



Oasis.

Portfolio - Jodie Clothier





Introduction.

What is the problem? What is the proposed solution?

Problem.

Environmental noise pollution affects urban parks and greenspaces, no longer providing a space for city dwellers to relax and unwind (Buxton, 2017). This is detrimental to the physical and mental health of individuals as noise pollution triggers the body's stress response, increasing their levels of cortisol (Department of Health, 2018). Without respite the overall health and wellbeing of urban communities will suffer.

Solution.

Oasis is a sound and lighting installation designed for urban greenspaces which aims to give individuals more agency over their exposure to noise pollution.

It achieves this by creating a pocket of tranquility in which users can customise their own soundscape to create a more relaxing or meditative environment which is heightened by the use of lighting elements.



Team Structure.

Who are we? What are our roles?



Jodie Clothier

User Experience Lead

Project management.
User research and testing.
Guiding design iterations.
Assisting in fabrication.
Product video.
Documentation.



Mikkel Astrom

Physical Fabrication Lead

Construction of the wall.
Construction of light discs.
Sound production.
Assist in implementation of electronic components.
Oversee budget.



Miriam Green

Creative Direction Lead

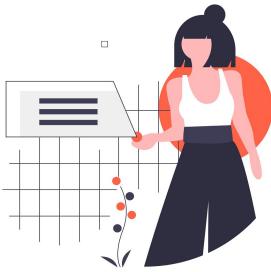
Artistic fabrication.
Construction of prototype components.
Product aesthetics.
Documentation.



Taha Kanj

Tech. Implementation Lead

Development of code.
Implementation of electronic components.
Assist in building light discs.
Assist in construction of wall.



Team Structure.

Breaking down my responsibilities.

Project management

I was responsible for the overall management of the project and team. This consisted of setting expectations, organising meetings, assigning tasks, creating timelines, checking in with team members and general troubleshooting. Whilst I was comfortable in this role I deferred to Mikkel when making decisions about the budget and resources.

User research and testing

As UX lead I was responsible for the majority of all the planning and undertaking of any user research and testing. This also included the analysis and synthesis of our findings.

Guiding design iterations

Based off of our user research and testing I would be primarily responsible in drawing out the key insight and creating an actionable plan to guide our design process.

Assisting in fabrication

I was responsible in assisting Mikkel in anyway possible when fabricating the wall and the light discs. This role primarily manifested in planning, building and painting the wall component of Oasis.

Product video

I was responsible for organizing, planning, filming and editing the final promotional video for Oasis. As I had the most experience and equipment needed to execute our vision.

Documentation

Throughout this entire project I was primarily responsible for documenting our work and progress as well as organising the reports. For the last assessment though I focused on the product video whilst Miriam lead the final report.



Contributions.

Key Contributions - Discover Phase (Task 1)



Research: Opportunity Areas

Whilst noise pollution is a pervasive problem that blankets entire cities, we identified three key opportunity areas:

Key Insights

Noise pollution is a complex and layered problem with no clear solution as demonstrated through our background research. The prevention of noise itself within urban environments is impossible, which is why noise management is paramount when considering solutions. The key insights we gathered to tackling this complex problem area are:

- Changing the negative connotations of construction barriers and noise pollution into more positive ones by creating more engaging and emotionally sensitive urban infrastructure.
- Making noise pollution data more common in Australia to aid in urban planning, whilst also making it easily accessible to the public so that city dwellers can make more informed decisions, especially regarding environmental noise pollution when choosing their homes.
- Preserving tranquility in urban greenspaces by transforming road traffic noise and into something more pleasant, improving mental wellbeing by creating an escape from city stresses.

Concept Proposal Key Insights

Personas: Who are our users?

Jess - Office Worker
Jess' daily commute to the CBD consists of walking past construction sites. She finds them not only are they loud and annoying but they are barren and ugly as well. She has been feeling irritated and stressed before she even begins her day.

Holly & Tim - Young Couple
Holly and Tim are excited to be moving to the city but aren't sure which apartment to rent. They've heard horror stories from their friend not being able to sleep due to the constant noise of things like busy traffic, trains roaring, post or even rowdy neighbours.

Milton - City Stroller
Milton loves his inner city apartment lifestyle, the only thing that bugs him is the lack of greenery to help him unwind. There's a park not too far away but he doesn't like to leave his block there over the cacophony of traffic in the background.

Concept Proposal Personas

Concept 3: Oasis

Oasis will aid in preserving tranquility in urban environments as cities continue to grow and traffic noise booms by augmenting the soundscapes of greenspaces. By transforming the often intrusive and loud traffic sounds typical of cities into more pleasing and soothing listening experiences. This will allow those trying to enjoy urban greenspaces a sense of calm, which is increasingly difficult to find in urban environments.

Currently there are no existing solutions to the problem of environmental noise in greenspaces or the threat this poses to the health and wellbeing of those who reside in cities.

Concept Proposal Concepts

Documentation & Presentation Prep

I set up, styled and organised the report. Assigning sections to team members and editing the final document before helping them prepare for the presentation.

Research & Key Insights

Miriam and I shared much of the background research before I then synthesised it to draw out the key opportunity areas and key insights.

Proto Personas

I created a set of proto personas based off of our research to help keep us on track and in touch with our users.

Oasis Concept Development

After our initial concepts I developed Oasis further. Fleshing it out more conceptually and with sketches, supported by existing research and innovative practises.



Contributions.

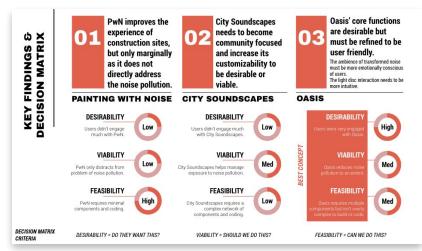
Key Contributions - Design Phase (Task 2)

Augmenting Urban Experiences: Design Report

DECO3200 - Assessment 2
Jodie Clothier | Miriam Green | Mikkel Astrom | Taha Kanj

Documentation & Presentation Prep

I set up, styled and organised the report with Miriam's help. Assigning sections to team members and editing the final document before helping them prepare for the presentation.



PwN & City Soundscapes Prototypes

I designed the animated gradient for Painting with Noise and the focus group session which resulted in the final low-fidelity wireframe for City Soundscapes.

Designing & Facilitating User Testing

I designed the user testing plans, choosing the most appropriate methods for each. I also facilitated the user testing across all three prototypes with the help of my team.

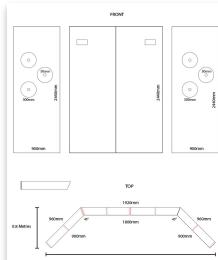
Analysis & Synthesis of Findings

I chose the most appropriate methods to analyse and synthesis our findings with Miriam's help. I also designed the decision matrix and led the evaluation of concepts.



Contributions.

Key Contributions - Deliver Phase (Task 3)



Physical Fabrication

I researched the materials needed for the wall and drew up the schematic before ordering materials. Mikkel and I then primarily worked together to build the wall. I spent multiple days painting, drawing up measurements, cutting internal supports, helping assemble the wall before finishing it with vines with Miriam.



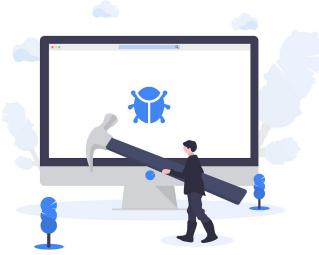
Continued Design Development

As UX lead I contributed in the continued design development of Oasis when making decisions regarding aspects such as the placement of the light discs, the lighting design and inclusion of arrows. This was to ensure that it was as user centric as possible.



Product Promotional Video

I planned, filmed and edited the video including creating the narrative for the video, selecting stock footage, sound editing, 3D tracking text and also rotoscoping by hand each light discs in After Effects for every frame. This created a high quality product video that clearly demonstrated its value.



Challenges.

What went wrong? How were these challenges overcome?

Limited Technical Ability

From the beginning of the project we were aware that the technical implementation of our concept was where we were lacking the most experience. In order to account for this we made sure to consult with our tutors to try and gain as much knowledge as possible and ensure that we knew what to expect. We also organised a one on one meeting with Liam Bray as we knew we would benefit greatly from his expertise in arduinos and audio based interactive products.

Initially we had intended to solely use Arduinos or potentially Raspberry Pi's as the hardware but after consulting with experts we had to reevaluate what was more important for our prototype. Was the technical implementation the focus or was the interactive experience more important? After discussing as a team we felt that ultimately the interactive experience was more important for Oasis and for how we wanted to grow as designers. As such we took onboard Liam's advice and opted to convert our analog potentiometers into midi controllers via Arduino, porting them straight into Ableton which reduced the complexity of the technical implementation and allowed us to focus on creating a better interactive experience without sacrificing any functionality of the prototype.



Sound Setup
Arduino setup; 2x boards
(1 pot, 1 lights)



Challenges.

What went wrong? How were these challenges overcome?

Light Diffusion of Light Discs

The light diffusion of the light discs is not optimal due to the design of the internally housed components. The mounting mechanism which is fixed to the potentiometer, 3D printed case and ball bearing affects the diffusion of the LED strips as they must be wrapped around it, facing externally. This is what causes the uneven distribution of light in the centre of the light disc. Ideally, the light would be evenly dispersed around the dome and hide the internal components which was the original design.

Due to the accelerated timeline we were not able to redesign the internal components of the light disc and instead reduced the severity of this problem by testing multiple placements of the LED strips and coating the light disc domes with further coats of frosted spray paint to better diffuse the lights. Whilst this did not completely solve the problem it was the best solution considering the constraints. In the further we would redesign the internal components and trial different light sources for a better result.



Light Disc
Diffusion
(Top view, Side View)



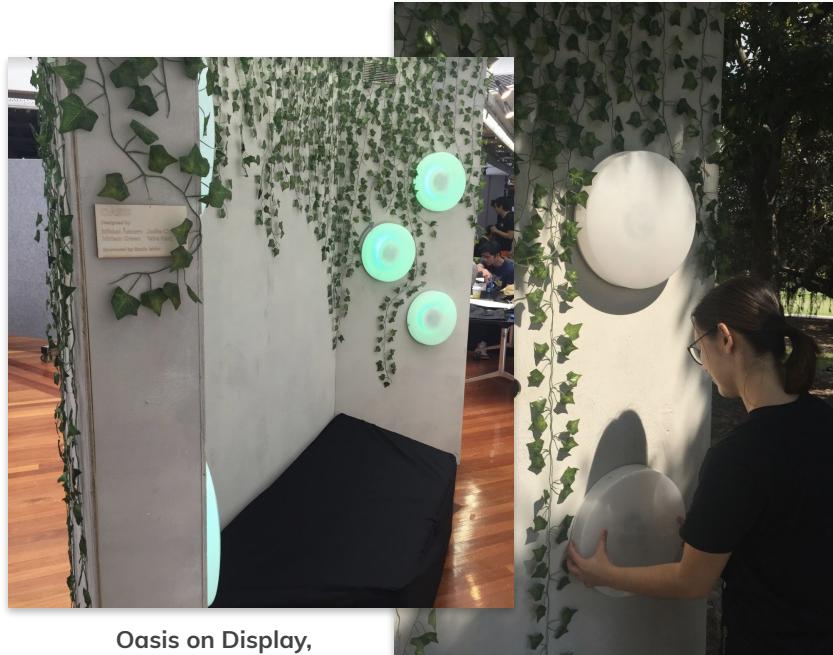
Challenges.

What went wrong? How were these challenges overcome?

Limited time to test with users

Throughout this project we tried to ensure that our design choices were always user driven. Whilst we successfully tested with a number of users in assessments one and two, which formed a strong foundation, the exhaustive amount of time and effort that was required to build this prototype within such a short time frame meant that organising, planning and testing with users in such a rigorous manner was simply not possible. As a result of that we often resorted to methods such has heuristic evaluation, persona based roleplaying and human factors to ensure that our design process was as user centric as possible. /

Whilst not ideal, this was the best compromise we could make considering the situation. What was highly beneficial though was observing people interact with our prototype when it was displayed. Taking note of how students and tutors interacted with it and their comments on the interaction model which will help inform further design decisions if we decide to take this concept further.



Oasis on Display,
Roleplaying



Final Reflection.

Looking back and to the future...

How well did you work in your team?

I felt that my team and I worked very well together. Having worked with Mikkel and Miriam previously I knew that there wouldn't be any problems. As we are all friends as well and know each others strengths I thought that overall we were highly compatible.

What could you have done differently?

Honestly, there's not much I would change. I felt that overall the project ran quite smoothly and our time management throughout the semester was quite successful (I did appreciate the extensions though). Perhaps my one regret is that we had managed to the light discs working when filming so I did not have to spend 40 hours in post production lighting the light discs.

Will your team continue to work on the prototype further?

Potentially. We have discussed the possibility of submitting a proposal to Vivid in hopes of securing a grant. In which case we may further develop the light discs.



Family Photo

References.

Buxton, R. (2017). *Human noise pollution is disrupting parks and wild places*. Retrieved 6 November 2019, from <http://theconversation.com/human-noise-pollution-is-disrupting-parks-and-wild-places-78074>

Department of Health (2018). *The health effects of environmental noise*. Retrieved from [https://www1.health.gov.au/internet/main/publishing.nsf/Content/A12B57E41EC9F326CA257BF0001F9E7D/\\$File/health-effects-Environmental-Noise-2018.pdf](https://www1.health.gov.au/internet/main/publishing.nsf/Content/A12B57E41EC9F326CA257BF0001F9E7D/$File/health-effects-Environmental-Noise-2018.pdf)

Illustrations

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Appendix.

Augmenting Urban Experiences: Concept Proposal

DECO3200 - Assessment 1

Jodie Clothier | Miriam Green | Mikkel Astrom | Taha Kanj

Research: Opportunity Areas

Whilst noise pollution is a pervasive problem that blankets entire cities, we identified three key opportunity areas to address.

Construction Sites - Responsible for a considerable amount of environmental noise which is often particularly intrusive due to its transient nature. The combination of noise pollution and being visually unappealing has been proven to increase stress, contributing to poorer mental health and lower life satisfaction (*Montgomery, 2013*).

Noise Mapping - Australia has been slow to embrace noise mapping compared to other countries, such as the EU. However the limited successful projects which have been completed here are used solely for urban design, infrastructure and master planning projects and are not available to the general public (*Hinze, 2015*). This information would be highly useful for home buyers and renters so that when choosing a home they could mitigate their exposure to noise pollution.

Greenspaces - Greenspaces are important for city dwellers as they aid in stress reduction, relaxation, pain and anxiety relief through 'tranquillity' (*Van den Berg et al., 2015*) - a psychological state characterized by the intersection of peacefulness and nature (*Kaplan, R., & Kaplan, S., 1989*). However access to tranquillity in cities is increasingly under threat due to rising noise levels.

User Research: Key Areas

First person user research was conducted to understand our key areas from our users' perspective and the spaces in which they these problems exist.

Construction Sites - Informal interviews were conducted with people nearby existing construction sites on the uni campus to gauge their attitude towards both the visual and noise pollution they encountered while using the public space. The reactions confirmed that they were disruptive and oppressive to be around, due to the large dark walls and overpowering sound.

Noise Mapping - Immersion was used to understand the struggles faced by home buyers/renters when trying to access information on noise levels surrounding a potential new residence. The information is lacking or doesn't exist, and the data that is there is hard to interpret and use. The users are forced to discover problems with noise pollution in their area by experiencing it first hand, after they've already committed to the home financially.

Greenspaces - Greenspaces near the city and uni campus were observed audibly and visually to understand the noise levels and sources people using the parks were experiencing. While the parks were mostly used for relaxing, reading or playing, the loud, distracting sound from the nearby roads significantly hindered these activities.

Key Insights

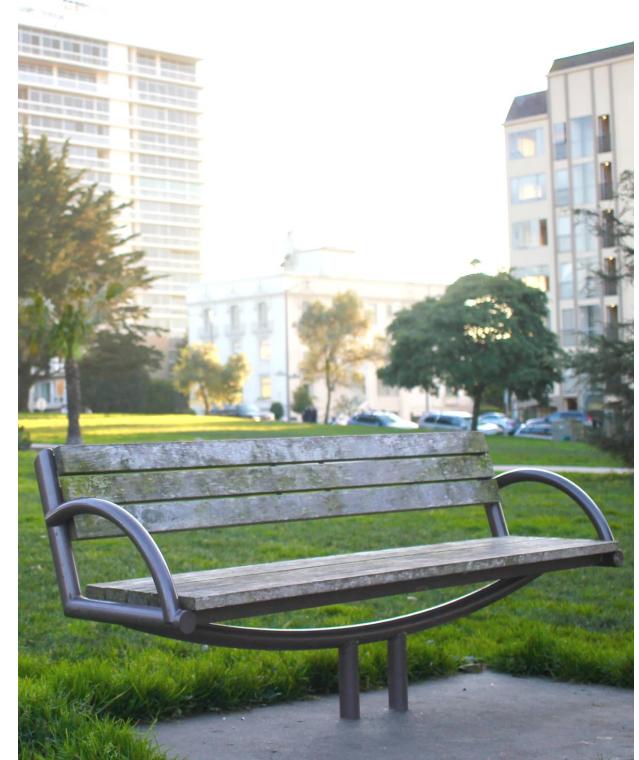
Noise pollution is a complex and layered problem with no clear solution as demonstrated through our background research. The prevention of noise itself within urban environments is impossible, which is why noise management is paramount when considering solutions. The key insights we gathered to tackling this complex problem area are:

- Changing the negative connotations of construction barriers and noise pollution into more positive ones by creating more engaging and emotionally sensitive urban infrastructure.
- Making noise pollution data more common in Australia to aid in urban planning, whilst also making it easily accessible to the public so that citydwellers can make more informed decisions, especially regarding environmental noise pollution when choosing their homes.
- Preserving tranquility in urban greenspaces by transforming road traffic noise and into something more pleasant, improving mental wellbeing by enabling an escape from city stresses.

Concept 3: Oasis

Oasis will aid in preserving tranquility in urban environments as cities continue to grow and traffic noise booms by augmenting the soundscapes of greenspaces. Transforming the often intrusive and loud traffic sounds typical of cities into more pleasing and soothing listening experiences. This will allow those trying to enjoy urban greenspaces a sense of calm, which is increasingly difficult to find in urban environments.

Currently there are no existing solutions to the problem of environmental noise in greenspaces or the threat this poses to the health and wellbeing of those who reside in cities.

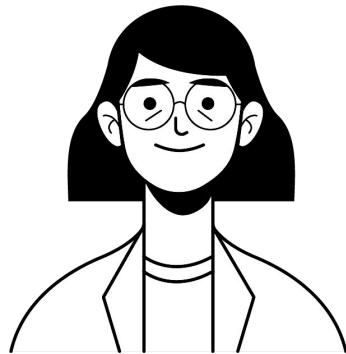


Oasis: How it works?

Oasis consists of thoughtfully designed sound shields which create pockets of tranquility within busy and chaotic urban environments. These sound shields use noise transformation to alter the perception of undesirable environmental sounds by applying a small amount of carefully crafted sound 1–3 dB louder than the traffic noise and merging the background with the custom ambient sounds to create a sound that is far more pleasing. It uses a microphone to pick up the background sound which is then transformed and layered with other natural sounds that the active user can. This is then played through embedded speakers on the interior of the shield.

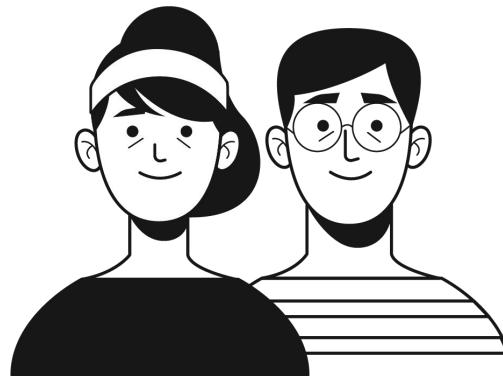
Oasis also includes ambient lighting that responds to the transformed noise, heightening the calming experience for the active users and also visually enhancing the space which will make the greenspace more desirable for observers or passer-bys. The outside of the sound shield will feature a vertical garden and a display providing information about the greenspace such as wayfinding, facilities or community events.

Personas: Who are our users?



Jess
Office Worker

Jess' daily commute to the CBD consists of walking past multiple construction sites. Not only are they loud and annoying but they are barren and ugly as well and she often finds herself feeling irritated and stressed before she even begins her day.



Holly & Tim
Young Couple

Holly and Tim are excited to be moving to the city but aren't sure which suburbs they should be looking at for their first home. They've heard horror stories from their friends not being able to get a wink of sleep because of things like busy traffic, trains roaring past or even rowdy neighbours.



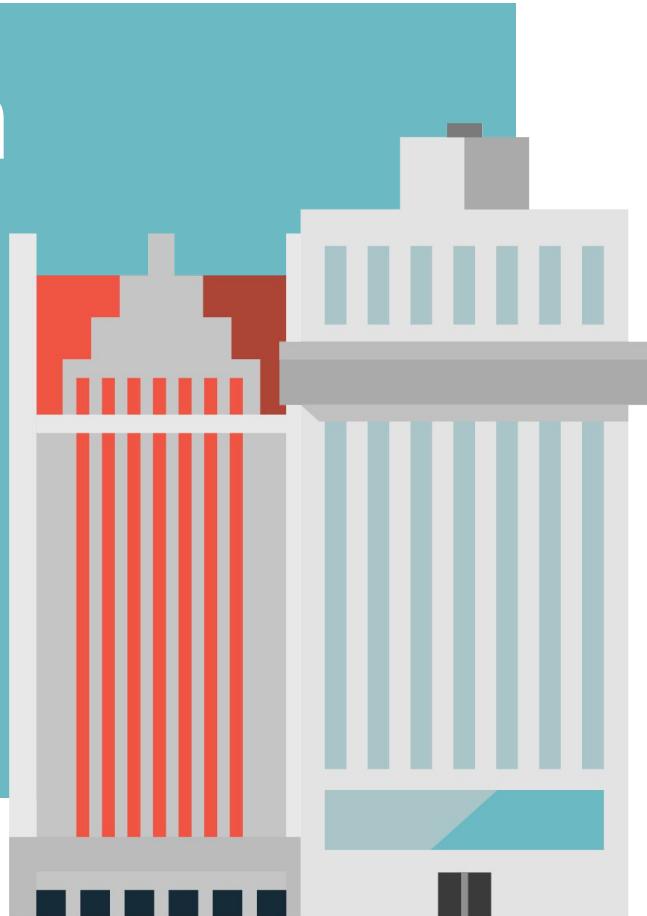
Milton
City Slicker

Milton loves his inner city apartment lifestyle, the only thing it's missing though is some greenery to help him unwind. There's a park not too far away but he can't even hear himself think there over the cacophony of traffic in the background.

Augmenting Urban Experiences: Design Report

DEC03200 - Assessment 2

Jodie Clothier | Miriam Green | Mikkel Astrom | Taha
Kanj



TESTING METHODS OVERVIEW

PAINTING WITH NOISE

CONTEXTUAL WALKTHROUGHS

Allow us to understand the thoughts and actions of participants as they test a prototype in a relevant context.

PAINTING WITH NOISE - OASIS

OBSERVATIONS

Useful for noting participants behaviour and actions. How they interact with a prototype can reveal deeper insights.

PAINTING WITH NOISE - OASIS

USABILITY TESTING

Useful for testing specific features or functionality of a prototype with participants and gaining feedback.

OASIS

THINK ALOUDS

Think Alouds allow us to access participant's thought processes while they are interacting with a prototype.

PAINTING WITH NOISE - OASIS

QUESTIONNAIRES

Questionnaires give quick and immediate feedback on how the users feels or thinks about the prototypes.

PAINTING WITH NOISE - OASIS

POST INTERACTION INTERVIEW

A post interaction interview reveals deeper insights by probing the participant about their experience.

CITY SOUNDSCAPES

CO-CREATION WORKSHOP

Ensures that the needs of the users remain at the centre of the concept by engaging them in the design process.

PAINTING WITH NOISE - OASIS

FOCUS GROUP

Focus group discussion elicits understandings through asking questions and prompting conversations.

OASIS

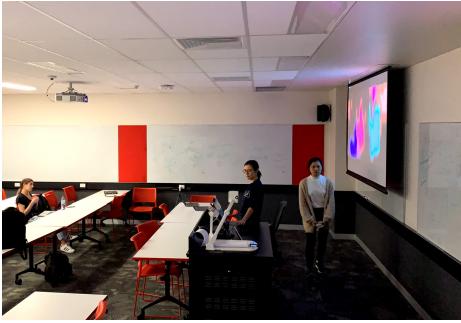
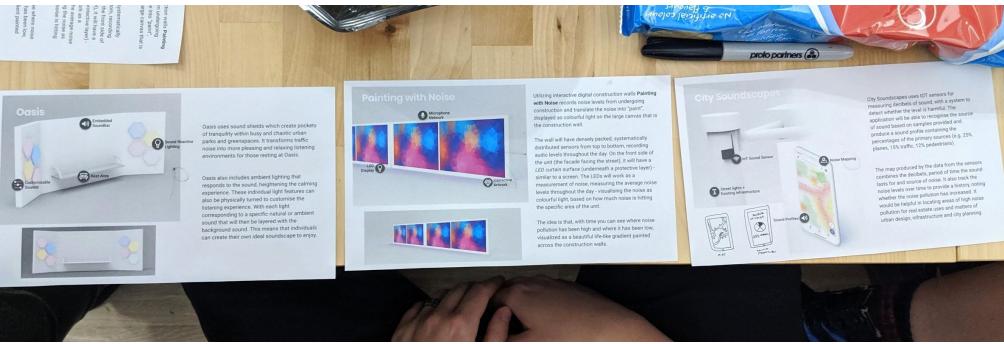
ROLE PLAYING

Evaluate prototypes by taking on the role of the user and acting out tasks or activities to understand pain points.

OASIS

HEURISTIC EVALUATION

Quick and low cost method to identify usability problems of prototypes and rapidly iterate on them.



SYNTHESIS & ANALYSIS METHODS OVERVIEW

AFFINITY DIAGRAMMING

Affinity diagramming is a useful method for synthesising large amounts of qualitative data through clustering of themes to reveal patterns and insights.

HOW MIGHT WE QUESTIONS

'How Might We?' questions based on key insights reframe problems as opportunities to facilitate ideation for further development of solutions.

INSIGHT STATEMENTS

Insight statements are useful in summarising findings into key insights which are easily digestible. These can be revisited throughout the design process to evaluate iterations.

DECISION MATRIX

A decision matrix is useful to evaluate our concepts through chosen criteria relevant to the problem area and user needs, and decide on the best solution.

KEY FINDINGS & DECISION MATRIX

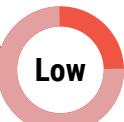
01

PwN improves the experience of construction sites, but only marginally as it does not directly address the noise

PAINTING WITH NOISE

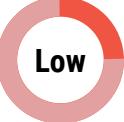
DESIRABILITY

Users didn't engage much with PwN.



VIABILITY

PwN only distracts from problem of noise pollution.



FEASIBILITY

PwN requires minimal components and coding.



02

City Soundscapes needs to become community focused and increase its customizability to be desirable or viable.

CITY SOUNDSCAPES

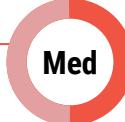
DESIRABILITY

Users didn't engage much with City Soundscapes.



VIABILITY

City Soundscapes helps manage exposure to noise pollution.



FEASIBILITY

City Soundscapes requires a complex network of components and coding.



03

Oasis' core functions are desirable but must be refined to be user friendly.
The nature of transformed noise must be more emotionally conscious of users.
The light disc interaction needs to be more intuitive.

OASIS

DESIRABILITY

Users were very engaged with Oasis.



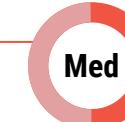
VIABILITY

Oasis reduces noise pollution to an extent.



FEASIBILITY

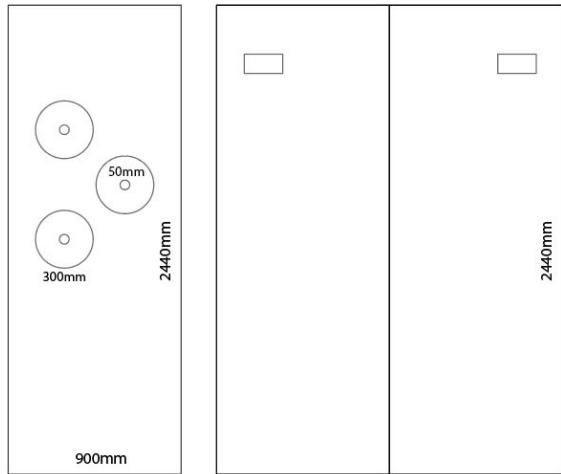
Oasis requires multiple components but isn't overly complex to build or code.



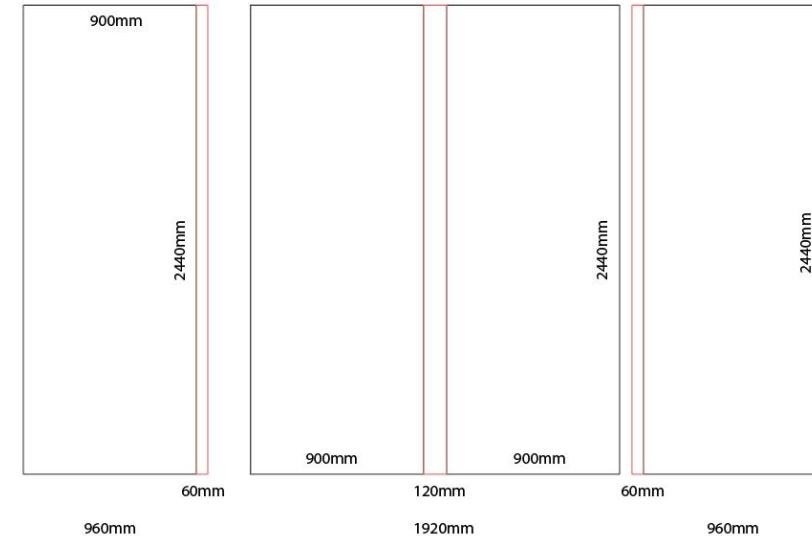
BEST CONCEPT



FRONT



BACK



TOP

