WORKSHOP 10: ANALYSIS OF RESULTS

FlushFinder

Team Number

G03

Submission Date

23/05/2023

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1.0 Team Details

Team Number / Name: Gee-Oh-Three (G03) **Tute day / time:** Tuesday 11am
Project / Name: Where's the cleanest public loo near me? **Tutor:** Dr Shreya Ghosh

Student	Name	Student Number	Role
1	Hans Wong	20968560	Researcher
2	Harry Walters	19166700	Project Manager
3	Kuldeepsinh Talatia	20872043	User Researcher/Data Analyst
4	Navinda Jayawardhana	20537054	Usability Engineer
5	Ola Malek	19756512	Graphic Designer

2.0 Usability Testing Insights

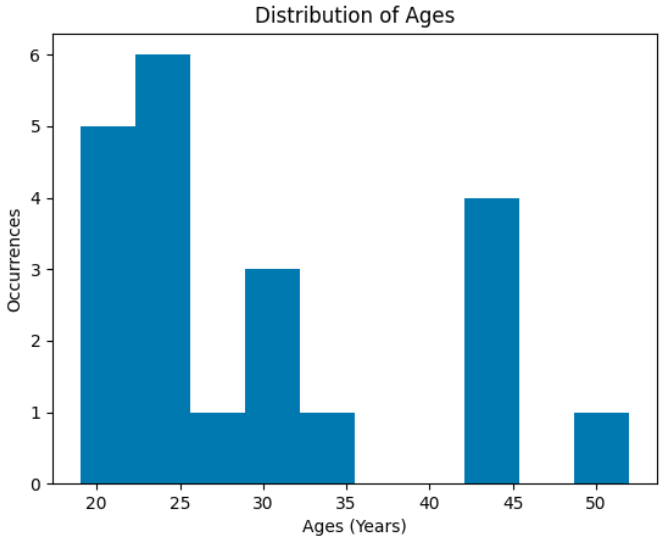
If you don't read anything else, here are the key takeaways from our usability test:

- 21 testers (16M, 5F), average user age = 29.62 years
- **Most people liked our app!**
- Particularly, they liked:
    - The personalised preferences menu
    - Our streamlined design
    - Having the two map and list views
- **Most users would recommend the app to their friends** (even if they 'failed' the task!)
- Some users **expected a fully-functional** application
    - Users wanted more bathrooms to view
    - Some wanted to try out the (partially implemented) settings page
- Some users wanted our prototype to be improved with **impossible features**
    - Text-to-speech option
    - Pinch-to-zoom interaction
    - AR Mode using the camera
- Users mentioned **privacy issues** ("can people see my location when I pee?")
- Users mentioned **currency** and **reliability** of reviews and toilet data
- Some users wanted a **live queue/availability** section

Our UserTestingTool highlighted how users interact with applications in vastly different styles (slow and intentional vs. fast for maximum exploration)

2.1 Usability Testing Report

RECAP: We wanted to validate the effectiveness of our design on real-world data. We decided to conduct as many usability tests as possible within our 2 week time period. We sent two of our members out into the ‘wild’, collecting data from 21 users. We recorded results from 16 male and 5 female participants. Every participant provided consent using our Research Participation Agreement and were comfortable with having the device’s screen recorded for further analysis.

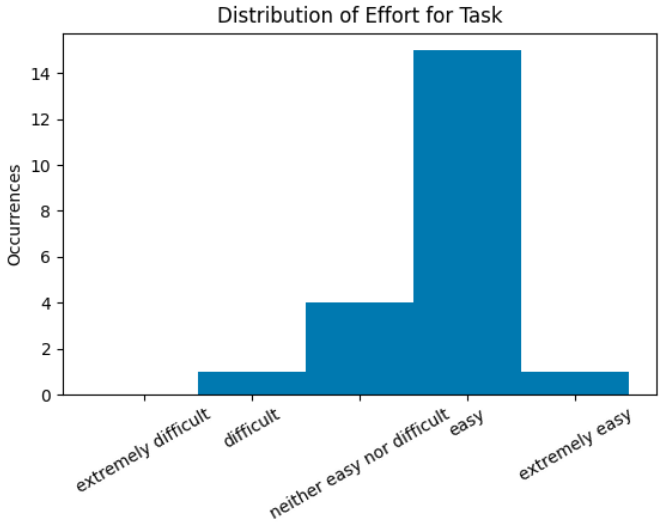


The average age of participants was 29.62 years (but note the positive skew).

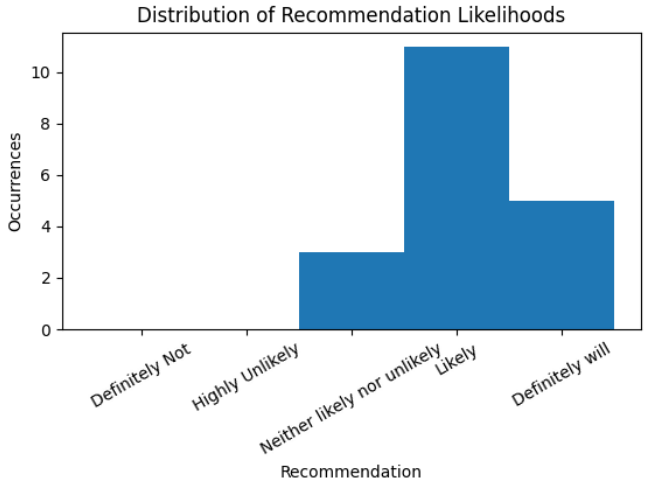
We provided users with the open-ended task of finding a nearby bathroom. Because we designed the app to achieve goals from multiple user paths, we could investigate how effective each user path was in completing the goal. For example, here are some valid paths to directions:

- (Home -> Urgent -> Preferences -> Directions)
- (Home -> Schedule -> Preferences -> MapView -> Directions)
- (Home -> Login -> MapView -> Directions)
- (Home -> SignUp -> Preferences -> MapView -> Directions)

Therefore, we would consider a test as “succesful” if the “Directions” was navigated to. Interestingly, only 52% of respondents actually found the “Directions” page, but less than 10% of participants found the task difficult.

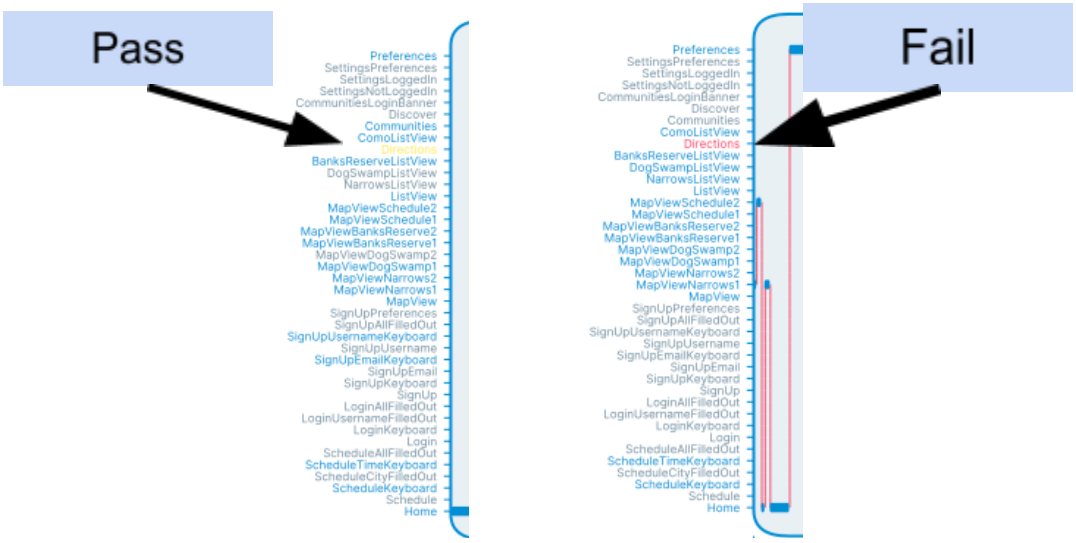


Interestingly, even though only half of users ‘succeded’, the majority of users found their task to be ‘easy’. We notice a juxtaposition of facts; how can half ‘fail’, but most people find the task easy? We wonder if there is inconsistency in how facilitators read the tasks to users.



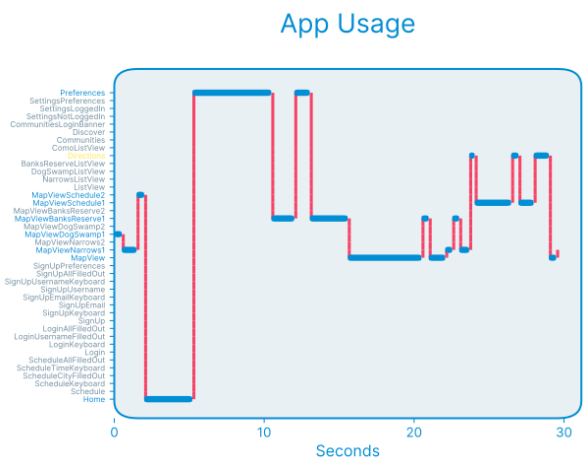
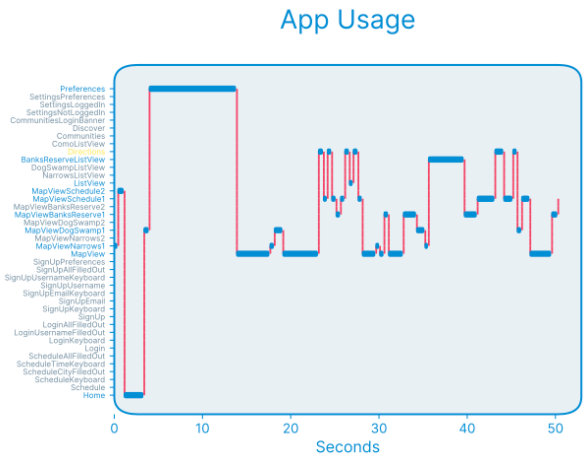
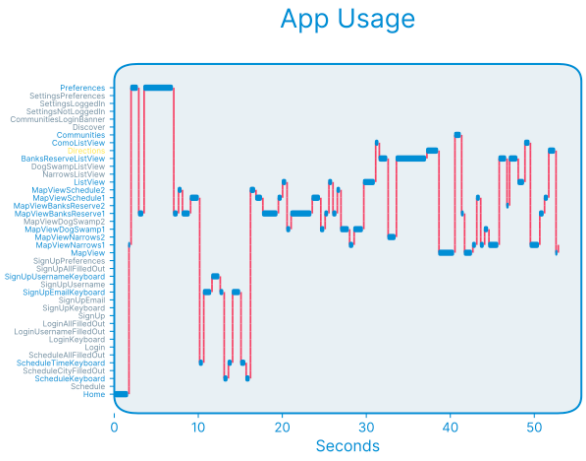
What’s more, we notice that in the distribution of recommending the app, the distribution of likelihoods is negatively skewed, just like the distribution of effort in the previous chart. We wonder if the application provided a genuinely intuitive experience, or if our user base was too optimistic with their feedback.

When using the UserTestingTool, we find that successful participants go through one of the previously mentioned paths to find the directions page, while “unsuccessful” users randomly navigate around the application instead.

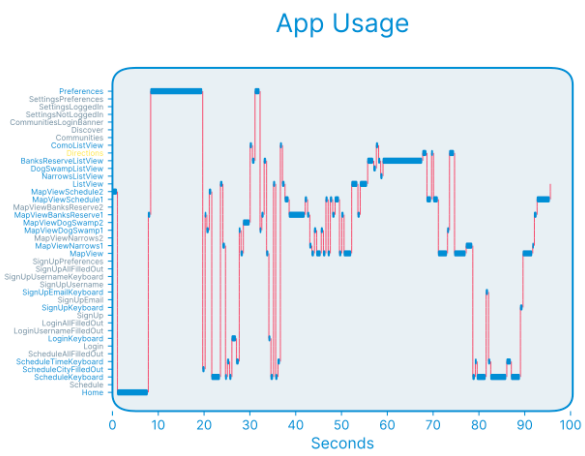
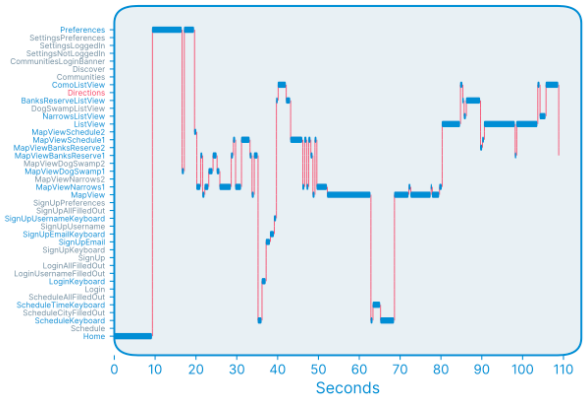
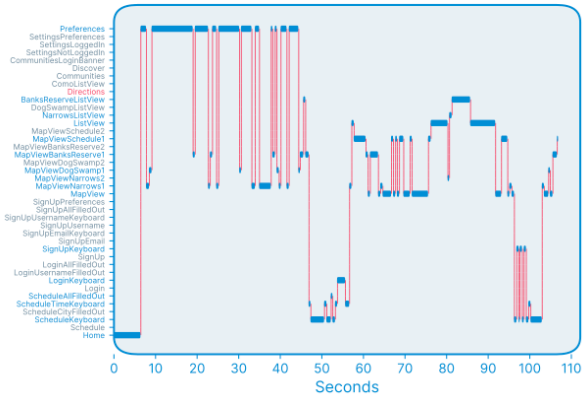


For your convenience, we have coloured the goal page (“Directions”) in yellow if it was visited in a user test, and red if it was not.

Here are three user journeys from users with positive experiences:

	Augustine (21 M) Passed Extremely easy “App does not require me to do anything else, quick and simple”
	Dinesh (45 M) Passed Easy “Not too much guidance needed”
	Zoe (26 F) Passed Easy “Everything was just one click”

And here are three user journeys from users with mixed/negative experiences:

	Karma (19 M) Passed Difficult “It will be nicer if it was a real app, FigJam makes it look laggy without animation transitioning”
	Abhi (23 M) Failed Neither easy nor difficult “Some icons didn't work”
	Lahin (23 M) Failed Neither easy nor difficult “It is not overly simplistic or straight forward.”

Notice how the postive user experiences tend to have smoother user journeys, with fewer fast transitions between pages. It seems as if users with mixed/negative experiences are aimlessly tapping various sections of the app, rather than using it in a considered manner.

Thanks to having this second source of data in the UserTestingTool, we have enough evidence to pose the question, whether some “unsuccessful” users simply weren’t given the appropriate task to complete.

2.2 Improving the High-Fidelity Prototype Design

Thanks to the followup questions that we *did* provide (more on that later), we were able to spot user’s pain points and how to resolve them.

From the 21 we measured:

- 7 were not actionable
    - 3 with no feedback
    - 2 with unfixable Figma restrictions
    - 2 with impossible feedback

- 14 were actionable
    - 3 specifically mentioned colours as being too muted
    - 3 were from partial implementations:
        - Settings
        - 2 x Include more toilets
    - 8 were unique functionality ideas
        - Show toilet availability
        - Language option
        - 2 x Add restrooms
        - 2 x Offline mode
        - Show waiting time and queue
        - AR mode

From the 14 actionable responses, we sorted them into the following sections:

Colour

While we were surprised at 3 separate usability tests having the same feedback on our colour scheme (being too muted), we have decided to keep the palette as is - feedback from our earlier expert review and our industry expert gave us consistently positive feedback on our use of colour.

One member of Gee-Oh-Three suggested that a “high-contrast” mode may be an effective solution to retaining our visual identity while making the experience more visually engaging. We’ll investigate whether this is implementable within our limited time left.

Too Few Toilets

Users loved our MapView, but wanted to see more toilets. Because of the limitations (being a non-functional prototype), it takes significant time resources to build in new toilets. Each new toilet added requires 5 new figma pages to be created. Even with our use of components making the process significantly easier, it is still a poor use of our time to include more toilets in the MapView.

Show Waiting Time/Queue

This feature is entirely dependent on the real-world data available. If we can have access to realtime user location data, we would add an availability/queue icon within each of the ‘toilet selection’ interactions. Due to the constraints on real-world availability, we won’t prioritize this.

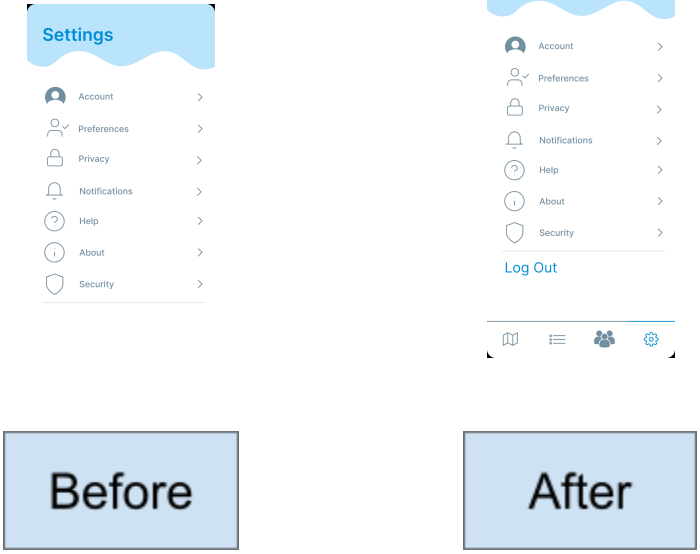
Offline Mode

Some users wanted the ability to use the map while offline. We’re thinking that this functionality would be automatic (based on the system’s ‘online’ status). Because of this, we don’t need to add any additional interactions: we just need to create a visual indicator of connection status. Due to the dynamic nature of this interaction, we will attempt to implement it, but it might be infeasible, using Figma.

Change Language Option

We loved receiving this feedback. While all but one of our team members are bi-lingual, (sorry, team leader!), we hadn’t considered including a ‘change language’ option. We hadn’t considered foreign/international users in enough detail when we developed our personas.
It’s an obvious insight: the more foreign a user is to an area, the fewer bathroom facilities they will be aware of. Therefore, a large proportion of our user base would be international students or tourists.

Flesh Out The Settings



Before

After

Some users found that with our prototype containing such detailed implementations for every other interaction, the settings menu, with it's limited implementation, felt a little jarring to use. For example, users wanted to change their bathroom preferences from the settings menu, but were unable to. We have taken this user feedback on board, and have made the preferences menu interactive. We've also added a dynamic "Log Out"/"Return To Home" interaction (which changes whether or not you have first logged in). If we have enough time, we'd like to implement the accounts page. That way we can also add a 'change language' interaction (to respond to another user suggestion!).

2.3 Reflection on the User Test

The user test stage was *extremely* valuable for understanding our target user base. We were able to reinforce expectations (such as users trying to pinch-to-zoom and failing), while challenging others (some hard difficulty distinguishing elements due to a 'muted' colour palette). What was a pleasant surprise was seeing how the unique lived experiences of our user base could influence our design (such as the 'change language' feature, recommended by the international student).

Given our wide target demographic (people who have phones), we wish we could have sampled more of the population. While we were pleased with the wide age range we sampled (19- 50+), we wanted to better spread the gender ratio. We interviewed a disproportionate amount of male respondents, which may help to explain the lack of 'AFAB specific' bathroom needs and concerns in our feedback. In future, we should try to equitably pre-screen our users to better understand the needs of underrepresented groups.

While our choice to make the interview questions spoken was a great success (users were open and honest with their feedback when communicated in spoken form), facilitators didn't make notes on user's body language or facial expressions, and didn't seem to ask dynamic, contextual questions to users - only the scripted interview questions from the user testing sheet. This 'human' touch would be another signal we could use to further iterate our designs in the future.

2.4 Reflection on question sheet

The data analysts of Gee-Oh-Three have a golden rule: the quality of feedback depends on the quality of the questions. While we spent considerable time workshopping the wording amongst other students (and staff members - thank you, Shreya!), we found a few problems which fell through the cracks. After conducting our user tests, we noticed that some questions didn't provide as useful of feedback as others. We broke down our problems into three sections:

1. Too generally worded

Rewording of general questions offered extremely useful responses: it encourages a quantitive response, leading to more effective usability analysis.

Q: How often do you use your phone?
Q: How often do you use your phone in a day?

Frustratingly, we didn't spot a generally worded question in our post-test section:

Q: "How often do you think you would use the app?"

Because of the general wording of the question, user responses were general, too. And while we did get *some* value from certain respondents:

A: "Not often, but certainly often in unknown areas"
A: "Often if the app is known globally, I travel frequently"
A: "I'm an international student so I would use it more often"

The majority of responses were far too ambiguous to make useful analysis from:

A: "Occasionally"
A: "Frequently"
A: "Can't really tell"

2. Too few followup questions

Q: “How often would you use the app?”
Q: “Why did you give that answer?”

Something which came as a surprise to us; we noticed that when we included ‘why’ questions (justifying the response to the previous question), we received more valuable data than from questions without a followup justification.

For example, when we included a “why” question after the user gave an ease-of-use score, we better understood what values a user has in a quality user experience.

What’s more, when users had trouble using the app, we instantly knew the reason why, and could determine what to improve on (or find what was out of our control)

Using the app was…	Why?	Team conclusion	Priority
“Difficult”	“It will be nicer if it was a real app, FigJam makes it look laggy without animation transitioning”	Figjam problems: **cannot improve**	Low
“Neither easy nor difficult”	*“Some icons didn’t work”*	Prototype experience, can fully flesh out at a later date	Medium
“Neither easy nor difficult”	*“Not really attracted to the colour, also took me some time to realize there is a second urgent button.”*	Reconsider colour scheme and urgent button iconography	High

3. Loaded wording

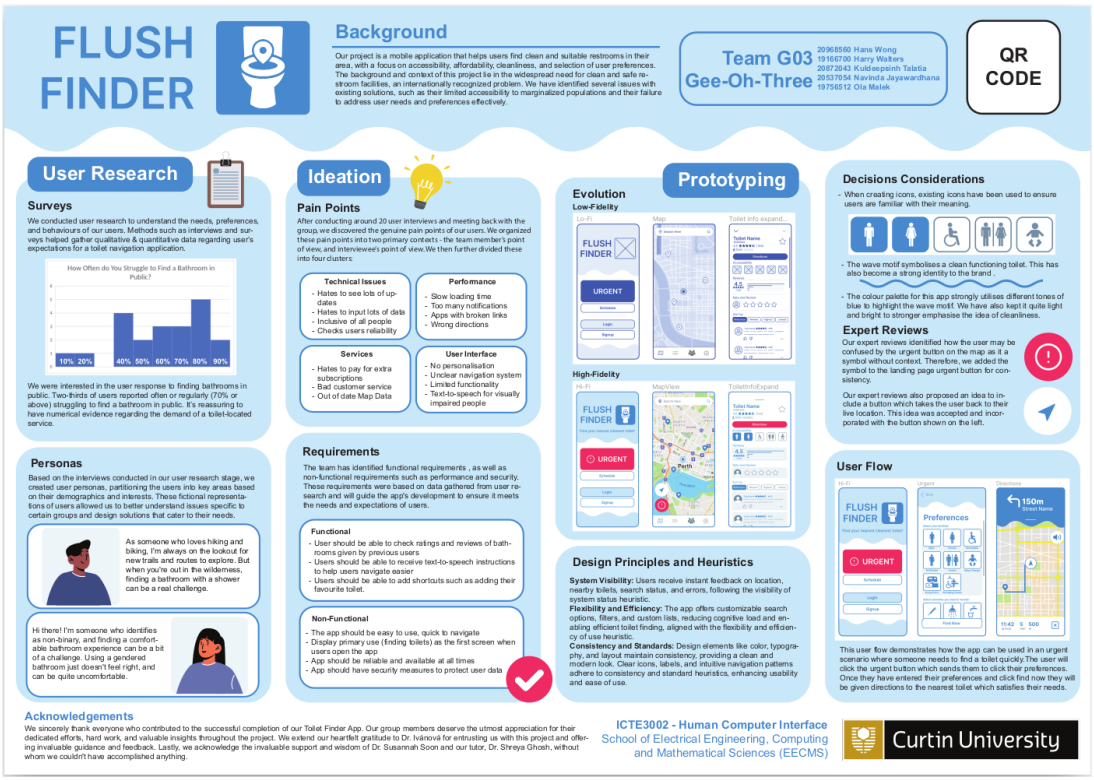
Q: “What category of app would you describe this as? (utility, social media, entertainment, etc.)

It shouldn’t have come as a surprise to us, that 100% of participants responded to the question above with the answer “Utility”. When writing this question, we intentionally included examples of app categories to give the question context. However, no-one used the (utility, social media, entertainment) section as we planned (a prompt for imagination). Instead, users were primed to respond with ‘utility’ (by picking the best matching category of the three provided). This question was our biggest oversight in the usability test - it can be easily resolved by removing the example categories.

4.0 Posters

Our graphic designer developed a sales poster and a conference poster. Here are copies of the first drafts of both:

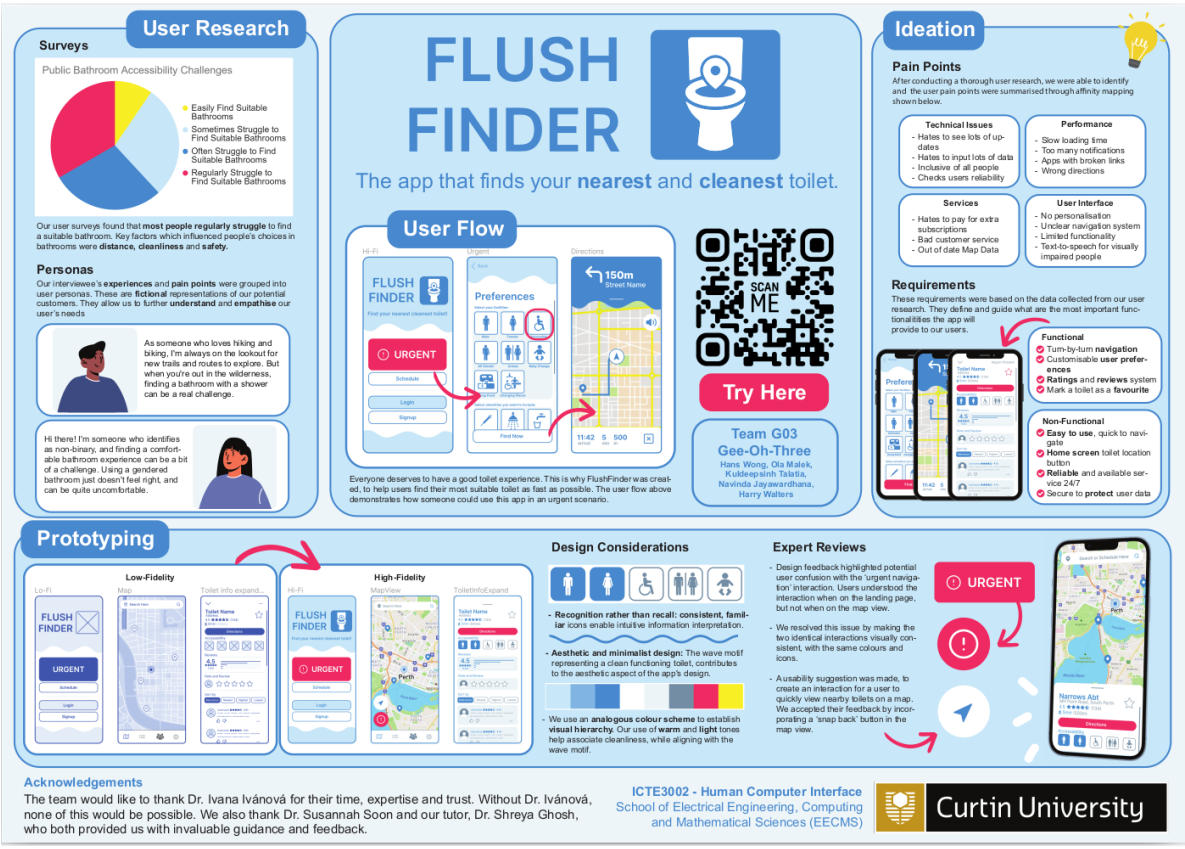
Sales Poster (First Draft)



Conference Poster (First Draft)

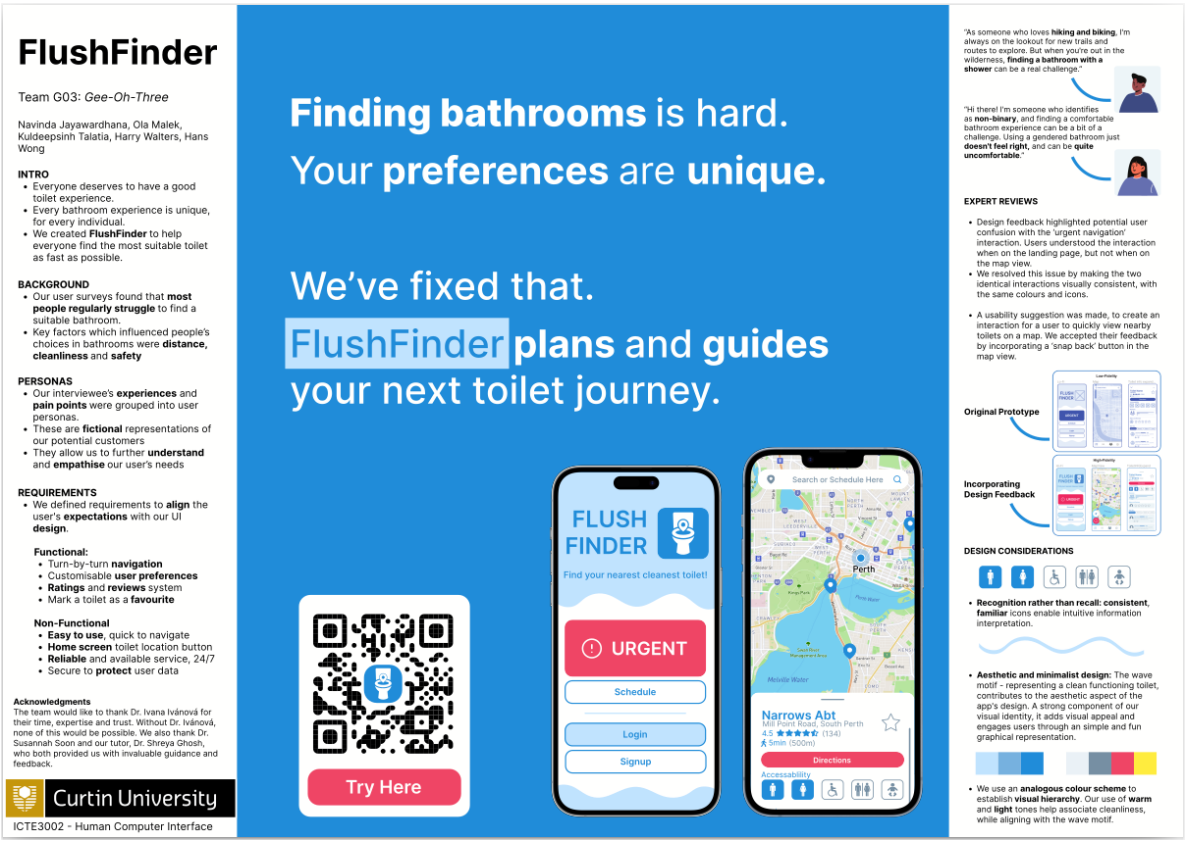
While there was no negative feedback with the sales poster, we were given some advice from our industry expert on how to make the conference poster more readable. Our expert give us design resources for developing more effective conference posters, (Morrison, 2019).
While we found the feedback to be extremely useful, we were at odds with our visual identity. How could we make a poster more readable while being instantly recognized as “FlushFinder”?

Our graphic designer made (what we call) a ‘best-of-both-worlds’ solution; putting the most important messages in the centre, with supplementary details being moved to the outer edges.



Our “best-of-both-worlds” Improved Conference Poster

As an experiment, we also decided to make a version of the poster, but entirely within the constraints of Morrison's "Good Conference Poster" guidelines. We entirely traded our visual identity for an (allegedly) more readable, effective poster.



Our "Morrison-inspired" Conference Poster

While our entire team (and our industry expert) prefer the graphic designer's 'best-of-both-worlds' poster, we have been invited to print off both versions - so that during the poster presentation, we can see which of the two layouts prove more effective. (An AB test of sorts!)

High quality versions of the posters (and their drafts) have been included in the unzipped directory, for your convenience.

7.0 Conclusion

We're towards the end of the HCI journey. We've gotten a significant amount of value out of the user testing stage, and using the UserTestingTool has allowed us to better understand the behaviors of users. Our UserTestingTool has been downloaded by 11 unique accounts. We're looking forward to seeing if other teams use the tool to learn their own insights!

We received entirely new creative ideas to implement in our Hi-Fi prototype (some which have already been applied!). We learned what specific issues our users face (privacy, convenience), while recognizing our disproportionately male feedback group aren't truly reflective of the target demographic. We've reflected on how to conduct better user tests, with better questions for more informative insights. We are now in the process of collating all of our work into Assignment 2 and the final presentation. See you then!

8.0 UI/UX Glossary and weblinks

Weblinks:

- Usability Testing Report Template And Examples

References

Figma
https://www.figma.com/file/8sdhma3iM8iET2bwTRJiRM/Hi-Fi-Revised?type=design&node-id=4759-17603&t=pPhp5n5v1MZ7Z5BF-0

Morrison, M. (2019, March 25). *How to create a better research poster in less time (#betterposter Generation 1)*. YouTube. Retrieved May 18, 2023, from https://www.youtube.com/watch?v=1RwJbhkCA58

Morrison, M. (2020, July 14). *How to create a better research poster in less time (#betterposter Generation 2).* YouTube. Retrieved May 18, 2023, from https://www.youtube.com/watch?v=SYk29tnxASs