

WASTE ON THE TUBE

HCDE Interim Presentation 2

Freddie Nicholson -



CONTEXT

Brief and Summary

Coursework Theme

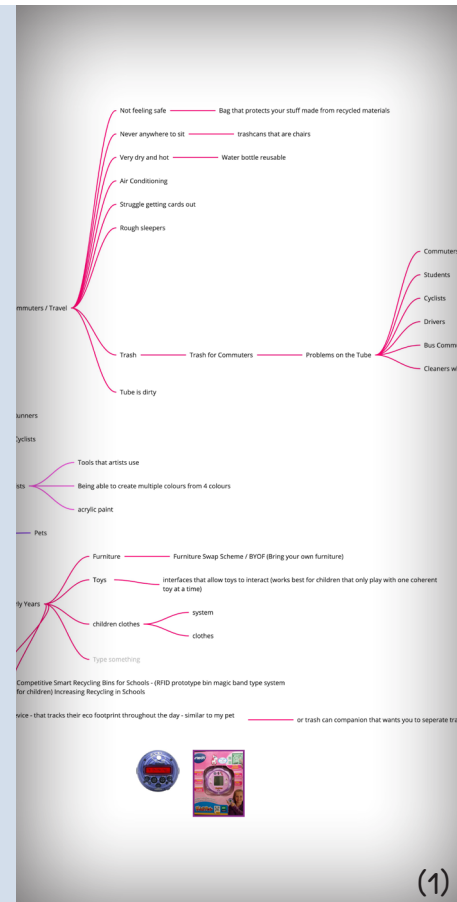
Design for Reusing / Recycling / Repurposing

Exploration of the Brief

Our group started our initial exploration of the brief by creating a shared Miro board. Topics that we explored included:


- Early Years
- Keeping Active
- Artists
- Pets
- Commuters / Travel


We felt that Early Years was a particularly interesting topic as we could focus on education and products that encourage the three R's at home. However in the end we decided to head towards Commuters and Travel in London due to it being a topic we are all interested in, being in the center of huge public transport infrastructure and having a large user base to perform research on.




Solution Investigation Plan


1  **Miro Exploration**
We explored the theme potential topic areas as a group.


5  **1-1 GTA Sessions**
Following our studies we gained feedback from GTAs


2  **TFL FOI Request**
We sent an email to TfL early on to ensure a reply in time.

6  **Data Mapping**
Manipulating data into more understandable formats.

3  **Reflection on Social Media**
We analyzed social media around TfL.

7  **Social Media**
Posting research onto social media to gain a response.

4  **Survey**
We ran a prolific and implicit research study.

8  **Presentation 1**
Presenting our research to GTA and Module Lead

Areas of Focus

The end solution should look to improve the **convenience** of the user experience. Our solution should also be **sustainable** as this is linked to the theme defined. It should also be **realistic** to implement.

WHO

Commuters across London examples including students, office workers, people with disabilities, cyclists, and other consumers. Other third parties may need to be considered such as the government and operational staff on the tube.

WHAT

Investigating the waste across London Underground tube network. Finding out pain points amongst consumers, improving recycling rates and improving overall experience. Investigating both physical and digital solutions.

WHEN & WHERE

Within the TfL London Underground network throughout the year. Investigating both on peak and off peak time periods.

HOW

Options could potentially include digital solutions such as mobile phone apps or physical solutions such as redesigning what already exists, coming up with completely new concepts or other innovative ways of reconsidering waste as we see it now on the Tube.

HMW improve the bin experience across the tube network whilst maintaining stringent security?

1. https://miro.com/app/board/uXjVPxD-WwY=?share_link_id=1423279049

USER RESEARCH

Overview of Approach

Conducting a fair assessment

From the start of our project, we made sure that the feedback we gained was **authentic and accurately reflected user's opinions**. This would benefit ourselves in the long run as it would mean our final product ideas would be based on high quality data. An example of a way we achieved this was a 'blind' research survey on our cohort.

Large dataset population diversity

In order to ensure a **wide range of opinion**, we performed our research on a large dataset that was also sufficiently diverse. Our cohort was used for the initial studies but we then branched out using online survey tools such as Prolific that hires in paid participants to complete our surveys. We also had correspondence directly with TfL.

Finding insights

Throughout the whole study, we worked to find 'insights' - snippets of data that allowed us to understand more about the domain area.

Adaptability

When performing our research, we considered the audience to decide the best approach. Some users it may be more effective to perform an observation study rather than directly speaking to them. **People do things differently to what they say**. An example of this would be your every day commuter and their recycling habits or a cleaner feeling under pressure to give answers to please their employer.

External Feedback on Research Methods

We evaluated our research methods after they had been performed by considering the results and discussing with GTAs / Module Leads. **We took this forward with us for follow up research**.

Ethically

All participants were fully briefed and we avoided collecting any particularly sensitive data. Most of our research was performed in public in a relaxed setting.

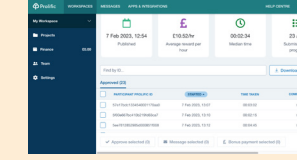
Tools Used



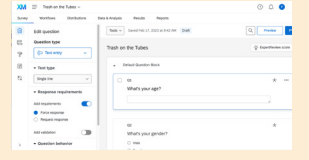
Freedom of Information (FOI)



Miro Information Mapping



Prolific User Population



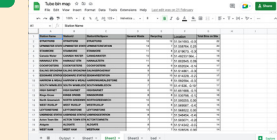
Qualtrics Survey Software



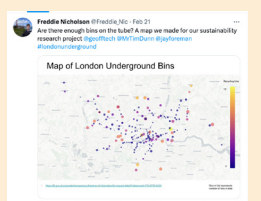
Figma Graphic Software



Plotly Chart Software



Google Sheets



Twitter

The **Freedom of Information Act** was used to obtain Station Bin data and insights from TfL as it is a publicly funded entity. This data was then manipulated in **Google Sheets** to be plotted on **Plotly**. This figure was then uploaded to **Twitter** to get public opinion **Prolific** was used to target users that we wanted to investigate and avoided biased results. **Qualtrics** was used to perform surveys and link back into **Prolific** participant IDs. **Miro** was used to collaborate as a team on ideas and **Figma** was used to create illustrations for presentation.

Research Statistics at a Glance

18.5k+

Twitter Impressions



67

Survey Responses



195

Station Bins Mapped



10

Research Studies



24

Social Media Insights Examined



90%

felt not enough bins on Tube



USER RESEARCH

Initial Surveys

1 Implicit research interviews



Our initial brief we targeted was titled 'Problems on the Tube'. This allowed us to make sure that we did not limit ourselves to problems that we had already defined.

In order to help find particular problems that commuters came we performed a 'blind' test. The two images above were displayed to participants. Station names were removed, similar stations were chosen and only minor differences (seating, bin) were included. Other images were also shown such as a station at night.

Almost all participants noticed one station did not have a bin and most vented their frustration about a lack of bins on some platforms.

4 Persona's



Planning Peter
40
Lecturer
15m Commute
Central Line

Peter works at a University in London. He uses his mobile phone every day to work out the most efficient route based on traffic around the city.

He often carries his small messenger bag alongside a cup and a newspaper.

Peter often considers his route and the stops at which there are bins so he doesn't often have to carry trash around.

Participants



WASTE

was found from our initial research study to be the target problem area that we should take forward.

It was also short-listed as it ties in well with the original domain of 'Reusing / Recycling / Repurposing'.

We also have easy access to research participants as the topic has been shown to be relatable for many in London.



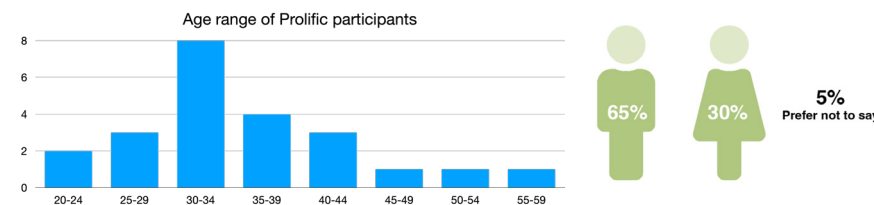
Hoarding Harold
65
Retired Construction Worker
40m Commute
Northern Line

3 Prolific Survey study

Prolific is a research study tool where a collection of paid participants are able to opt into surveys published by researchers. We created a research study for our topic of 'Waste on the Tube' with a series of questions around commuters daily encounters with waste on the Tube.

The responses came through very quickly and immediately indicated a general trend of approximately **90% of participants** feeling there was not enough bins on the Tube. Interestingly they felt that the **platforms were clean** whilst the **actual train carriages often contained waste** (were there were no bins at all).

Demographic Data



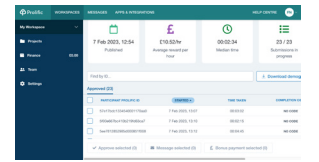
All prolific participants **commuted by tube/metro/tram/train, were not students, and lived in London**

Train Diary Study

We did a diary study on a Circle Line train to investigate how much waste was on the train compared to the platform following user feedback.

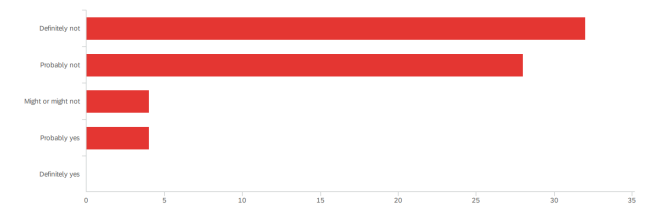


We found **32** pieces of litter on a single train at off peak hours.

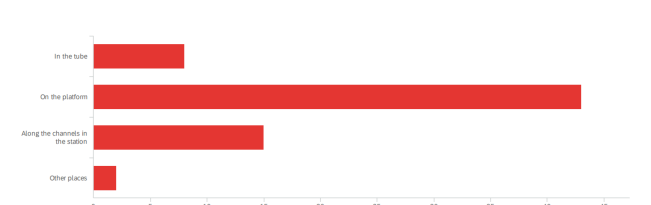


Stand out Questions

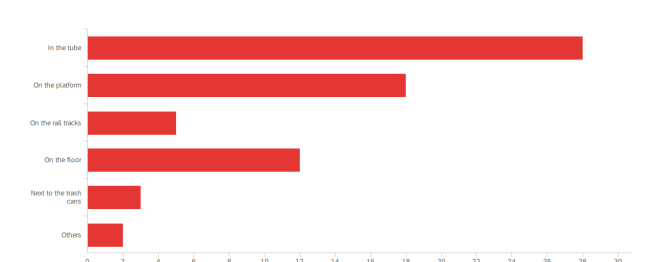
Do you think there are enough bins in London Underground?



Where do you think bins should be placed?



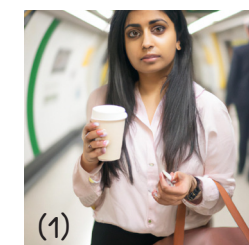
Where do you usually see littering/trash in the underground?



Sarah is a distinguished accountant working in Canary Wharf. She does not enjoy travelling on the tube as she has asthma and the air quality is not good.

Sarah often carries a handbag and is never seen without a coffee in the morning for her commute. She also carries other essentials in her handbag such as snacks, business equipment and water.

She's hard working and often stays up late due to her work meaning that sometimes she has to travel by bus.



Sophisticated Sarah
27
Accountant
30m Commute
Jubilee line

Harold is a retired construction worker. He is a responsible and well-mannered person.

Following his construction days, he often carries around a heavy duty bag that he can throw any rubbish he finds into. He also carries a handkerchief and is still cautious around the dangers of the spread of germs.

Harold is low tech and relies on station staff and his own knowledge of London to get around.

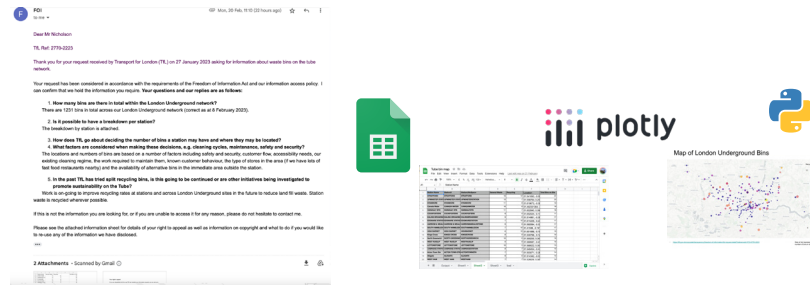
USER RESEARCH

Social Media

1 Contact with TfL

Early on in the research process, we sent an email to TfL with the knowledge that under the Freedom of Information Act 2000, they should respond within 20 working days. We sent the following questions:

- How many bins are there in total within the London Underground network?
- Is it possible to have a breakdown per station?
- How does TfL go about deciding the number of bins a station may have and where they may be located?
- What factors are considered when making these decisions, e.g. cleaning cycles, maintenance, safety and security?
- In the past TfL has tried split recycling bins, is this going to be continued or are other initiatives being investigated to promote sustainability on the Tube?



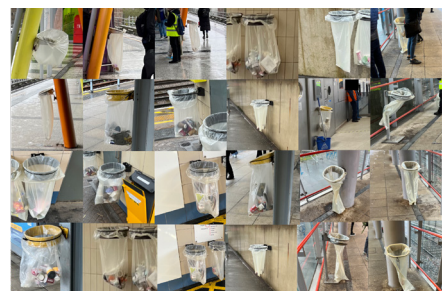
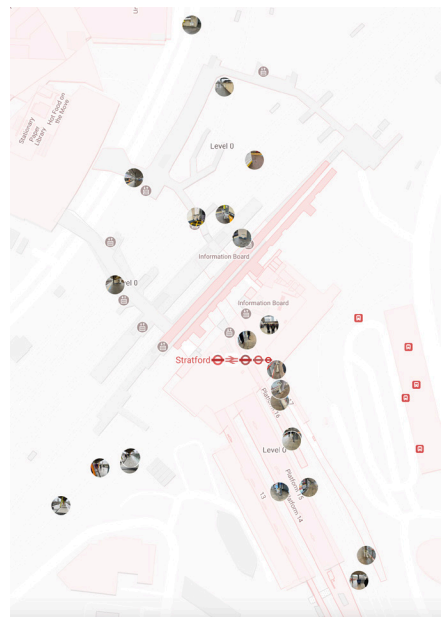
4 Stratford Station Visit

Highest bin count station in London

Following the bin mapping, we found that Stratford was the station with the highest bin count amongst our dataset and also had a relatively high percentage of recycling (55%). This made it an ideal candidate for an in person field morning.

The first activity we did was a data check on what TfL had provided. TfL stated there were 22 bins and we found 23 which is an acceptable level of differentiation showing our original map was accurate. The location of the bins are shown on the map to the left (with pictures below).

We also interviewed some cleaners (more in insights) around their day to day work and issues they may have faced. Finally, we performed an audit on what type of waste was thrown into a bin in a busy area.



1. <https://tfl.gov.uk/corporate/transparency/freedom-of-information/foi-request-detail?referenceId=FOI-2770-2223>

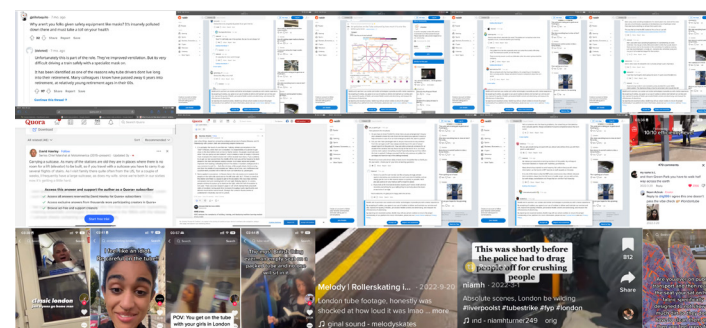
2 TfL Response & Data Manipulation

TfL got back to us with a very helpful response around their current strategy with bins on the London Underground network. Part of this included the station breakdown of how many bins a station had and what number of them where recycling 'hybrid' bins. We processed this data using the procedure shown to the left to create a bubble map. They said that 'Work is on-going to improve recycling rates at stations and across London Underground sites in the future to reduce land fill waste. Station waste is recycled wherever possible.'

3 Twitter Response to Bin Distribution

In order to start a conversation, we tweeted a picture of one of our early bin maps. Two prominent London Underground influencers responded with feedback regarding the chart and over eighteen thousand other users saw the chart. Jay Foreman, a popular YouTuber, liked the graph but spotted some mistakes within our processing. Tim Dunn, a railway presenter, felt that actually in contrary to most that there were enough bins on the London Underground and that bins were a low priority in the grand scheme of things.

5 Social Media Analysis



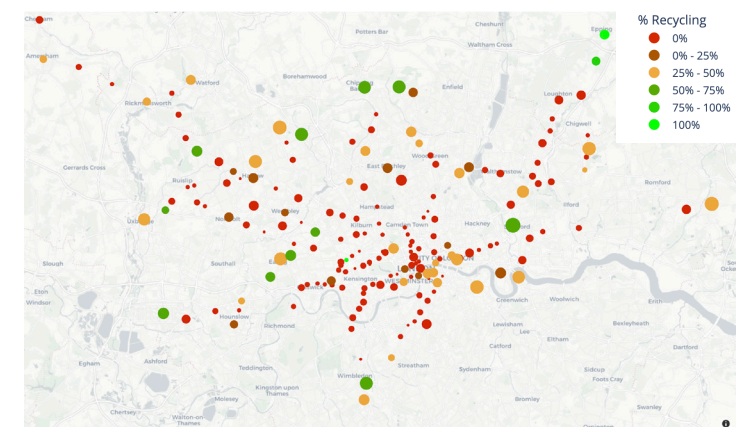
We browsed social media platforms to find insights into particular frustrations that users faced to use within our various surveys.

Common issues that were raised included general cleanliness, feeling unsafe (both during daylight hours and at night), commuter trends (e.g. no talking, no one taking a vacant seat on a busy train) and staff saying that air quality affects their long term health.

Many of these issues we did not come up within our initial brainstorming making it a useful exercise.

Tim Dunn gives an interesting insight around the fact that bins in the grand scheme of things are not going to have a huge impact on sustainability in comparison to other less sustainable practices in London. Later on in the project we will look to measure this but another factor that we felt was important to consider was the convenience towards commuters as well, in addition to the recycling aspect.

We managed to fix the error that was causing some stations to be mispositioned and changed the formatting from others feedback to give the below chart.



INSIGHTS & OPPORTUNITIES

Taking our Research Further

1 Talking with Front-line staff

'The bags when full can be very heavy at very busy times especially at weekend. It can cause a back ache.'

'To replace a rubbish bag: Pull off the rope from ring, bag falls, put new bag on and take away old one.'

'The brushes we use can sometimes be too soft that I need to sweep multiple times.'

'I've worked here for almost 8 years and after a while it becomes very easy. We all use different tools. People who work on the tracks have special training.'

'DLR is different as it is a private company so I only do them.'

'The cleaning product we mix with water is quite heavy, we only need one pump for a litre of water though.'

'The train only stops for two minutes for us to clean, we don't rush though as we want to avoid hurting ourselves'

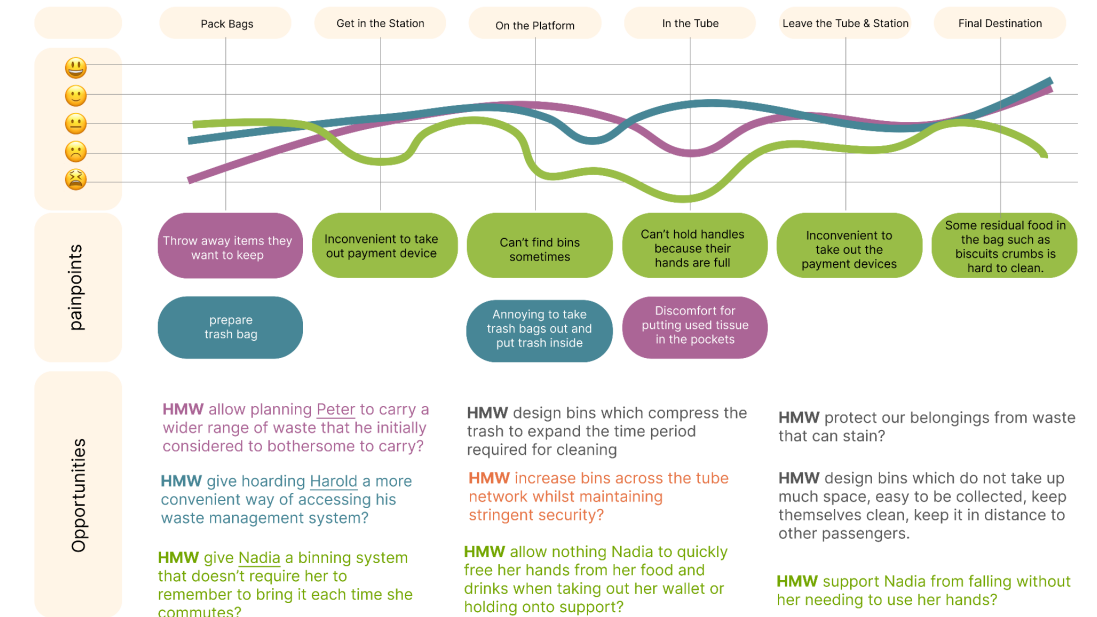
'Some stations have no entry / exit barriers and therefore people stay overnight leaving their rubbish behind.'

'Sometimes more unpleasant situations such as vomit or excrement is found but we are trained on what to do.'

These interviews with three members of staff provided valuable insight into the day to day life of TfL staff/contractors.



2 Journey Map



The above journey map highlights some of the main insights we discovered from our interviews and research. Security was prominent in most conversations as this is one of the main reasons the number of bins on the London underground is reduced due to past events. Additionally, we found that station staff are also constantly picking up litter off the actual platform and trains (at the end of lines as seen at Stratford). This is another reason bins are reduced as most waste is picked up which we did not initially consider and gave an impression of clean platforms to our participants.

HMW improve the bin experience across the tube network whilst maintaining stringent security?

Initial Cause

Security on the tube network is of paramount importance as Terrorism risk in the UK is currently substantial (1). There have been examples of coordinated attacks on the network such as the 7/7 bombings in 2005. This is why all bins on the tube consist of clear transparent bags allowing suspicious items to be easily spotted.

Additionally TfL said in their response that 'The locations and numbers of bins are based on a number of factors including safety and security, customer flow, accessibility needs, our existing cleaning regime, the work required to maintain them, known customer behaviour, the type of stores in the area (if we have lots of fast food restaurants nearby) and the availability of alternative bins in the immediate area outside the station.'

1. <https://www.mi5.gov.uk/threat-levels>

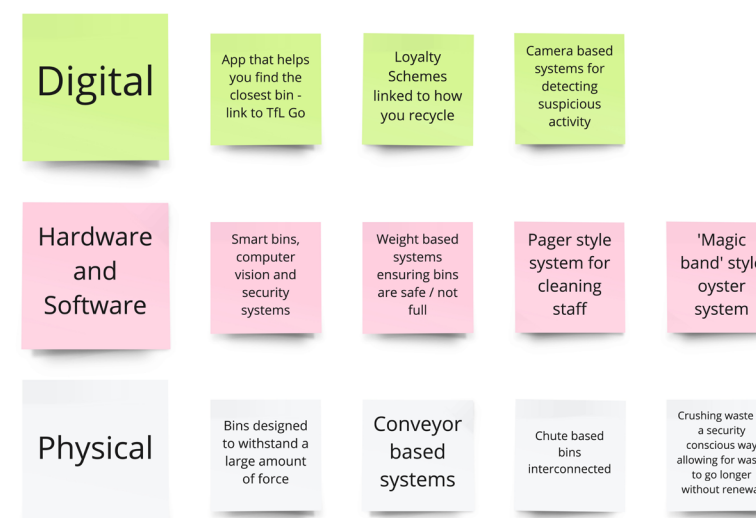
Related Research

In the blind survey when questioned why they thought there might be less bins on the Tube most people picked up on the fact that there may be a security issue.

Other reasons also included that perhaps there was a maintenance scheduling reason hence following this we included a question to TfL around the reasons there may be less in a particular area. They did state this was a reason but the main factor listed was safety and security.

Most bins we saw in person were clear however some were more industrial 'commercial use bins' in less dense areas.

Potential Options to Explore



There are three main categories to explore:


- Purely digital ideas
- A mix of hardware and software
- Physical 'low tech' solutions


As technology is rapidly developing in the AI space with current trends, I am aiming towards more technological solutions. They can also be renewed over time whilst a physical product may quickly become obsolete.


IDEATION


Overview of approach

Ideation Investigation Plan

1  **Group Ideation**
Crazy-8's and C-Sketching.

2  **15 Ideas Development**
Sketching 15 ideas around brief.

3  **Concept Selection and Dev.**
Getting feedback from potential users.

4  **Final Selection**
Choosing three ideas to take forward.

GROUP CRAZY-8'S

We completed a Crazy-8 Activity where we completed a new idea every minute based around the brief 'HMW improve the bin experience across the tube network whilst maintaining stringent security?'

- 1 Smart Bin
- 2 Bin Mapper App
- 3 Underground Bin
- 4 Chute Bin
- 5 Compressor Bin
- 6 Train Shell Sustainable Material
- 7 Reusable Paper Ticket
- 8 Reusable Coffee Cup Station

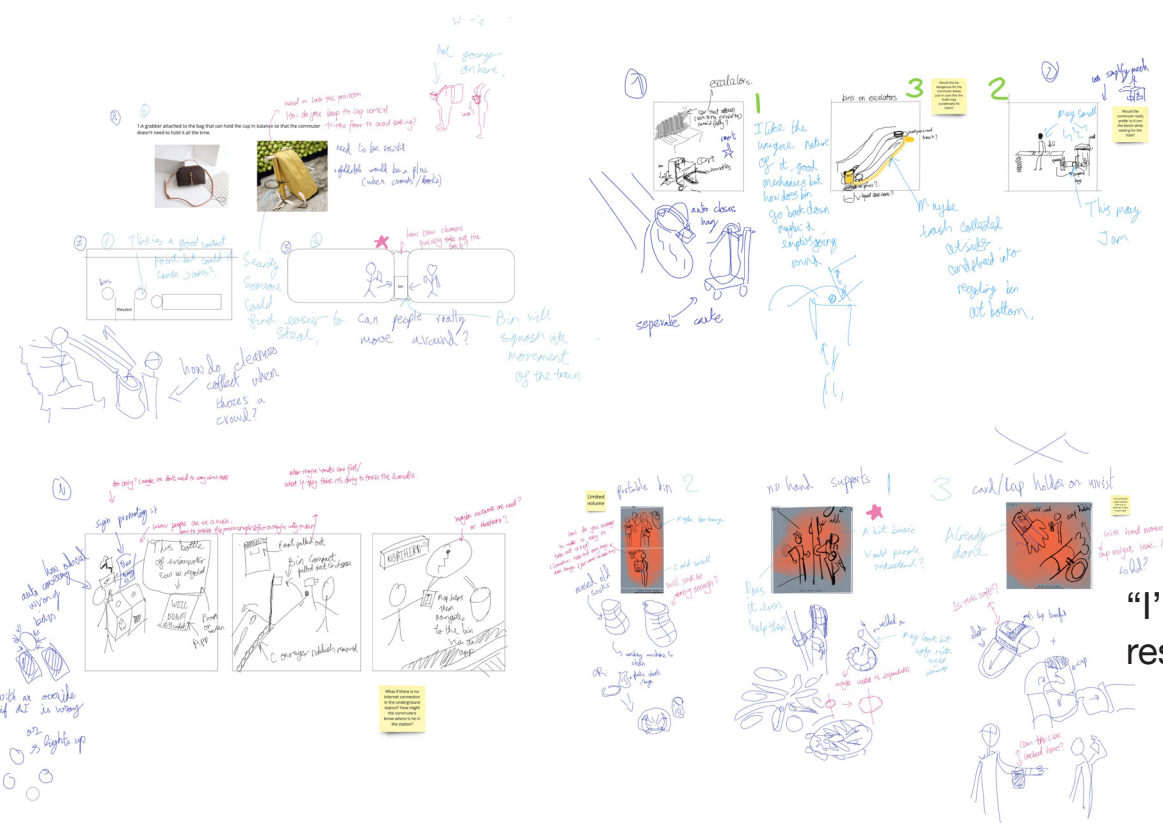


GROUP C-SKETCHING

We also completed a group sketching activity where we each came up with three ideas in 10 minutes. After this time passed we gathered feedback from each group member and annotated on each others drawings. My ideas were:

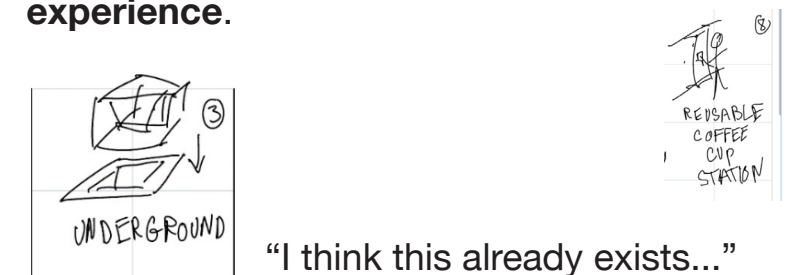
- 1 Smart Bin
- 2 Chute Bin
- 3 Bin Mapper App

The bin mapper idea had initial objections from the group due to the fact that there was no internet service on the underground. The smart bin and the chute bin both received positive feedback.



DISCARDED IDEAS

Ideas that were short-listed for further development were centred around the **waste experience**.



"I'm not sure this matches our research..."

"Isn't this just an Oyster card?"

INITIAL IDEATION

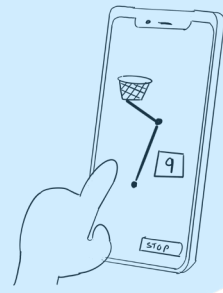
15 Ideas Selected

These were the ideas selected following our initial research stage and group activities investigating different solutions. They target both passengers and the staff working on the Underground as well.

HMW

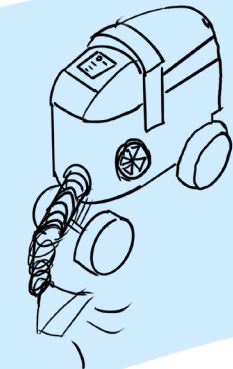
HMW improve the bin experience across the tube network whilst maintaining stringent security?

1 Bin Map



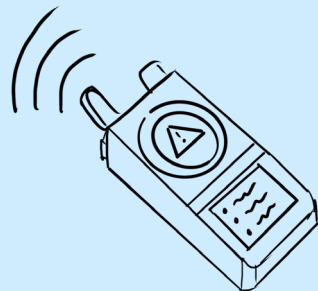
The user would be able to find the nearest bin using 'TfL Go' or similar

6 Rubbish Vacuum



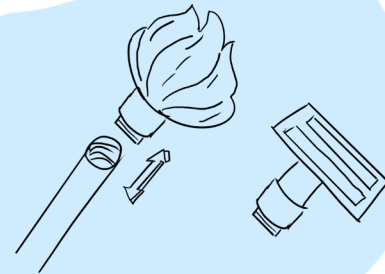
A unit on wheels that will fit along the tube carriage sucking up waste into a bin bag automatically. Saving time and reducing accidents. Potential for robotics.

11 Panic Alarm / Radio Communication



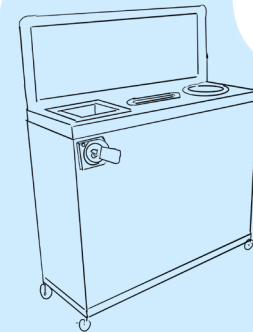
A device for front-line staff with a big alert button in case of incident. Also potential for on screen tasks / other information.

2 Multi Head Brush



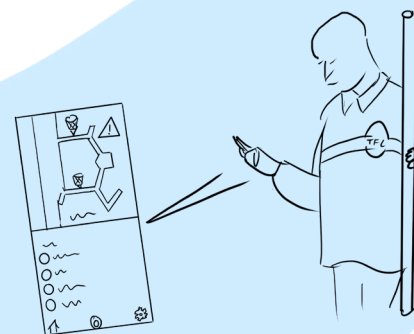
Based on cleaner feedback about sometimes having to repeatedly sweep platforms. Head suited to job.

7 Smart Bin



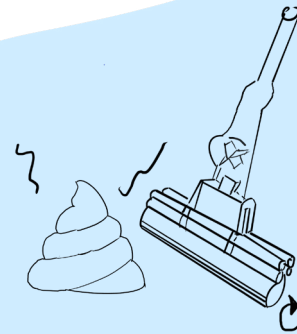
A bin that automatically rewards the user to their oyster card if they recycle correctly. Will also prompt which bin to use.

12 Staff Logistics App



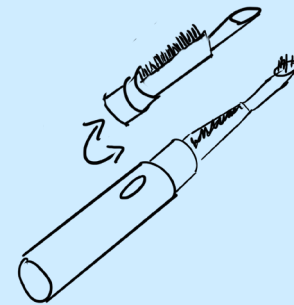
An app for staff that allows them to see which bins / trains they need to clean. Potential for computer vision retro fitting.

3 Sanitary Clean



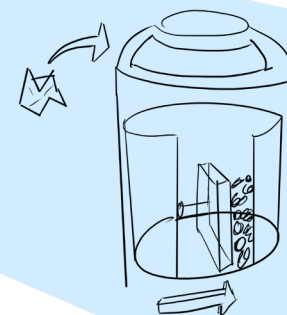
A device designed to deal with bacteria rich waste found on the platforms.

8 Train Cleaning Multi Tool



A multi tool that will help with cleaning hard to reach places along the tube carriage e.g. tube seat crevices.

13 Compressor Bin



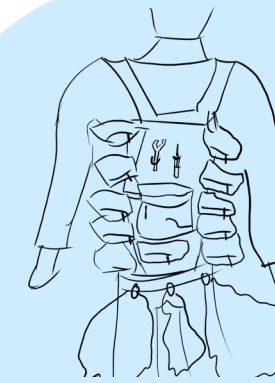
A bin that compresses waste placed into it. Reducing the number of times staff need to empty it.

4 Spray Gun Mixer



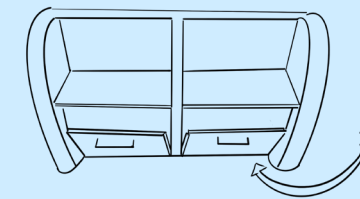
Currently cleaners have to manually mix the concentrated cleaning solution with water. This device would do this automatically with each pump.

9 Bin Bag Helper Suit



A suit with multiple compact bin bag 'capsules' that can be readily pulled out. Rings on the belt to attach filled bags.

14 Bench Bin



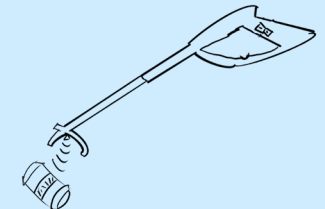
This commuter bench at the platform edge, also acts as a bin. Could potentially use a chute mechanism to dispose of the waste avoiding security threat.

5 Back Support For Heavy Equipment



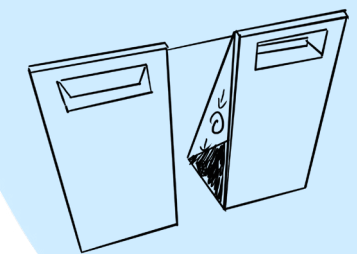
A suit that helps prevent long term back damage during their duties.

10 Automatic Litter Picker



Removal of the lever from a traditional litter pick. Automatically compresses when near waste.

15 Chute Compact Bin



Uses a chute conveyor mechanism meaning staff are not required to maintain. Solution is secure and sleek.

CONCEPT SELECTION

Gathering User Opinion

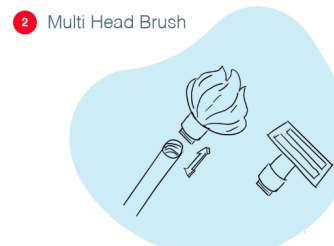
USER CO-DESIGN SURVEY

In order to evaluate the 15 ideas, a survey was performed on a set of users. Each user rated the ideas out of 5.

The average rating for all the ideas was **3.29** and a standard deviation of **0.37** suggesting that in general the ideas were good. In total, **11** participants took part online. In person feedback also took place.

CRITICAL FEEDBACK

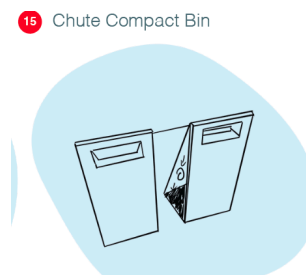
Overall the scores people gave to the ideas were positive however some users noted the insights shown below. Many were concerned about the Bench Bin and how it would actually work. It did not seem practical to them. Another issue mentioned was security risks with the bench and how it would need to be clear making it look uninviting. Therefore, the bench bin will not be taken forward. Another user questioned whether they all reduced waste. Not all the ideas specifically cover the reducing of waste but they are focussed around the 'Reusing / Recycling / Repurposing' brief and related topics.



Based on cleaner feedback about sometimes having to repeatedly sweep platforms. Head suited to job.

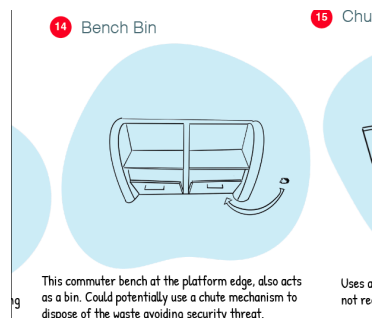
"Multi Head broom technically exists and what would you do with extra heads still have to go back and forth to swap heads maybe find a way to keep heads attached (rotation)"

"Consider if they all genuinely reduce waste"



Uses a chute conveyor mechanism meaning staff are not required to maintain. Solution is secure and sleek.

"I don't get the last one, could you better describes it"

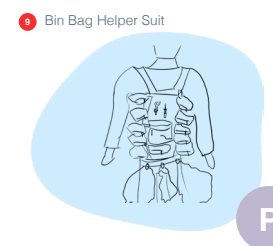


This commuter bench at the platform edge, also acts as a bin. Could potentially use a chute mechanism to dispose of the waste avoiding security threat.

Uses a not re

"Is the bin bench really a good idea? Like who wants to sit on a bin. And how are you going to use it when someone is sat on it..."

"For the bin bag helper suit, it seems like it would be quite heavy to carry multiple filled bags at the waste, it could also make it hard for the wearer to walk around"

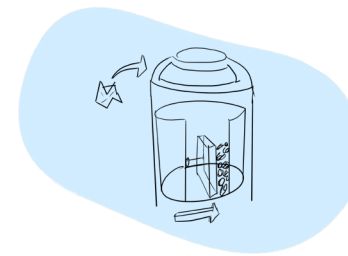


"The reason tube bins are clear bags normally is because of a bomb threat. Many of the new bin designs may be hard to keep the same security. For example the bin under the seat would be undesirable to sit on if it were clear"

TOP SCORING IDEAS

1 Compressor Bin - Avg. Score 4.00

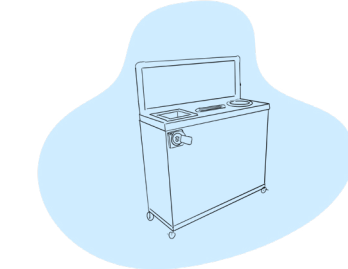
13 Compressor Bin



This idea was the most popular. This was surprising to me as many high streets actually already have this product and I thought it would be seen as 'boring'. However the reason it is so prevalent is probably because it is likely to be very effective. There is potential to combine it with the smart bin idea.

2 Smart Bin - Avg. Score 3.82

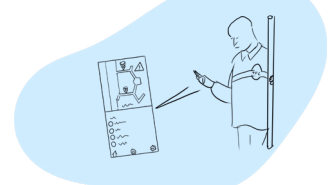
7 Smart Bin



This idea was seen by many as being 'clever' due to the fact that it links with TfLs existing infrastructure (oyster). This would also mean that consumer would be more inclined to use the bin in its proper manner as they would only be awarded if they recycled in the correct way.

3 Staff Logistics App - Avg. Score 3.8

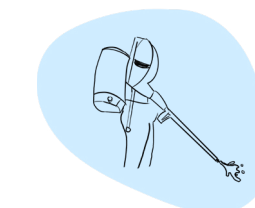
12 Staff Logistics App



Digital solutions such as these are important for TfL staff and are likely to be the most practical to implement as there is a lower cost hence its popularity. There is also a lot that can be achieved with a modern phone.

4 Spray Gun Machine - Avg. Score 3.45

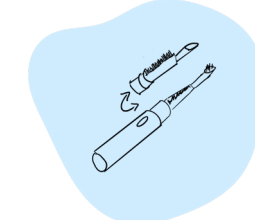
4 Spray Gun Mixer



This idea was inspired by on the field feedback we gained so its good to see that users can also see the benefits of such a product. A peer commented that it looked bigger than what it was in reality.

5 Train Cleaning Multi Tool - Avg. Score 3.36

8 Train Cleaning Multi Tool



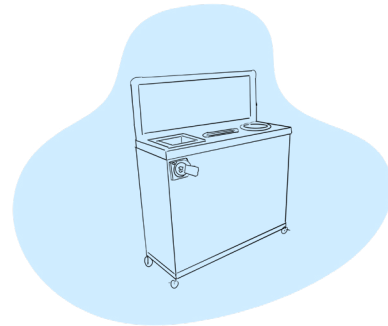
This also seems a realistic idea compared to the more technically challenging ideas. There is potential to create a wide variety of different tools but due to its size it might not be as useful for bins. It could also be easily lost or broken.

IDEATION

Prototyping and development of concepts

CAD + AR

7 Smart Bin



To prototype the smart bin, I felt it was most appropriate to use Fusion 360 in order to show the technical features of the end product.

It also allowed the models to be exported to USDZ files that can be used in AR on a standard phone allowing me to take pictures of what it would look like in an actual station.

Areas to Develop:

- **Looks**, it is very industrial currently. HMW improve this? A less cuboid based design.
- **Traffic**, is one oyster reader enough? How many people will use the machine at once.

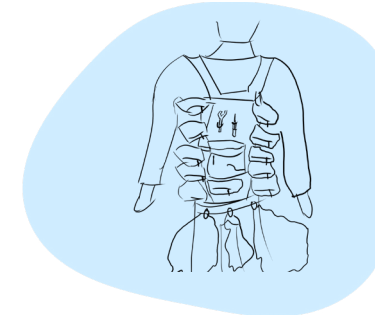
A user noted that it would be tricky to bring it down the stairs outside the subway when the subway is closed.

In order to solve this problem perhaps continuous tracks could be placed on the underside of the bin.



PHYSICAL

9 Bin Bag Helper Suit



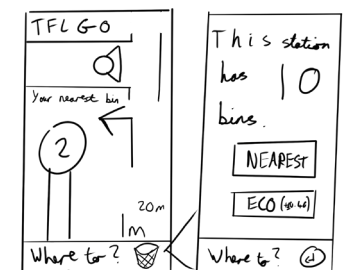
"This is very uncomfortable and I could not do it for more than 5 minutes."

In order to help decide whether to take this idea forward (as user feedback had been negative about ergonomics) a lo-fi prototype was made. A group member wore the prototype and walked around to see how it felt. This model was particularly unergonomic but the group member said that even if it were more ergonomic he felt the extra weight of filled bin bags would put him off using it. Additionally the spare bin bags he felt were coming up with a solution to a problem that didn't really exist. (not being able to access bin bags quickly).



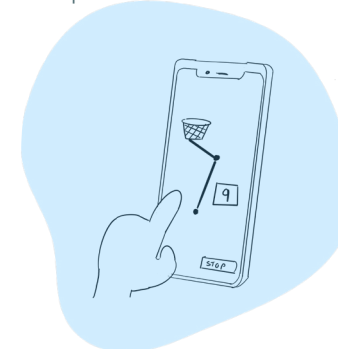
"That's nice, but how do you move the cart down the stairs?"

"It's great if you put it at the entrance, people at campus can come to recycle their bottles as well"



DIGITAL

1 Bin Map



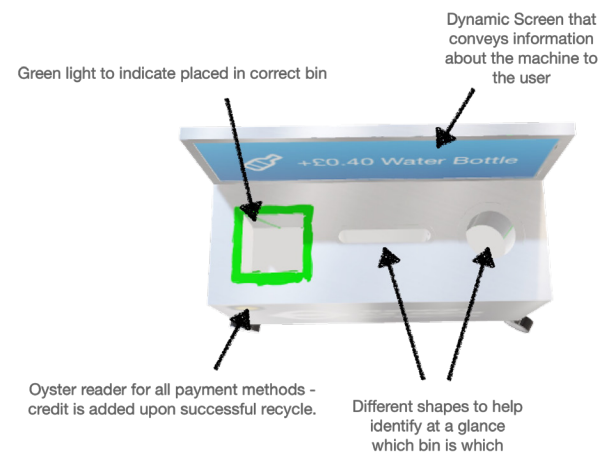
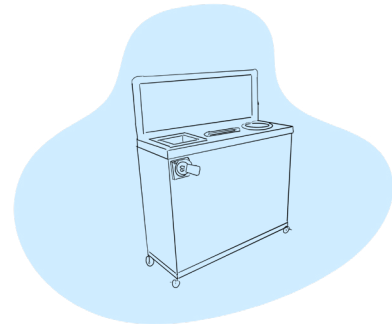
To prototype the bin map, I drew a UI mockup based on the TfL go app on my phone. Interactivity elements were also showcased.

There are two options when choosing which bin to navigate to 'nearest' or 'eco' which is a mixed recycling bin that gives oyster credit to the user if used correctly.

FINAL CONCEPTS

Three final concepts selected and evaluation

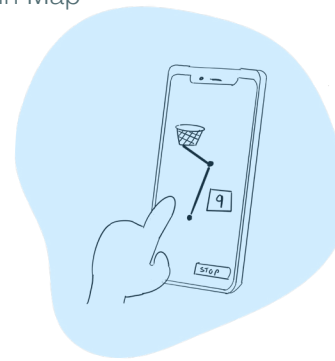
7 Smart Bin



Evaluation

This solution was chosen as it is a unique idea that integrates nicely with oyster. Further development needs to occur to make it more eye catching and less industrial looking. Security also needs to be implemented through either a physical or digital solution.

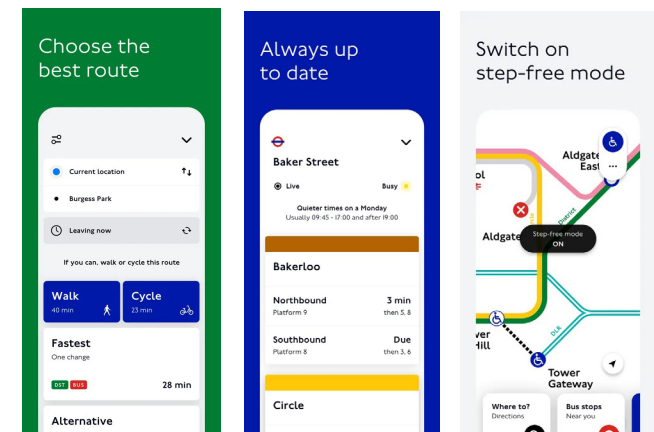
1 Bin Map



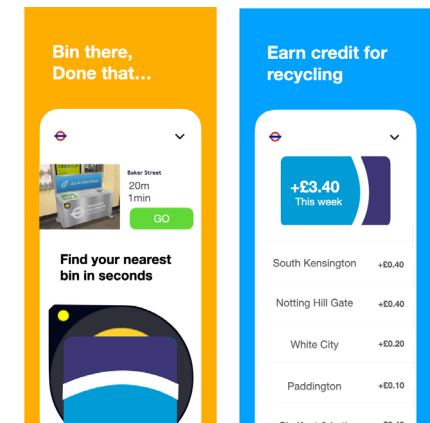
Evaluation

'TfL Go' is TfL's current flagship navigation app that they have put heavy development into. It would make sense for this concept to be implemented in this app rather than a standalone app as it will be quick and convenient for consumers to access on the move.

Some users said that they weren't sure if they'd be willing to use an app just to find a bin. However, many did state it was a constant frustration for them and if it was well advertised would definitely be used.

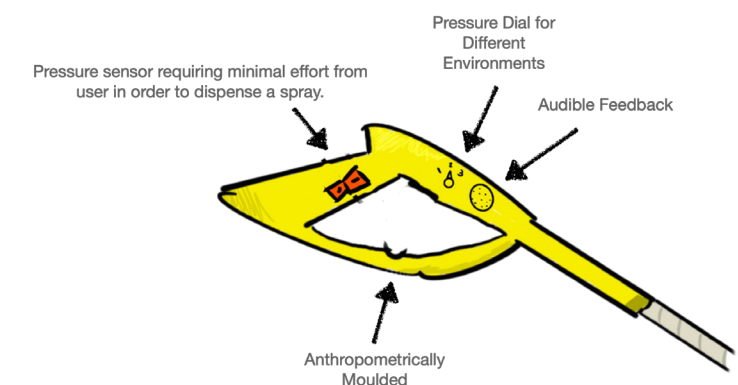
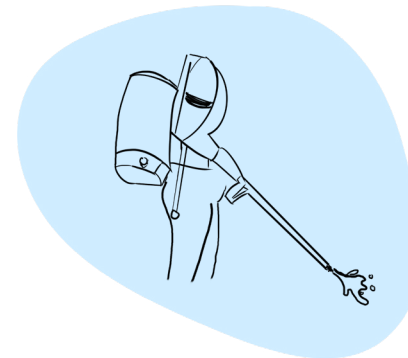


TfL Go - Existing App



TfL Go - Proposed Addition

4 Spray Gun Mixer



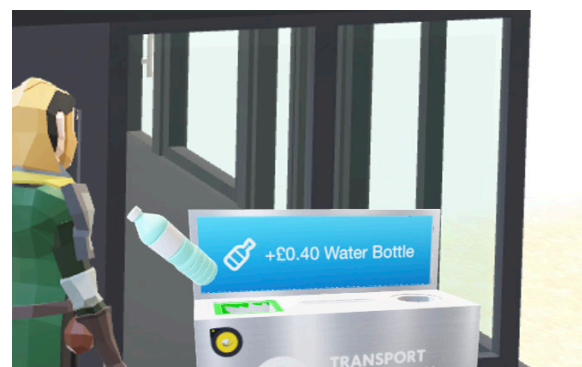
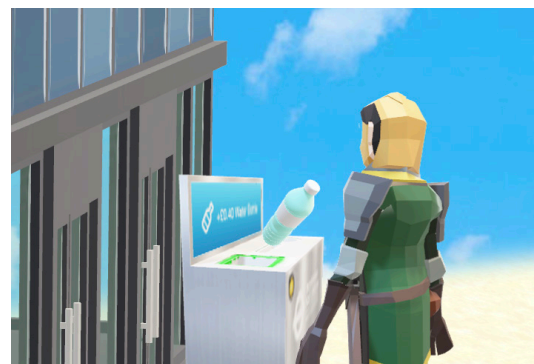
Evaluation

This is the only final selected idea that is intended for front-line TfL staff. It is a functional device designed to make their spray mixing easier. As cleaners move constantly between trains and platforms it would make sense to have a 'docking' style station for the device to be placed into. Potential development could occur around the mechanism to dispense the spraying solution and making sure it is lightweight.

Conclusion

All of these ideas are strong contenders for meeting the initial HMW of 'HMW improve the bin experience across the tube network whilst maintaining stringent security?'. The bin bag helper suit was eliminated during the prototyping stage as the user found it too cumbersome.

The next stage is working together as a group, looking at each others projects and seeing which of our 12 final selected ideas will be the one we take forward to part 2 of the project.



APPENDIX

Stratford Bins Map

<https://www.google.com/maps/d/u/0/edit?mid=1MEP5QiWvUtBi-YYqagp11QLjtOQQ-Js0&usp=sharing>

TfL FOI Tube Map

<https://fr3ddie.me/media/tubebins.html>

AR Smart Bin

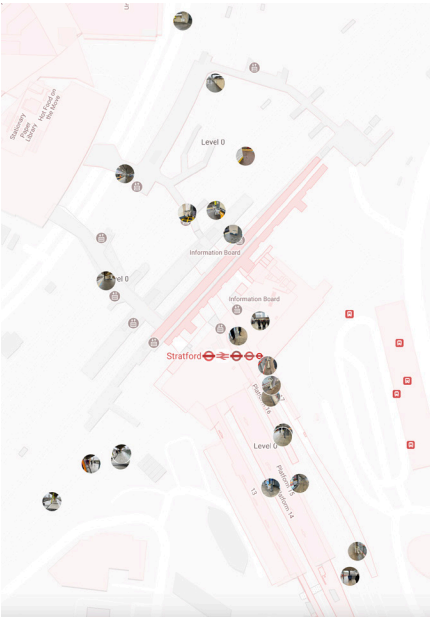
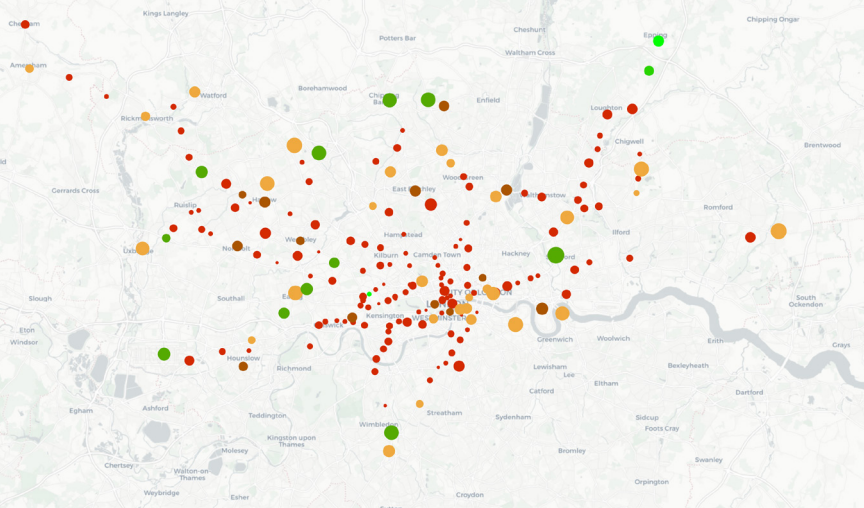
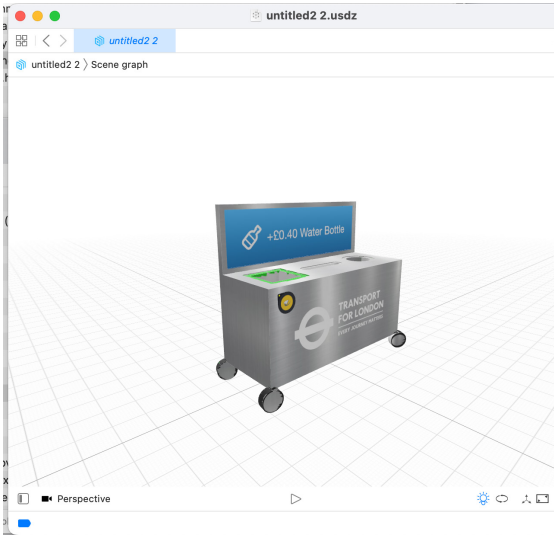
https://drive.google.com/file/d/1Er_u0JhjZhLaMmzStb3INsD2AsJKRbm3/view?usp=sharing

Are there enough bins? - tweet

https://twitter.com/Freddie_Nic/status/1627966554238246915?s=20

TfL FOI - Waste bins on the tube

<https://tfl.gov.uk/corporate/transparency/freedom-of-information/foi-request-detail?referenceId=FOI-2770-2223>



Tim Dunn @MrTimDunn · Feb 22
Replying to @Freddie_Nic @geofftech and @jayforeman
If I was playing devil's advocate, I'd say there are more than enough: despite public perception that recycling is v important to reducing carbon footprints, if we're honest, recycling is ~No.60 on the rank of impact of an individual's actions. More important stuff than bins 🧐

1

3

158

Freddie Nicholson @Freddie_Nic · Feb 22
Replying to @MrTimDunn @geofftech and @jayforeman
Yes, believe there are other reasons as well as to why they aren't in the most obvious of places which we're also exploring solutions to. We've found people say opposite but that they perceive platforms as litter free. We're doing in person stuff to see if what people say is true

147

Jay Foreman @jayforeman · Feb 21
Replying to @Freddie_Nic @geofftech and @MrTimDunn
Nice work! But the map raises a few questions for me. Lots of stations are missing. If the colour of the blob shows the number of bins, what does the size of the blob mean? Why does Stanmore have two? What Tube station is in Thurrock?

2

150

17K

Jackson Macmanus @JacksonMacmanus · Feb 21
Replying to @jayforeman @Freddie_Nic and 2 others
think it includes the trams and overground

1

547

Freddie Nicholson @Freddie_Nic · Feb 21
Replying to @JacksonMacmanus @jayforeman and 2 others
Accidentally included 'Chafford Hundred' as the 'CHALFONT & LATIMER' station due to dodgy VLOOKUP in spreadsheet. I fixed it now and it only affected a few stations.

1

348

FOI

to me

Mon, 20 Feb, 11:10 (22 hours ago)

Dear Mr Nicholson

TfL Ref: 2770-2223

Thank you for your request received by Transport for London (TfL) on 27 January 2023 asking for information about waste bins on the tube network.

Your request has been considered in accordance with the requirements of the Freedom of Information Act and our information access policy. I can confirm that we hold the information you require. Your questions and our replies are as follows:

1. How many bins are there in total within the London Underground network?

There are 1221 bins in total across our London Underground network (correct as at 8 February 2023).

2. Is it possible to have a breakdown per station?

The breakdown by station is attached.

3. How does TfL go about deciding the number of bins a station may have and where they may be located?

4. What factors are considered when making these decisions, e.g. cleaning cycles, maintenance, safety and security?

The locations and numbers of bins are based on a number of factors including safety and security, customer flow, accessibility needs, our existing cleaning regime, the work required to maintain them, known customer behaviour, the type of stores in the area (if we have lots of fast food restaurants nearby) and the availability of alternative bins in the immediate area outside the station.

5. In the past TfL has tried split recycling bins, is this going to be continued or are other initiatives being investigated to promote sustainability on the Tube?

Work is ongoing to improve recycling rates at stations and across London Underground sites in the future to reduce land fill waste. Station waste is recycled wherever possible.

If this is not the information you are looking for, or if you are unable to access it for any reason, please do not hesitate to contact me.

Please see the attached information sheet for details of your right to appeal as well as information on copyright and what to do if you would like to re-use any of the information we have disclosed.

2 Attachments

Scanned by Gmail

References can be found in bottom left hand corner of pages.

12

Freddie Nicholson | Design Engineering | Imperial College London