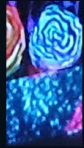


THE BRUNSWICK BALL



PRODUCTION

BY: CARLO TOLENTINO | IN COLLABORATION WITH SAHAJ GARG
A PROJECT OF A MAKER'S TRAIL - PLAYABLE CITY | BRUNSWICK

2020

THE BRUNSWICK BALL


The objective for our team in the Playable City Brunswick walking tour is to develop and produce prototype projects towards how urban play can reconnect us to the lived experience of our cities. The walking tour is located in the Brunswick design district, and spans 4 interactive projects that lead into each other through a time-travel journey. *The Brunswick Ball is an outdoor interactive-projection installation and is one of the parts of the Playable City Brunswick walking tour titled: A Maker's Trail.*

The Brunswick Ball is a 1950's-present themed outdoor interactive-projection prototype, focused on movement and music making through environmental interaction and motion capture. Participants that interact with their environment generate sounds/music that also creates visual projections. Participants may also choose to move or dance in a designated area that captures their motions which adds to the projections.

*The physical environment (rocks) is used as sound & visuals generating input (the band).
Motion tracking is used to capture people's movements that is projected on the windows (the dancers).*

The projected visuals on the windows intends to suggest the visual silhouettes of people inside the Library having a ball.





*THE BRUNSWICK BALL AIMS TO
CONNECT MEMBERS OF THE
COMMUNITY WITH THE
ENVIRONMENT, THROUGH THE
UNIVERSALITY OF MUSIC,
MOVEMENT, AND NATURE.*

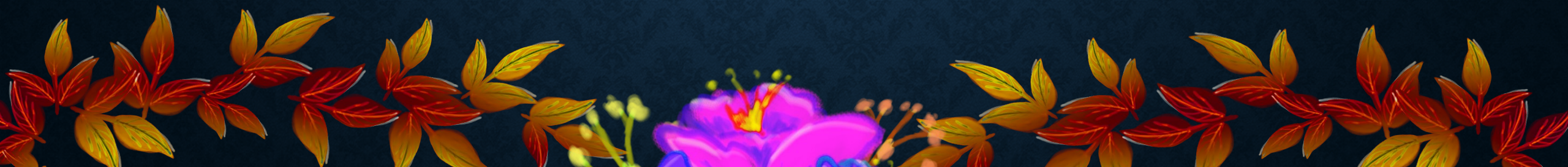
THE WHY, WHO, & HOW?

PURPOSE AND AUDIENCE

- This interactive work is one segment of the Playable City Brunswick project's walking tour.
- It aims to engage the community with the concept of Play and Place.
- To encourage collaboration through environmental interactivity through music and movement.
- Audience is the general public and local community, people curious to explore and discover.

PROJECT SCOPE

- |1-5 persons interaction.
- 1 day installation (dusk to evening).
- Located along Saxon St./Brunswick Library.
- 2-3 projectors, and a sufficient sound-system
- The rocks in the space are augmented and used as an input using an Arduino.
- The players' movements are captured using computer vision
(in collaboration with Sahaj Garg)



BRARY

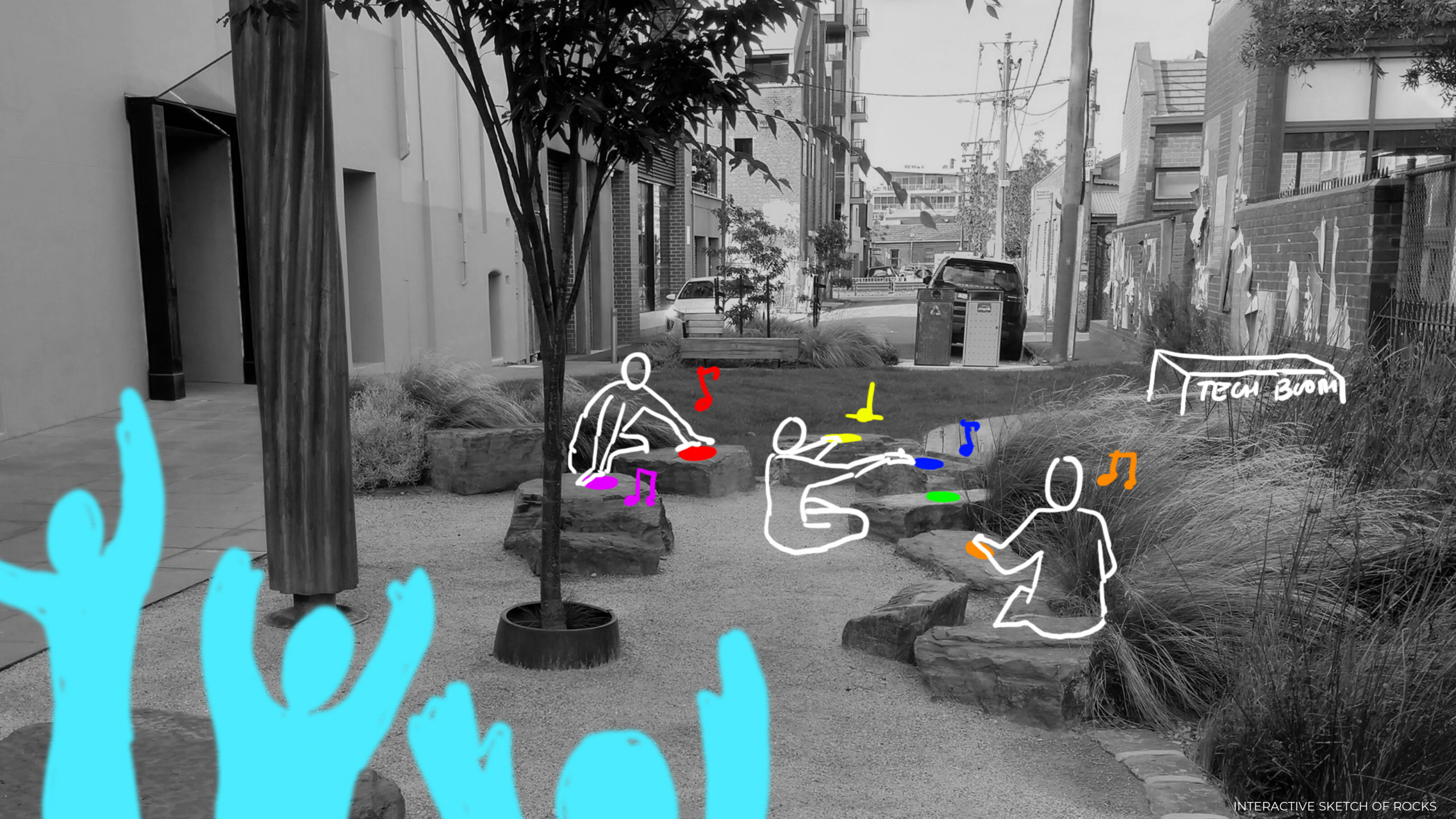


BRARY





ROCKS ALONG SAXON ST. IN FRONT OF LIBRARY



TECH BOOM

MOOD BOARD



ORBI YOKOHAMA



Resonating Trees - TeamLab 2016



One Beat, One Tree - Naziha Mestaoui 201



Floral light projections, Argyle Cut, The Rocks, Vivid Sydne



Borderless - Teamlab 2018



One Beat, One Tree - Naziha Mestaoui 201



L'Atelier des Lumières



Vivid Sydney

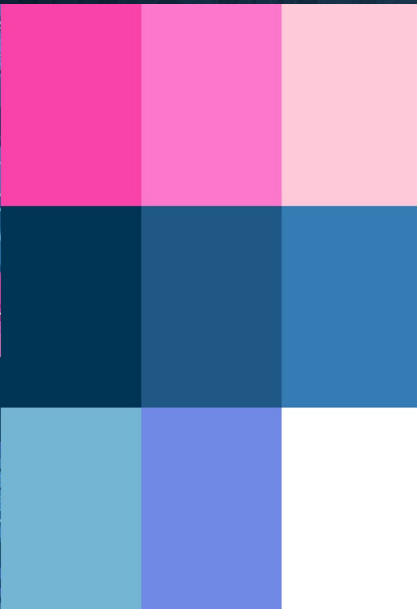


A Forest Where Gods Live - TeamLab 201

COLOR PALETTE IDEATIONS - 1950's INSPIRED PATTERNS



Image from quotesph.org



Cabbage rose dress, 1958 from TammyTummy/Tumblr



Equiliter - Estampaholic, by Patricia Capella



Image from bridesmade-hairstyles.nortorez.club

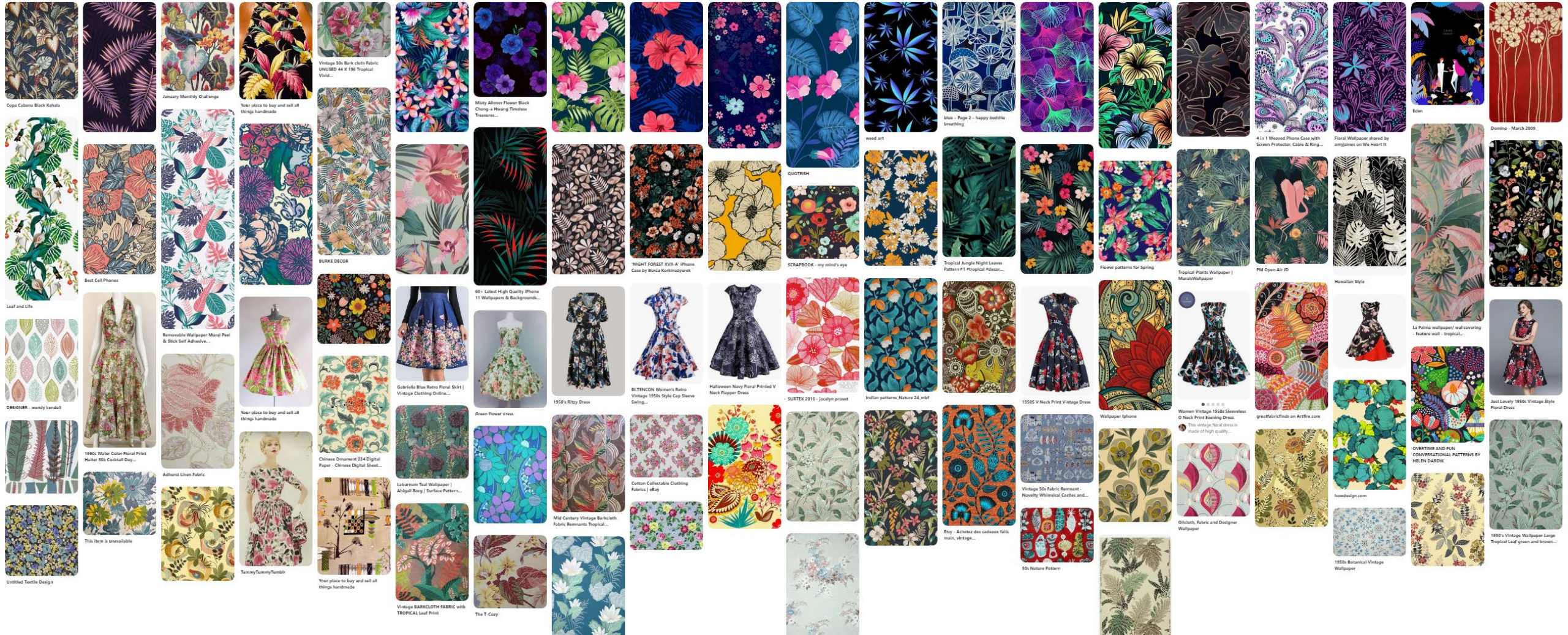


Deya Collection by Matthew Williamson



Deya Collection by Matthew Williamson





PINTEREST INSPIRATION RESEARCH

Pinterest has been a valuable resource for gathering inspiration for 1950's prints and fashion design. This would prove useful when developing the art direction and the color palette of The Brunswick Ball's visual assets during production. Pinterest is also used as we research for references in A Maker's Trail Style Guide.

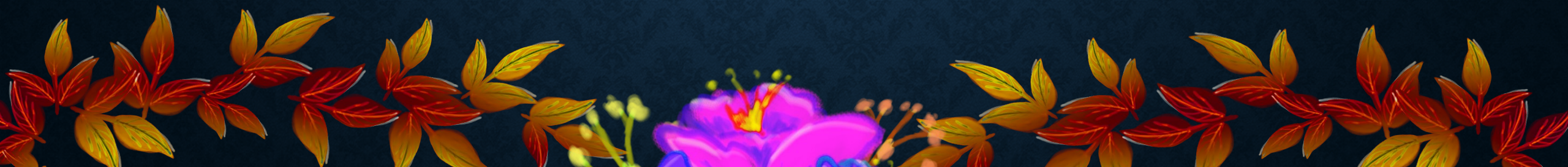
THE BRUNSWICK BALL PRODUCTION PHASE

ASSETS & PROTOTYPING

- **Makey-makey/Arduino** - inputs and triggers
- **Unity** –Motion Capture inputs and audio trigger (in collaboration with Sahaj)
- **Adobe Audition-** Audio and music assets (in collaboration with Sahaj)
- **Harmony/ Photoshop / After Effects/Cinema 4d** – Nature and floral elements visual assets
- **Resolume Arena** – Projection-Mapping and interactions
- **SPOUT & NDI** – Bridging applications
- Connecting solutions to other Playable Cities Brunswick projects

SITE PLANNING, PLAY-TEST & LOGISTICS

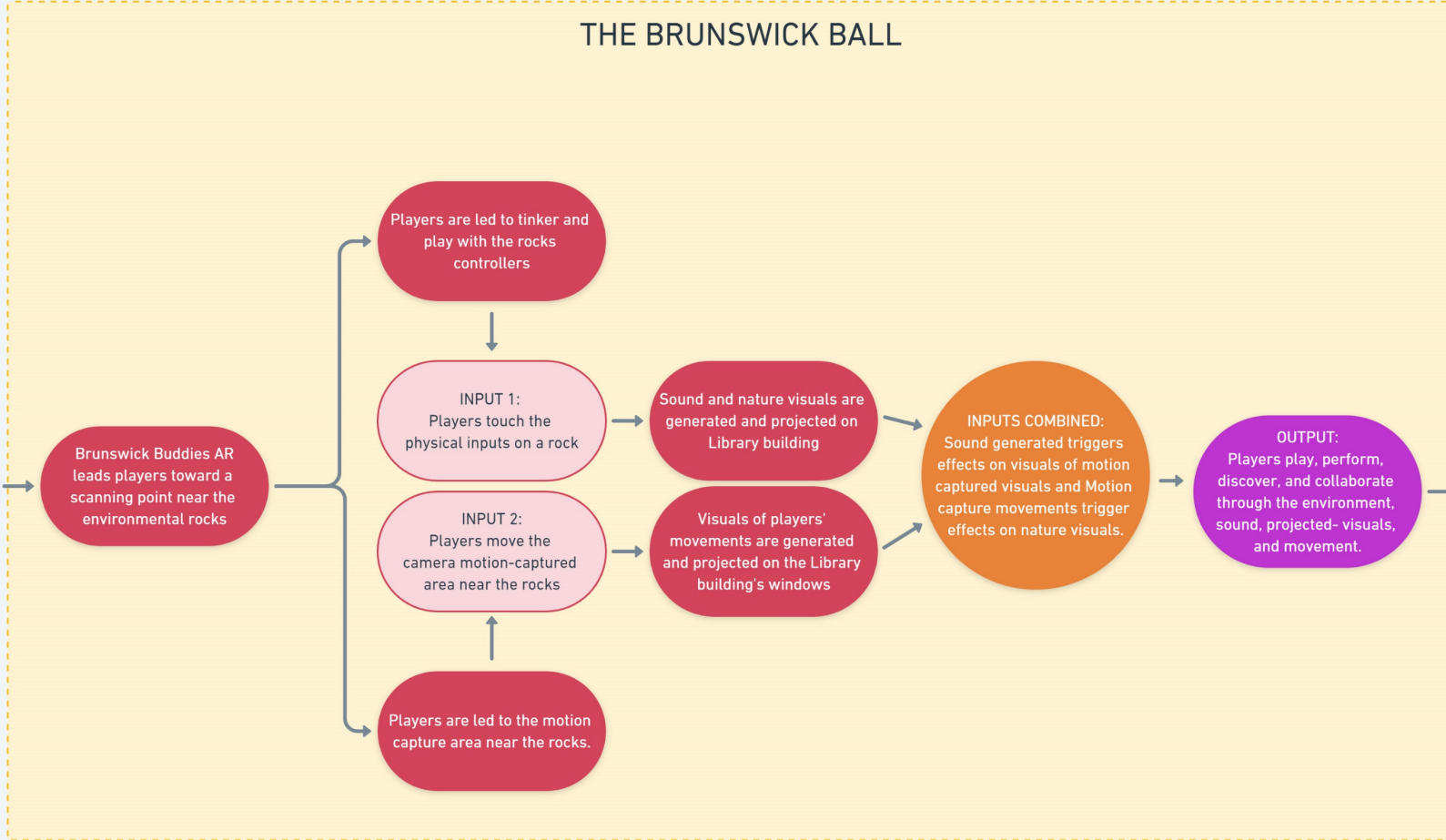
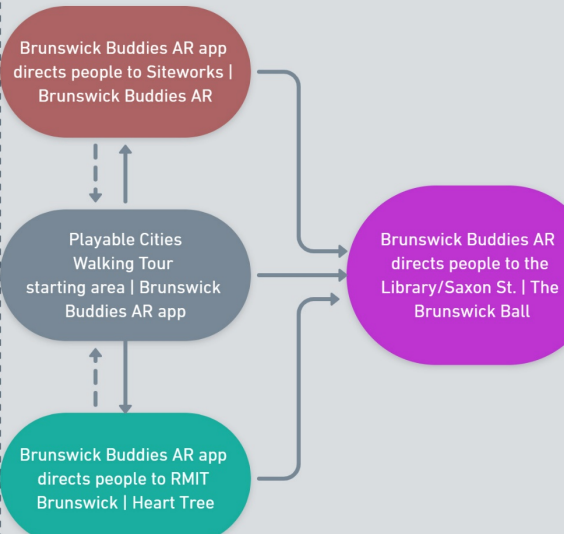
- **SketchUp 3D / Cinema 4D / Photoshop** - Site planning and layout
- Event day setup timetable and itinerary
- Playtesting schedule and feedback
- Contingency setup plans



INTERACTION FLOWCHART

THE BRUNSWICK BALL

PLAYABLE CITIES BRUNSWICK WALKING TRAIL



FLOWCHART AND PLANNING

The next challenge is to connect each other's works in the interest of a cohesive user experience and visual language. This development flowchart was used as a guide in creating interactions within The Brunswick Ball, and A Maker's Trail walking tour, as we finalize within our team how each of the projects in the walking tour lead into each other for a more cohesive walking tour experience.

SITE PLAN

To effectively plan out the site without physically being there, I had to make use of the photos we have taken from the site visits. Google earth was also useful to get a sense of accurate distancing between environmental elements.

This site planning would also be fundamental in assessing the project's requirements in equipment, budget logistics, and coordination between collaborators.

BUDGET

We have still yet to finalize our budget in Playable City Studio. However, most of the equipment necessary for The Brunswick Ball may be borrowed from RMIT campuses.

A ballpark figure for The Brunswick Ball's miscellaneous budget (additional wires, and cables) would be: \$200

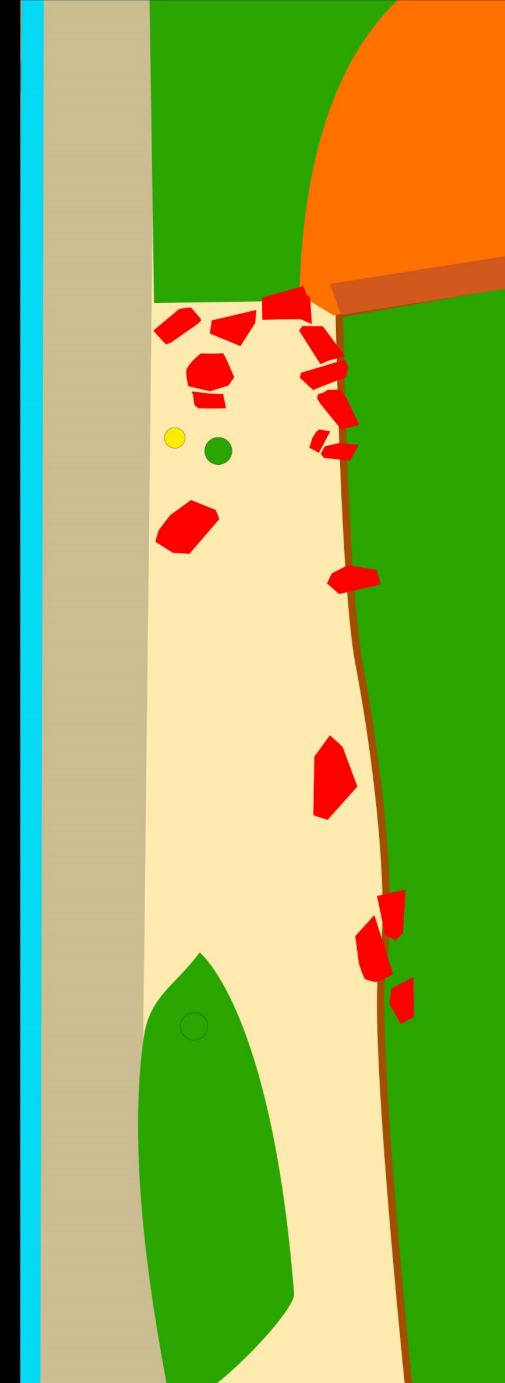
ROCKS AREA PHOTO



GOOGLE EARTH PHOTO



SITE PLANNING



PROJECTED SPACE (LIBRARY BUILDING)

PLAYERS
ENTRANCE

LIBRARY
POWER
SOURCE

PLAYER
MOVEMENT
CAPTURE
AREA

PLAYER
INTERACTIVE
ROCKS AREA

PROJ
1

CAM

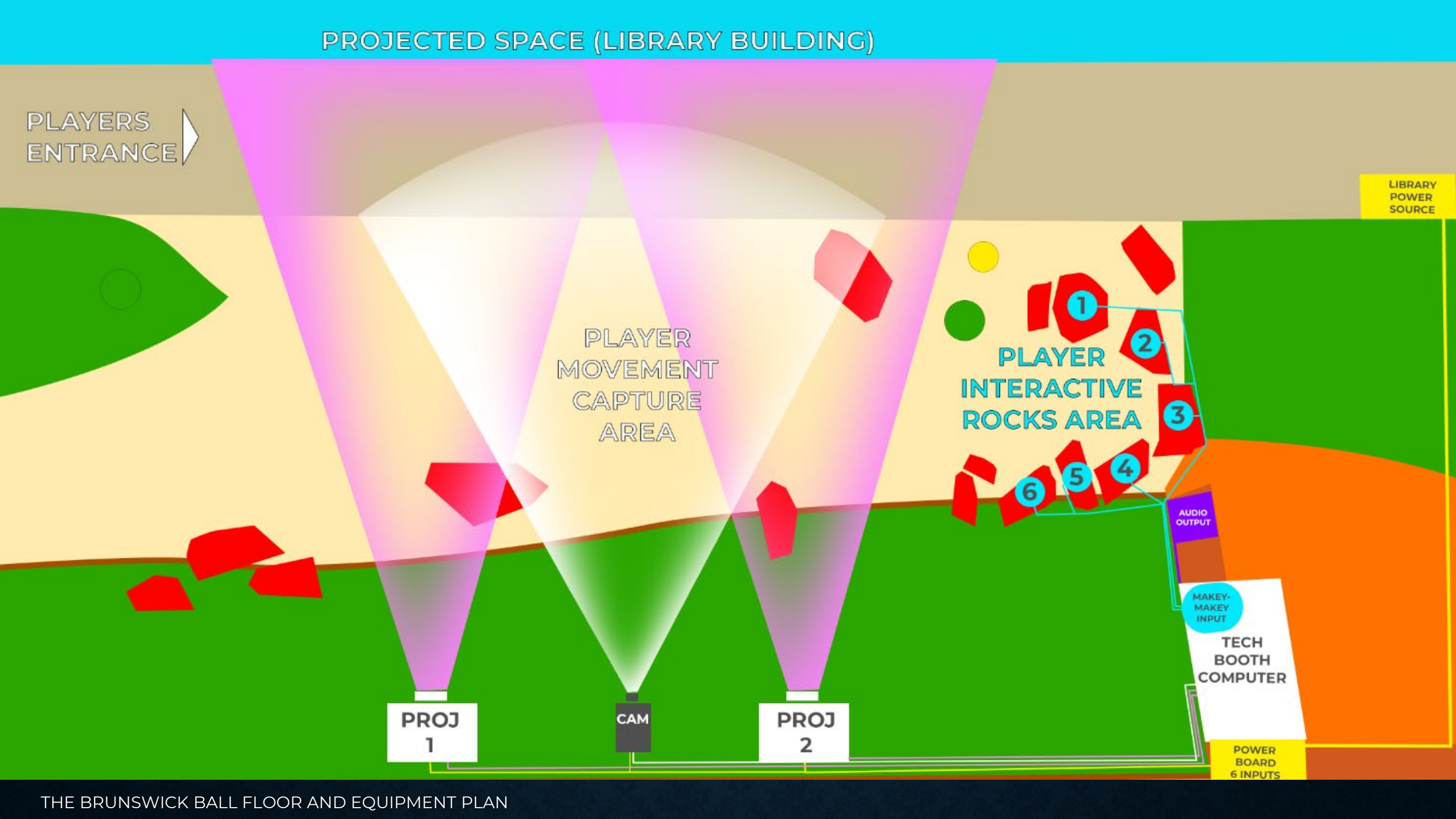
PROJ
2

AUDIO
OUTPUT

MAKEY-
MAKEY
INPUT

TECH
BOOTH
COMPUTER

POWER
BOARD
6 INPUTS





INTERACTIVE ITERATION

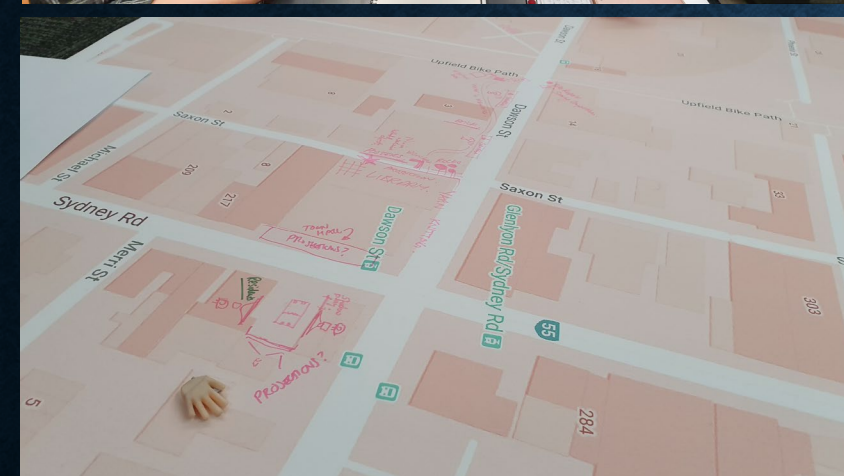
This is the first time I am developing a project using Makey-makey as a form of input. The initial small-scale prototype I am developing aims to visualize the minimum trigger requirement for the Makey-makey. In the site-project itself, the rocks would be the object that would have the trigger using the Makey-makey hardware. In the production weeks to come, I will iterate on the touch points wherein the players interact with the rocks. Ideas involve the use of conductive paint, pencil/graphite drawings, water, or the potential of human-to-human touch as the trigger (seen in initial The Brunswick Beats 2 concept page). **During production, The Brunswick Ball transitioned into using Arduino, as it provides a more seamless integration between participants and the interactive touch points.**



PHOTOS BY CARLO TOLENTINO

SITE VISITS & COMMUNITY ENGAGEMENT

The Playable Cities RMIT MAGI team conducted site visits and community interviews around the Brunswick design district to plan out and conceptualize projects for the walking tour. The Site visits gave us the opportunity to assess the locations we are tasked to conceptualize projects on the walking tour. **It was valuable that we did these initial site visits, before the project and coordination transitioned fully online.**



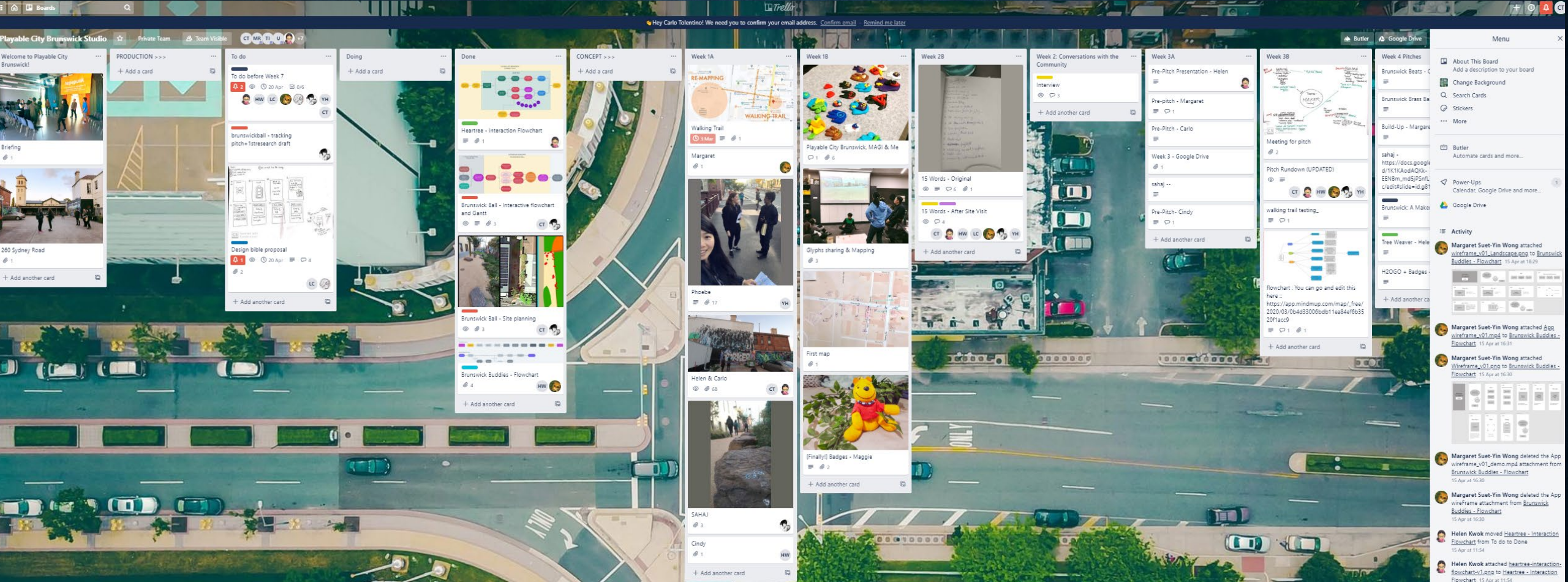
PHOTOS BY CARLO TOLENTINO

COLLABORATION & BRAIN-STORMING

In the Playable Cities MAGI studio, we would consistently collaborate and brain-storm ideas and solutions to address the design brief. Our sessions would involve continuous iterations on interactive ideas, and working towards developing projects towards a cohesive and well thought out experience for a walking-tour. The Playable Cities Project has a different schedule from our Studio 3 project. In Playable Cities, our first 5-6 weeks are spent on pre-production planning for the whole project's direction, as well as conceptualizing collaborative projects for the walking tour.

The next 6-12 weeks is spent finalizing our projects, and coordinating online, culminating into a final project pitch to the council.

The Playable Cities MAGI team: Carlo, Cindy, Helen, Margaret, Sahaj, and Phoebe
Undergraduate Media and Design members: Renda, and Maggie



Playable Cities Brunswick Trello Board

COORDINATION AND UPDATES

During our production process, the Playable Cities team have and will use Trello and MS Teams to share, collaborate, update, and check-off milestones in our project. The primary goal is to create a walking tour experience that is seamless, cohesive, and involves interactive works that share a consistent visual language and narrative.

We would also have weekly online meetings, as each of the members contribute their inputs to each project, and A Maker's Trail as a whole.



PRESENTATION BY DR. TROY INNOCENT

PRESENTATION BY DR. MATT RILEY



PRESENTATION BY DR. TROY INNOCENT

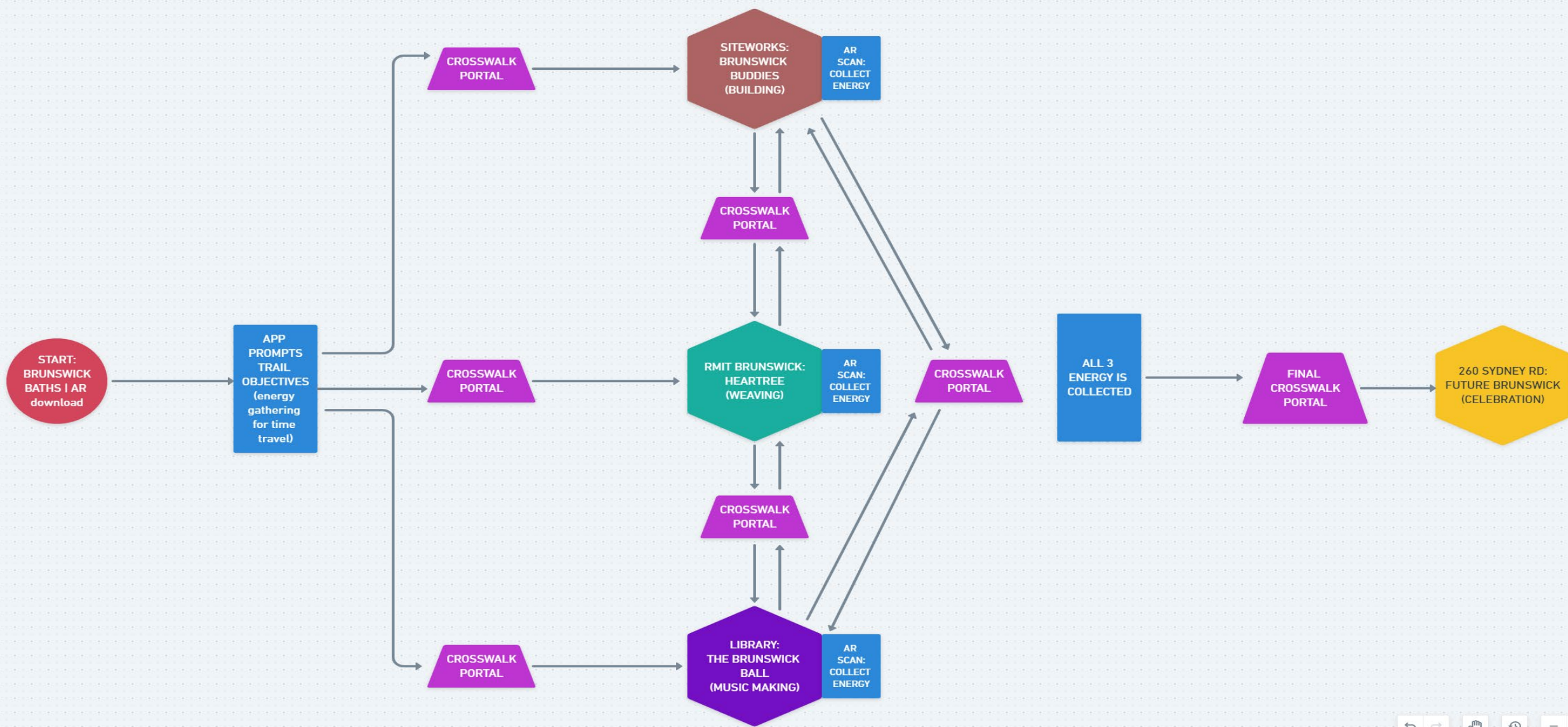


PHOTOS BY CARLO TOLENTINO

CLASSES, CONSULTATIONS & PITCHES

Our team would share ideas, solutions, and developments to our project lead, Dr Troy Innocent, and guided by our studio mentors Matt, Max, and Uyen. A significant milestone for the team was receiving a good response and feedback when we presented each of our final project ideas, and overall project theme and direction to the Council of Moreland and RMIT industry engagement.

We have pitched our final project ideas to Troy, Kiera from RMIT engagement, and The Council of Moreland, which we received very good feedback.



A MAKER'S TRAIL INTERACTIVE FLOWCHART

To understand how participants start and end each in each of our interactive projects, we developed an overarching interactive flowchart for the whole walking tour. This would help in improving user experience, and identify challenges within the whole project's logistics.

FINAL PITCH TO THE COUNCIL THE BRUNSWICK BALL

THE BRUNSWICK BALL is a projection-mapped music and movement interactive public artwork. It allows players to move and interact with the urban environment to transform the space through music and projected visuals.

The physical environment (rocks) is used as sound & visuals generating input (the band).

Motion tracking is used to capture people's movements that is projected on the windows (the dancers).

The projected visuals on the windows intends to suggest the visual silhouettes of people inside the Library having a ball.

Final Pitch Video: [The Brunswick Ball Pitch](#)



PRE-PITCH

Before The Brunswick Ball's concept came to be, I conceptualized 3 initial project ideas for the Playable Cities walking tour. The team would have a pre-pitch of multiple ideas to narrow down projects to suit the design brief and assess scale and feasibility.

•**Interactive-projection and sound** – FLORAL BEATS is an interactive projection-mapped music creation game that allows players to interact with music game controllers to generate sounds that create nature elements projection- mapped on a building's surface.

•**AR exploration and discovery** - HEADS UP! Is an AR mobile app game that takes players through an explorative journey of clue-solving and discovery. HEADS UP! Intends to utilize the unique characteristics of an urban environment's skyline and silhouettes with players looking up from street level. *This concept's ideation has since been adopted in part of the current Brunswick Buddies AR project for the walking tour.*

•**Creative Wayfinding** - NEVERLOST is a wayfinding creation game played in both analog and mobile AR. The game enables people to produce creative wayfinding stickers/posters to help others navigate an urban environment. NEVERLOST hopes to build connections to people and place through the art and directions of strangers. *This concept's ideation has informed the ideations in creating the current walking tour's visual language and user experience design.*



PREVIOUS ITERATION 1 - LIBRARY BRUNSWICK BEATS 1

BRUNSWICK BEATS is the first iteration of the idea for an interactive projection-mapped music creation game. Stemming from the idea of *FLORAL BEATS*, It allows players to interact with game controllers/drums/guitar to generate sounds that also create floral and nature elements projected onto the environment. I have since deviated from the concept of bringing pre-made game controllers to hone-in on the objective of play with the environment.

The Saxon St. Library building's surface is the chosen site for *The Brunswick Beats* to hark back to its previous history of being a dance hall.

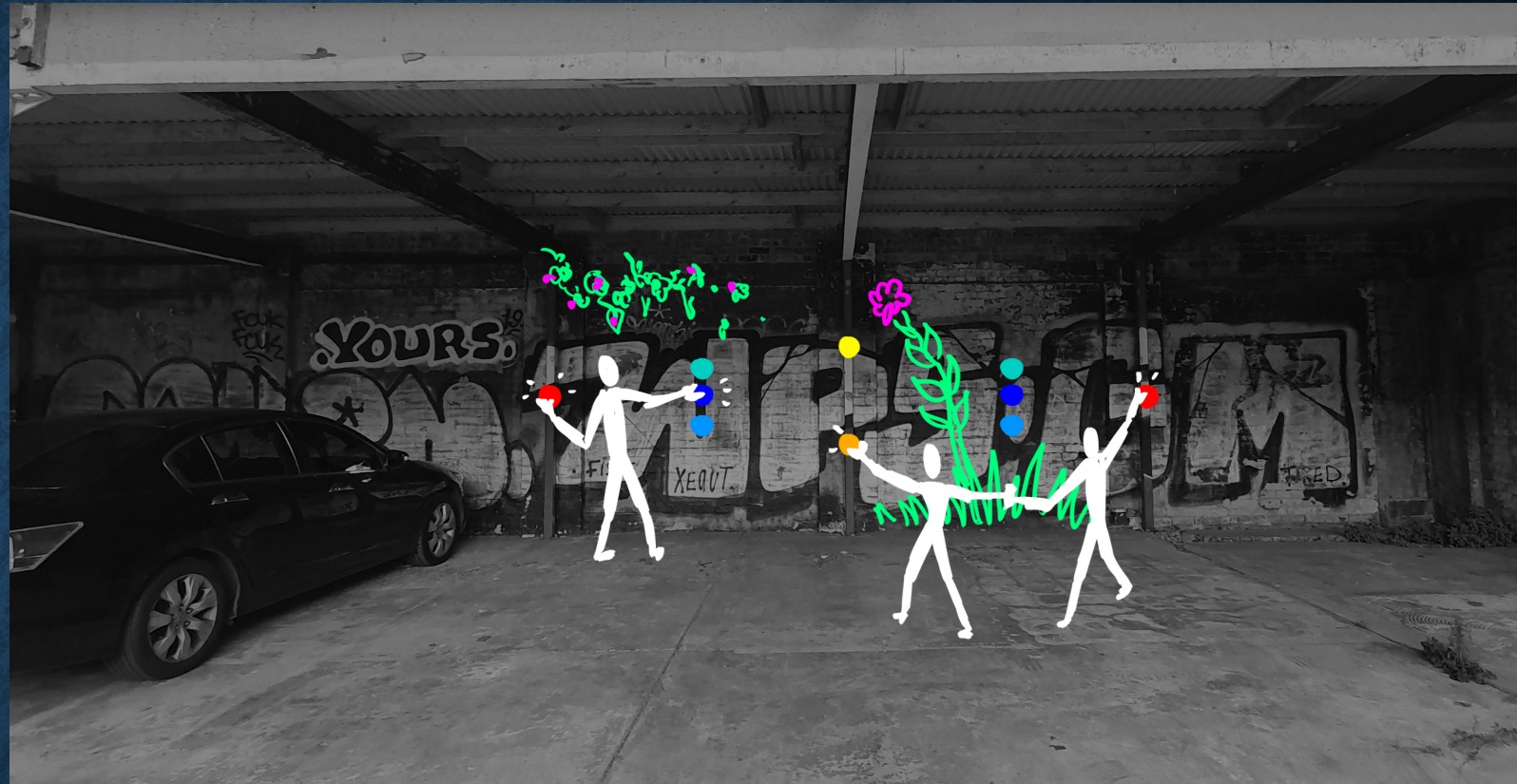


PREVIOUS ITERATION 2 – 260 SYDNEY RD. BRUNSWICK BEATS 2

260 Sydney Road's roofed over garage is the chosen site for Brunswick Beats second iteration. Sydney Road is known for the annual Sydney Road Street Party wherein people come together as a prelude to the Brunswick Music Festival.

BRUNSWICK BEATS is an interactive projection-mapped music and connection experience.

It allows players to interact with the urban environment, and themselves, to generate sounds and projected nature elements onto the environment. *This would be one of the interactive ideations that may leverage the user experience in The Brunswick Ball.*



THE BRUNSWICK BALL REFERENCES AND CONTEXT



The Hangout
(THE URBAN CONGA 2017)

The Hangout focuses on sight, sound, and touch to spark creativity, exploration, and free-choice learning.

The playable environment uses touch sensor technology to trigger sounds when one touches the tops of the cylinders. At night the installation illuminates the block with sequenced lighting. The space was designed as a place for the community to gather and simply hangout.

(THE URBAN CONGA 2017)



PLAYDODO
(Raonsquare 2016)

Projection Mapping, Conductive Ink, Interactive Art Music Playing Wall, a fun Interactive touch wall painted with instruments recognizes hand touch, plays the sound of instruments and maps colors. Children can easily play various kinds of instrument without physical constraints.

(RAONSQUARE 2016)



Forest of Flowers and People:
Lost, Immersed and Reborn
(TEAMLAB 2017)

The seasons change gradually across the installation space. A seasonal year of flowers blossom according to the changing seasons, and the place where they grow gradually moves.

If a person stays still, the flowers surrounding them grow and bloom more abundantly. If viewers touch or step on the flowers, they shed their petals, wither, and die all at once.

The interaction between people and the installation causes continuous change in the artwork: previous visual states can never be replicated, and will never reoccur. The picture at this moment can never be seen again.

(TEAMLAB 2017)

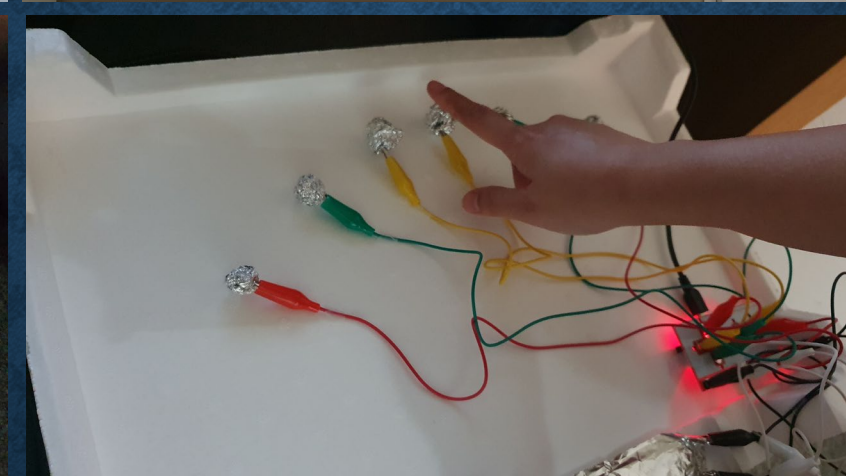
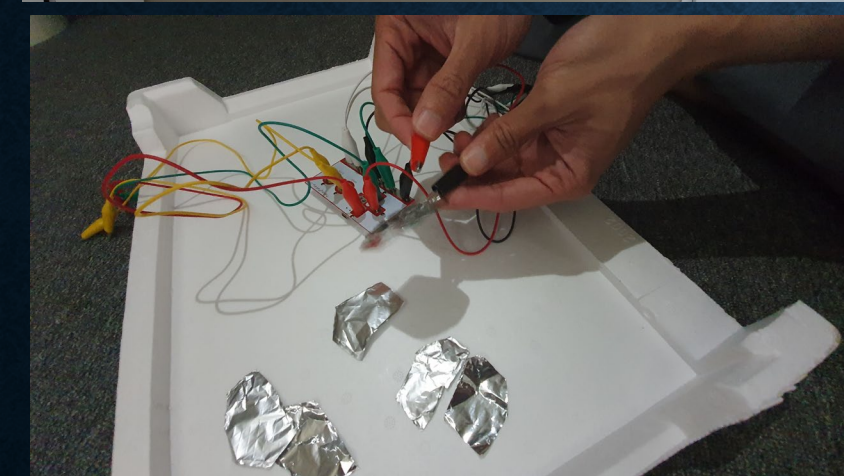
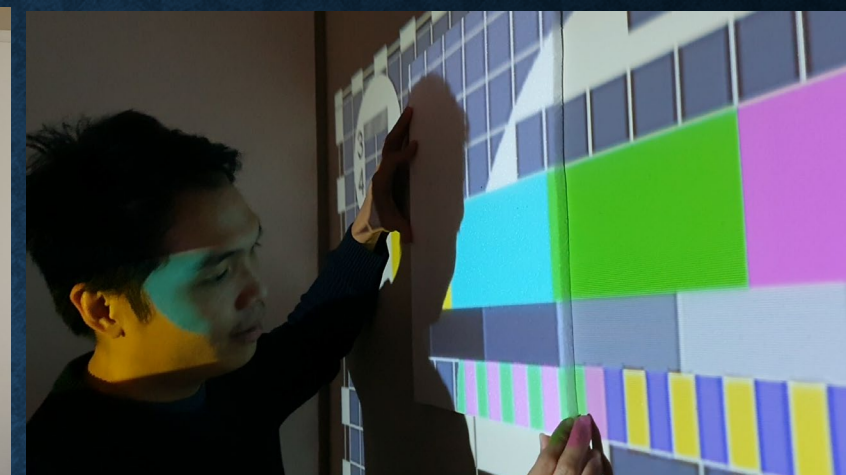
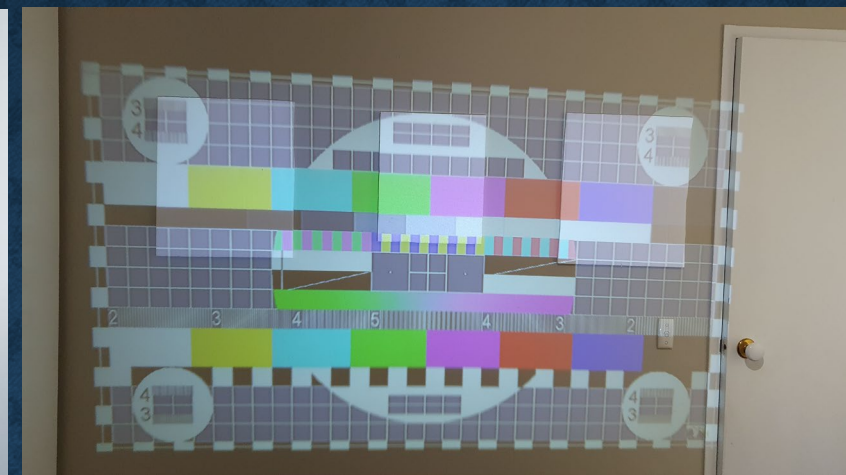
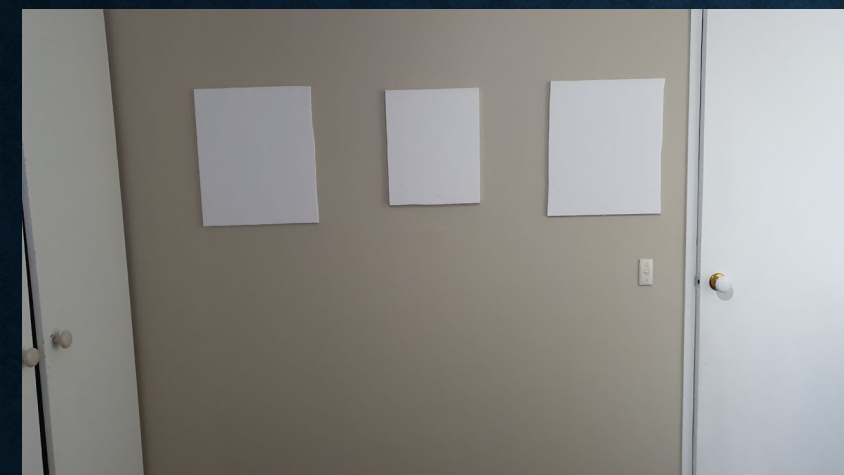


FLORAL BEATS
(TOLENTINO 2019)

Flower Beats is an audio-visual interactive animated flowers and plants growing prototype using a Rock Band Drum Kit (input controller), Resolume Arena (animation, interactions), rb2midi (Rock Band Drums Kit bridge to pc), loopbe1 (music output as midi inputs).

The eventual idea of making flowers and plants move and react to inputs and music is from a research suggesting that sound, music, and its vibrations stimulate plant growth. I wanted to play with the information on these findings, and see how I can translate it through my process of rhythmic music created by a person in real-time. *Floral Beats* can be found in magistudio.net.

(TOLENTINO 2019)



PHOTOS BY CARLO TOLENTINO

INDOOR PROTOTYPING

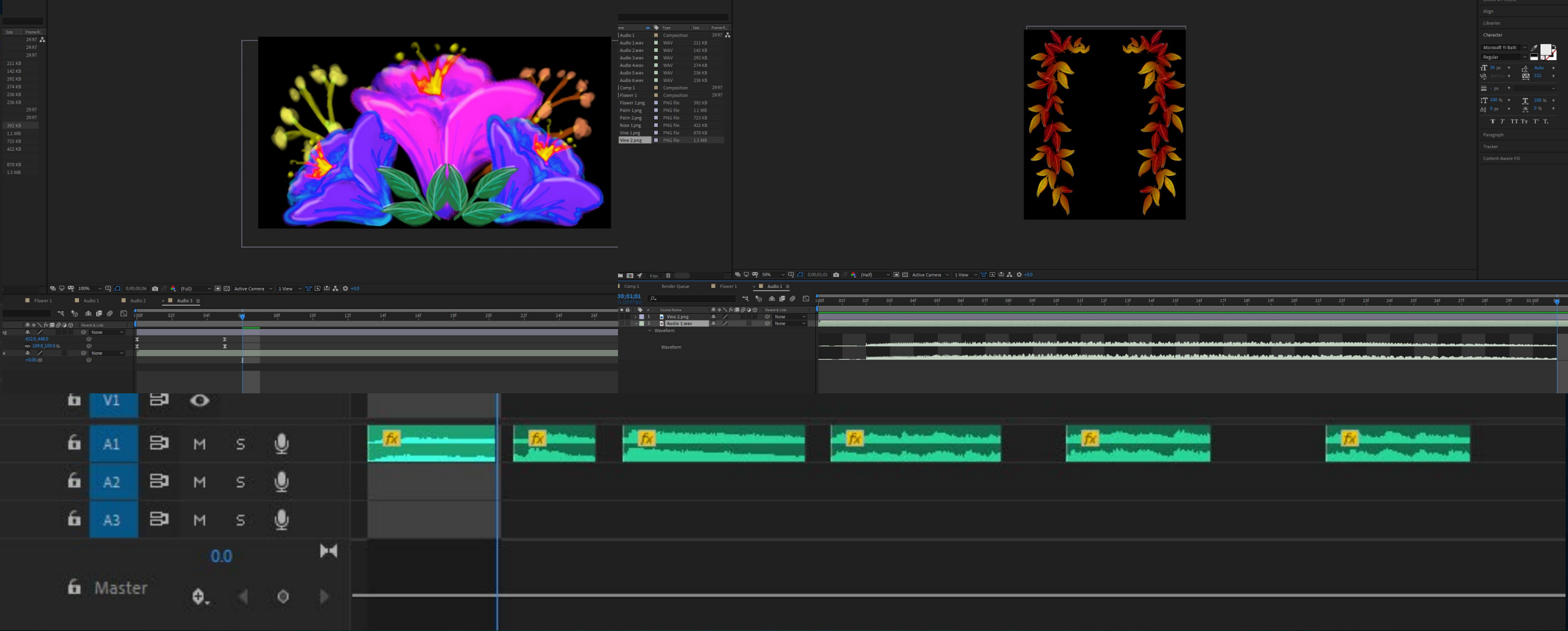
As part of my individual pre-production, it was a fundamental first step to create a working proof-of-concept prototype of The Brunswick Ball. Using a small indoor projector, polystyrene foam boards for the windows, and aluminum foil for the rocks. Tweaking and using a few of my previously made hand-drawn assets as placeholders, the goal was to create a faithful visualization and prototype of The Brunswick Ball indoors and of a smaller scale. Creating this would allow me to develop the triggers for the Makey-makey, its interactions, the audio, and a map of where Sahaj's motion capture visuals will be placed.



INITIAL ASSET PLACEHOLDERS FOR PROTOTYPE

I liked the idea that my previous drawings for Floral Beats, a previous project in MAGI Advanced Play Design, are being used to visualize The Brunswick Ball. I significantly enhanced these drawings and used my inspiration color palettes for the prototype.

Floral Beats has also been the primary inspiration in The Brunswick Ball (See Reference and Context page)



INITIAL SOUND PLACEHOLDERS FOR PROTOTYPE

The audio for the The Brunswick Ball prototype is splices of a 1950's inspired royalty free soundtrack. I placed each sound to match the minimal prototype transition animations. During development, we can potentially collaborate with a sound designer, or as directors of our own work, we can curate the sounds to suit the final output.

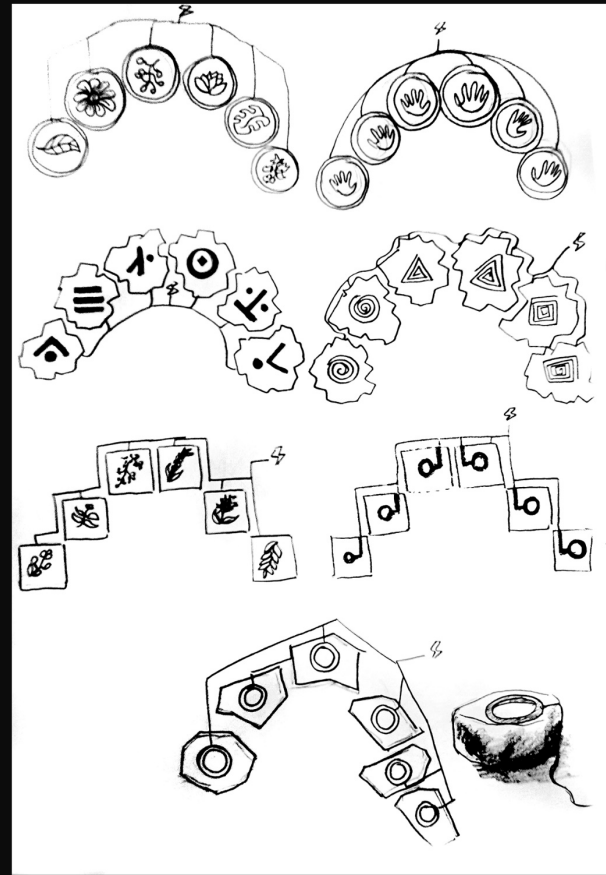
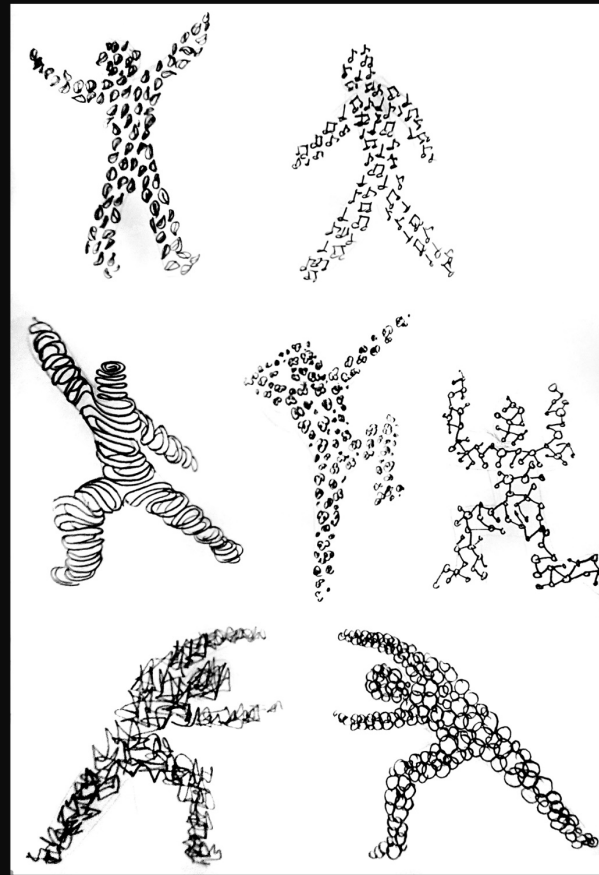
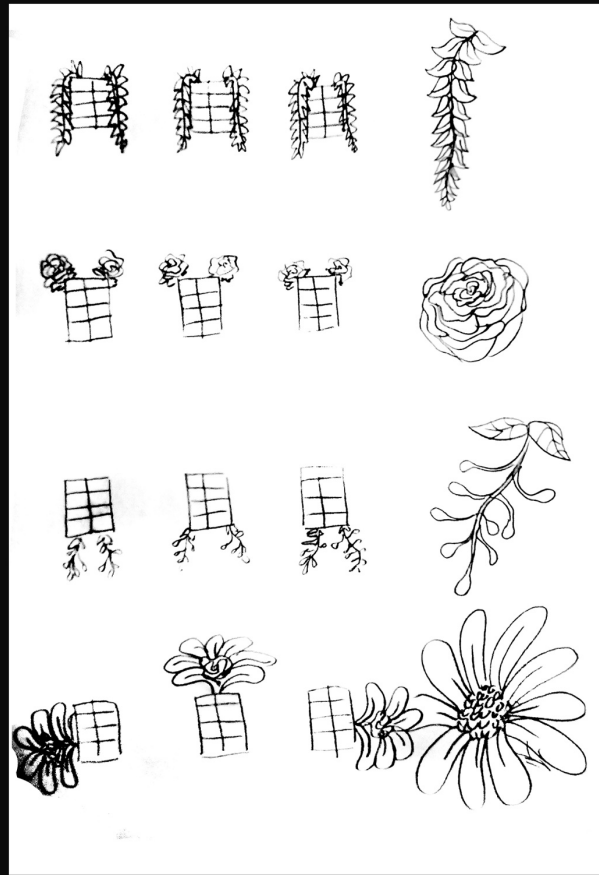
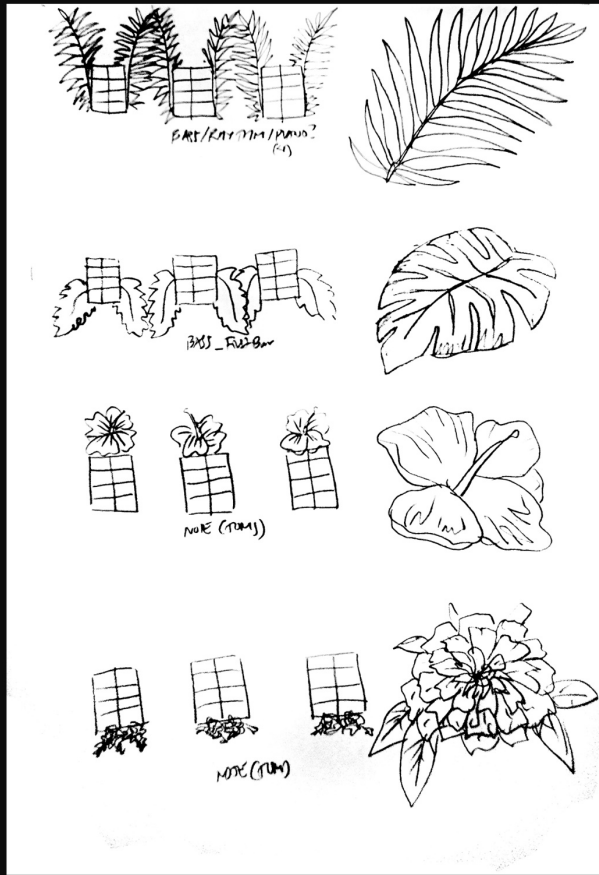


PHOTOS BY CARLO TOLENTINO

INDOOR PROTOTYPE 1

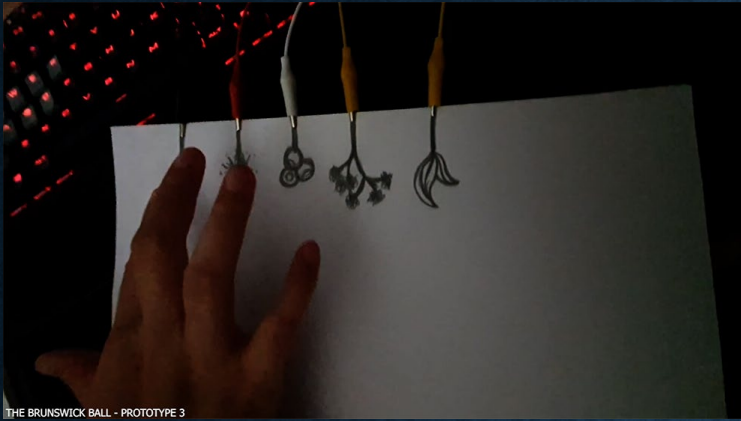
This prototype of The Brunswick Ball was using Resolume Arena, a VJ software and includes placeholder sounds, visuals, animations, and the makey-makey triggers in action. During the next few weeks of production, me and Sahaj will collaborate our work-processes to combine everything in Unity, and use Resolume Arena to funnel everything to the output projectors for projection-mapping. This proof-of-concept will also inform my interactive and art direction decisions moving forward.

MAGI studio site link: [The Brunswick Ball elevator pitch and prototype](#)

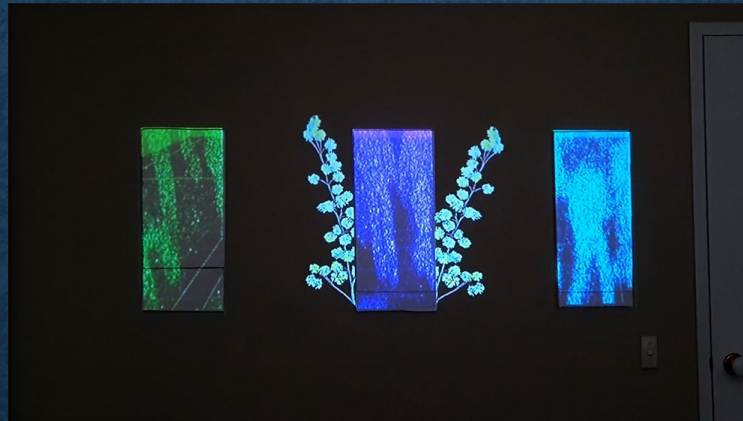
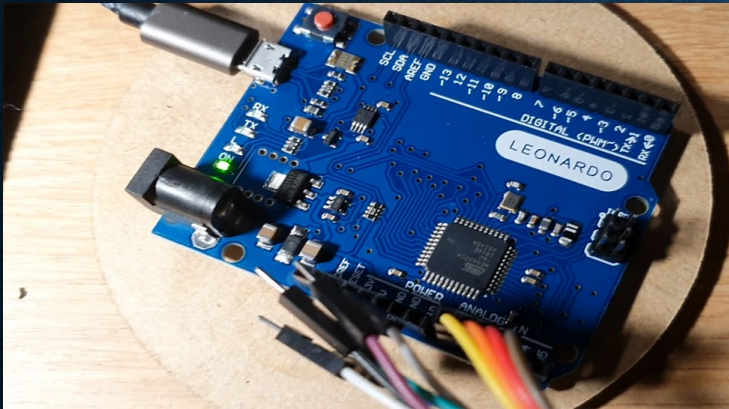
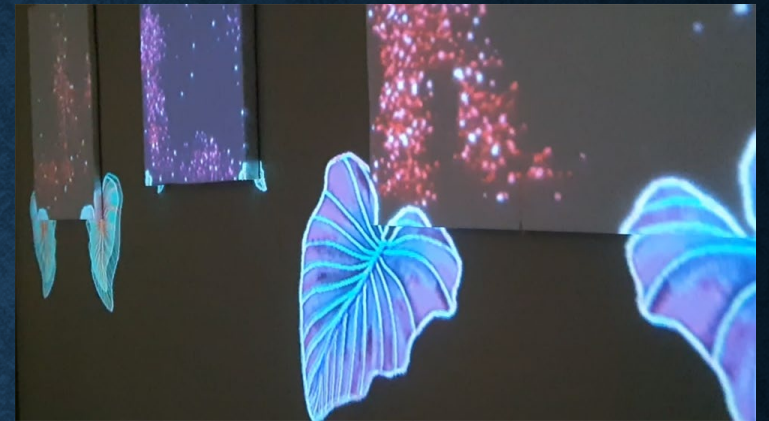


SKETCHES AND IDEATION

Weekly sketches were done to visually and instinctively conceptualize on The Brunswick Ball's nature aesthetics, motion particles and interactive planning.



THE BRUNSWICK BALL - PROTOTYPE 3



PHOTOS BY CARLO TOLENTINO

CONTINUOUS ITERATIONS & PROTOTYPING

As we continue to develop The Brunswick Ball, we managed to swap out the Makey-makey for an Arduino (Leonardo), to have less conditional conductive touch interactions with the inputs. It was a successful improvement on the project. The presentation of all our projects' prototype in A Maker's Trail was a success. These versions of The Brunswick Ball features the rhythm and bass sections, with music designed in collaboration with Sahaj Garg, and is inspired by 1950's music.

Prototype 2: <http://magistudio.net/work/playable-city-the-brunswick-ball-prototype-2-arduino>

Prototype 3: <http://magistudio.net/work/playable-city-the-brunswick-ball-prototype-3-presentation-to-council-of-moreland> (pitched to The Council of Moreland)

ASSETS

REFERENCE PHOTO



Silver Myall

SKETCH



FINAL ASSET



Black She-Oak



The nature elements in The Brunswick Ball were all hand-drawn, and derived from species of plants and trees that are indigenous to Moreland, wherein Brunswick is located.

Reference photos from www.moreland.vic.gov.au Tree Finder Tool

ASSETS

REFERENCE PHOTO



Blackwood

SKETCH



FINAL ASSET



Brittle Gum



The final assets' color palettes are a mixture of artistic stylization and 1950's palette inspiration.

Reference photos from www.moreland.vic.gov.au Tree Finder Tool

ASSETS

REFERENCE PHOTO



River Bottlebrush

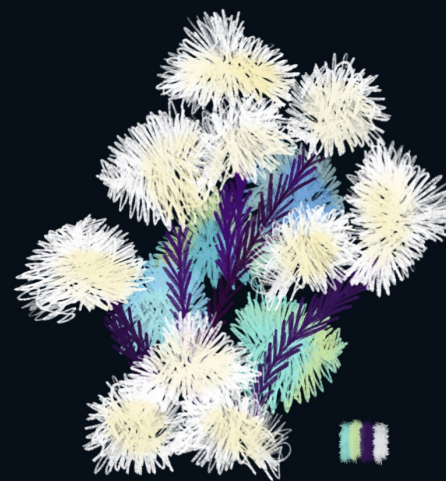
SKETCH



FINAL ASSET



Snow in Summer



Each nature asset corresponds to one of the 1950's inspired, musical rhythmic loop or instrument in The Brunswick Ball.

Reference photos from www.moreland.vic.gov.au Tree Finder Tool

The Brunswick Ball - Bass and Rhythm Section

Trees Indigenous to Moreland



Silver Myall



Black She-Oak



River Bottlebrush



Blackwood

The Brunswick Ball - Drums and Percussions Section

Trees Indigenous to Moreland



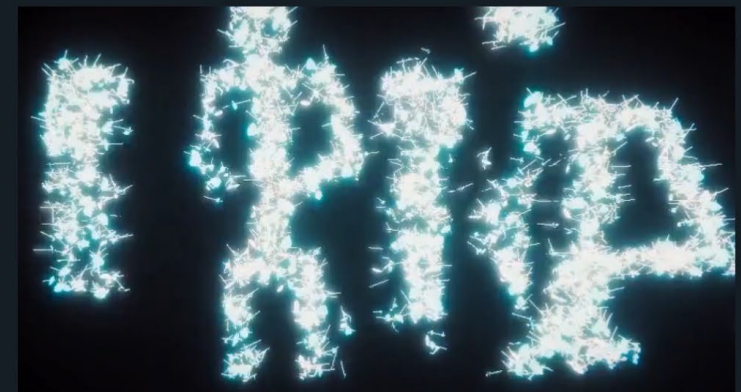
Brittle Gum



Snow in Summer



Red Box



PEOPLE MOTION TRACKING

The Brunswick Ball is a collaboration with MAGI student, Sahaj Garg's exploration in camera people motion tracking particles in Unity. Its particles are a combination of musical notes, and leaves, to coincide with the theme of music and nature.

Reference photos from Sahaj Garg's people tracking research - the wild youth



PHOTO VISUALIZATION

Photo visualization of asset placement helps in planning out dimensions and measurements towards accurate projection-mapping. Despite not being on site, extensive planning and visualization helps alleviate some of the problems in projection-mapping. We look forward to how The Brunswick Ball may actually look on Saxon St. once we commence play testing.

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ARY



THE BRUNSWICK BALL - PHOTO VISUALIZATION

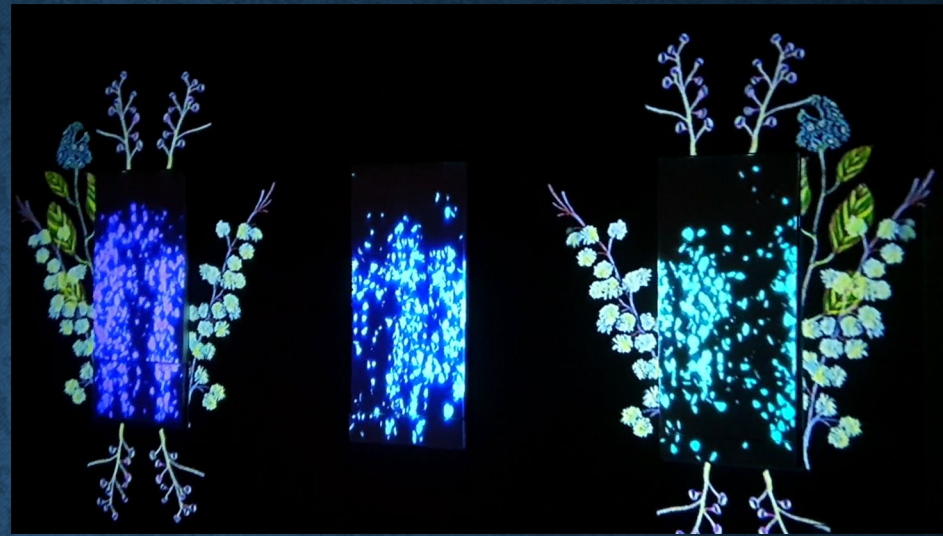
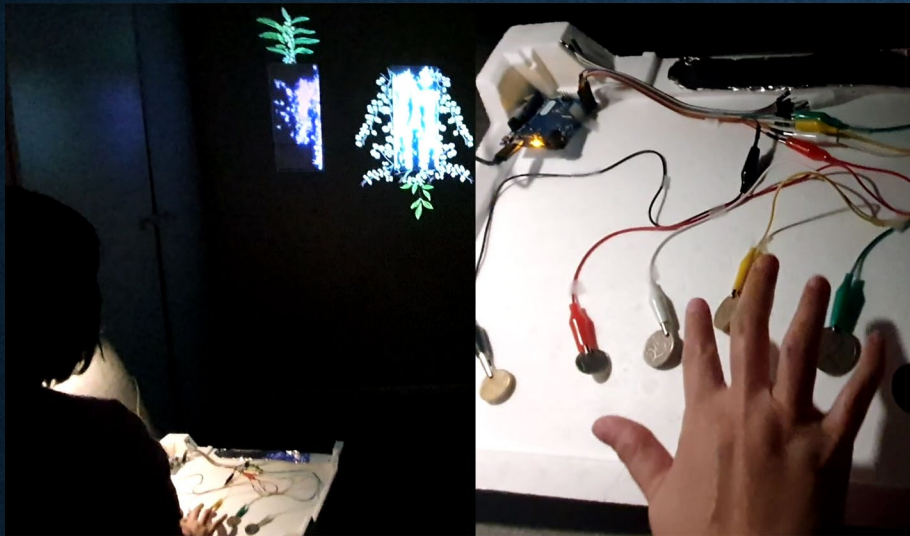
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3D VISUALIZATION

To plan out and visualize The Brunswick Ball outside of the actual site, we developed a 3D visualization of Saxon St. Brunswick Library. This 3D visualization may also be planned to be interactive, for pitch and off-site play testing purposes.



PROTOTYPE 4

The latest indoor prototype of The Brunswick Ball can be viewed at: <http://magistudio.net/work/playable-city-the-brunswick-ball-prototype-4>

Careful consideration was made in making the animations move with the 1950's themed sound design beats and rhythms.

We aim to still continuously develop and improve on the project by adding more interactions within Unity along with further play-testing on-site and the iterative exploration on environmental interaction design.

REFLECTIONS, CHALLENGES & PLAYABLE CITIES TEAM DYNAMICS

- We play to each other's strengths and skill sets.
- Synergize project ideas and iterations.
- Consistent and comprehensive sharing and communication.
- Building connections and cohesiveness of projects.
- Thoughtful and considerate user and interactive experience design.
- Identifying roles and anticipating production issues.
- A collective but singular project and goal, and brand building.
- Considerations for how remote online dynamics affect production.
- Designing for a space without current access to the said space.
- Unique opportunity to celebrate the community and the outdoors.
- A Plan B is currently being talked about by the team, and how we can present and promote the Playable City Brunswick walking tour in case we are unable to mount the event on the target date and venue. The Brunswick Ball may alternatively be presented as an indoor small-scale prototype.

We have pitched our final project ideas to Troy, Kiera from RMIT engagement, and The Council of Moreland, which we received very good feedback. I'm very grateful to be part of a team that are all intending to pursue play-testing and launching the event even after the semester has ended. In the next few weeks, we will plan to market and showcase A Maker's Trail finally, in an outdoor setting and ideally on-site.



PHOTO BY UYEN NGUYEN