

DESIGN PORTFOLIO

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DECO3200 Assessment 4

Project Overview

The Problem

Rapid urbanisation and the accompanying stressors have taken the toll on the social well-being of Sydney urban dwellers. People are faced with feelings of isolation as they find it difficult to initiate social interaction within their respective communities. Furthermore, urban public spaces are greatly influential in creating a sense of community. Although, such spaces are increasingly devoid of social opportunities due to excessively formal environments. Ultimately the lack of inclusivity, sociability and feelings of belonging in Sydney urban areas is of concern.

Project Goal

This project aims to reduce the feelings of stress and isolation by encouraging sociability in Sydney urban public places. By creating a space that builds courage for people to connect in an urban setting, we seek to improve their sense of belonging to the urban community. Therefore, removing the barriers of formality within urban settings is essential for bringing availability and sense of joint ownership along with other citizens of that area.



Flux

Flux Field was designed to achieve the encouragement of social interaction. Flux is an interactive light installation that connects individuals through collaboration. Throughout user research and testing, we have observed that urban dwellers have the desire to interact socially. Though, the same crowd find direct contact quite confronting. Therefore, Flux becomes the form of encouragement users can embrace in achieving their connection with the community. Users will become immersed in a projection of light controlled by their actions. Four out of the 20 light poles that embody Flux, are interactive. These poles are touch sensitive and send information of colour animation throughout the entire installation. Giving users the ability to connect at their own level.

Team Structure



Jason Moisiadis

Software Developer	Software research
	Development and refinement of code
UX Designer	User research
	Concept development
	Prototyping
	Technical model development
	Concept evaluation
	Final concept iteration
Product Fabricator	LED installation
	Wooden frame construction
	Final product installation
Video Production	Product video editing
	Photography



Angineh Karabedian

UX Researcher	Background research
	Problem definition
	User research
	Thematic analysis
UX Designer	Ideation
	Concept development
	Prototyping
	Concept evaluation
	Final concept iteration
Product Fabricator	Alteration and refinement of materials
	Construction of pole casing
	Final product installation
Resource Coordinator	Sourcing materials and suppliers
	Warehouse purchasing
	Pick up and delivery
	Cost management



Nicholas Lam

UX Researcher	Background research
	Market analysis
	Problem definition
	User research
	Thematic analysis
UX Designer	Ideation
	Concept development
	Prototyping
	Concept evaluation
	Final concept iteration
Product Fabricator	Alteration and refinement of materials
	LED installation
	Final product installation
Visual Designer	Report and presentation design



Monica Mediarito

UX Researcher	Background research
	Market analysis
	User research
	Thematic analysis
UX Designer	Ideation
	Concept development
	Prototyping
	Concept evaluation
	Final concept iteration
Product Fabricator	Alteration and refinement of materials
	Construction of light poles
	Final product installation
Technical Writer	Written material preparation for reports
	Technical writing for final product



Angineh
Karabedian

UX Researcher

I was partly responsible for conducting background research including exploration of academic publications and existing products. I deeply engaged with the brief and the context in focus to help with the problem definition.

For user research I was responsible for conducting two interviews with our target users and transcribing them for thematic analysis. I also involved a large number of people in my circle to complete our survey. The results of my user research were combined with the rest of the team for analysis.

UX Designer

As one of the UX designers of the team, I was responsible for design thinking, ideation, initial concept development, prototyping, concept evaluation, data synthesis and final concept development. To fulfil these tasks, I frequently referred back to UX design principles, ideation and evaluation methods learnt throw-out this course.

My main task during this stage was the development of the early concept *Sonicscape*. I led the concept from ideation all through to the low-fidelity prototype and was responsible for the entire set up/testing of the concept during the usability testing session. I also contributed to the development and evaluation of the other two prototypes.

Resource Coordinator

In my role as the resource coordinator, I was responsible for sourcing materials and suppliers, visiting warehouses, delivering materials and managing costs. This role required me to personally visit various warehouses to ensure all necessary materials were purchased and picked up in time ready for production.

I personally delivered most materials to DMAF including acrylic and aluminum tubing, LED lights, electronic components, etc. During the final installation process, I stayed on call for providing further support with resources whenever needed, ensuring to support my team.

Product Fabricator

As one of the product fabricators of the team my responsibilities included alteration of materials, construction of pole casing and final product installation. While assisting the team with the construction of other components, I was predominantly responsible for the preparation of the light poles. This required me to perform a series of alteration processes on raw materials including drilling, spray frosting and sanding acrylic tubing. The preparation of metal caps included cutting, filing, sanding and drilling.

During this phase I was also responsible for liaising the installation space and requirements. For the final deployment I assisted with the set up of wiring, testing, debugging and finally moving the whole structure above the roof.

Contributions

UX Research

My first contribution during the discovery phase of the project was to learn about people and the context of the problem. Through secondary research, including exploration of academic publications and existing products, I gained knowledge about the context. Going through the empathy phase we defined the problem as the following.

"Sydney urban dwellers are faced with feelings of isolation as they find it difficult to initiate social interaction in the community."

After setting out the research plan and methods, I got involved with the development of research questions. I was responsible for conducting two interviews and transcribing those for thematic analysis. I also involved a large number of people in my circle to complete our survey. The results of my user research were combined with the rest of the team's for analysis.

UX Design

My next role was focused on UX design. This process commenced with a data analysis session leading to the key findings from our user research. During a rapid ideation process, we brainstormed some initial concepts. My next task was to further develop the concept "Sonicscape" which combined sound with users' collaboration. I performed further research to identify existing products, hardware/software requirements and user interaction. The concept was developed into sketches, renders and finally a low-fidelity prototype for evaluation. In order to choose three out of the four concepts, I prepared a decision matrix for the team to complete.

For the concept evaluation session my tasks included setting up Sonicscape, organising one participant out of total 4, contextual observation, interviews, SUS and photography. For the second data synthesis session I transcribed and coded 6 out of the 12 interviews and prepared most of the notes for the affinity diagram.



During a lengthy process analysing and combining the collected data sets we were able to record the key findings. The next step for me was to prepare a final decision matrix for the team to complete in order to choose the final concept solely based on the collated data findings. For iterating the chosen concept further, we set out all the positives/negatives for each concept and performed rapid brainstorming. Kinetic Space was the outcome of iterations on Kinetic Aurora taking user's needs and pain points into consideration. After considering the building process, potential materials, affordability and feasibility, we developed a low fidelity prototype to test the finer interactions with users. My contributions included sourcing and providing materials, building, installing, user testing, videography, interviewing and transcribing. After careful consideration of the evaluation insights, the team iterated the design again and moved onto developing a mid fidelity technical model which utilised the code.



Resource Coordination

After setting the budget and finalising all the materials, I took the responsibility of resource coordination. This included long drives to various warehouses to source and purchase materials. I was in charge of providing all the acrylic and aluminium tubing for which I visited and liaised with the respective warehouses. The acrylic was purchased from Allplastics Engineering who also offered sponsorship to our project. For sourcing the aluminum tubing I visited more than 5 warehouses in order to find the right fit for our acrylic tubes. Both materials were purchased and delivered to DMAF by myself. We purchased all LED lights and other electronics from Little Bird Electronics which didn't provide a quick delivery. After following up the order several times, I personally travelled to the warehouse on two different occasions for pick up.



During the final installation process, I purchased and delivered other components whenever needed, in order to provide the necessary support to my team. The financial contribution I made to this project is of significance. Due to some issues around the purchasing process and final cost of the acrylic, I accepted to bear half the cost in the amount of AUD318. Furthermore, I contributed equally to all other purchases made which formed the sum of AUD650 of spending by me.



Product Fabrication

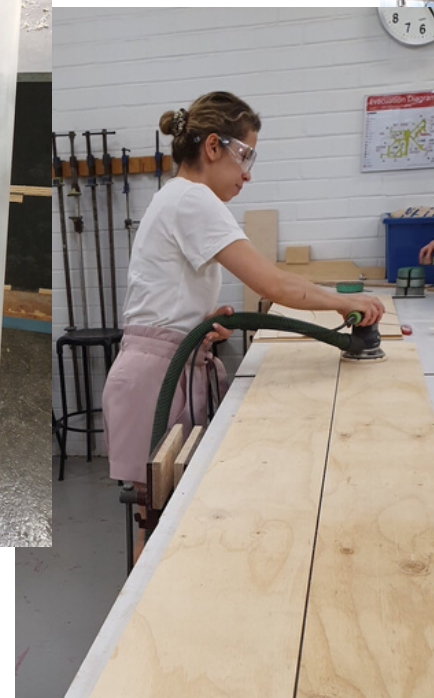
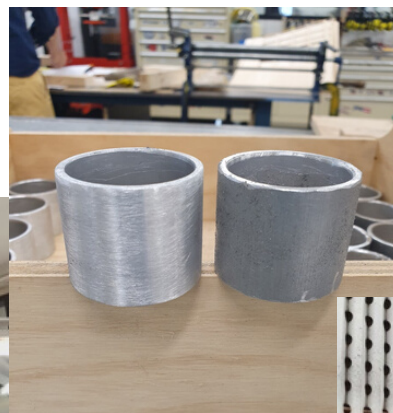
The physical fabrication of our final prototype consisted of three major parts.

- Pole casing construction
- Wooden frame construction
- LED soldering and installation

While assisting with the other two areas, I predominantly contributed to the construction process of 24 light poles from raw material alterations through to the final product. This process was experimental, requiring us to try different techniques before finding the one that would achieve us the desired outcome. Together with Nick and Monica we went through some lengthy processes like steel sheet bending and sand frosting only to realise they don't work. This required me to contribute significantly long hours including time away from family and my job.

The alteration of acrylic started with drilling holes at the top to later attach the LEDs, chains and aluminium caps. We then sprayed the poles with a frosting spray and sanded all over for an even finish. We continued by cutting, filing, sanding and cleaning all small aluminium caps which I made major contribution to. Using an epoxy glue, I attached all the bottom caps on the acrylic. To attach the top caps, I drilled the aluminium separately on one side then aligned it around the pole and double drilled to get to the other side. After getting the holes done I screwed each pole to hold the cap in place. To cap the larger poles, after attempting to roll stainless steel, we decided to use large aluminium tubing. The same pole casing construction process was repeated with the only difference that instead of gluing we used cork sheet to fill the gap between the pole and the cap. During my week in DMAF I also took the responsibility of sanding all the wooden panels for the wood frame construction.

Considering the large size of the installation and the requirement of displaying within the Wilkinson building, I had to liaise the installation space with our tutor, The D19 Graduation Show team and the technical support team. We came to the agreement that the most suitable space to display Flux is near the courtyard at Homebase. So with our entire team and the DMAF technician's assistance we built and set up the 2.4m x 2.4m wood frame structure. We then drilled holes in the roof to hang up all the constructed poles. I assisted with the set up of wiring, testing and debugging of the lights. Wherever needed I deconstructed faulty poles for resoldering and put them back when fixed. After repairing all slave poles and soldering power cables, we finalised the wiring and fixated all the joints by hot glue. The final stage was to move all wiring and power above the roof which was a mutual effort of the whole team.



Challenges

The Dream Design Duo Duo team was formed on the grounds of previous successful collaboration between three of its members. When establishing the final group structure, a good mixture of skills was included. We ensured to include at least two UX researchers, one programmer, one visual designer and a skilled writer. Even though all team members worked almost equally hard and according to their skills, some major challenges throughout the semester were inevitable. Overcoming each of those challenges required significant levels of professionalism, maturity, dedication and determination.

Financial Challenges

Some disputes were encountered in relation to the final prototype expenses and material sourcing, more specifically around the acrylic tubing. Due to some misunderstanding about the final expense, other team members refused to pay their full share. As I was the person in contact with the warehouse I took upon myself to cover the difference which caused me some financial struggle. This was by far the most significant challenge for me and in order to overcome it I had to rely on my people management skills, ensuring the least negative impact on the final outcome of the project.

As this project and the final prototype proved to be overly expensive, the team was faced with a huge financial burden. To source the most suitable materials for our budget we had to excessively research suppliers and prices. Even though all team members contributed to the purchasing, the sum of the expenses turned out to be much higher than the initial budget. This was mainly due to the various specific materials and modifications that we needed to build Flux. Our team had the vision of bringing this massive interactive light installation to life and we all made significant sacrifices to achieve that vision.

Skill Management

The first challenge occurred in the lead up to the first assessment submission. This was mainly a matter of lack of trust in fellow team mates' capabilities and the mismanagement of time. As the completion of tasks were delayed, the team had to work long hours for several consecutive days in order to meet the deadline. The stress and exhaustion caused by this pressure resulted in last minute unwanted task delegations. Some members were forced into tasks which weren't inline with their skills. The situation was quickly blown out of proportion and the team got close to falling apart. Luckily we were able to address the issue with our tutor's guidance and team members' willingness to move on. We finally picked the pieces up and successfully presented our first assessment. What we've learnt from this challenge was that time management, respect and trust are crucial for successful teamwork.

Design Challenges

Throughout the entire process, minor design related issues challenged the knowledge and collaboration of the team. During research phase some disagreements occurred around design principles and data analysis theory. Some shortcuts were suggested to assist with the quicker development of affinity diagram. These methods were protested against at the beginning but were considered along the process in order to compromise. We learnt to consider and respect each other's opinions through different phases of design.

Personal Challenges

I encountered various personal challenges throughout the process of this course including poor time management, delays in task completion, and a low self esteem. My knowledge and skill set were often underestimated by my team mates, ignoring several of my ideation and concept generation efforts. Instead of helping me to learn, this caused me to doubt my capabilities. I often found myself struggling with on time task completion which was confronted by the team.

Although I wasn't able to contribute much to areas such as content writing or coding I ensured to use my resources and skills in other areas such as obtaining necessary materials, arranging sponsorship, liaising installation space, user research and development of some visual material for reports.

This collaboration helped me to see team work from a different angle. There is always a way around the most challenging situations within teams. Being flexible and capable to accept criticism is key to a successful team collaboration. It's not always that your concepts and designs will be approved and celebrated. What matters most is how your contribution will make a final novel design.



Excessive Development Time

The process of our final prototype development was a race against the very short time frame we were given for the delivery of the product. After a significant time spent on sourcing and obtaining materials, we started an extensive process of alteration and refinement at DMAF. The physical fabrication stage took longer than planned. The modifications of 20 acrylic poles needed large attention to details as achieving the desired aesthetic outcome involved various technical procedures. The wooden support structure was built within a space in Homebase, which was achieved with the great help of DMAF technicians and an outstanding team effort.

Furthermore, other details within the structure of each pole such as soldering and wiring also required an extensive amount of time in order to properly connect and stabilise our hardware. At the end bringing our product to life was only made possible through long hours at DMAF, many hours spent on coding and a tremendous amount of dedication from each team member.



Final Reflection

Effective Collaboration

Considering my personal situation and restricted availability, I was able to make a reasonable contribution to this project. Although my performance wasn't always to the level that my team expected it to be, I believe I used all my resources effectively. Even though I'm usually strained for time, I wanted to push the limits with this project as it was my final one and I did so. While I performed really well in some areas such as physical fabrication and data synthesis I didn't perform that well in other areas such as report writing. If given a similar situation again I will ensure to address specific time consuming tasks such as visual design and writing earlier in the process. I will also clarify the details of each task well in advance before committing to it. In regards to resource management, I believe I went over and beyond all constraints in order to provide the team with the required materials within the time. This was my commitment and I wouldn't have done it any other way.

I believe effective and prompt communication is one of the most crucial requirements in teams. At every stage of this process I ensured to communicate with the team and update them with my work and status. At times unnecessary arguments were raised which could have been avoided with a bit more understanding and compromise from all team members.

During the last couple of days before delivery, it was really precious for me to observe the selfless commitment of my team members. Despite the fatigue and exhaustion, none of us left the premises until early hours in the morning making sure that the product is ready for demonstration. This level of dedication is one of the spotlights that I will take away from this much cherished project.



Future Work

The development of the prototype does not end here. Our team aim to achieve fully functioning sensors, animations and a well-refined structure ready for the D19 Grad Show. We are also planning to work further on the prototype by taking it into the urban context. This vision involves a bigger scale, as currently Flux is 2.4m squared and 2m tall. To improve the experience of users, the prototype will be expanded across a larger area, (approximately 4m squared).

Furthermore, the functionality of the prototype will be improved with the addition of more detailed interactions and animations on the light poles. This involves the development in code in order to achieve a light pulsation effect as users hold the touch sensitive surface. We are aiming to achieve the right amount sensitivity within the touch sensory element in our next iteration.

Our vision is to see Flux standing within a busy Sydney urban area connecting people through an enjoyable collaboration of lights.