo board the bus and spend a few minutes fumbling around for coins to pay the bus driver.

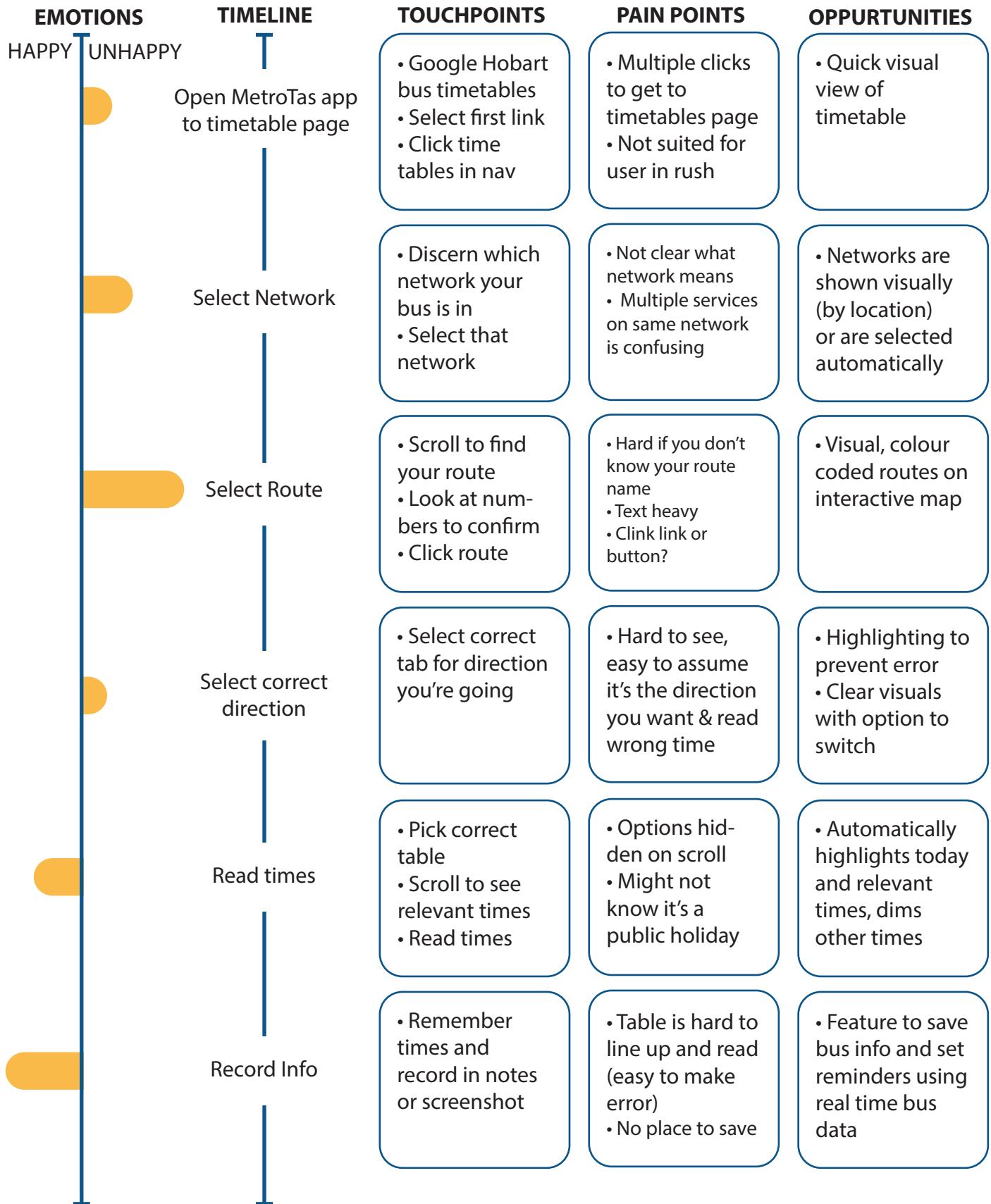
They know the name of the stop they have to get off at but have no idea how far away it is or what it looks like. Cleo tries to search the spot on her phone so they have an idea of how far away it is. When they are nearing it they indicate for the bus driver to stop. Unfortunately there was a stop right before the one they needed so the bus driver stopped too early. Not realising this Cleo and Juan got off the bus and had to walk an additional 50m to get to where they originally wanted to go.

JOURNEY MAPS

CHECKING WHICH BUS TO CATCH HOME



Jason Katzamakis



JOURNEY MAPS

CHECKING WHICH BUS TO CATCH HOME

Jason Katzamakis



TIMELINE



Open MetroTas app
to timetable page



Select Network



Select Route



Select correct
direction



Read times



Record Info



VISUALS

Google search results for "hobart bus timetable". The top result is "Hobart Network - Metro Tasmania Metro Tasmania". Other results include "Fern Tree - Sth Hobart Ferry", "Bridgewater - Brighton", "Rokeby - Clarendon Vale", and "Austin's Ferry Granton, Austin's...".

Metro Tasmania Timetables & Maps page. The "Hobart Network" section is highlighted with a yellow circle. It shows a thumbnail of a bus and the text "Hobart Network - from 11 October 2020". Below it, a box says "Effective 11 October 2020".

Detailed view of the Hobart Network timetables. It lists routes like University, Sandy Bay, Kingston, Blackmans Bay, Channel, Fern Tree, Mt Nelson, and Glenorchy and Northern Suburbs. Each route has a "VIEW TIMETABLE" button. A yellow circle highlights the "Blackmans Bay (All Services)" section.

Screenshot of a bus route showing departure times for "Towards Hobart City". The route number 540 is listed multiple times with times like 2:35, 3:15, 4:16, etc. A yellow circle highlights the 5:15 time.

Detailed weekly bus timetables for Hobart City Interchange (STOP F). The tables show route numbers 540 and 540A with their respective departure times for weekdays. A yellow circle highlights the 5:15 time for route 540.

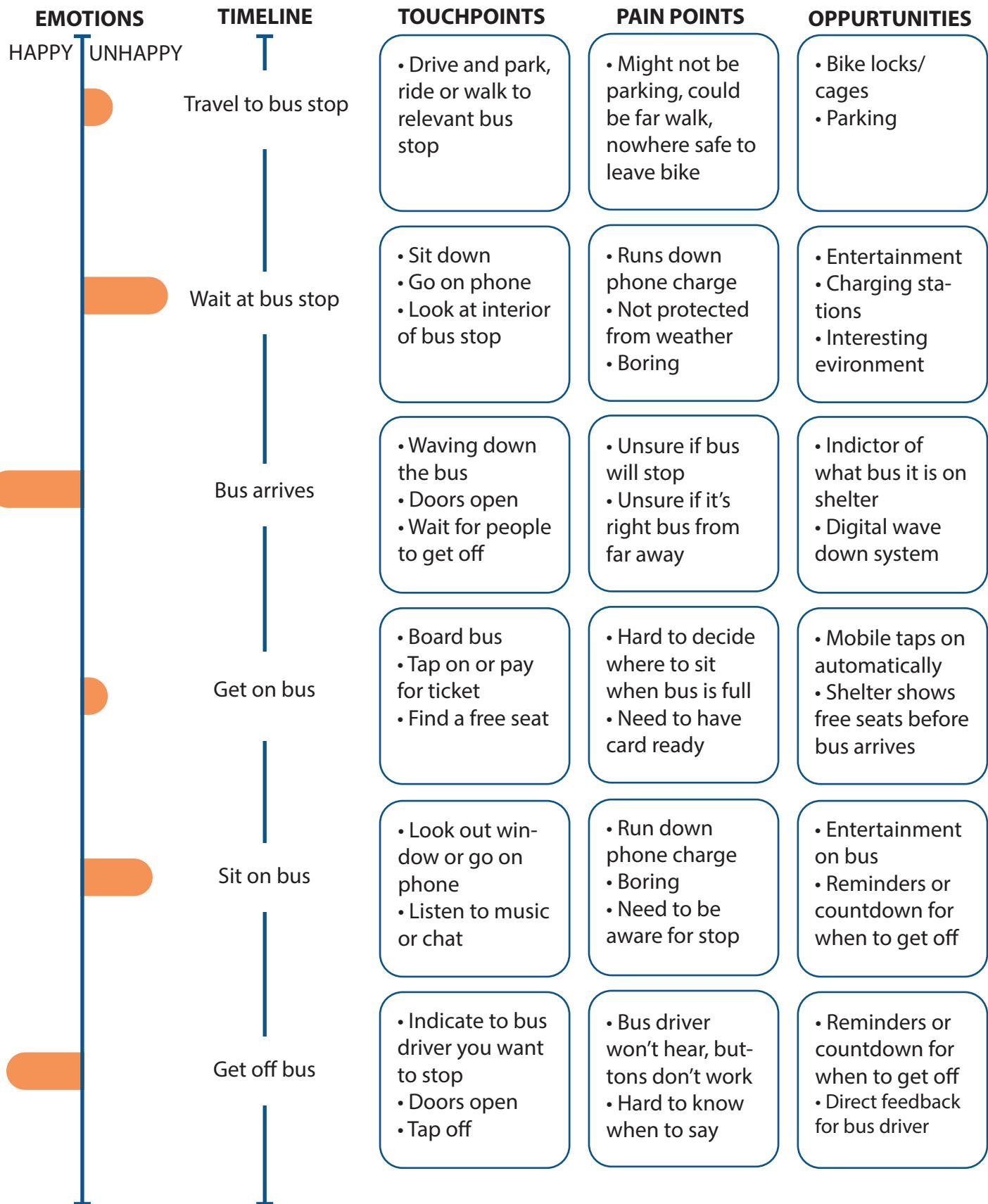
iPhone screenshot showing recorded bus information. The screen displays the time (5:21), signal strength, battery level, and a note: "All iCloud" and "Bus today 5:15 or 5:35 if later".

JOURNEY MAPS

CATCHING THE BUS TO LUNCH



Linda Moore



JOURNEY MAPS

CATCHING THE BUS TO LUNCH



Linda Moore

TIMELINE



Travel to bus stop



Wait at bus stop



Bus arrives



Get on bus



Sit on bus



Get off bus

VISUALS



CONCLUDING STATEMENT

Key functions of Bus Shelter

1. Protection from the weather
2. Displaying bus information in real time
3. Entertainment while they wait

Secondary functions of Bus Shelter

1. Staying up to date with the community and connected to the city
2. Feeling safe
3. Suggesting places to visit

Social media will be an effective way to tap into a feeling of community and creating a sense of place (recommending places to visit and see on bus routes).

User groups have different needs

Families/locals need entertainment and an efficient system to communicate with the bus driver

Commuters need charging stations and real time bus tracking

Tourists need ways to know when to get off the bus and how to identify the right bus

Primary Level Content

Bus information is primary level data displayed on bus shelter.

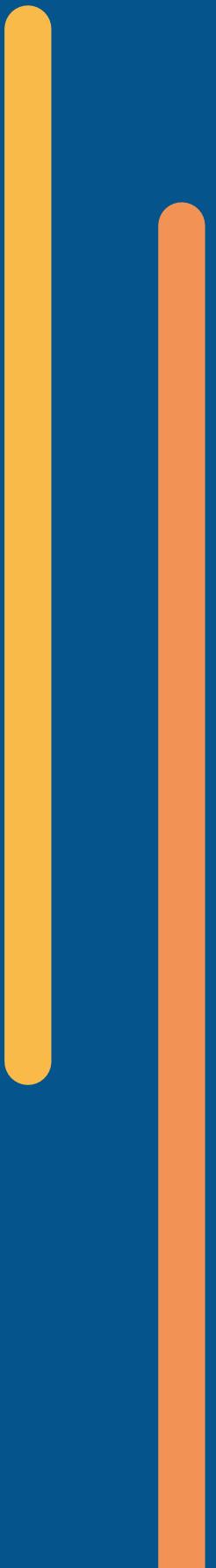
Secondary Level Content

1. Entertainment
2. Community
3. Safety (prioritised past 7pm)
4. Sense of Place

Other Features

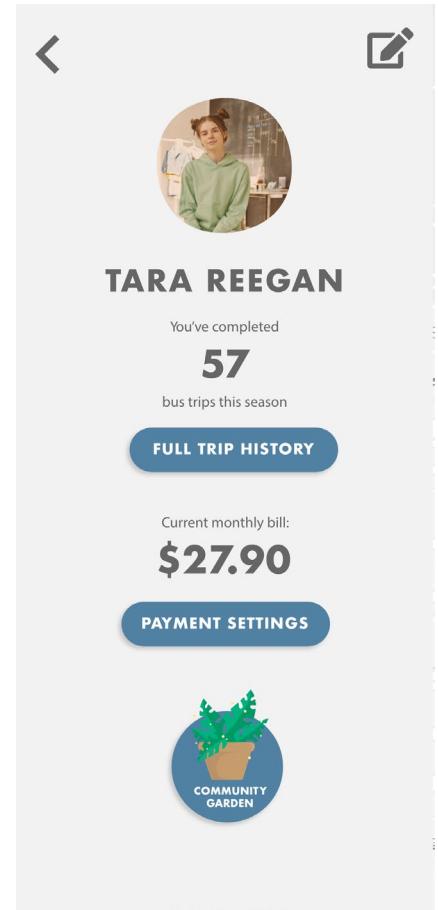
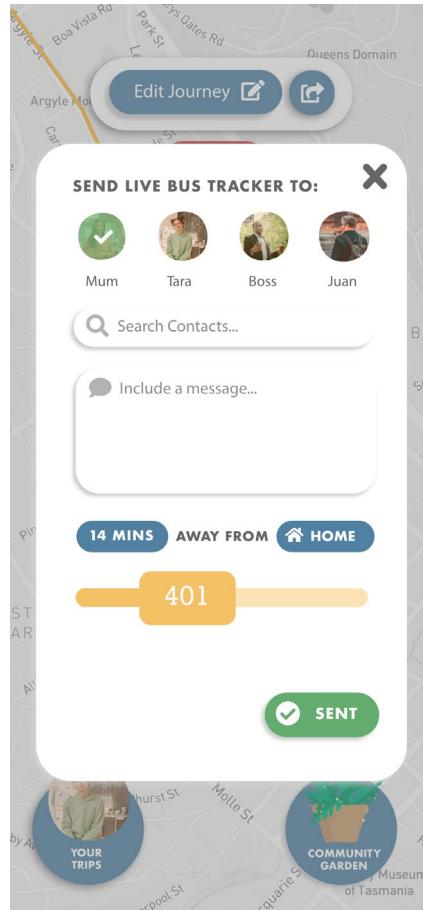
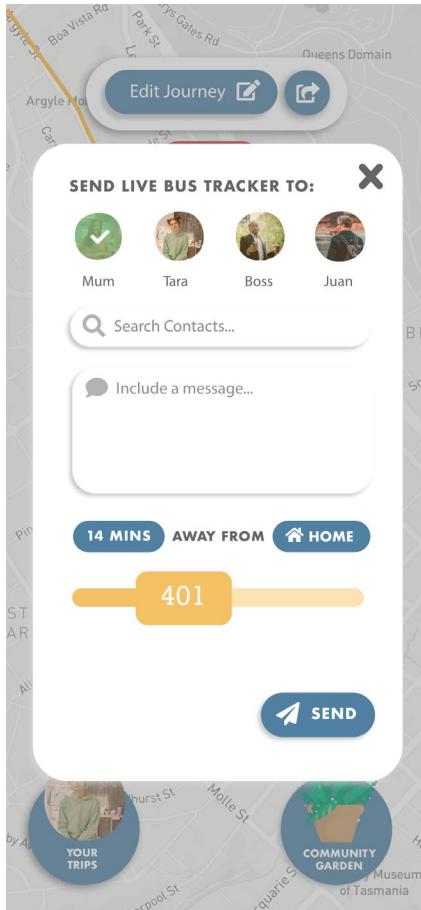
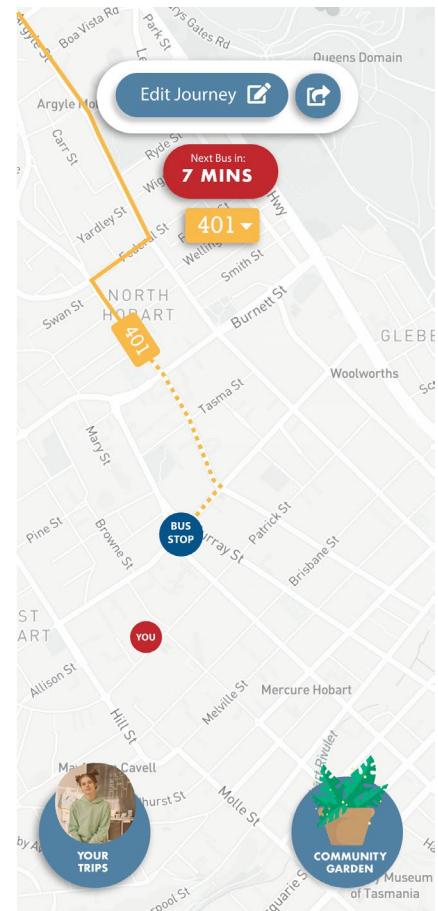
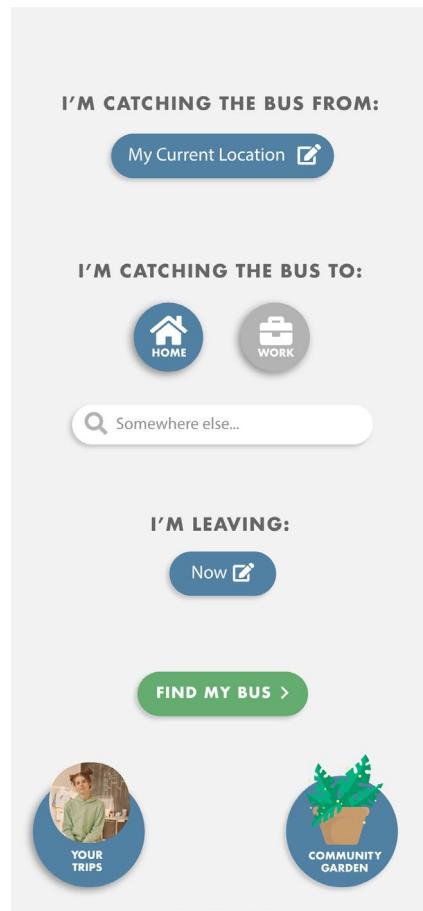
1. Charging ports
2. Hailing bus functionality
3. Panic button
4. Protection from weather
5. Seating
6. Bike cages

SCREEN DESIGNS



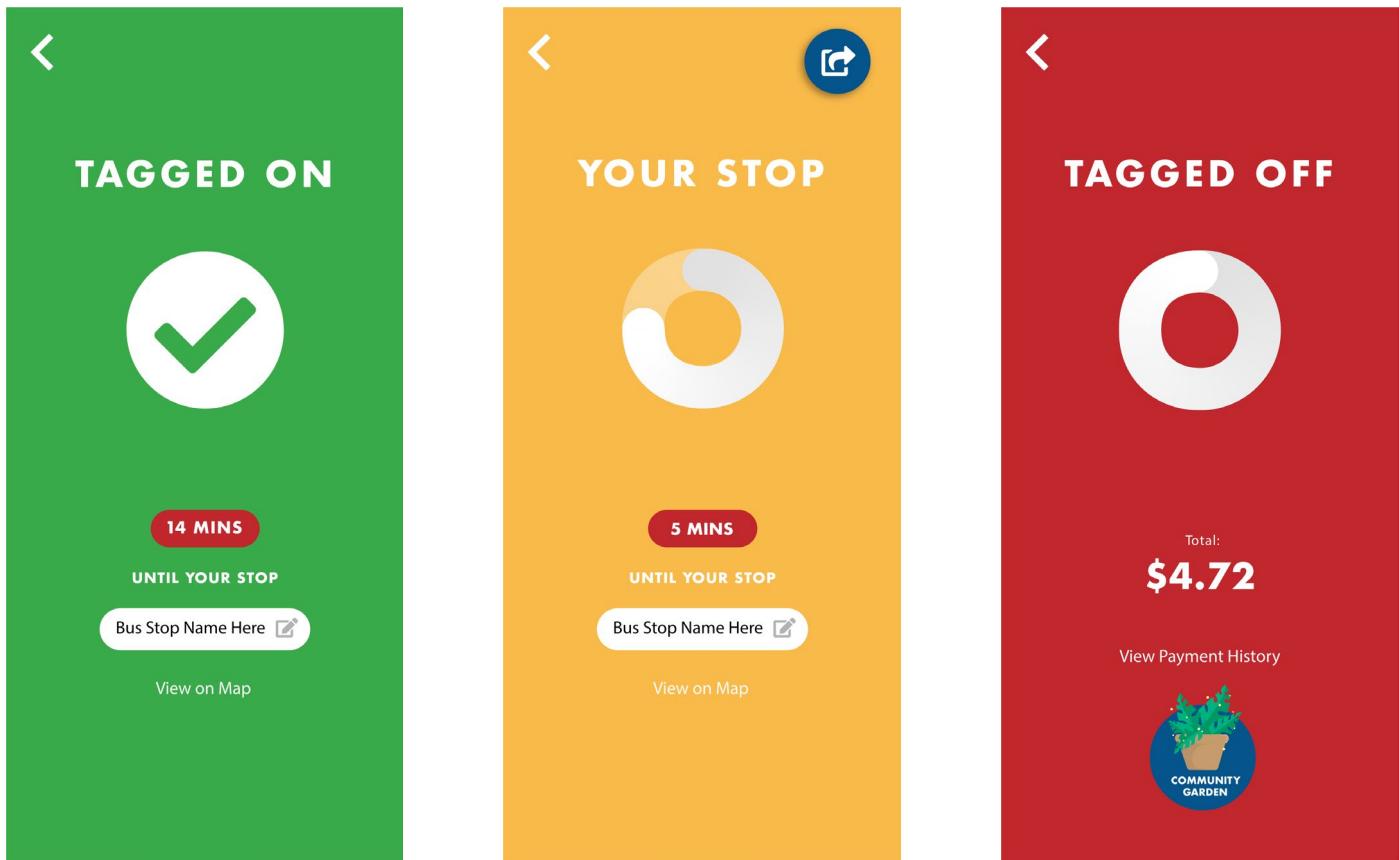
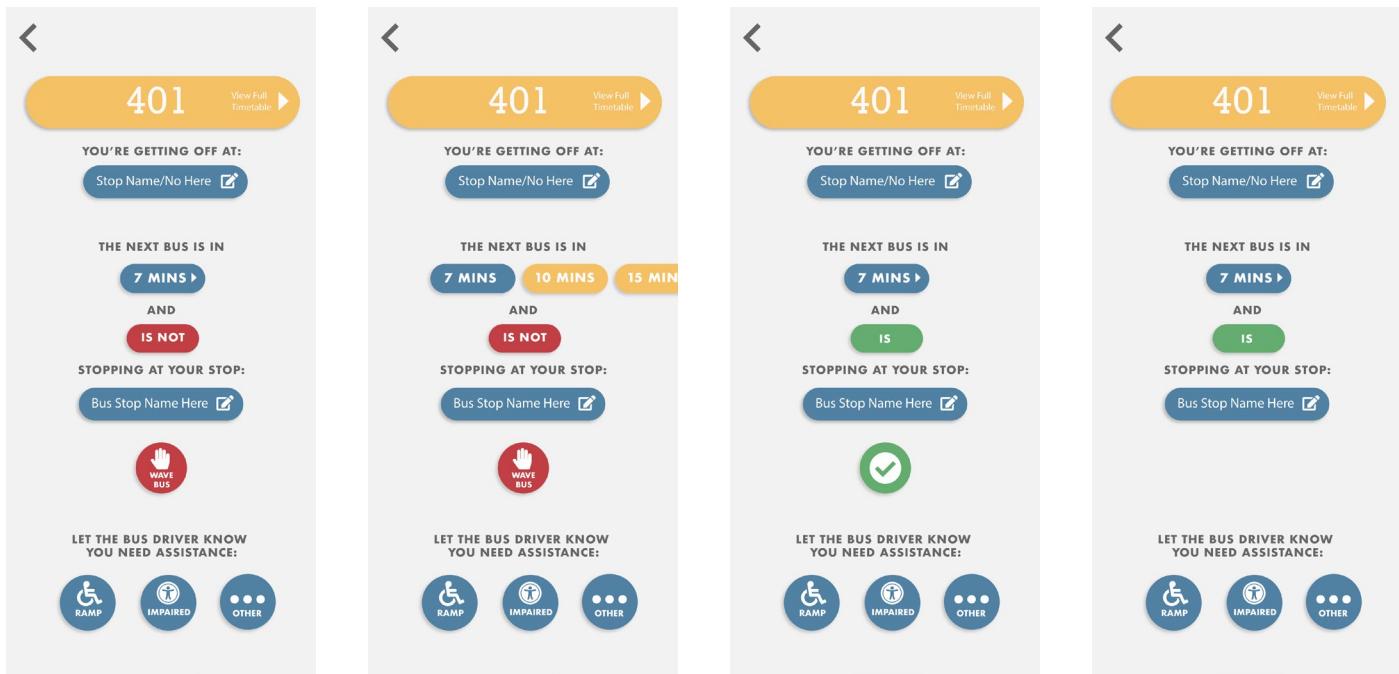
THE APP

Bus Information Screens



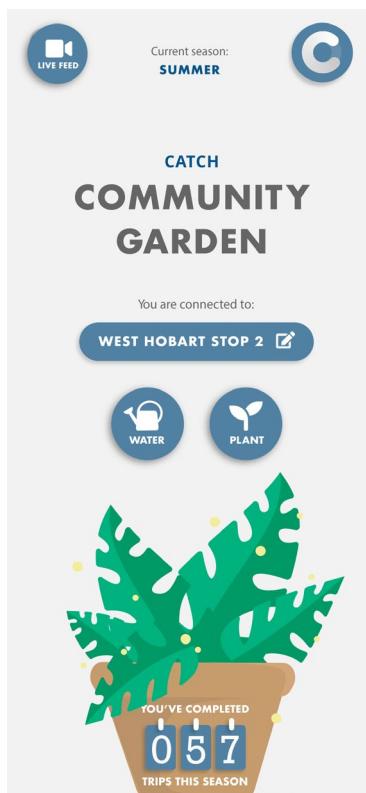
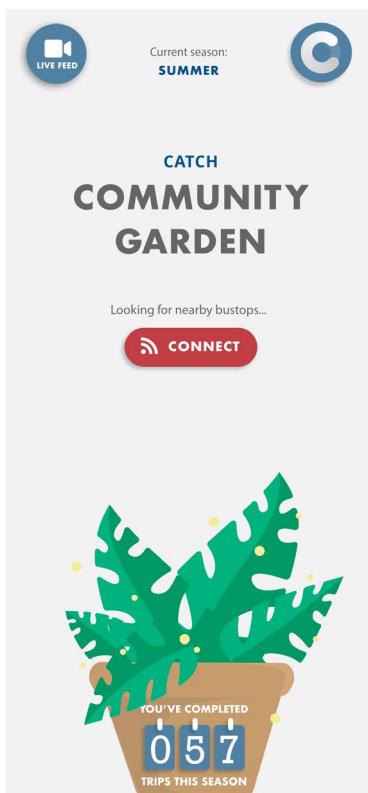
THE APP

Bus Information Screens



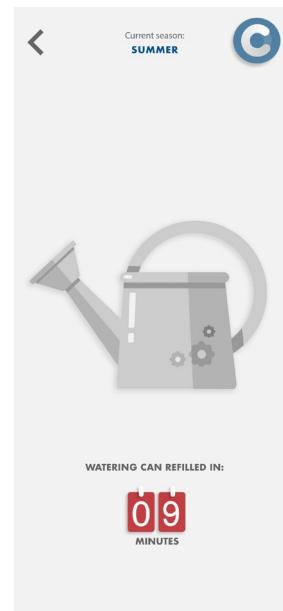
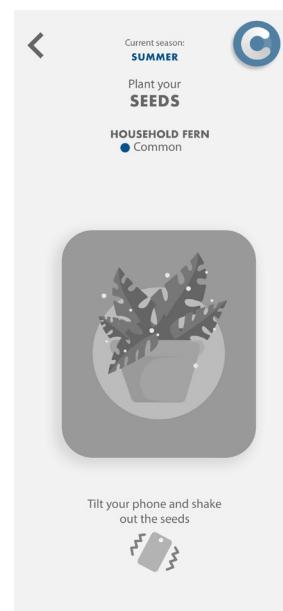
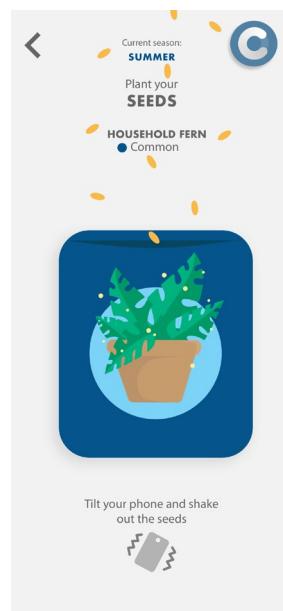
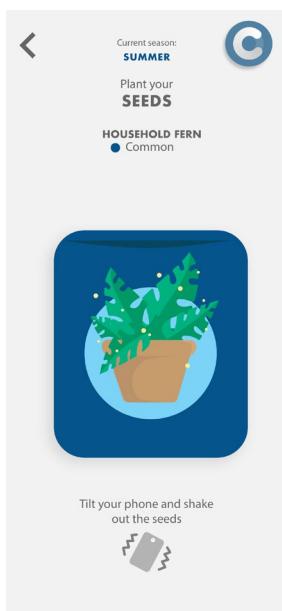
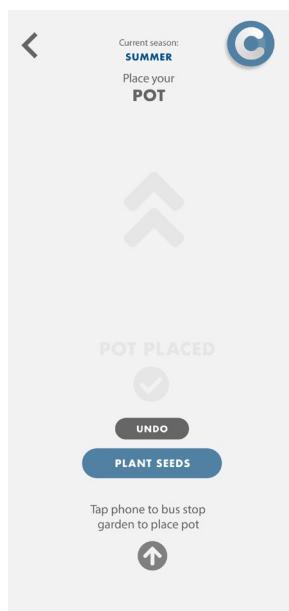
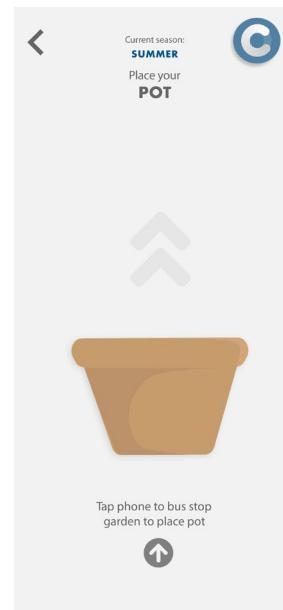
THE APP

Community Garden Screens



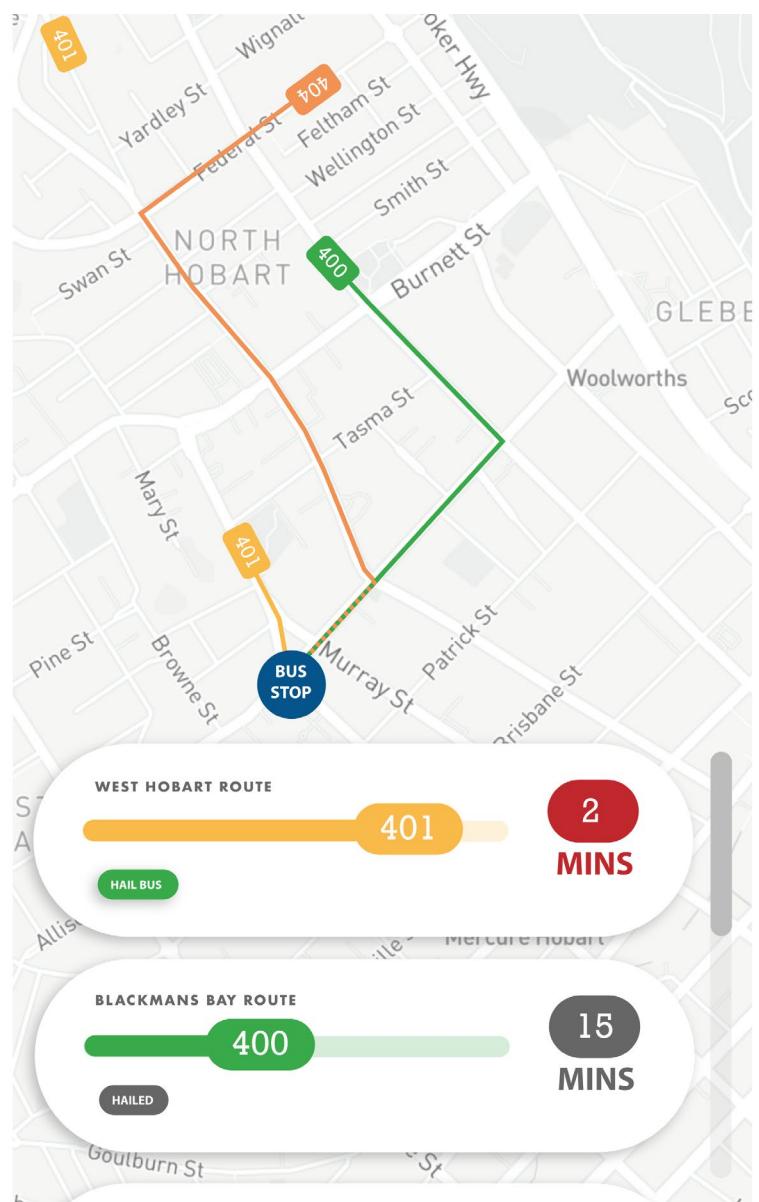
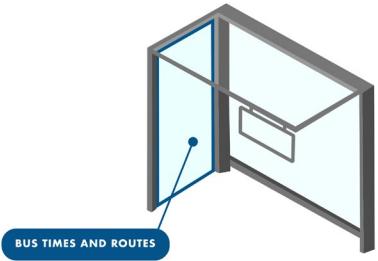
THE APP

Community Garden Screens



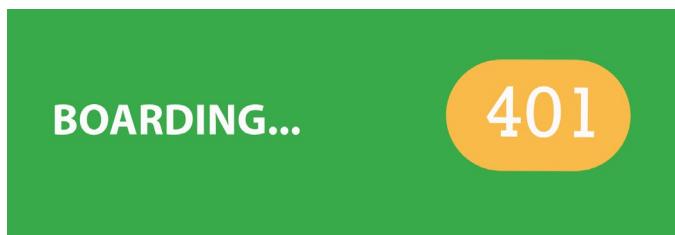
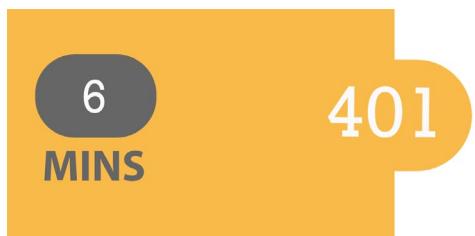
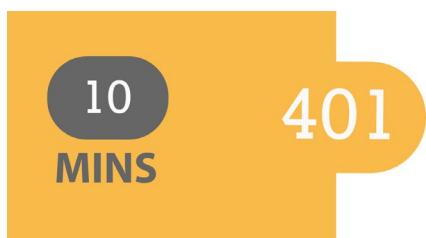
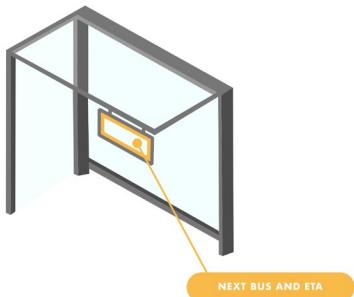
THE BUS SHELTER

Bus Screen 1 - Bus Information



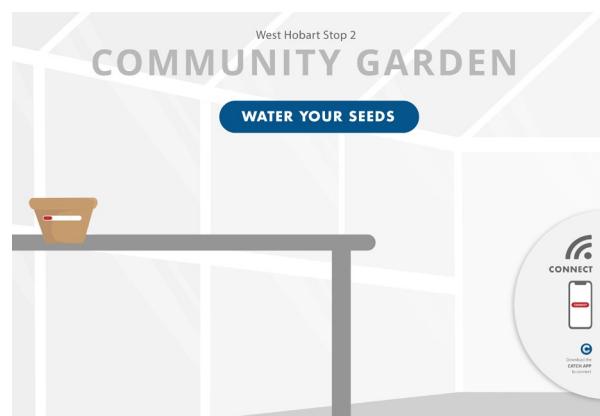
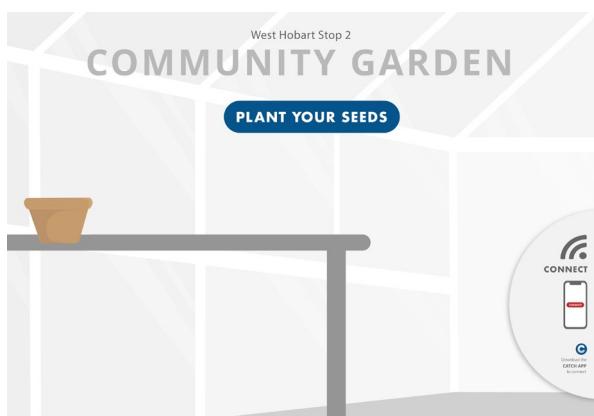
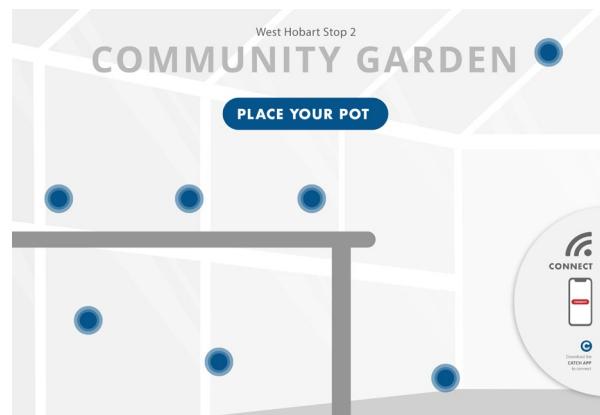
THE BUS SHELTER

Bus Screen 2 - Bus Information



THE BUS SHELTER

Bus Screen 3 - Community Garden



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APPENDIX

RAW DATA

Interview Questions Template

Script:

Hello! My name is Jess and I'm doing some research into waiting for and catching the bus, do you mind if I ask you some questions about your experience? It should only take 10 minutes and is more of a quick chat than anything else.

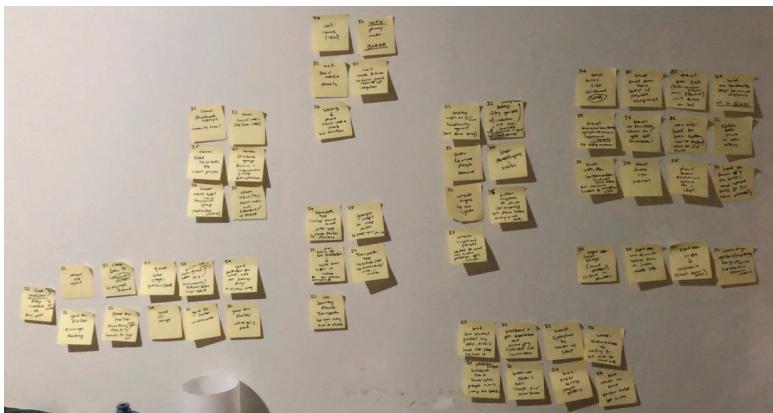
Is it okay if I record our chat? The only people that will hear it is my university tutor and I, and it can be anonymous if you'd prefer.

Questions:

1. Do you catch the bus? How often would you say you catch the bus?
2. Tell me how you would go about planning to catch a bus into the city centre.
3. You are waiting at a bus shelter and you still have 10 minutes until the bus arrives. How do you fill that time?
4. In all your travels, tell me about your favourite bus shelter you've ever waited in. Why was it your favourite? If you can't think of one, what do you think would make a cool bus shelter?
6. Tell me about the worst experience (or experiences) you've had at a bus shelter, bus stop or catching the bus.
7. How do you stay up to date with what's going on in the city and your local community?
8. Have you ever had any problems accessing public transport or felt the public transport system hasn't accommodated for your needs or the needs of someone you know? Tell me about how this effected your/their experience.
9. Tell me about a time you've felt unsafe using and waiting for buses. What do you think would make you feel safer/put your mind at ease in that instance?
10. Do you catch the bus when you travel to new cities? How often?
11. When you travel to a new city, what's that hardest part about getting around (assuming it's not the language barrier)?
12. How do you decide which places to visit when you travel?

PROCESS

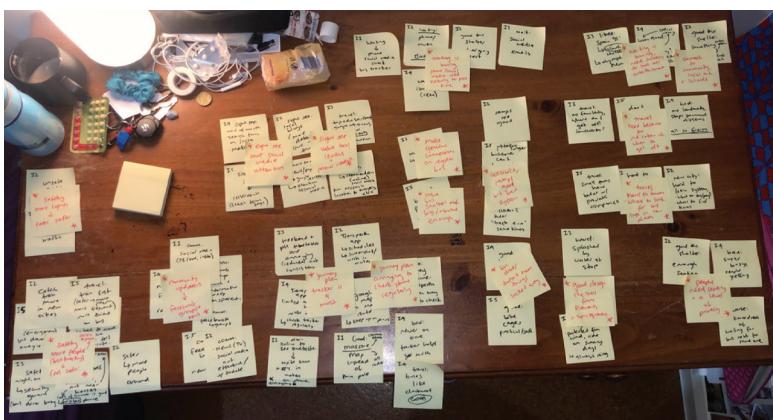
Quick Findings Process



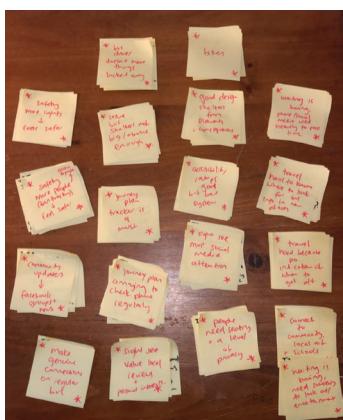
1. Key Findings placed on sticky notes and group by broad category (e.g. safety, negative & positive notes, sightseeing, community)



2. Broader categories broken up into similar findings to find common pain points/thoughts



3. Each group is summed up in one, or two findings statements (red) that cover the most relevant and pertinent points in the findings



4. Key findings statements collected and all other findings condensed into those categories for further reference, any double ups or