



ADRIANA NG ELYNN

I'm a designer and a front-end web-developer. I learned to use software such as Autodesk, Fusion360, Rhinoceros 6, Adobe Photoshop, and Adobe Illustrator.

I have basic knowledge in coding using Python and algorithms, as well as UI development using HTML and CSS.

DESIGN PORTFOLIO 2020-2023

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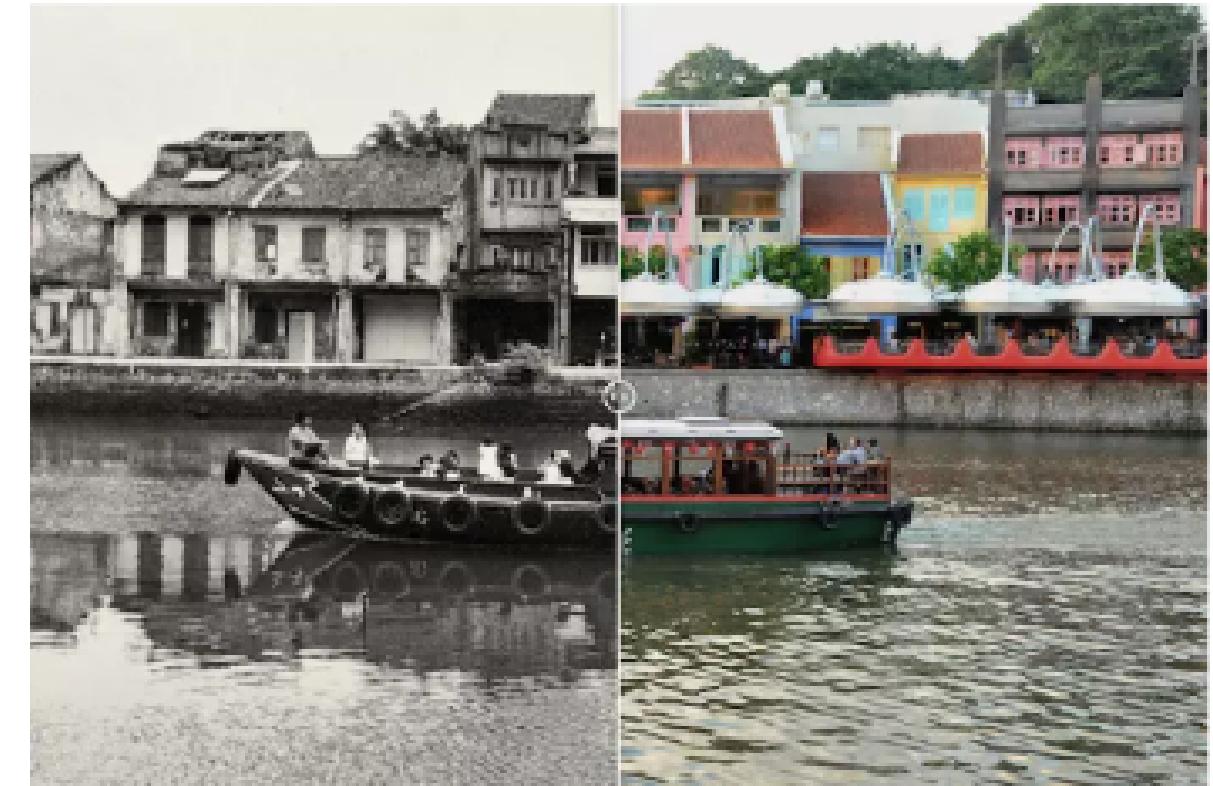
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Want to know what character archetype
you would have been in the past?

[Start your Journey!](#)



Home



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Collection



Profile



ABOUT ME

I am a 3rd-year student at the Singapore University of Technology and Design (SUTD) studying Design and Artificial Intelligence(DAI).

I adapt quickly to different situations, and my friends describe me as a patient and cheerful individual.

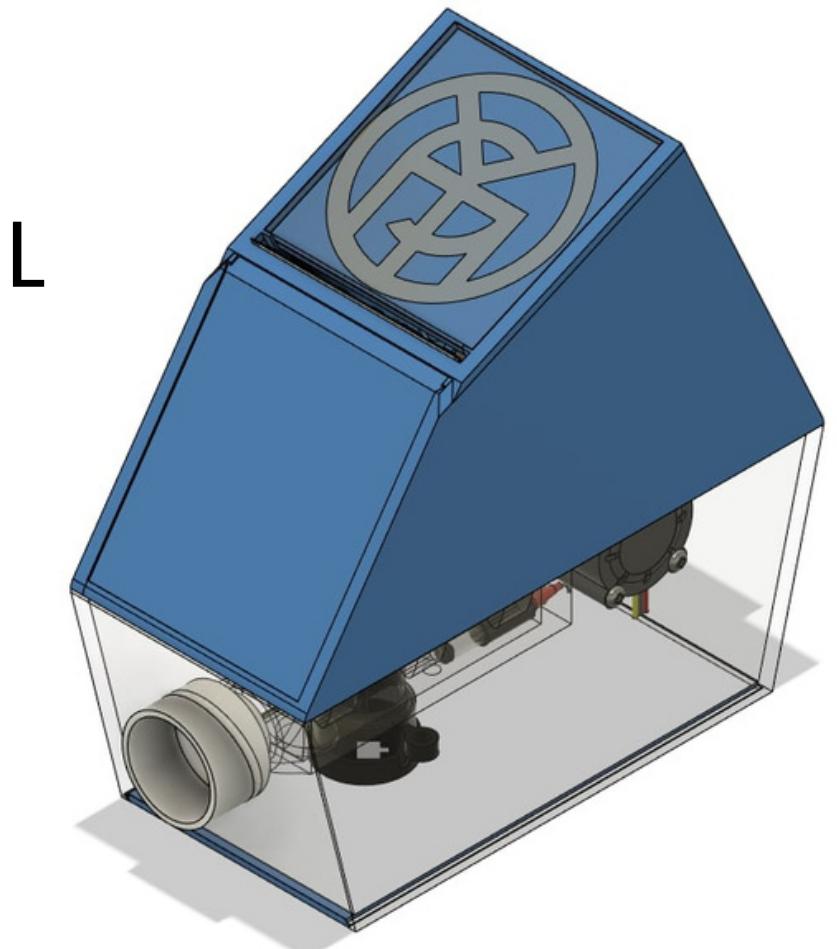
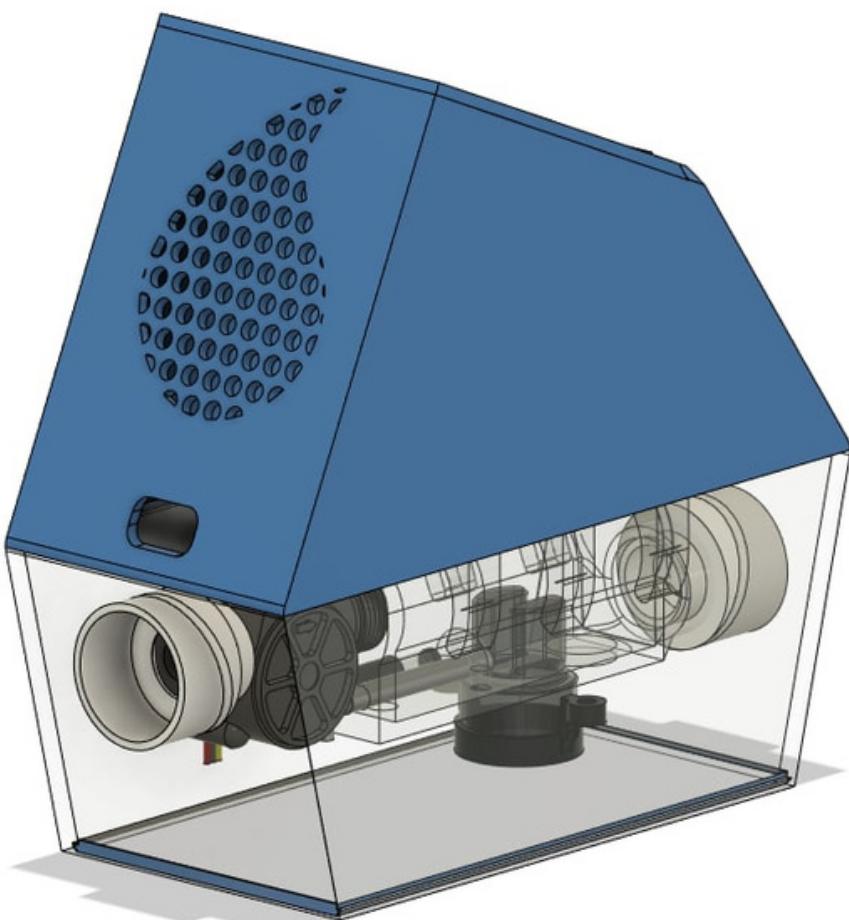
I have always been interested in design and how every individual perceives art differently. I hope to learn more about generative AI and 3D-rendering.

SENSOR BOX

Problem statement:

How might we accurately understand the laundry habits and practices of Procter & Gamble's (P&G) consumers in real-time, without changing any of their user habits?

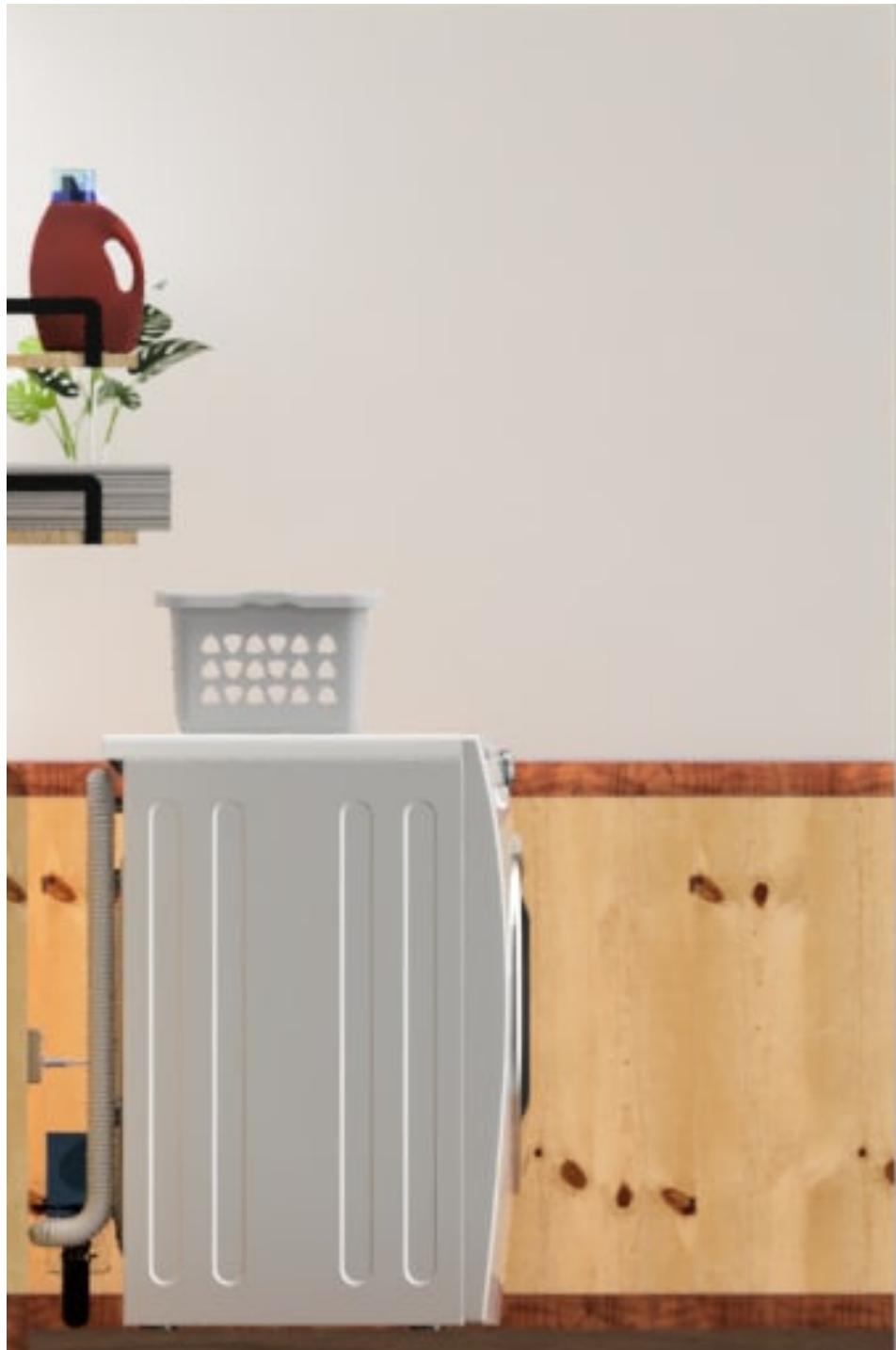
FINAL CAD MODEL



My team of 5 worked with Procter & Gamble (P&G) to create a sensor box which collects data from the greywater of a washing machine

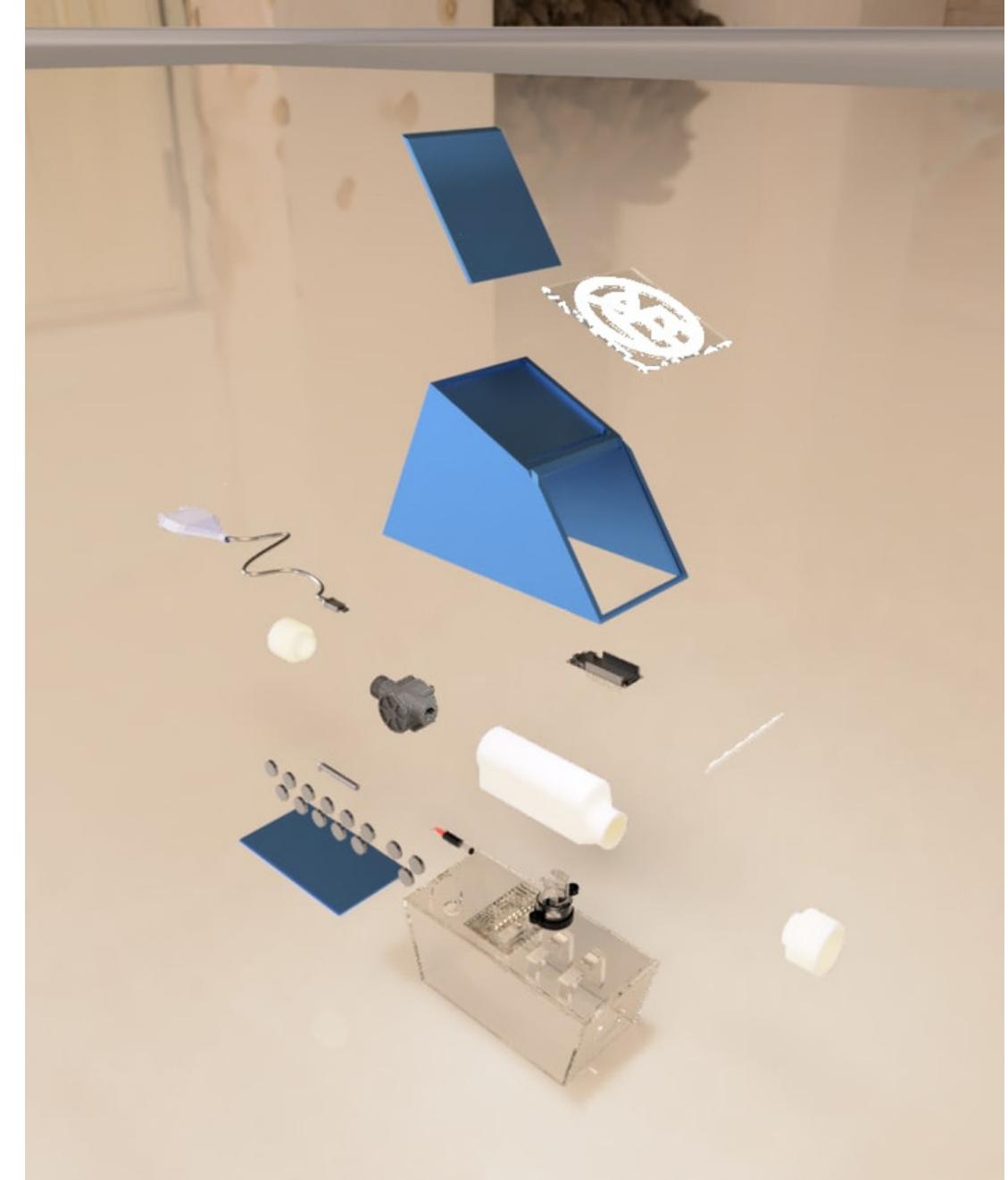
01. ENVIRONMENT

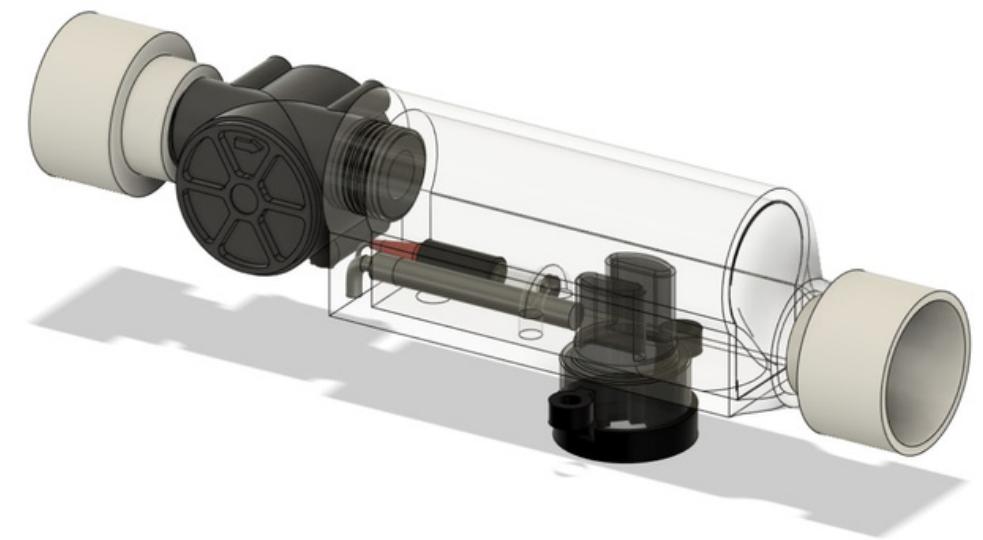
Rendered image of
the environment



02. PRODUCT

Rendered blow-out
image of our product





03. CAD

3D Cad of sensor pipe using
Fusion 360



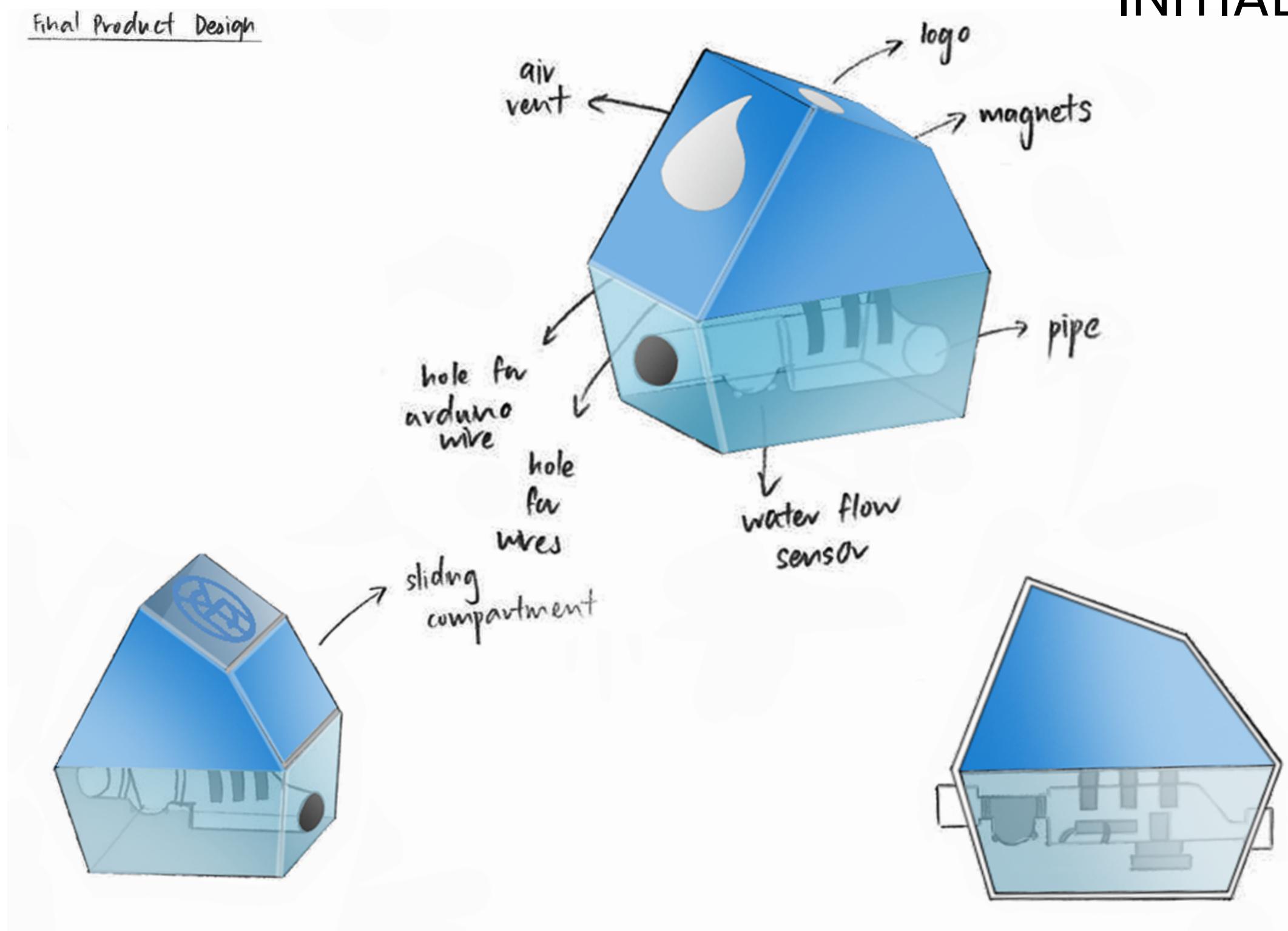
04. APP

Wireframing of a
survey application

I used Justinmind for the
wireframing and demo of
the mobile application

Hand-drawn and edited
using Adobe Photoshop
I helped in the designing
of the product by
sketching and ideating

Final Product Design

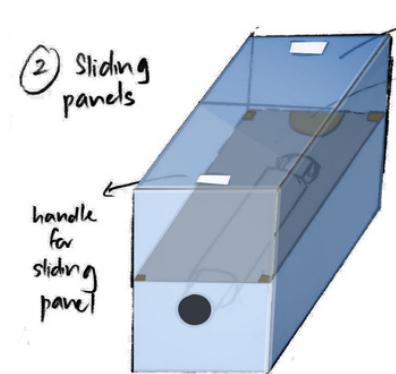
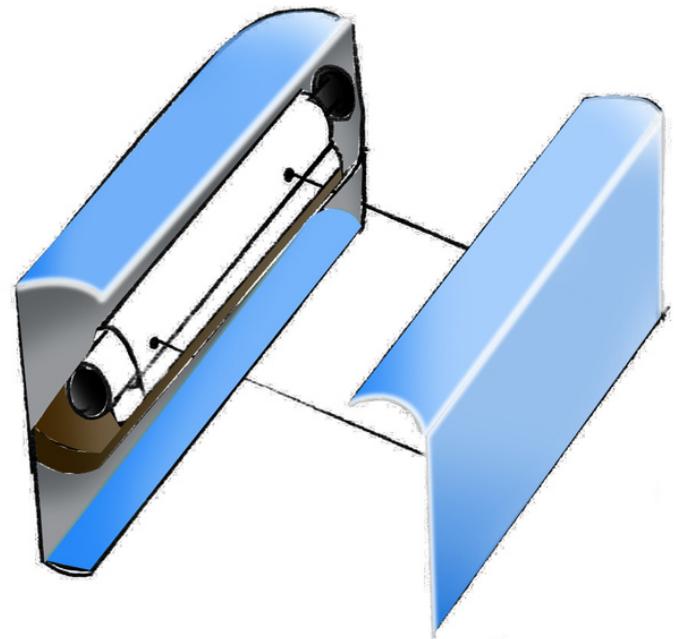
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PORTFOLIO

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Box ideas

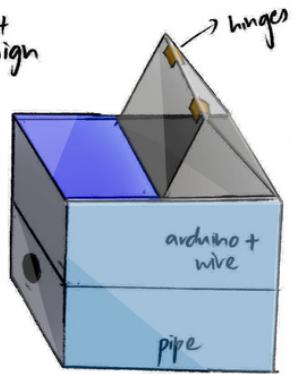
① screw-on lid at the side



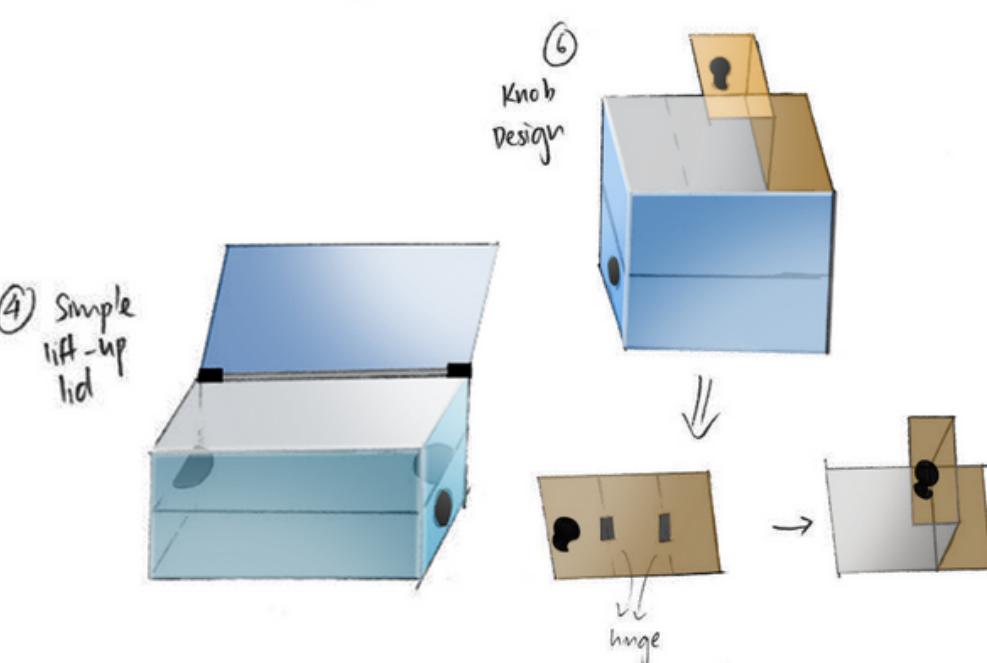
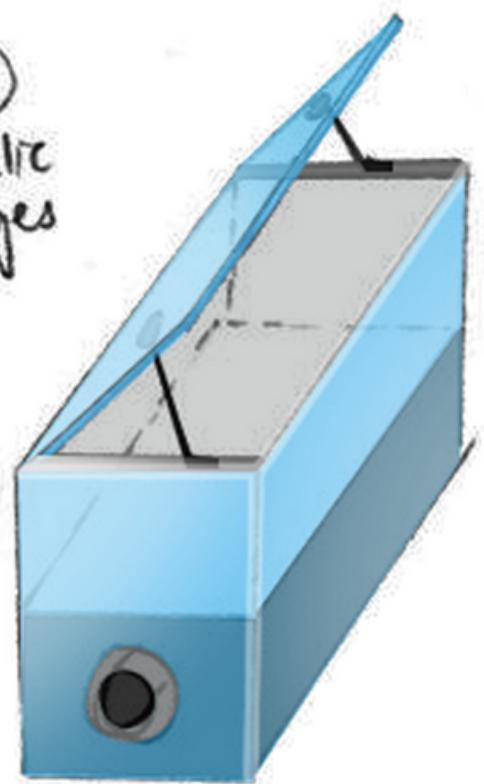
② Sliding panels

handle
for
sliding
panel

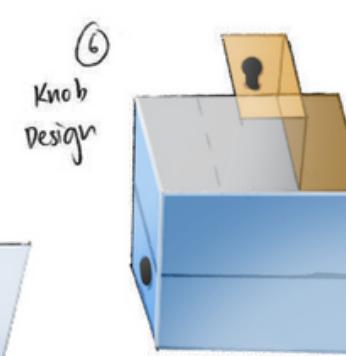
③ tent design



⑤ Hydraulic Hinges



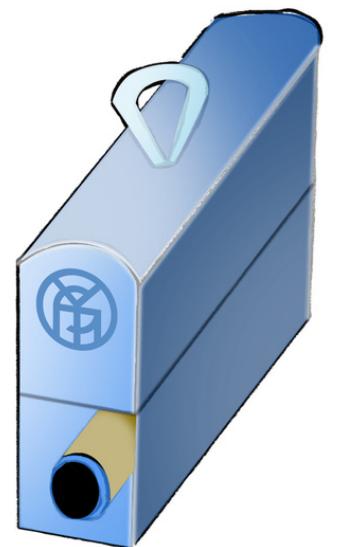
④ Simple
lift-up
lid



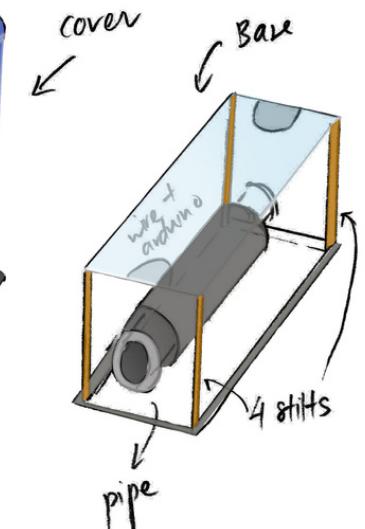
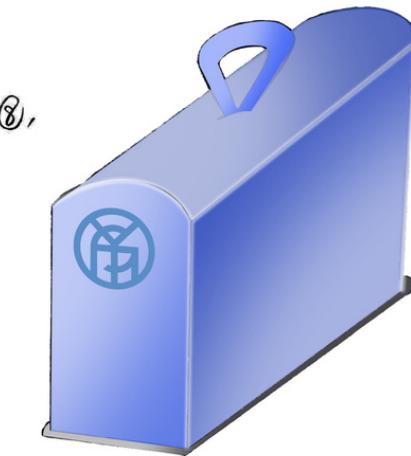
⑦ Knob
Design



⑧ different handle



⑨ Similar to ⑧,
detachable
cover



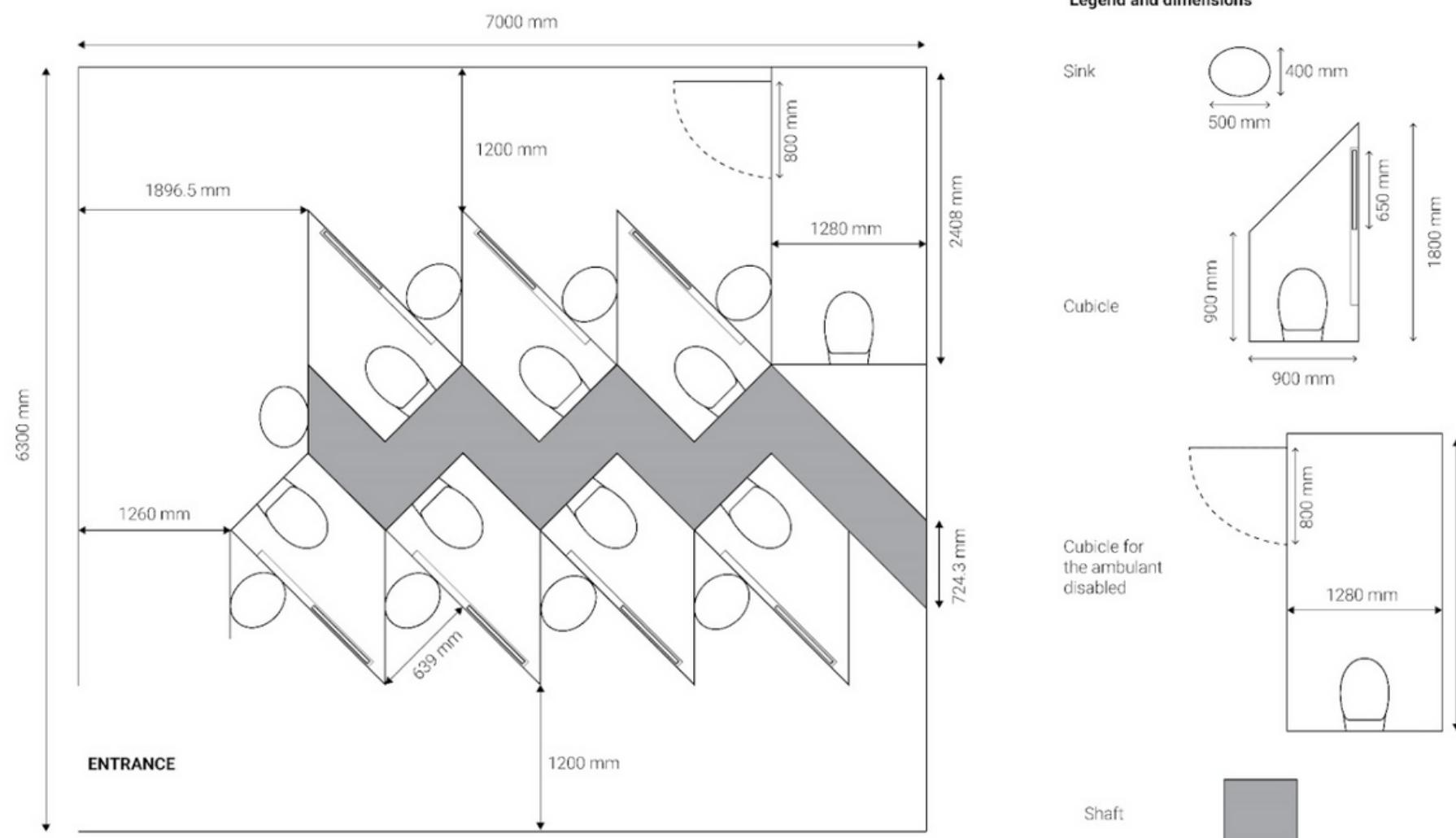
REDESIGNED TOILET FLOOR PLAN

Problem statement:

How might we reduce the risk of transmission of COVID among the users of toilets?

Challenges:

1. Amount of space available or building structure, for changing the layout of toilets
 2. Government agencies' regulations



Rearranging position of toilet facilities to increase flow and ensure social distancing between users in order to reduce risk of COVID transmission

I helped in the sketching and ideation of the floor plan, using Adobe Illustrator.

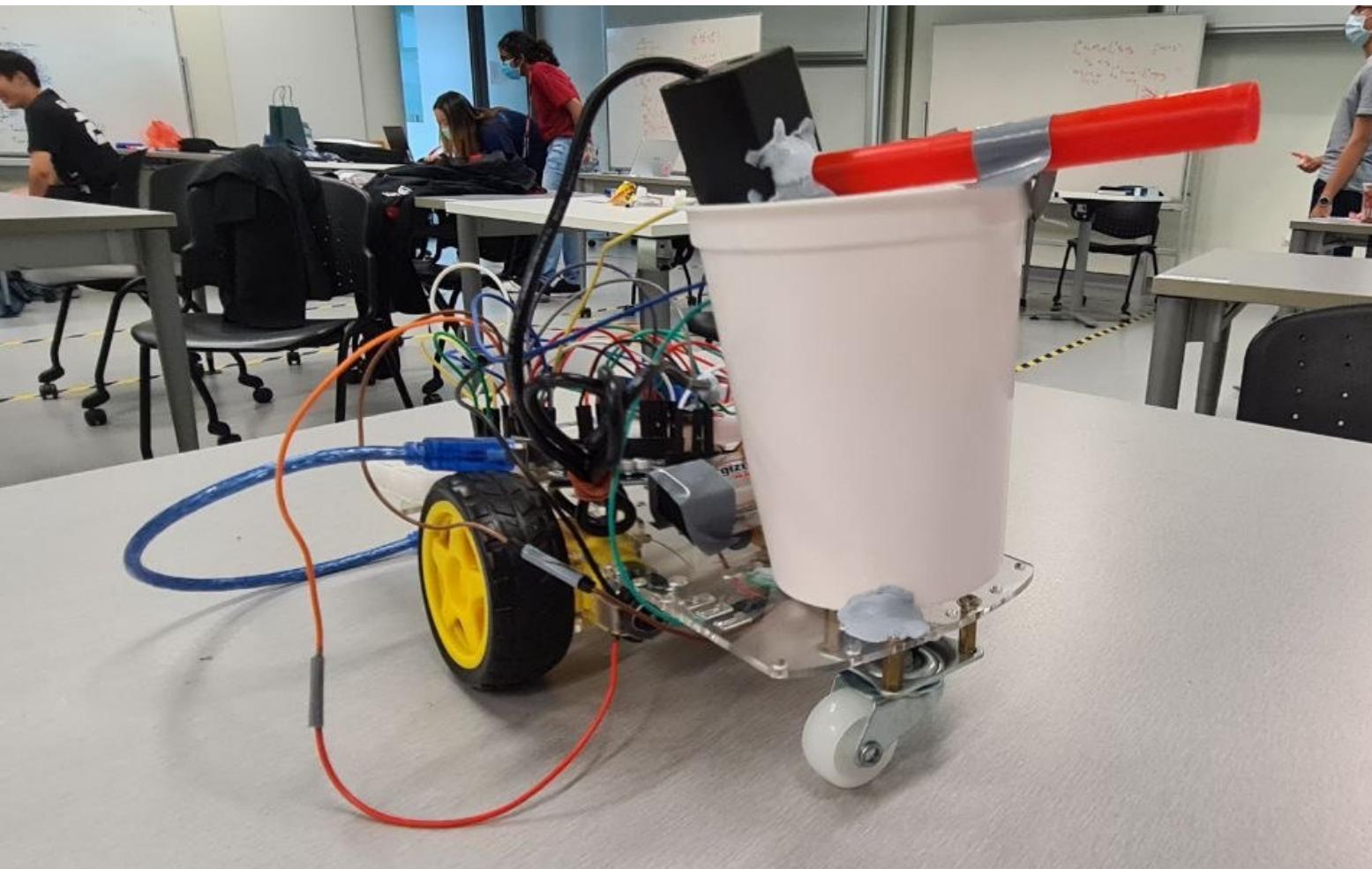
AUTONOMOUS FIRETRUCK

Problem statement:

How might we enhance the safety and effectiveness of firefighters, when the fires are too large or dangerous for human intervention?

Challenges:

Natural lighting may affect the detection of infrared radiation.

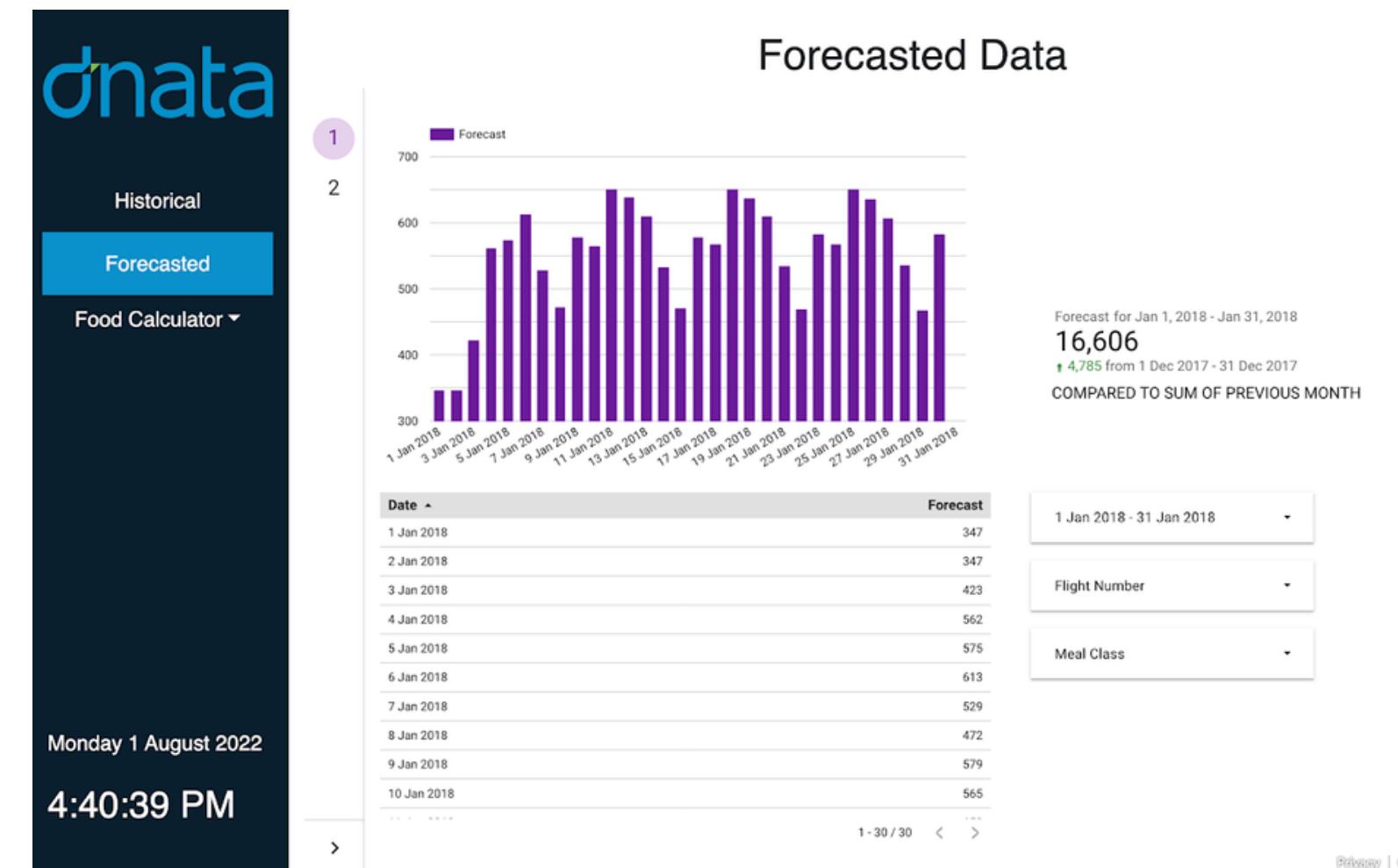


Autonomous firetruck
that detects and puts
out fires through
detecting infrared
radiation

PASSENGER LOAD PREDICTION DASHBOARD

Problem statement:

How might we predict the number of passengers to reduce food wastage at DNATA catering services?



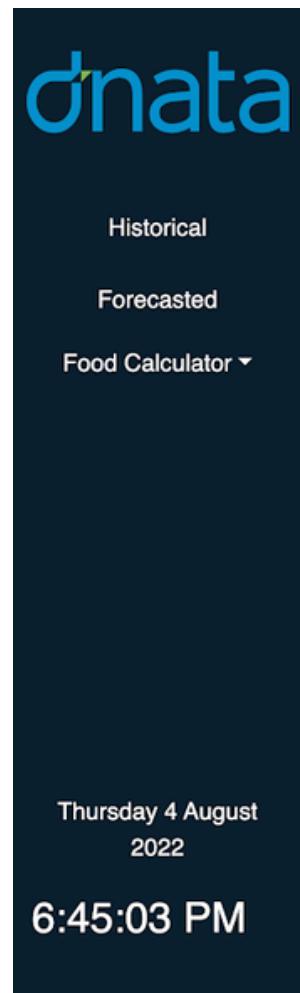
Feature 3: Machine Learning model to predict passenger load

[HTTPS://SITES.GOOGLE.COM/MYMAIL.SUTD.EDU.SG/SDS-TEAM-8-ROOSTERS/HOME](https://sites.google.com/mymail.sutd.edu.sg/sds-team-8-roosters/home)

My team of 6 was mentored by a Google mentor and worked with Dnata to create a data analytics dashboard that:

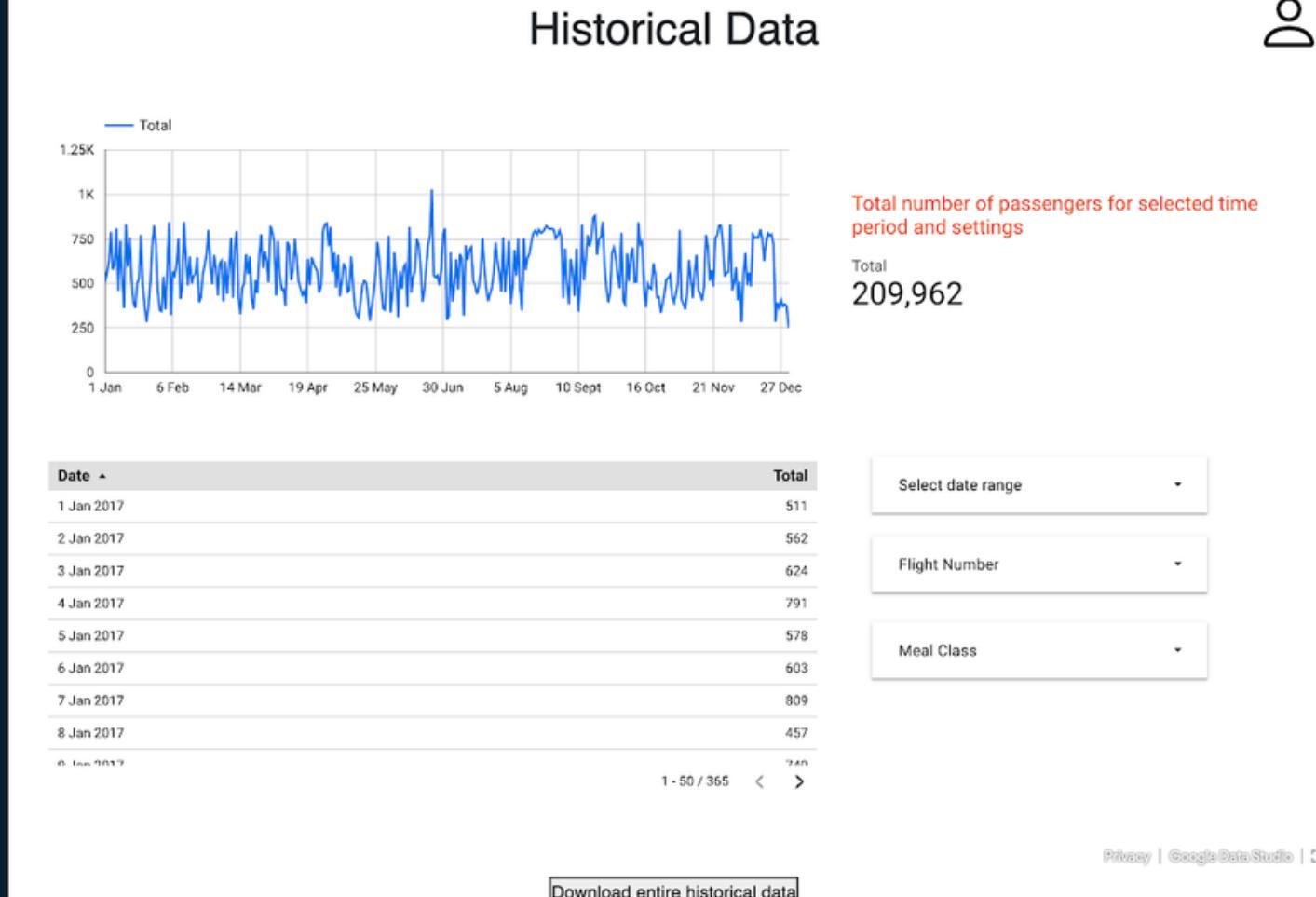
- Forecasts the passenger load using a machine learning model
- Displays the actual and forecasted data and allows the user to change the range of data shown
- Allows uploading the recipes for the various flights
- Estimate the amount and cost of raw ingredients ordered for the week based on the predicted passenger load

Using HTML, CSS and Javascript, I helped in the development of the UI



Approvals - Approve and Remove Users

First Name	Last Name	Email	Username	Role	Approved	Approve	Remove User
Rooster	Chlingjolye	admin@dnata.com	RooRoo	Admin	true	<button>Approve</button>	<button>Remove User</button>
Barbara	Stevanski	barbara@dnata.com	barbie	PM	true	<button>Approve</button>	<button>Remove User</button>
John	Makrov	johnny@dnata.com	jomak	HC	true	<button>Approve</button>	<button>Remove User</button>
Stacy	Mckenzie	stacy@dnata.com	stacie	OM	true	<button>Approve</button>	<button>Remove User</button>



Feature 1: Login Page and Admin Page to approve users

Feature 2: Data Visualisation of the flight and passenger load data

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Recipe Calculator

All Airlines ▾
Select Flight ▾
All Meal Classes ▾
Select Recipe ▾

Filter



Ingredient Cost Price

[Add New Ingredient Price](#)


Feature 4: Production calculator to calculate the amount and costs of raw ingredients using uploaded recipes and the cost price of the ingredients

Overview of Architecture

Front End



Ruby

- Embedded Ruby Template (ERB)



Bootstrap

- Templates for sidebar, etc.



Google Data Studio

- Visualisations for data

Deployment



Google Cloud Run

- Deploy Backend



Docker

- Containerisation of application

System Architecture
of the dashboard

Back End



Ruby on Rails

- Manage resources



Google BigQuery

- Training of ARIMA model
- Forecasting



PostgreSQL

- Database

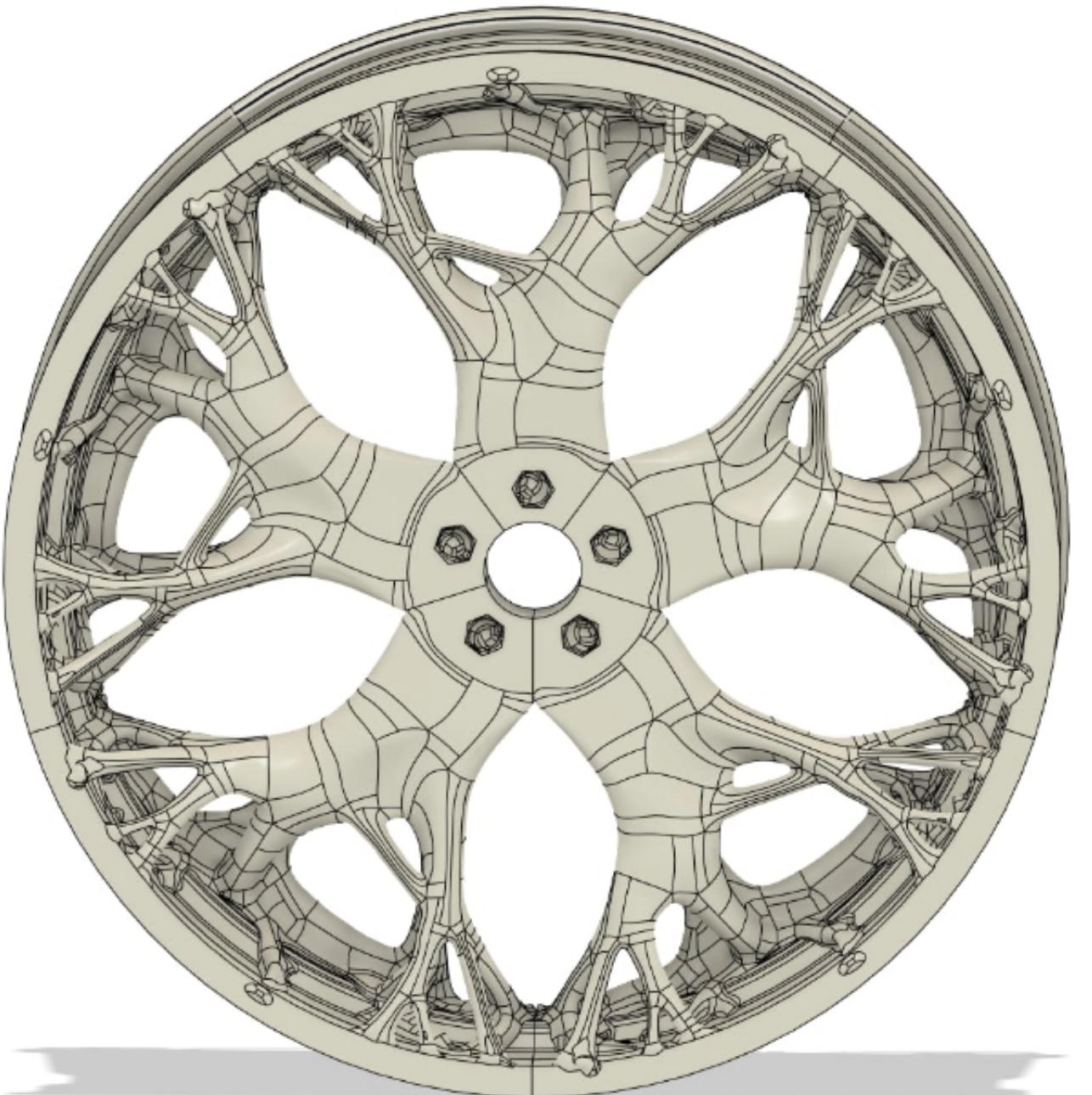
GENERATIVE DESIGN

Problem statement:

How might we use generative design to optimise the design of spare savers?

Challenges:

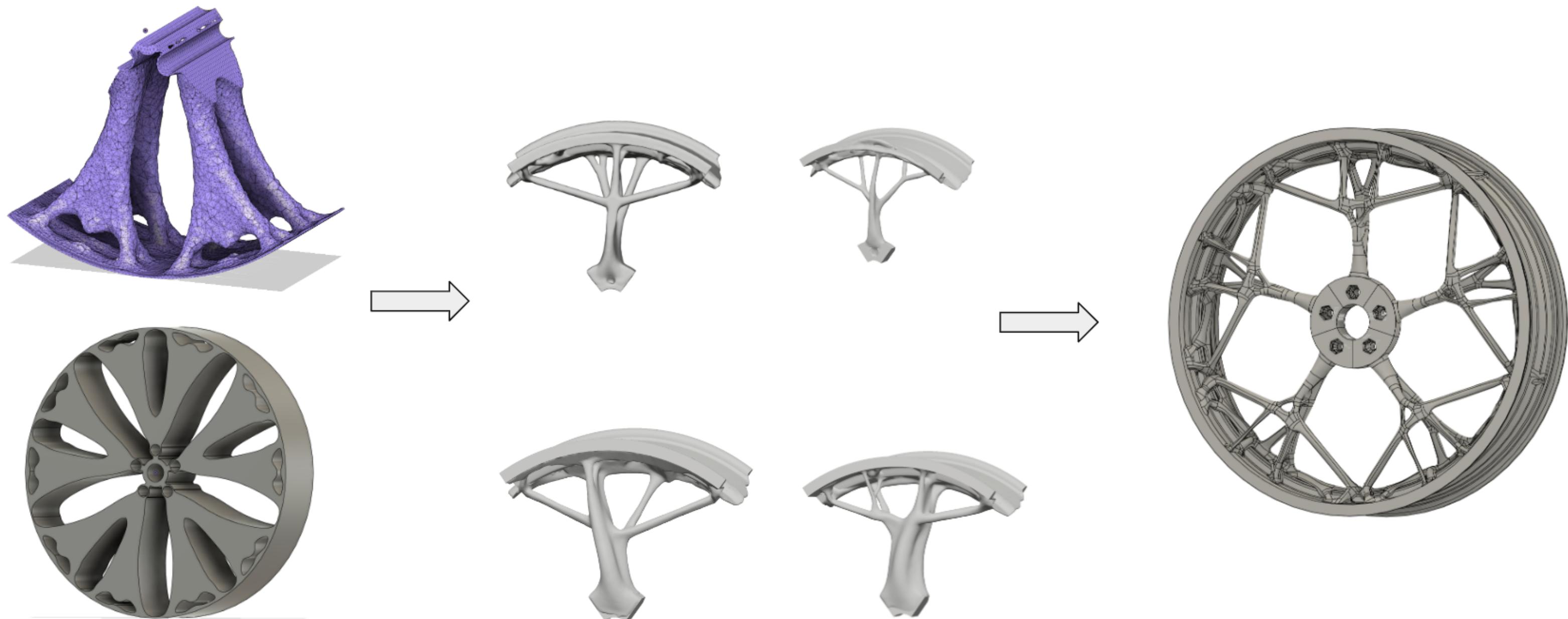
In our design, we used Nylon which was non-biodegradable.



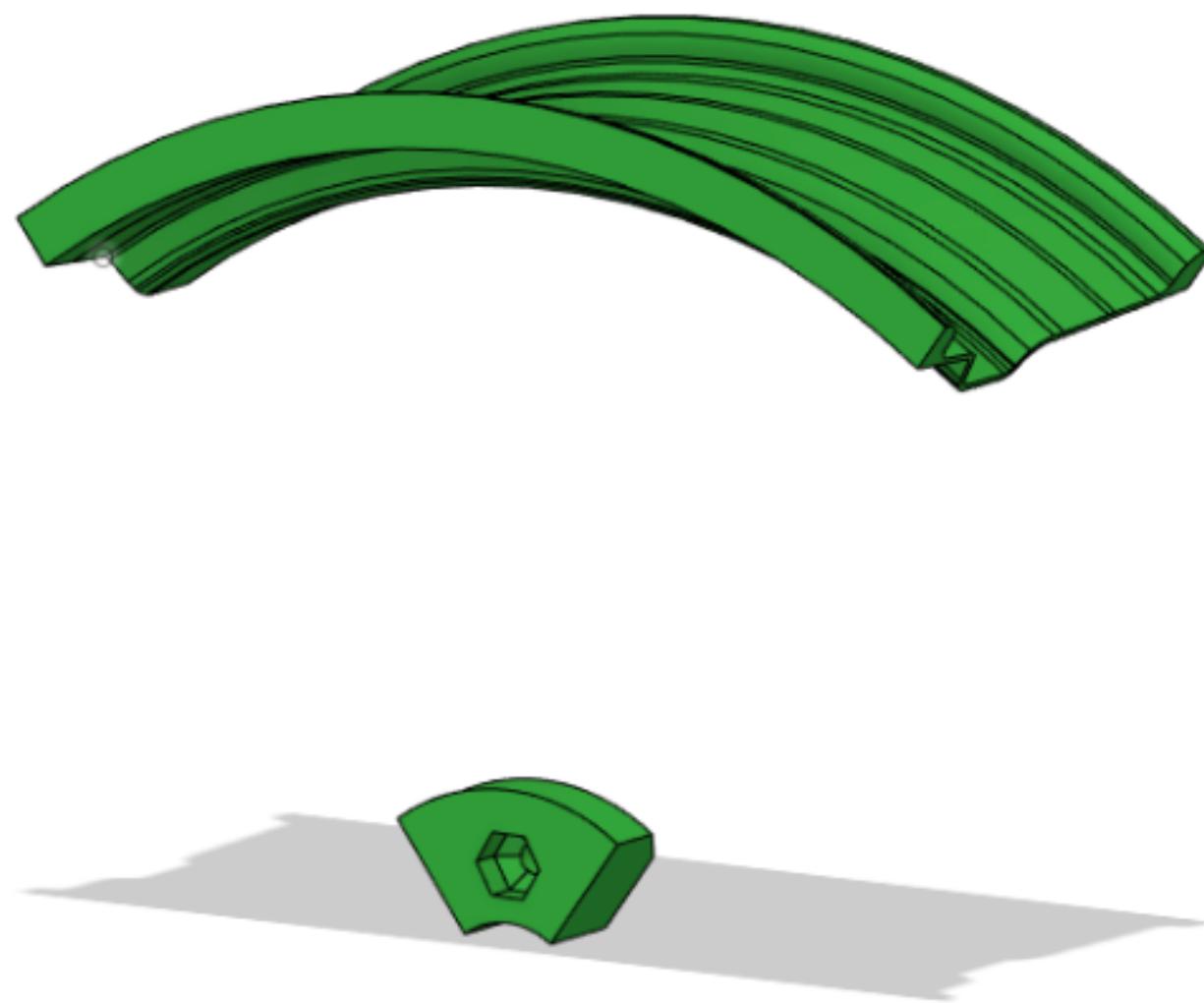
My team of 5 designed a more sustainable, fuel-friendly, and unobstructed alternative to conventional spare tyres.

We used Fusion 360's generative design to minimise material usage such that the function, structural integrity and safety of our wheels are not compromised.

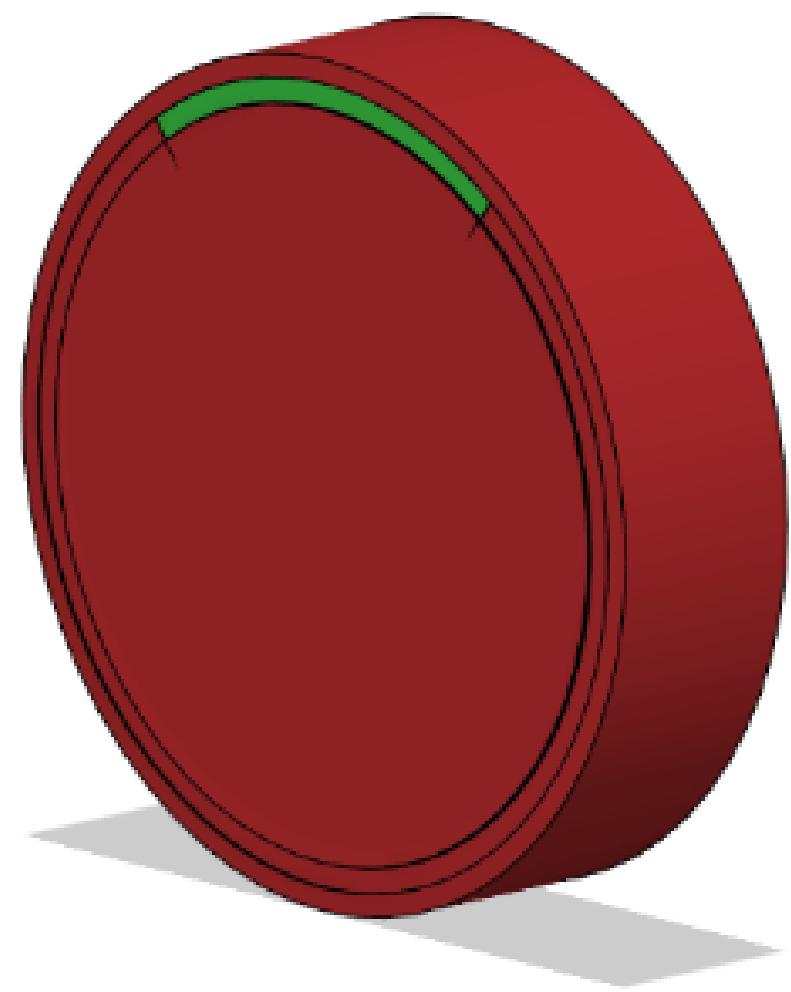
I helped to CAD out the model in Fusion360 and explored the method of generating the whole wheel instead of generating one section.



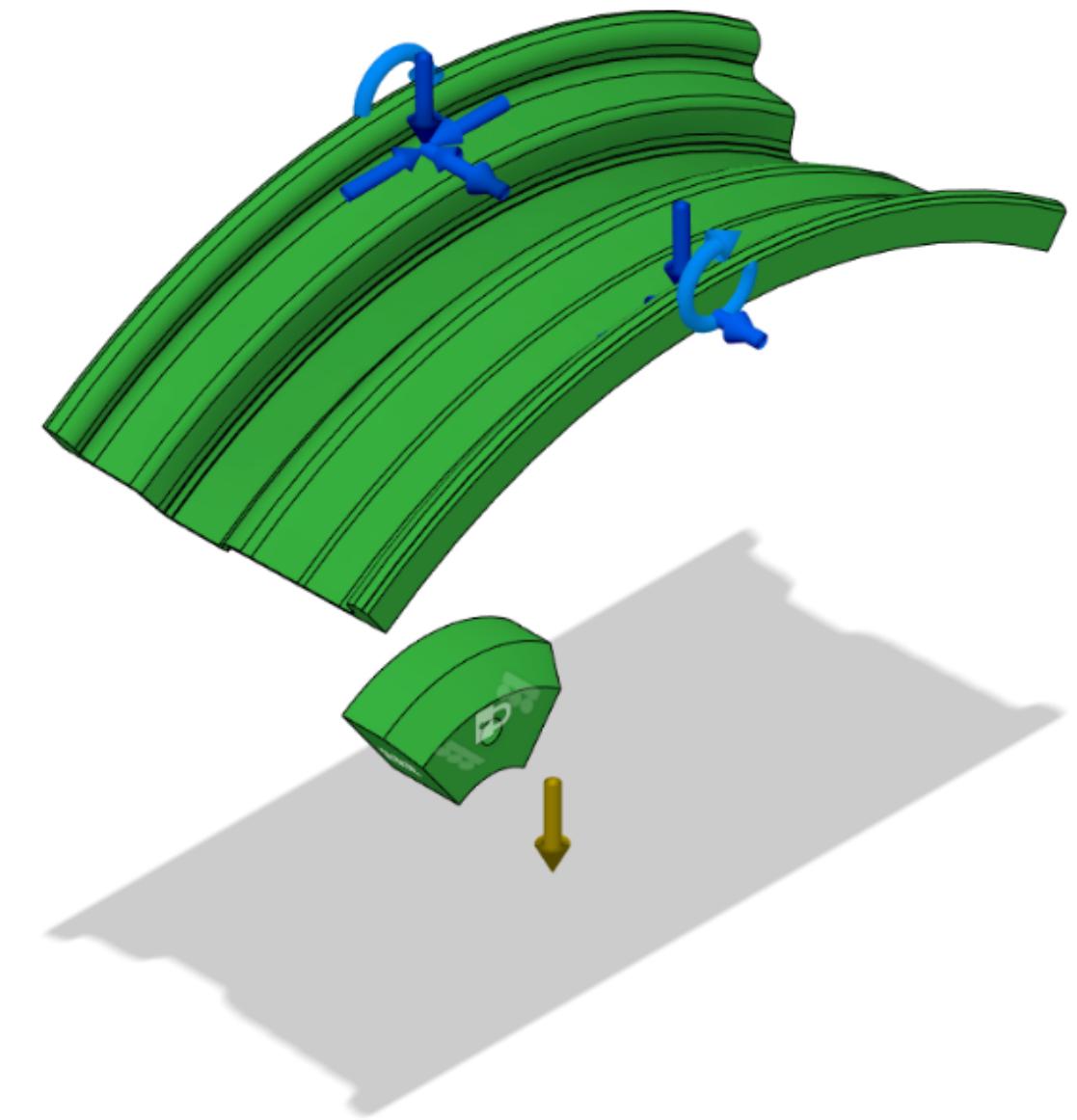
We divided the tyre into 5 identical components and applied generative design on one component



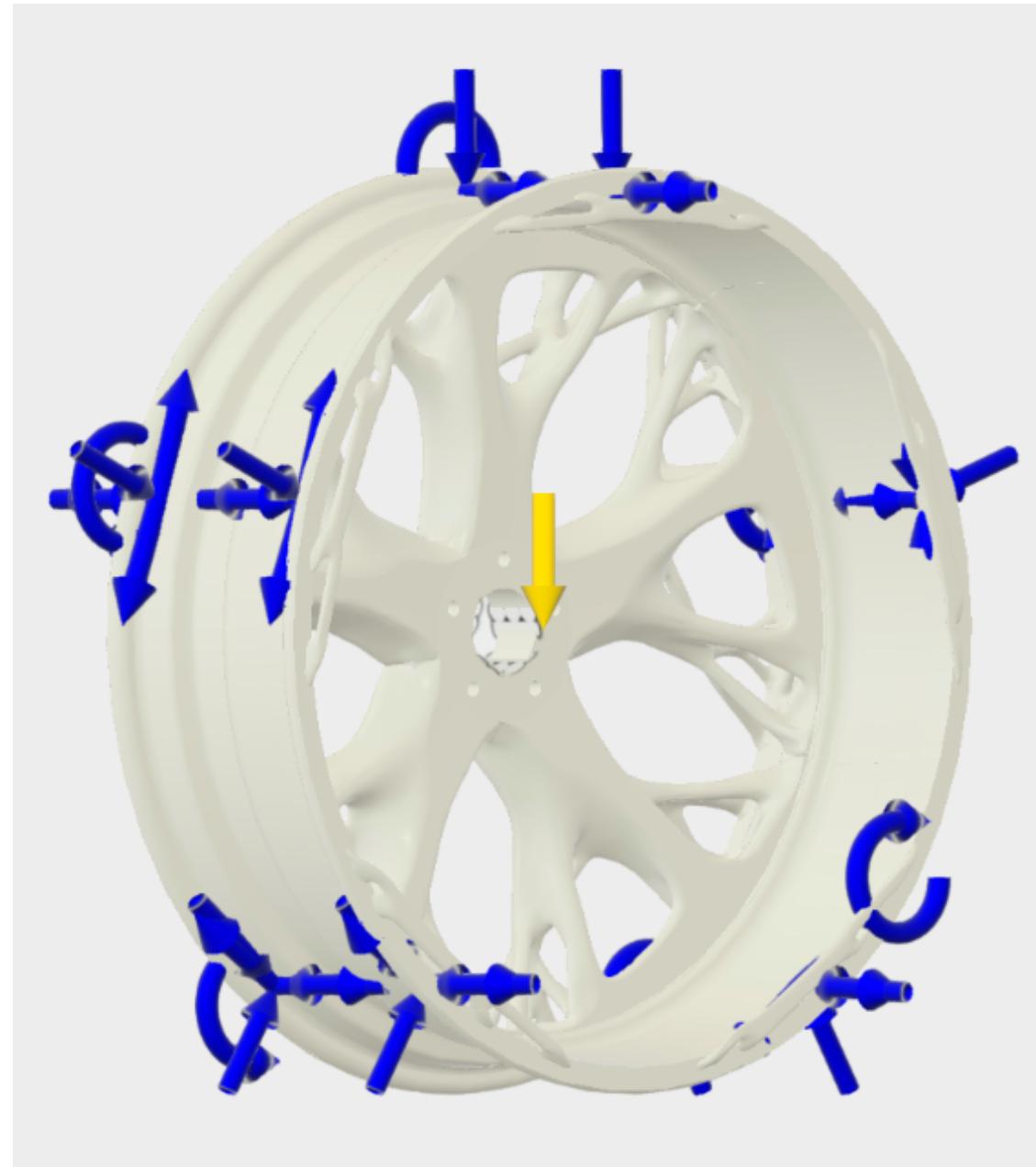
Preserved Geometries of the tyre



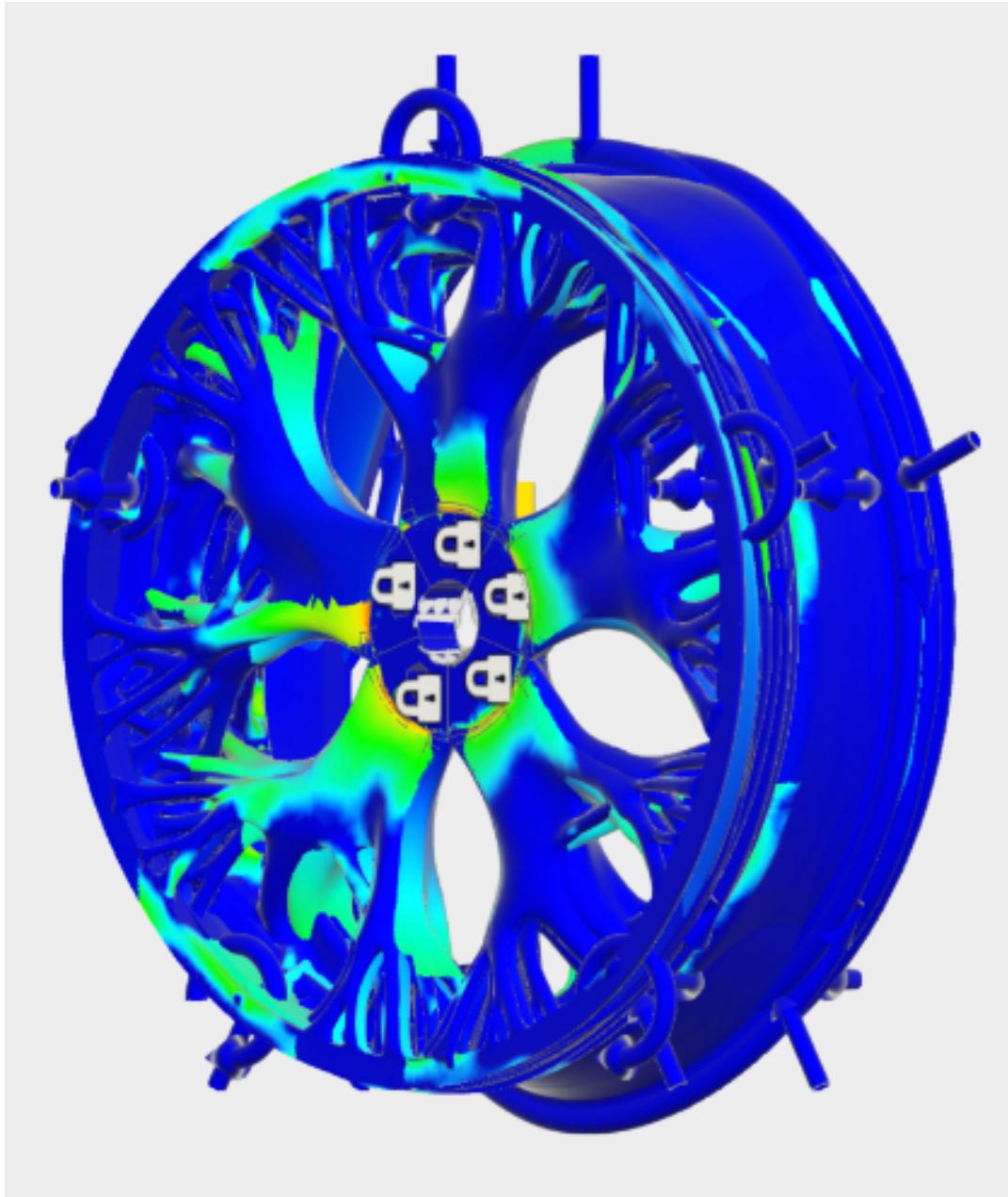
Obstacle Geometries of the tyre



Forces acting on the tyre



Forces applied for simulation stress study



Stress Analysis result



Final rendered tyre

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HISTORICAL ARCHETYPE QUIZ

Problem statement:

How might we use spatial design to connect young adults, aged 20 to 30 years old, to Singapore's past?

Challenges:

1. Historical photographs have a low resolution, leading to difficulty in generating images.
2. Preserving the authenticity and historical accuracy of the character archetypes.

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Home

Connect to the Past



Want to know what character archetype you would have been in the past?

Start your Journey!

 Home  Explore  Collection  Profile

Home Page where users can start the quiz

My team of 4 worked with Memotics to develop a Web-App where users can complete a historical character archetype quiz and receive a generated historical character archetype image and a generated panorama image to be viewed using a VR headset at the museum.

We used 3 AI Models:

1. Text-to-text model - match users to a historical character archetype
2. Text-to-panorama model - generate a panorama image using prompt engineering
3. Text-to-image model - generate a image of the historical character archetype

Using HTML, CSS and Javascript, I helped in the development of the UI. I also took on project management tasks.

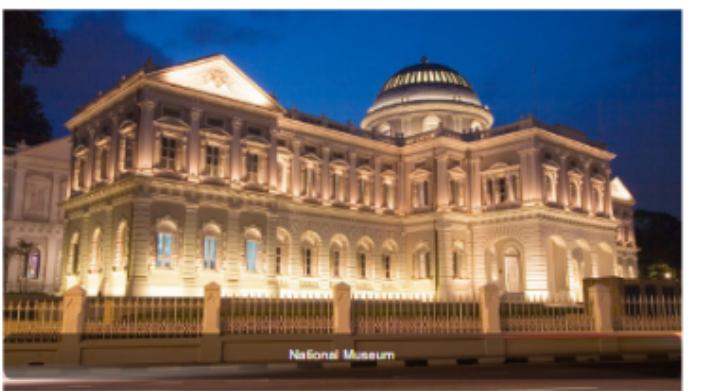
Explore**Museums of Singapore**

Tip: Use your generated archetype image as a pass to enter our VR space at the museums!

Find out more about Tradesmen and Fishermen here:



Find out more about Samsui Women and Coolies here:



Explore page where users can find out more about the archetypes in the respective museums

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Question 1

Scenario: You arrive at a bright gateway leading to different paths. Which one feels like your way?



A path with flashy signs and exciting sounds, like a busy shopping district.

A quiet walkway with plants and soft lighting, like a peaceful park.

A bustling path with sounds of work and laughter, like a lively construction site.

A street filled with music and colorful decorations, like a festive market.

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Example of quiz question

Here are your Results!

Your Historical Character Archetype:

The Samsui Woman



Based on the quiz answers in choices2.txt, you are The Samsui Woman because your choices reflect a strong commitment to hard work, dedication, and community spirit, similar to the qualities of the Samsui women in Singapore's history. In the past, the Samsui women were known for their tireless efforts in building the nation, demonstrating a collective progress and strength that is still relevant today.

Your Generated Panorama:



Save to Collection!

Results page where users collect their panorama image and assigned historical character archetype

2020-2023

My Collection

Add to your Collection through Connecting to the Past!



Visit our VR Popup at these Museums

[!\[\]\(18c12596206f13a251e19359dd33a965_img.jpg\)](#) Home [!\[\]\(f9eec794e49915cd20434e769136aebc_img.jpg\)](#) Explore [!\[\]\(9879404add14941628e502687f91be23_img.jpg\)](#) Collection [!\[\]\(b660ed7fd4345909058d987e8f63f34e_img.jpg\)](#) Profile

Collection page where users can view their generated panorama image



My Profile

My historical character archetype is...

The Coolie



[!\[\]\(77ecbadd823fee663d4583d8e3e9ff65_img.jpg\)](#) Home [!\[\]\(90df8a99149f955579c7ee15a5e54ebc_img.jpg\)](#) Explore [!\[\]\(bbf220f30680ff71c2dc369c53f3de0d_img.jpg\)](#) Collection [!\[\]\(7b15279456c49f86bf023b9a1e857102_img.jpg\)](#) Profile

Profile page where the user's generated historical character archetype image is displayed

GENERATIVE DESIGN OF A SPORTS CAR

Problem statement:

How might we transform users' emotions into sports car appearance design?

Challenges:

Generative AI tools have predefined concepts of a car's appearance and its various components.



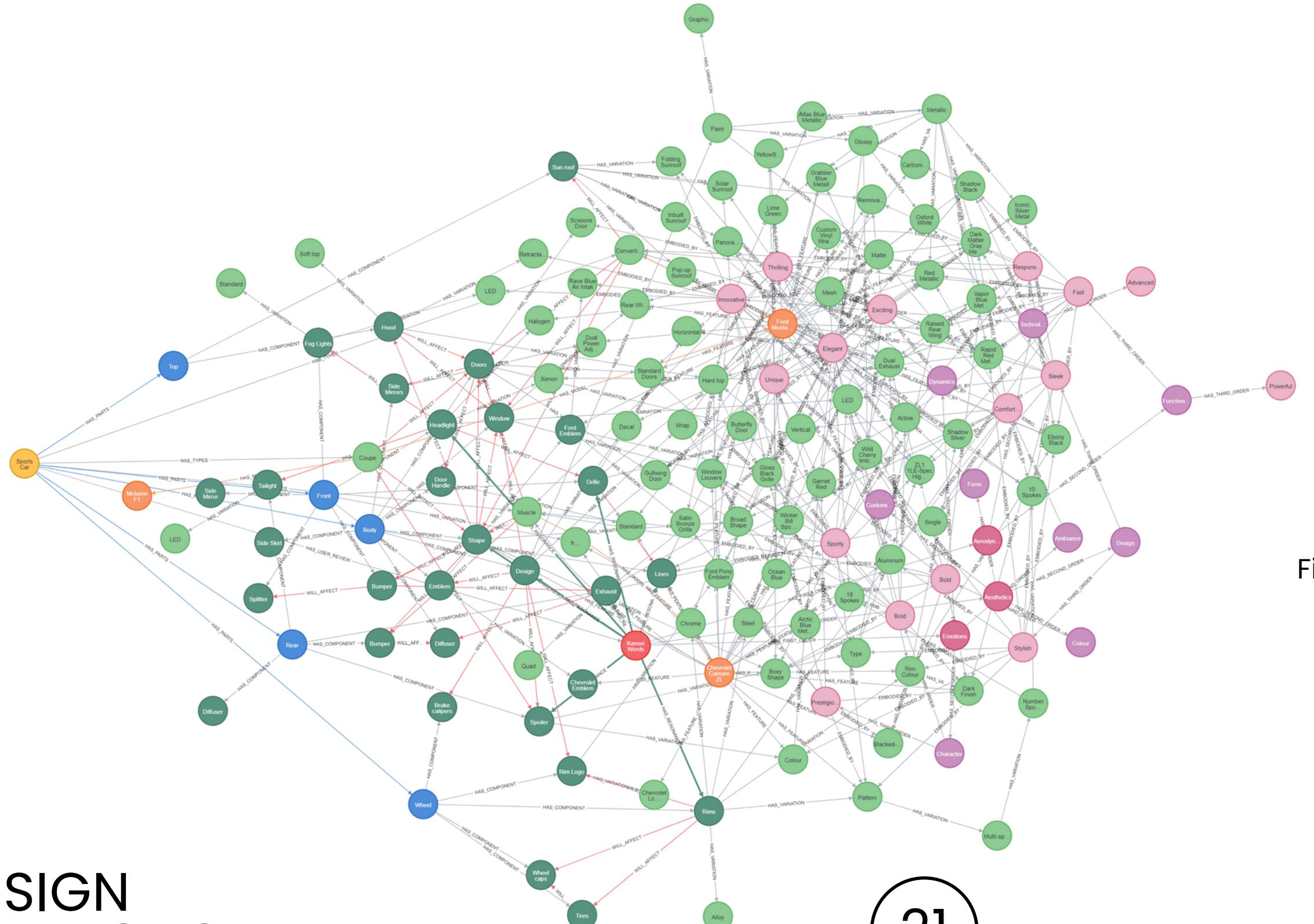
Generated using Dall-E

My team of 3 used a Hybrid Kansei Engineering System to develop a semantic network based on comments we scraped from YouTube.

The creation of our semantic network helps to concentrate the relationships between users' emotional needs and car component variations which is useful for both designers and users to understand design choices through the hybrid nature of the network.

We conducted extensive prompt engineering to generate a design of a sports car, using Dall-E, Midjourney and Stable Diffusion Dream Studio.

I helped in identifying the specific car components and in the prompt engineering.



Final Semantic Network

2020-2023



Generated using Midjourney



Generated using Stable Diffusion Dream Studio



Generated using Dall-E



Generated using Dall-E

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EMAIL

ADRIANA_NG@MYMAIL.SUTD.EDU.SG

LINKEDIN

[WWW.LINKEDIN.COM/IN/ADRIANA-NG](https://www.linkedin.com/in/adriana-ng)



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