

THE ART OF
HEARTREE

HELEN KWOK



THE ART OF
HEARTREE

HELEN KWOK



A Maker's Trail
Playable Q by Brunswick

Hei Man Helen Kwok
Master of Animation, Games & Interactivity (MAGI)
School of Design, RMIT University
Melbourne, Australia

© 2020 Hei Man Helen Kwok

All images not created by Helen Kwok are included as
research and educational reference materials only.

I would like to acknowledge the Wurundjeri and Boon
Wurrung People of the Kulin Nation as the Traditional
Owners of the unceded lands upon which I stand, work, and
play. I pay my respects to their Elders past, present, and
emerging. This always was and always will be Aboriginal
Land, and it is important to me that we are mindful of this
in everything we do.

CONTENTS

INTRODUCTION	7
CONCEPT DEVELOPMENT	9
PRODUCTION PLANNING	15
SOUNDSCAPES	17
TECHNICAL DEVELOPMENT	27
PHYSICAL COMPONENTS	29
FILMING	37
MARKETING	45



INTRODUCTION

How can urban play reconnect us to the lived experience of our cities?

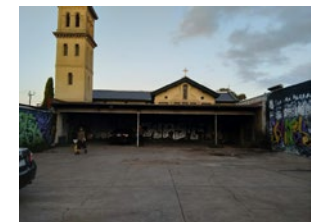
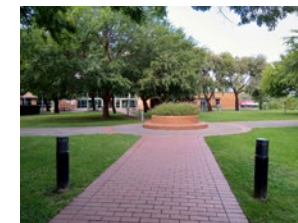
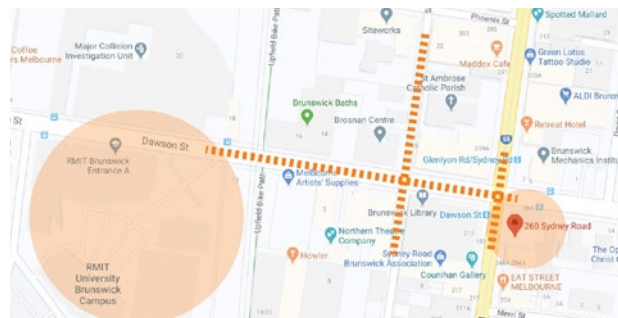
This was the **question** posed to us in our first class of Playable Cities Studio, a special studio set up for students who wanted to work on the Playable City Brunswick project, a real-world project done in collaboration with Dr. Troy Innocent and the Moreland City Council.

The **purpose** of the project was to transform the built environment of Brunswick, a vibrant and multicultural suburb in Melbourne, through play in order to reconnect the community with the lived experience of Brunswick. We were asked to remake, reconfigure or reimagine the place.

The **outcome** is a series of playful interventions that will become a part of a public walking trail. These interventions may include installations, outdoor play activities, games, audiowalks or AR experiences.

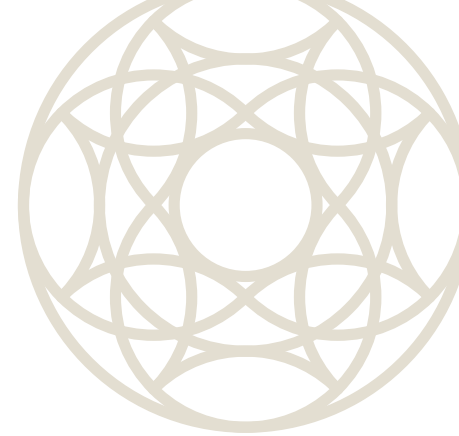
The **target audience**, as defined in the brief, will include the general public and local community, from curious young adults to the older generation keen to explore and discover.

The **scope** of the trail will comprise of RMIT Brunswick Campus, Siteworks, sites along Dawson St, and 260 Sydney Road. As we only have four weeks of production, the focus is to produce functional prototypes over finished products.



Above (top-left, clockwise): Photos of RMIT Brunswick Campus, Siteworks, 260 Sydney Road and outside Brunswick Library.

Left: Walking trail map.



A MAKER'S TRAIL

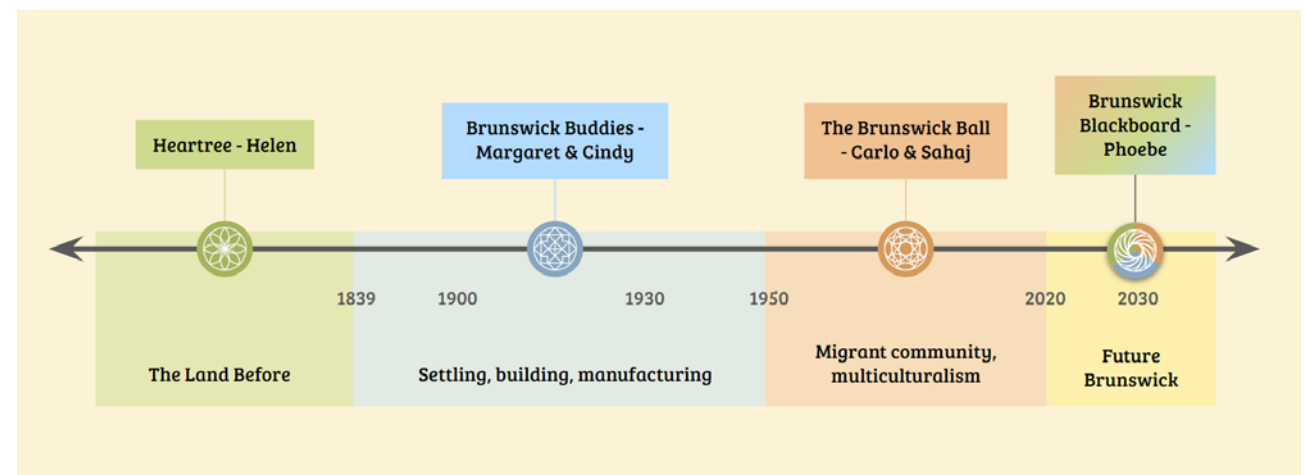
After conducting various types of **field research** (including site visits, interviews with locals and local history research), a key theme that emerged was 'making'.

Therefore, we decided to split the walking trail into four sections, each dedicated to a form of 'making' and a time period in Brunswick's history:

- » **Weaving:** to pay tribute to the textile industries of Brunswick, and located at RMIT Brunswick Campus.
- » **Building:** to pay homage to the brickyards and potteries of Brunswick, and located at Siteworks.
- » **Music-Making:** to commemorate Brunswick's multicultural musical history, and located outside the Brunswick Library.
- » **Celebrating:** to invite the community to co-create the future of Brunswick, and located at 260 Sydney Road.

Hearttree will be located in the Weaving section of the trail, which is all about nature, interconnections and contemplation. It will highlight the *natural* and *Indigenous histories* of Brunswick, focusing on the time period before settlement.

Below: A Maker's Trail historical timeline and where each project sits.



CONCEPT DEVELOPMENT

Hearttree is an installation that reconnects players to the natural and Indigenous histories of Brunswick through touch, audio and play.

Hearttree is an interactive tree installation. Players can place their hand on the **trunk**, like they are feeling the “heartbeat” of the tree, or touch the six hanging **ropes** from the branches. Upon touch, different soundscapes related to Brunswick’s natural and Indigenous histories will play. Multiple players can play Hearttree simultaneously to create different layered soundscapes.

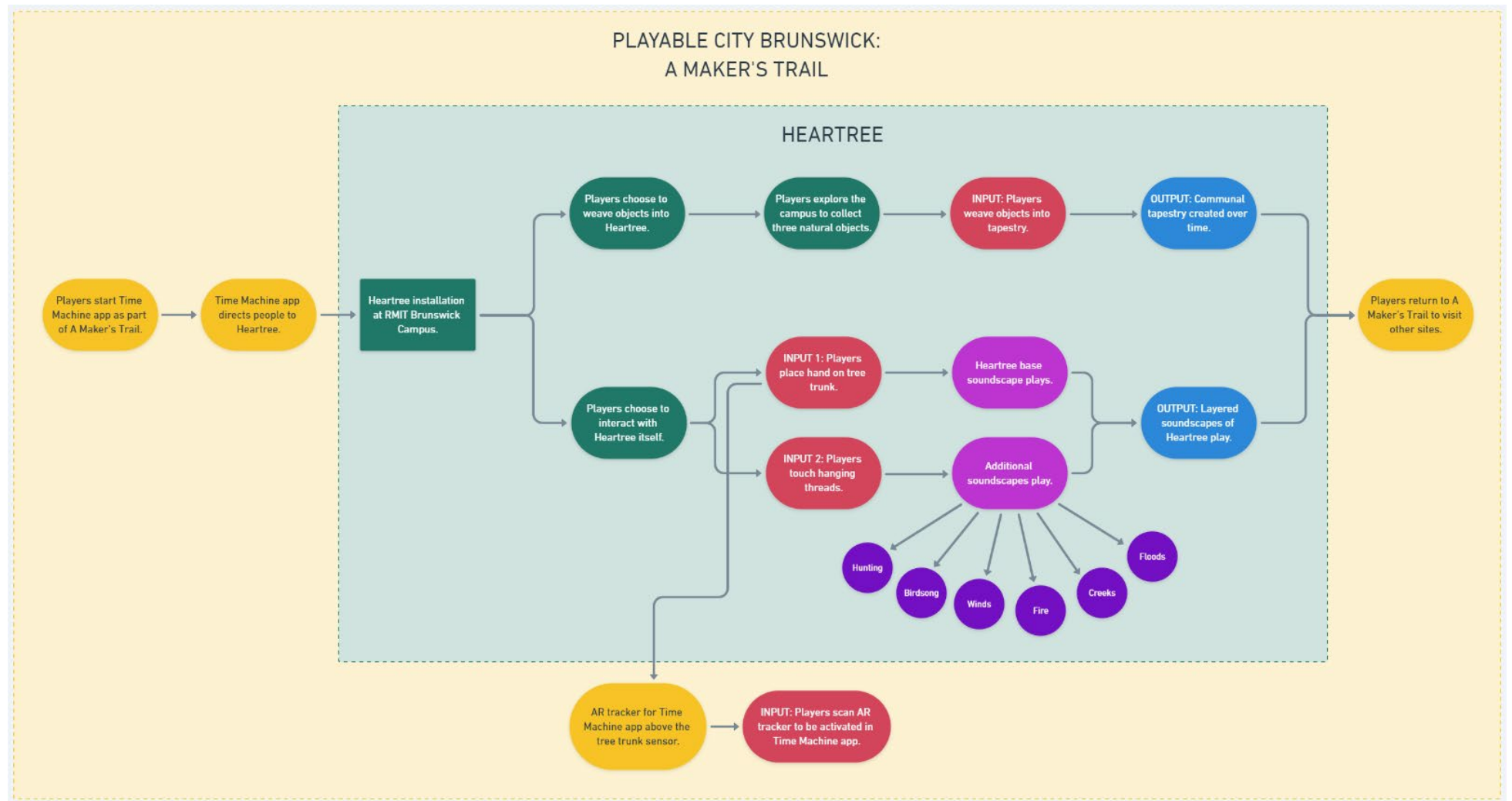
Soundscapes only play when the player is *physically* touching the tree; a play on the idea that we are all interconnected, and it is only through our connection with the land does it reveal its past stories to us.

The **goal** of Hearttree is to provide players with a calming and contemplative experience, prompting them to reflect on their relationship with the land of Brunswick.



Left: Hearttree early concept sketch from my pitch to the Moreland City Council.





Above: Interaction flowchart on the user journey transitioning from A Maker's Trail into Hearttree. Hearttree originally had an optional component where players could collect natural objects around the campus and weave into a communal tapestry.

Left: Close-up photo of a potential tree for the Hearttree installation at RMIT Brunswick Campus. Unfortunately due to COVID-19 and campuses shut down, I couldn't take more photos and measurements of the tree.



Top-left: Keywords to describe the type of experience I want players to go through in the Weaving section of the walking trail, where Hearttree is located.

Top-right: Sketches for the communal tapestry activity (optional component) of Hearttree.

Bottom-left: Google Satellite view of where Hearttree is located, and how players of A Maker's Trail will get to the tree from Dawson Street.

Bottom-right: Visualisation sketch of how Hearttree could be set up on-site.



Above: Concept art for Hearttree.



PRODUCTION PLANNING

As Playable City Brunswick was a real-world project, it had its own deadlines and milestones our team had to meet. There were three main phases, each initially planned to be four weeks long:

» **Weeks 1-4: Field Research**

» Milestone: Pitch to Council

» **Weeks 5-8: Production**

» Milestone: Pre-launch Demo to Council

» **Weeks 9-12: Playtesting**

» Milestone: Walking Trail

However, production only started in Week 7 due to concept refinements after our council pitch and unexpected structural changes to the team. Therefore, the pre-launch demo also got pushed back by two weeks.

Due to COVID-19 and the resulting 'Stay at Home' restrictions, both playtesting and the walking trail had to be postponed to a later date.

A more detailed breakdown of Heartree's production schedule is shown on the next page.

PLAYABLE CITY BRUNSWICK: SCHEDULE

Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Field Research														
Conceptual Development														
Pitch to Council														
Production														
Pre-launch Demo														
Playtesting														
Walking Trail														

Above: Simplified production schedule for the Playable City Brunswick project.

HEARTREE: SCHEDULE

Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Pitch to Council														
Pre-launch Demo														
Walking Trail														X
Site Visits														
Interview With Locals														
Local History Research														
Conceptual Development														
Sound Design Brief														
Soundscape Development														
Proof of Concept														
Technical Development														
Physical Components														
Cardboard Tree Demo														
Playtesting														
Filming														
Video Editing														

Above: Simplified production schedule for the Heartree.



SOUNDSCAPES

I collaborated with sound designer, **Israel Carter**, on Hearttree's soundscapes. As some of them touched upon Indigenous history, Israel also consulted with N'arweet Carolyn Briggs, on the development of the soundscapes.

Hearttree has eight soundscapes in total, all derived from my research into Brunswick's natural and Indigenous histories before settlement:

- » The Land Before
- » Hunting
- » Creeks
- » Fire & Rebirth
- » Birdsong
- » Flooding
- » Winds
- » Tree Whispers



Above: Some keywords I jotted down when researching possible soundscapes for Hearttree.



THE LAND BEFORE

Melodic soundscape inspired by the native grasslands, sparsely wooded forests and fertile plains of Brunswick. A celebration of the First People's religious relationship with the land. The Woiworung people had a deep sensitivity to the unique natural heritage of Brunswick, and participated in corroborees and sacred ceremonies on Merri Creek.



SOUNDSCAPE

Listen to 'The Land Before' soundscape:
<https://bit.ly/3hbNzhw>





HUNTING

Native animals being hunted by the Indigenous white gum tree clan. Brunswick's original landscape provided an important source of water and food for the Aborigines who hunted in the area. Each day was a food quest: hunting kangaroos, emus and possums, catching fish and eels and gathering edible plants.



SOUNDSCAPE

Listen to 'Hunting' soundscape:

<https://bit.ly/3dJasXw>



BIRDSONG

Native birdsong and bird calls of Brunswick, including: parrots, parakeets, wattlebirds, green linnets, anteaters, red robins, blue finches, tom-tits, crows, hawks, laughing kookaburras, and mopokes.



SOUNDSCAPE

Listen to 'Birdsong' soundscape:
<https://bit.ly/2A0tddb>





CREEKS

To pay tribute to the two major creeks of Brunswick: Merri Creek and Moonee Ponds Creeks. Despite being only a few kilometres apart, the two creeks cannot be any more different. Merri Creek is a complex series of deep, slow-flowing open water pools, while Moonee Ponds Creek cuts the land into deeper and steeper valleys and ridges.



SOUNDSCAPE

Listen to 'Creeks' soundscape:

<https://bit.ly/2BDJGBv>



FIRE & REBIRTH

Controlled burning of the land to encourage natural regrowth of wildflowers and native fauna. For 40,000 years, Aboriginal peoples have been using fire as a cultural tool. Contrasted against a background of scorched earth, the reemergence of wildflowers make for a glorious display.



SOUNDSCAPE

Listen to 'Fire & Rebirth' soundscape:

<https://bit.ly/3dFRmRZ>





FLOODING

Heavy rain and thunderstorms causing flooding of Brunswick's plains. Both Merri and Moonee Ponds Creeks are subject to torrential flows and floods following heavy or prolonged rain .



SOUNDSCAPE

Listen to 'Flooding' soundscape:

<https://bit.ly/3dRFoEI>



WINDS

Strong wind gusts blowing through grasslands and eucalyptus trees. Very windy in nature, the Aboriginal peoples would call Brunswick 'Boort Moornmount Bullarto', or "a very windy country".



SOUNDSCAPE

Listen to 'Winds' soundscape:

<https://bit.ly/377fjpb>





TREE WHISPERS

A very subtle, ambient track full of whispers to catch a player's attention, like the tree is whispering to the player to "come closer".



SOUNDSCAPE

Listen to 'Tree Whispers' soundscape:

<https://bit.ly/3dRHJQo>

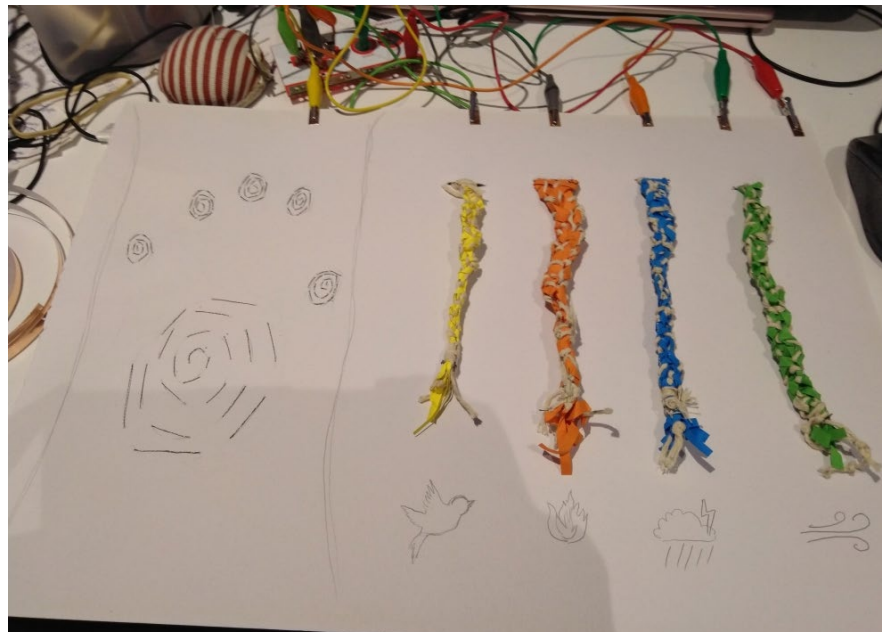


TECHNICAL DEVELOPMENT

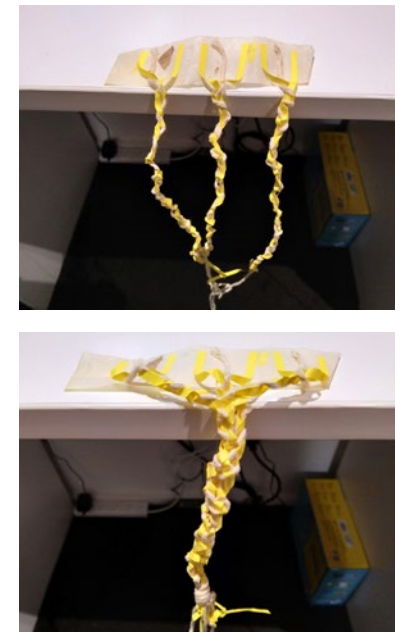
Heartree primarily uses the capacitive sensing library on the Arduino Uno for its touch sensing capability, and Unity to manage the playback of sounds. Here is a list of all the technical hardware and software used to develop Heartree:

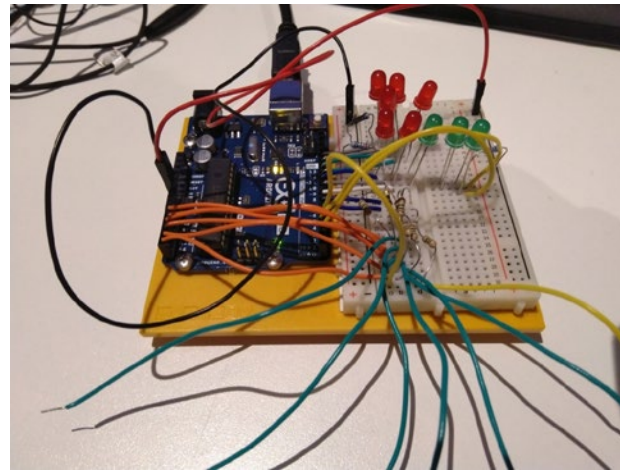
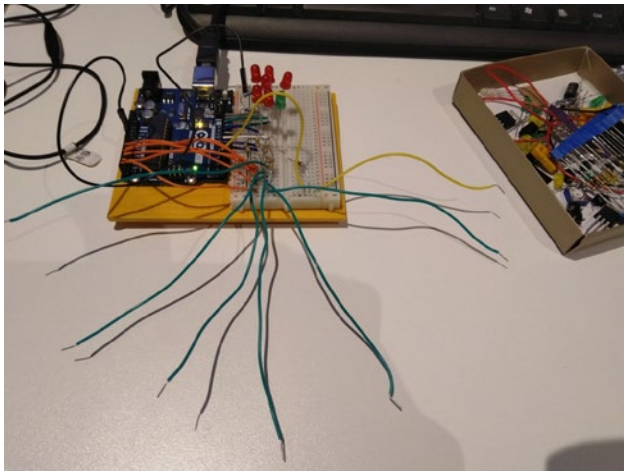
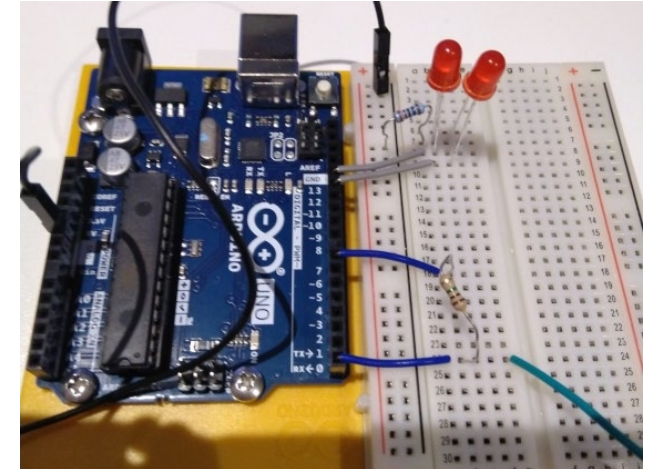
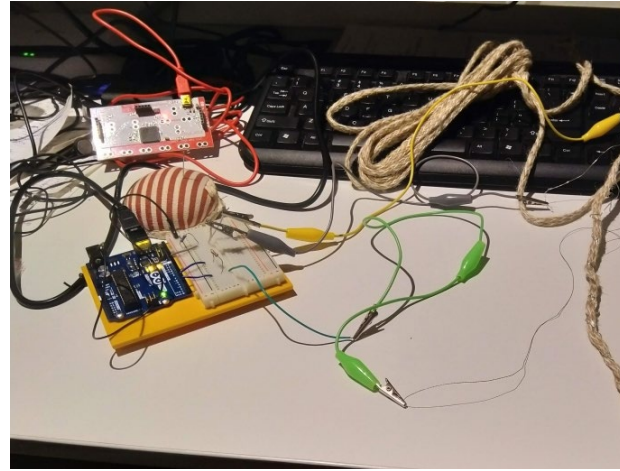
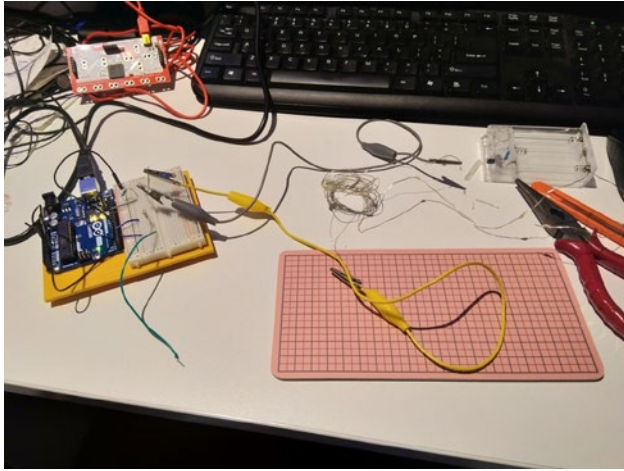
- » Arduino Uno
- » Jumper wires
- » 220 ohm resistors for lights
- » 1 megaohm resistors for touch sensors
- » USB-A to USB-B cable
- » Laptop
- » Speakers
- » Unity
- » Uduino plugin
- » Arduino IDE

The following pages show some photos from my technical development working on Heartree.



Below: Initial proof of concept for Heartree using the Makey Makey, Unity and my own ropes braided from string and coloured paper.





Top-left: My very first test hacking an LED string light from the battery box and hooking it up with an Arduino.

Top-middle: Testing the capacitive sensing capability of the Arduino with conductive thread sewed into a piece of rope.

Top-right: Test set up of multiple lights using the same ground pin on the Arduino.

Bottom-left: Testing the full set up of connections needed for Heartree.

Bottom-middle: Extended the heartbeat lights to have two extra sets of lights for animation.

Bottom-right: Testing the capacitive sensing and resistance in longer hookup wires.

PHYSICAL COMPONENTS

All the physical components of Heartree were created from scratch using various weaving and braiding techniques.

Here is a list of all the physical components of Heartree:

- » Tree Trunk sensor (with 4m wiring and 5m string to tie around tree trunk)
- » 6 x Rope sensors (with 8m, 7.5m, 7m, 6m, 4.5m wiring respectively)
- » Playable City Brunswick AR tracker hand symbol

The following pages show some photos of my work-in-progress on the physical components of Heartree.



Left: All the physical components and equipment needed to run the Heartree installation.

COLOUR PALETTES

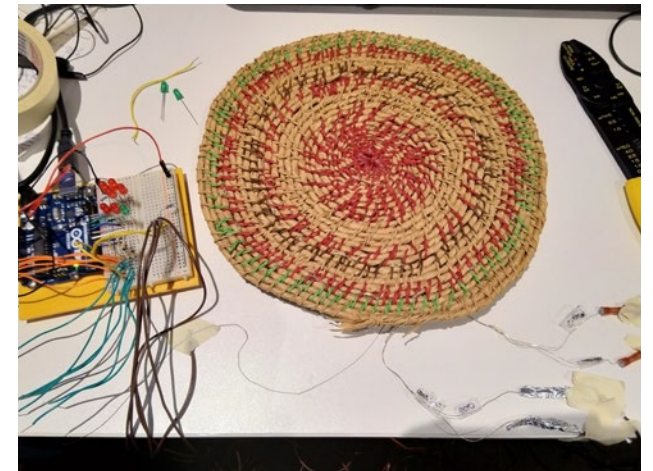
I was really inspired by the colour palettes of the research I did into Brunswick's landscapes, as well as nature and Aboriginal weaving. The colours that really stood out for me were **greens, browns, ochres and reds**. I have tried to replicate this in the materials I bought to make Heartree's physical components.

Below and right: Some colour palettes taken from my research images of Brunswick's landscapes, nature weaving and Aboriginal weaving.

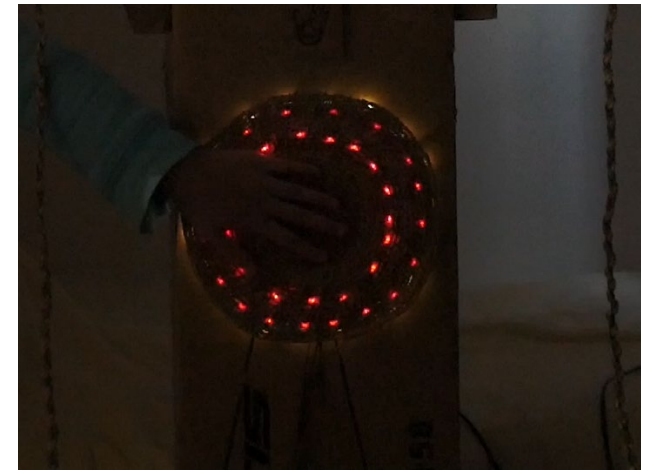
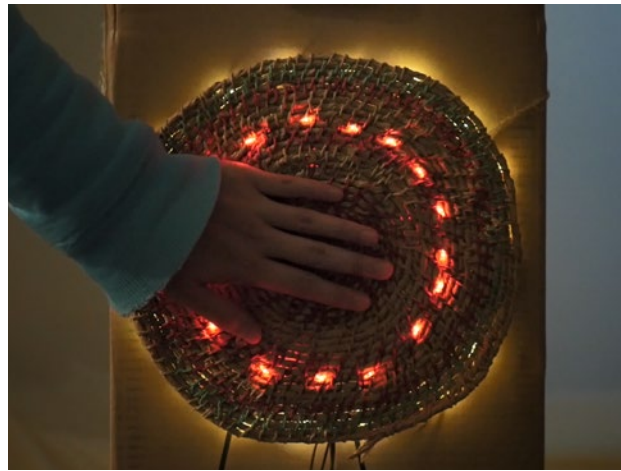
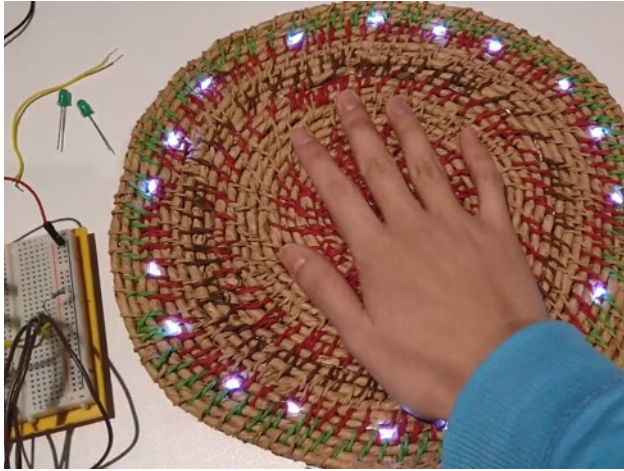
Opposite page: Tree trunk sensor for Heartree and the materials used to weave the sensor – paper raffia, coloured twine, conductive thread and LED string lights (warm white and red).





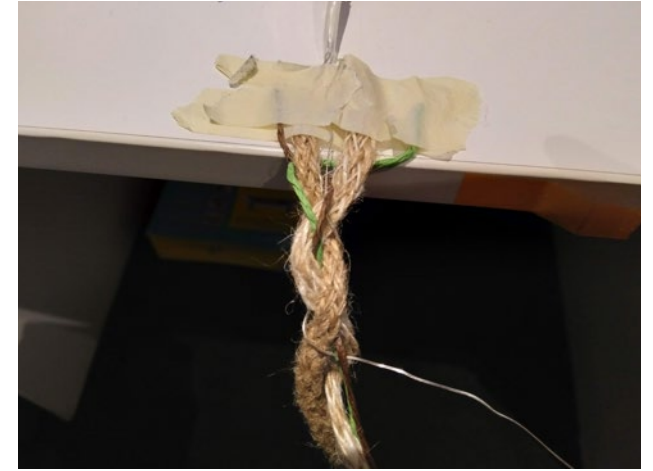
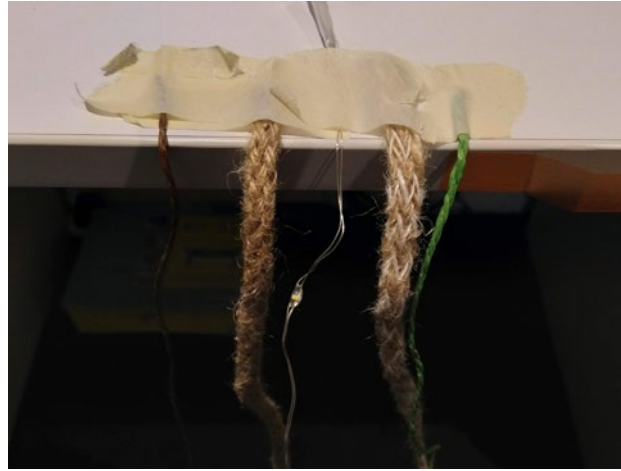


Above: Some work-in-progress photos of me weaving the tree trunk sensor using the coiled raffia technique.



Above: Some photos of me testing the tree trunk sensor with different LED string lights.





Above: Some work-in-progress photos of me braiding the rope sensors using a combination of coloured twine, rope string and LED string lights. Three different connections are outputted from each rope sensor (the touch sensor, power and ground for the lights).

Opposite page: Close-up photo of a rope sensor and its connected wiring.



Above: Some work-in-progress photos of me testing the rope sensors on a cardboard tree I created to demo Heartree.

FILMING

The original plan was to film Hearttree onsite at RMIT Brunswick Campus. However, due to COVID-19 and all campuses shut down, I had to go with my backup plan of filming Hearttree at a local park.

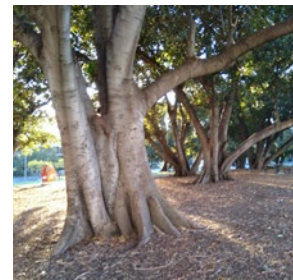
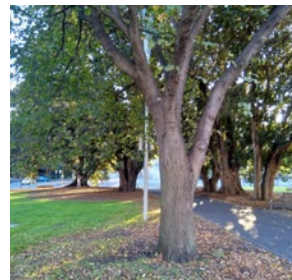
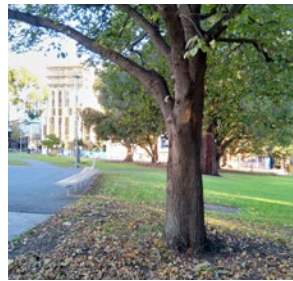
Filming preparation activities I conducted include:

- » Scouting for suitable trees at local parks
- » Test set up of installation to plan camera shots
- » Noting tree measurements in order to cut wires to length
- » Checking the weather forecast for a suitable filming day
- » Planning how to run Hearttree purely via laptop battery power (and setting up a backup laptop)
- » Storyboarding a list of shots I need
- » Liaising, documenting and planning with my filmmaker



Left: A photo of the chosen tree for Hearttree's filming from the test set up day.

TREE SCOUTING



BEHIND THE SCENES



SHOWCASE VIDEO



Watch Heartree's showcase video:
<https://vimeo.com/424776862>



CREDITS

Concept, Design, Interactivity & Installation

Helen Kwok

Sound Design

Israel Carter

Supervisors

Chris Barker

Jeremy Parker

Tutors

Uyen Nguyen

Max Piantoni

Course Coordinator

Matthew Riley

Installation Filming

Alex von Hofmann

Director & Video Editing

Helen Kwok

Installation Setup

Chad Toprak

Helen Kwok

Playtesters

Helen Kwok

Chad Toprak

Playable City Brunswick Team

Carlo Tolentino

Margaret Wong

Cindy Wang

Phoebe Ho

Sahaj Garg

Maggie Chang

Renda Mao

Playable City Brunswick Stakeholders

Troy Innocent

Moreland City Council

Kiri Delly

Dale Nason

Brunswick Community History Group

Brunswick Library

The Brunswick Community

Special Thanks

Chad Toprak

Alex von Hofmann

Pablo Munoz

N'arweet Carolyn Briggs

Kate Cawley

Uyen Nguyen

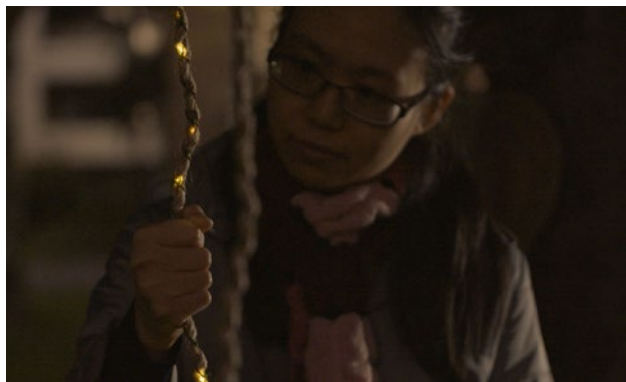
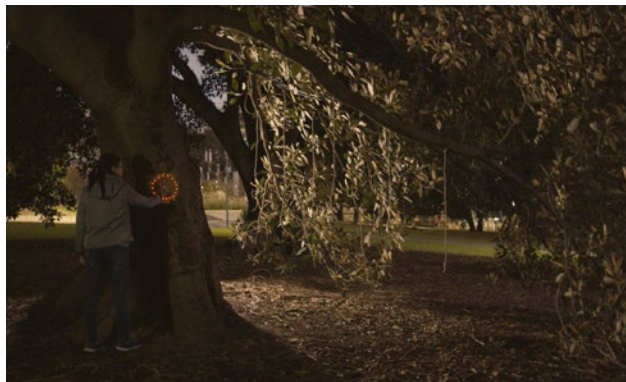
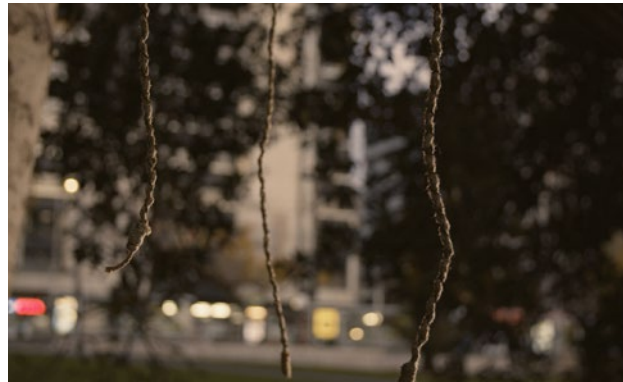
Matt Riley

Maeskye Trigg

Studio Three Classmates

Preproduction Classmates

STILLS







MARKETING

Hearttree will be showcased to the Brunswick community and general public as part of a **public walking trail** (A Maker's Trail).

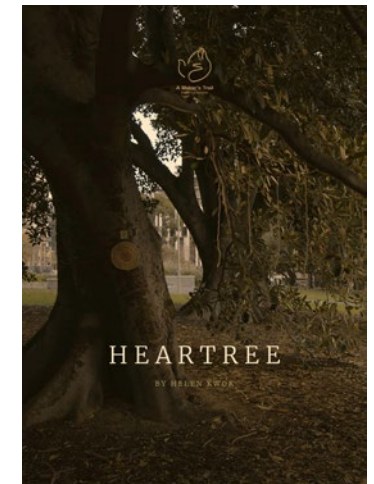
We plan to engage our target audience through:

- » **Print** advertising (e.g. posters, brochures, flyers, stickers, postcards, badges, etc.).
- » **Online** advertising (e.g. Moreland City Council's social media channels and mailing list, Brunswick community Facebook groups, social media posts with #brunswick).
- » A dedicated **website** for A Maker's Trail, with video trailers for each project.
- » An **Eventbrite** booking page with details about A Maker's Trail and location set to Brunswick (which will appear in similar search results).
- » Donating a copy of this **art book** to the Brunswick Library for the community to read.

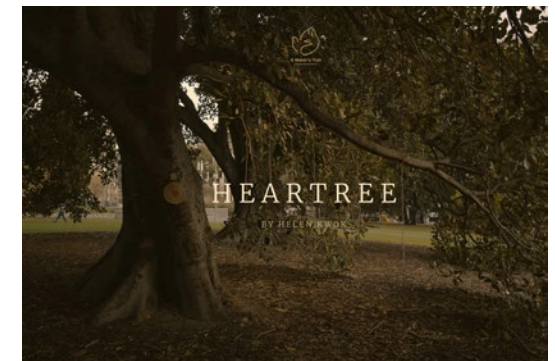
Print media could be distributed at local businesses (cafes, shops, etc.), RMIT Brunswick Campus and communal spaces like the Brunswick Town Hall, Library, Siteworks, Mechanics Institute and Counihan Gallery.

Through the various marketing channels, the target audience will be prompted to download the A Maker's Trail **app**, which will guide them to the starting point of the trail on the day of the event.

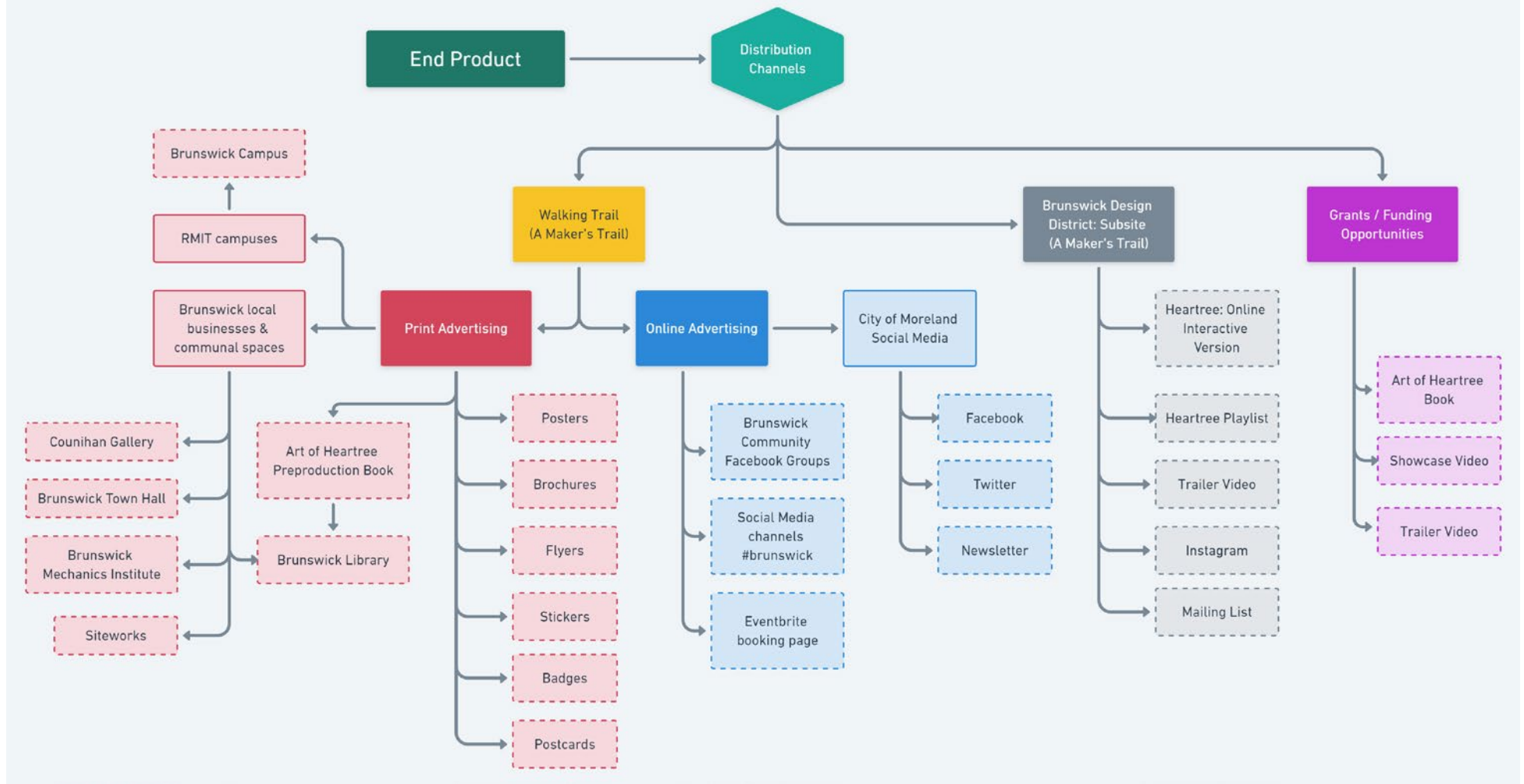
In the future, I would also like to apply for **grants** and **funding** opportunities to adapt and further develop Hearttree for other locations.



Right: Initial poster designs in both portrait and landscape formats.



Heartree: Marketing Strategy

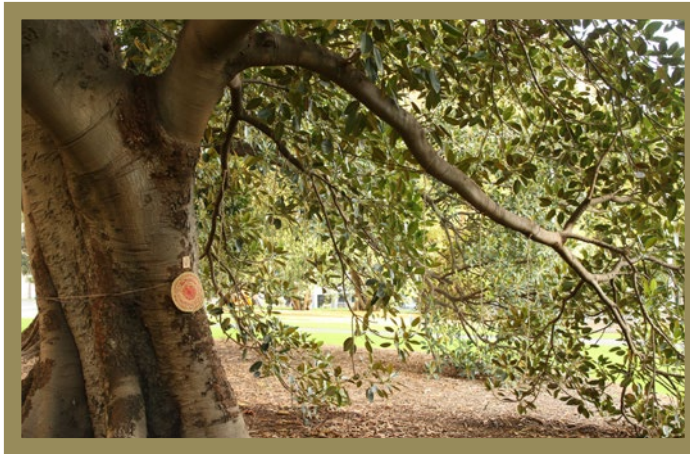


Above: Marketing strategy flowchart summarising the various distribution channels possible for Heartree.



Above: Mockups of the Hearttree poster in different settings.





WHAT IF EVERY
TREE HAD A STORY
TO TELL?