



Digital Design Portfolio
HEMANTHA P D

Hi, My name is Hemantha Pandrahally Dinesh.

I am a Digital Design Management student at Institut Supérieur de Design (ISD) Rubika, Valenciennes, France. I am presently pursuing my final year of design education, as a part of the curriculum I am required to pursue an internship in the industry for a minimum period of 5 months (between 1st February 2018 and 31st August 2019).

Industrial design, for me, has always meant exploring, learning & making. I strive to always explore new & efficient ways, always learning new skills & techniques and making aesthetically pleasing, environmentally friendly & functionally sensible products and experiences.

In the 5 years of my design education I have spent time on acquiring skills & tools to approach various design briefs, find solutions & present it in the most effective ways, individually and with a team.

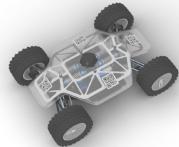
I would relish the opportunity to learn the various aspects of working at your company and bring with me, my ideas, perspectives and passion.



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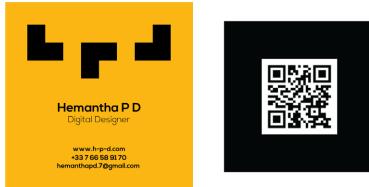
Other Projects

XR Experiments

Personal projects

IDEA

I was fascinated with AR, MR & VR and the possibilities of the technologies. The role of designers in designing for XRs. The college introduced us to designing for VR using Unreal Engine and using VRED. I was curious with AR & MR and decided to do a series of projects relating to designing for the same, few are below.



AR Contact/Visting Card with Animation

Please see the video below
<https://photos.app.goo.gl/Mzk1vWP9aLqBN4Gy6>



AR Architecture Visualization with Basic Animation

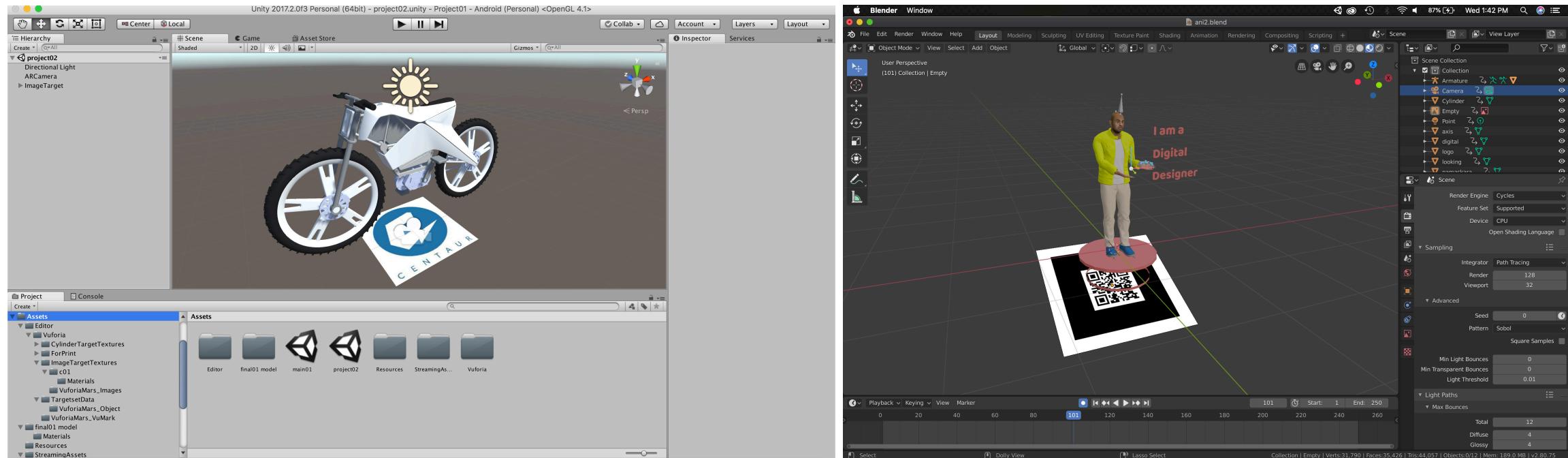
Please see the video below
<https://photos.app.goo.gl/29Te74UnfQwLR5cQ9>



AR Product Visualization

PROCESS AND LEARNINGS

For the projects I had to understand basic Java scripts, edit HTML, learn unity. I used blender for modeling, texturing, animating and keep the poly count low.



Please visit <https://github.com/hpd7/Portfolio2019> to check code of my contact card.

Formula 357 Animation Project

WIP long project - 4 people team - Year 4 & 5

BRIEF

Design a new experience around Remote Control Car racing using new technologies like mixed reality and 5G.

IDEA

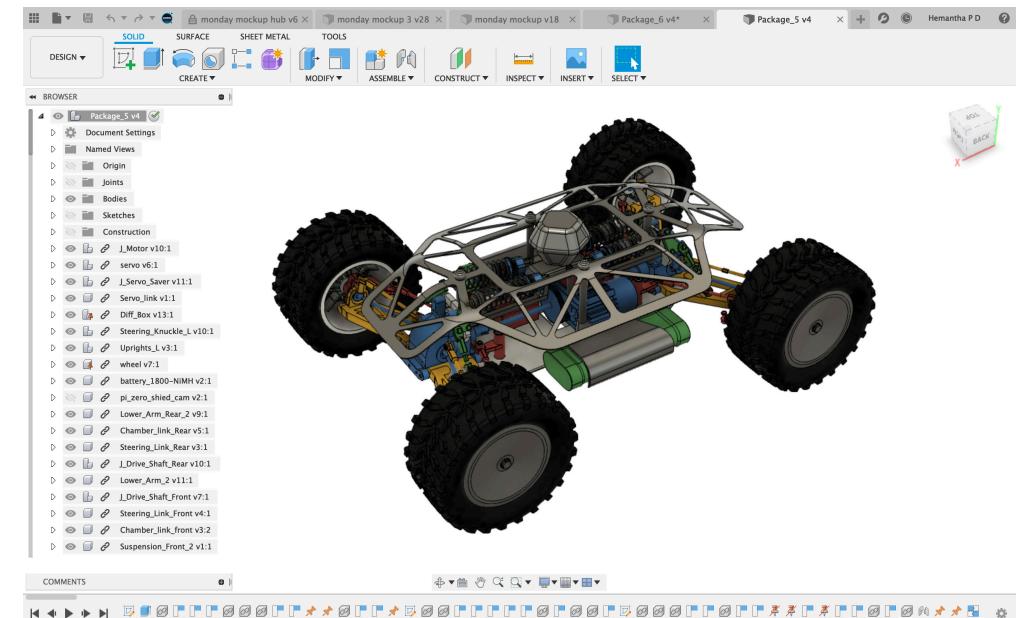
Gamification of the traditional RC car race using virtual elements and new game playes like capture the flag, football, domination.

MY ROLE

Designing the experience and storyboard the animation along with team

Model the parts of an existing RC car and redesign it.

Modeling of various assets, texturing and some animation.

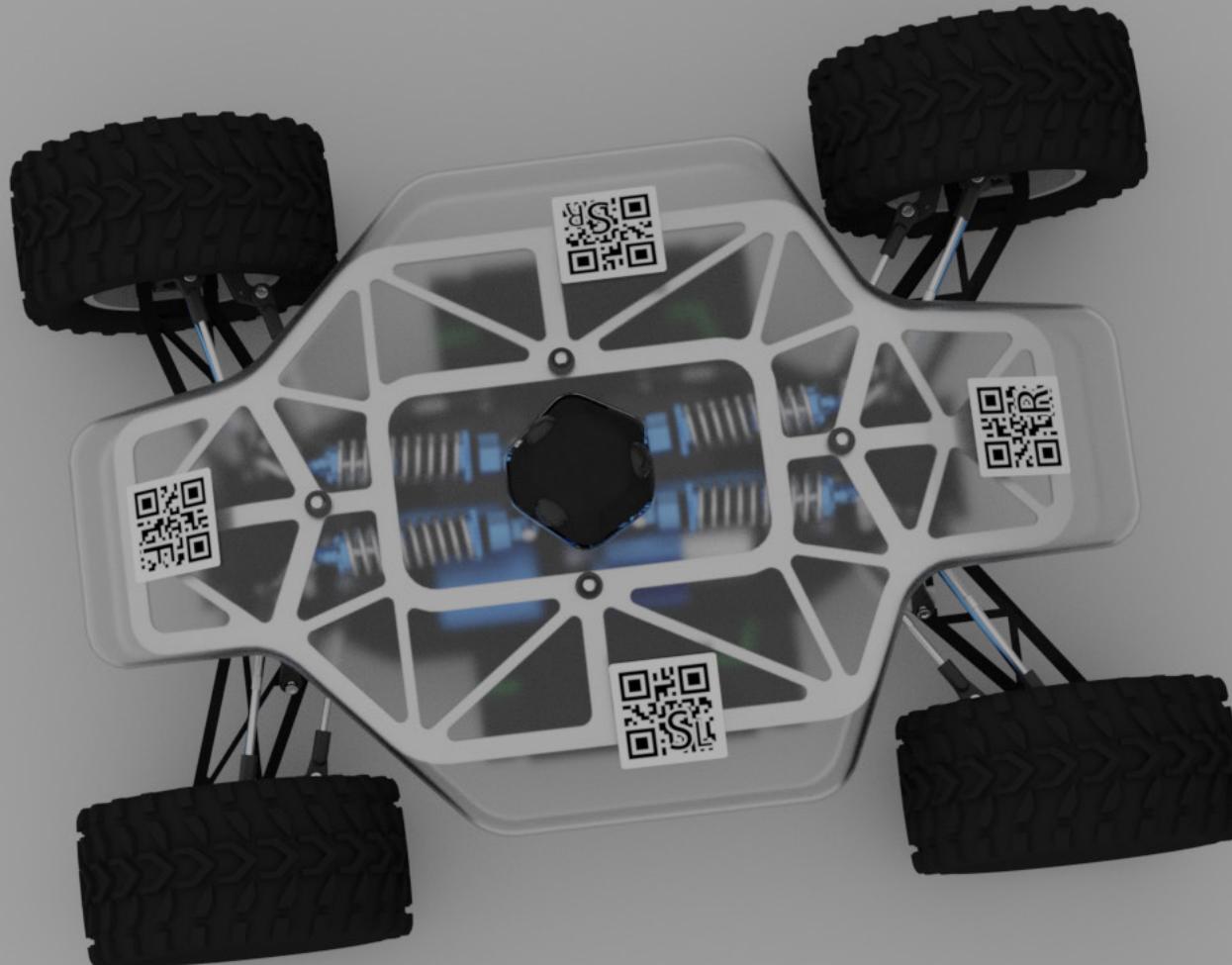


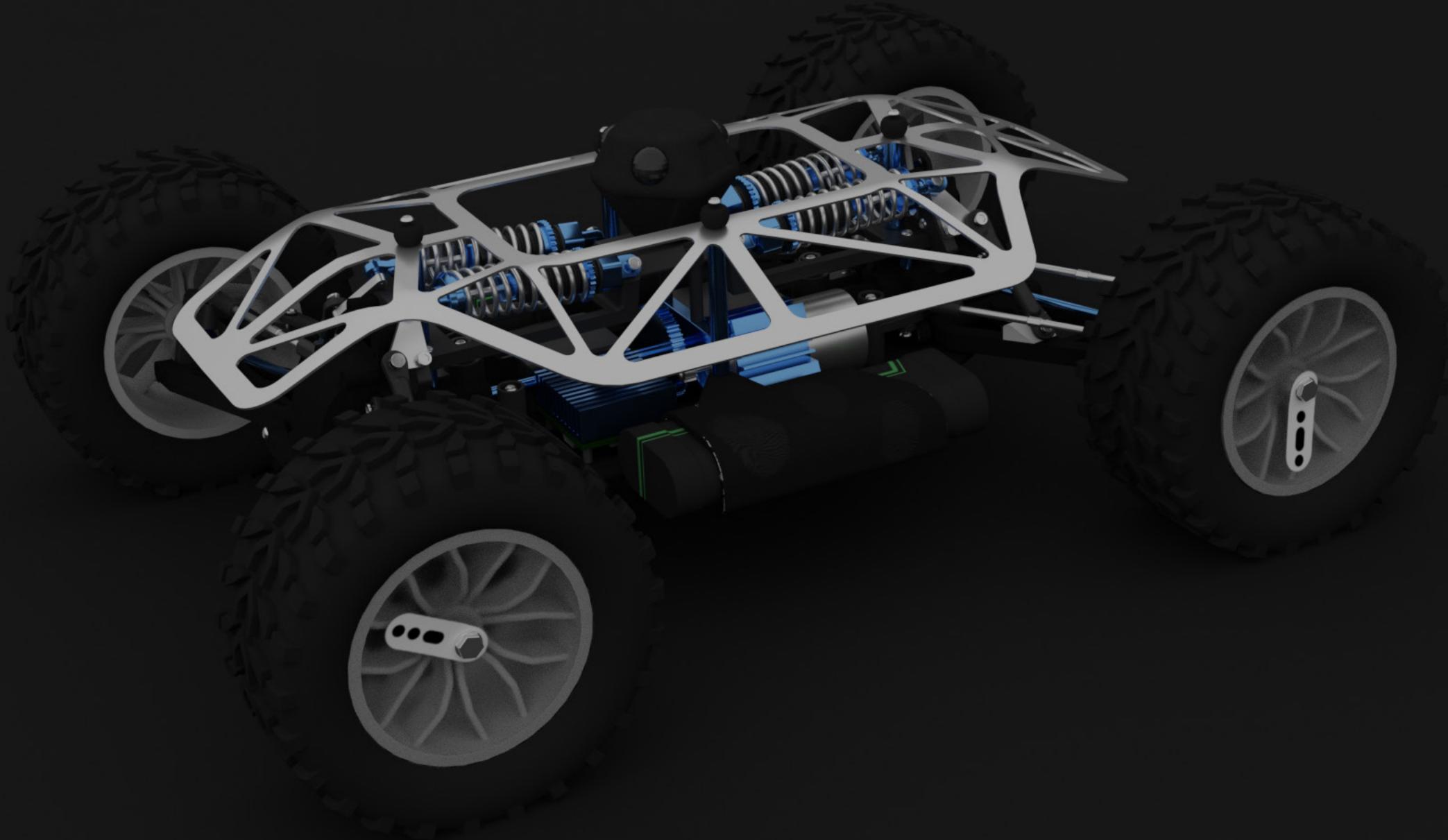
Please see the WIP place holder animation here
<https://photos.app.goo.gl/fq1T4BD1voVwEUJT9>

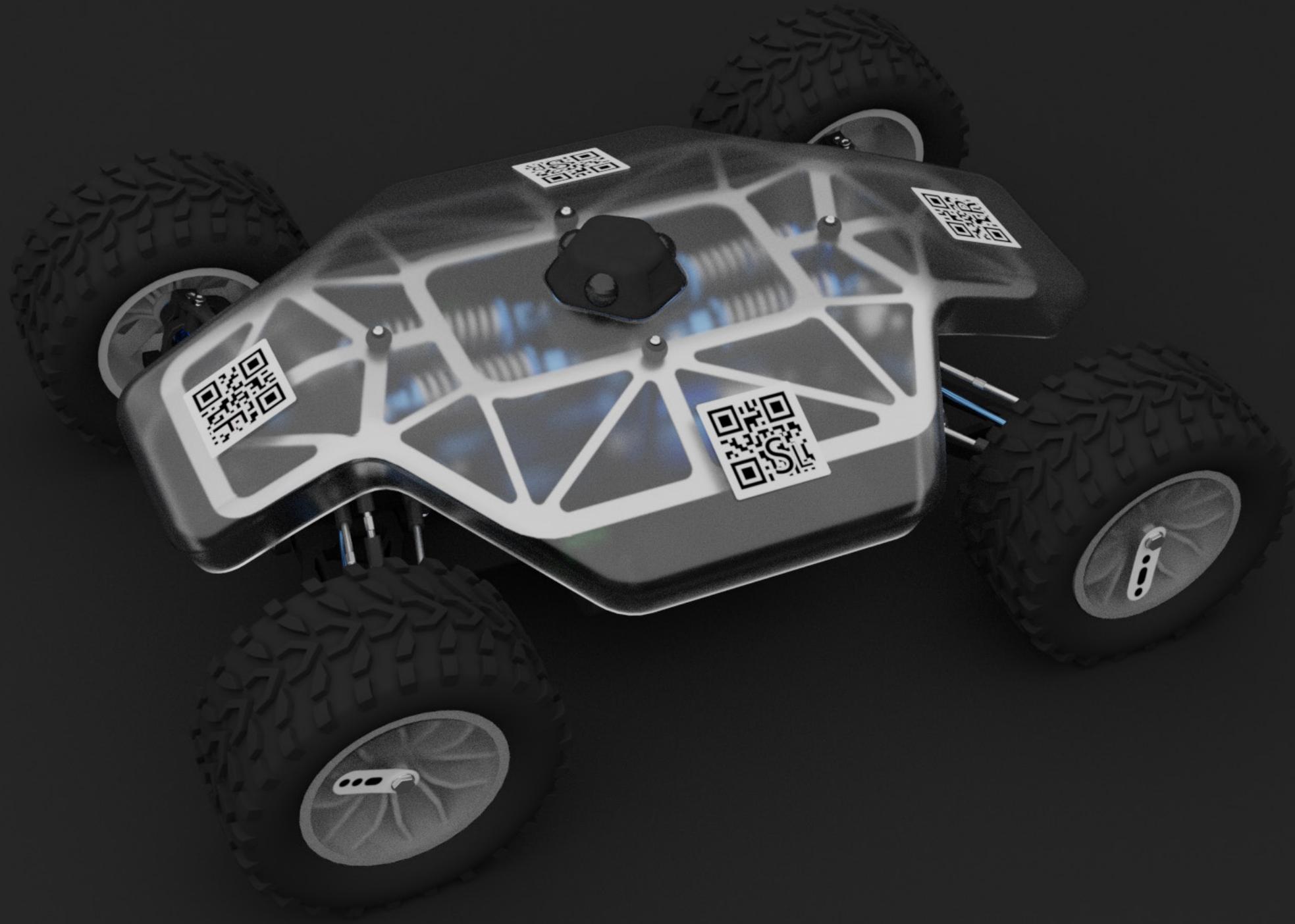
PROCESS

I measured and modeled every part of an existing RC car and quickly redesigned it on Autodesk Fusion 360. I also applied joint constraints to check if the redesign is functional.

I used Blender cycles for these renders.







BMW i3 Alias A-class

College assignment - Year 4

BRIEF

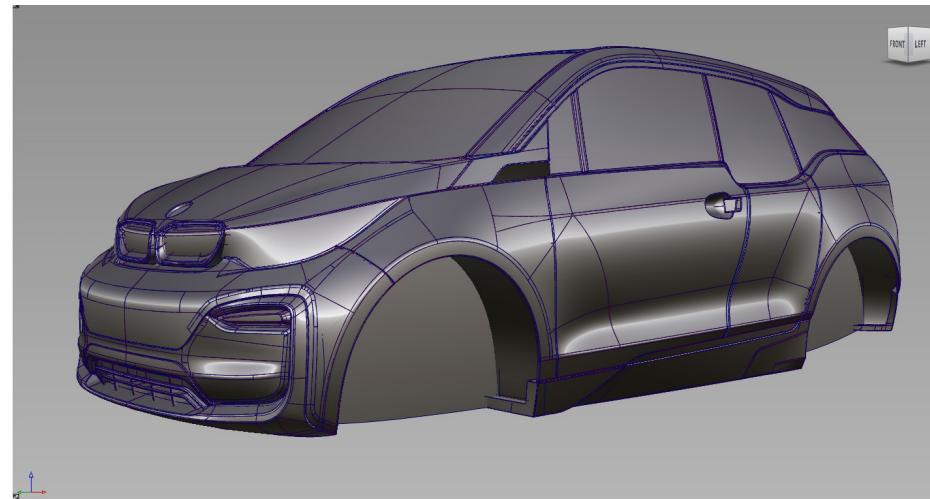
Model any existing car in Autodesk Alias

PROCESS

I happened to get a free mesh model of the car online. So I used it as a reference to draw the necessary curves. And surfaced the curves with multiple iterations to get the right highlight.

The modeling approximately took me 150 hours to complete.

The following studio render was done using Blender Cycles.
The integration renders with Autodesk Vred.







TOURIST SHOP

SOUVENIRS

M EV 333E

CD-1251-D



Sparrow Last Mile Mobility

Team project given by  **AUTODESK**® and **LUNATIC KONCEPTS** - Year 3

BRIEF

Creating a personal mobility service for a public transport user to make his commute from the transport hub to house or office bearable in order to help commuters better utilize other forms of transport rather than making big investments in personal vehicles such as cars.

MY ROLE

Ritvik Kulshresta & Myself being the team leaders, we decided the **timeline** of the project, our checkpoints & approach to solve the design brief.

We assigned work to the team members and also worked with the team in every design stage.

I was mainly responsible for the **3D digital model** and the **prototype** in the final stages.

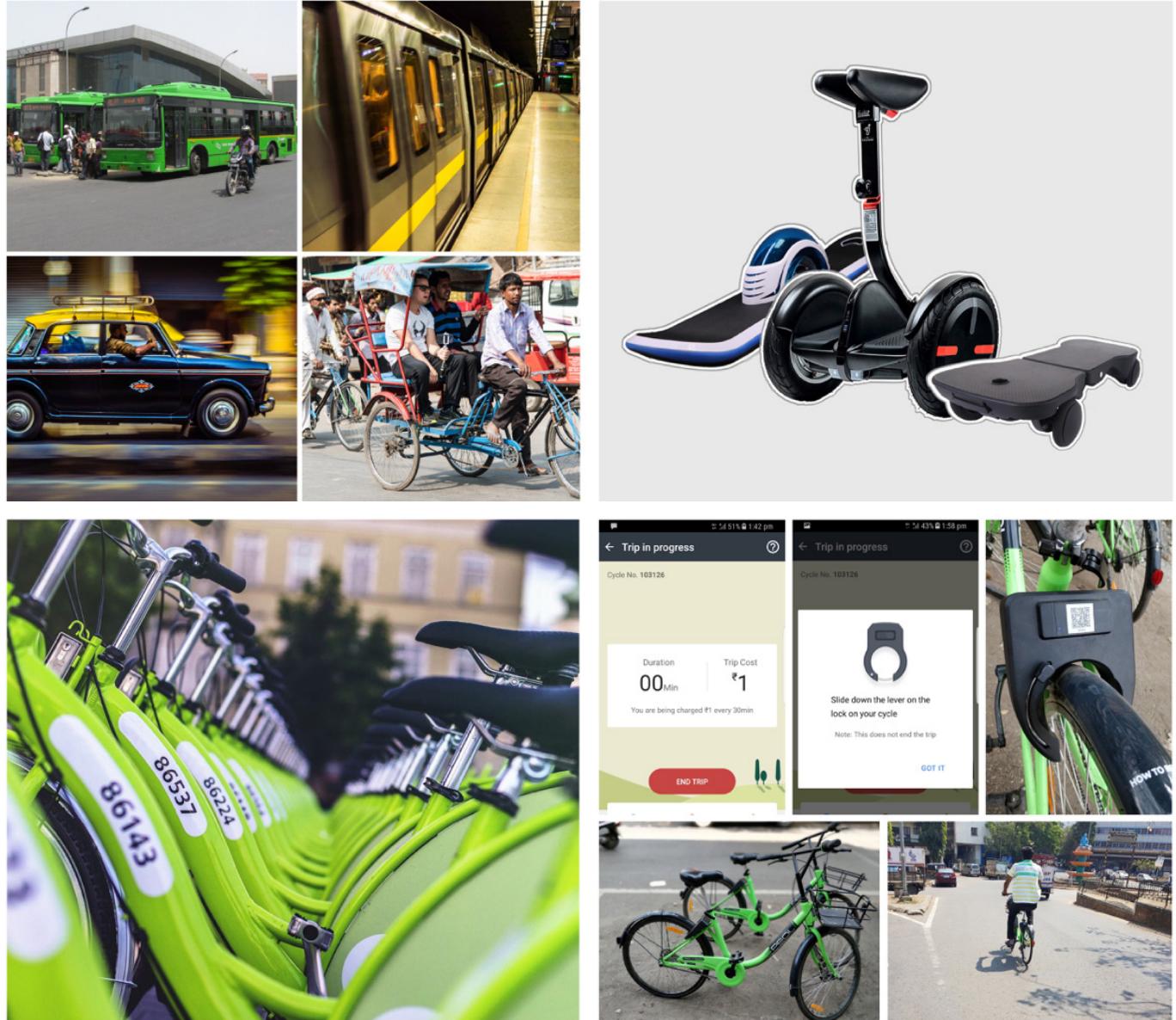


We looked at **current scenarios** at Indian metro cities since we were supposed to design for Indian cities.

We took a look at some **existing products** in the personal mobility category. In order to quantify our research we rated each of the vehicles we explored.

We also took a look at some **existing services** in the personal mobility category.

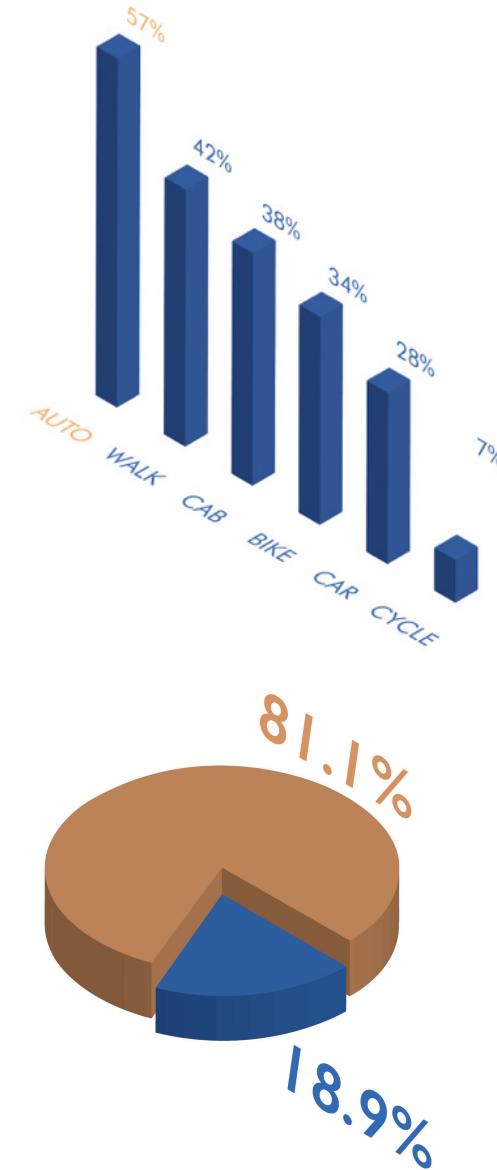
Since the service had recently started in pune, we decided to drop by and **try it out** for ourselves.



We conducted **user survey** to get to know the quantitative trends from our perspective users and their interactions from their environment.

The two major things we found out was:

- Autorickshaw was the mode of transport people significantly use for their last & first mile commutes. Further preferences are walk, cab, bike, car & cycle accordingly.
 - 81.1% of the users have to commute less than or equal to 5km as their first and last miles.



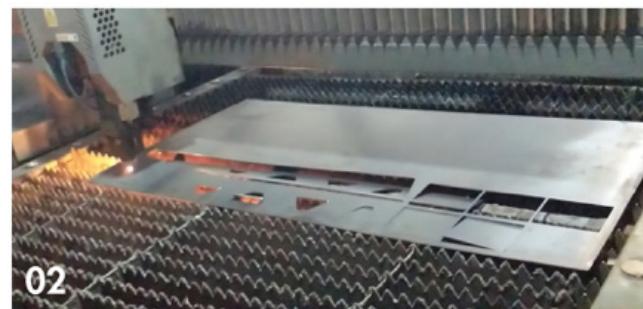
We concluded that the best way to do **technical research** would be to practically make a quick prototype as we would get to understand the processes involved and hands on experience, which would help during the stage of making the final prototype.

Exploring manufacturing techniques:

1. Arc Welding: To join the sections of the frame to each other and the handle.
 2. Steel laser cutting: We used mild steel considering the strength and cost.

Final Mule and learnings from the exercise:

- Designing for laser cutting.
 - Choosing the right materials.
 - Welding techniques.
 - Installing bearing mechanisms.
 - Understanding tolerances.
 - Planning for parts in advance.



The chosen direction:

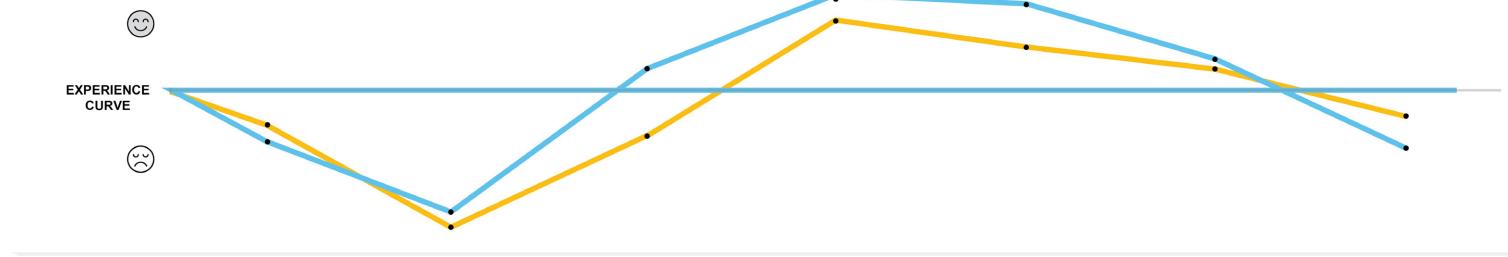
After analysing the research content and ideating on the possible directions. We shortlisted three directions:

1. More than mobility.
 2. Mobility for all.
 3. Mobility on demand.

With the suggestions from the analysis jury members we chose to go ahead with **Mobility on demand.**



	BEFORE			DURING		AFTER	
	01	02	03	04	05	06	07
Activities	Opening the App Checking availability Entering Destination Cost checking Booking	Calling and Explaining the location Waiting Arrival and identification	Getting in Confirm Destination Start trip	Relaxing and keeping an eye on the map	Reaching the destination(giving direction) Ending Trip Payment Collect Belongings	Payment and review	Mobile Notification Walk to the desired destination
	Open the app Search for the nearest destination Minimum Balance required - Rs 20	Going/Walking to the hub Booking the vehicle	Locating your vehicle Scan QR code Start trip	Lock and unlock to stop between a ride	After 30 mins, get notification to update the booking	To end trip and find the nearest hub Payment	Go to the nearest metro-/bus station
Points of contact	Service Application	Talking to driver Receiving OTP	Vehicle Driver Service app	Vehicle Service app	Driver Checking App and Vehicle Cost calculation and division	Payment app/ cash Driver App	E-mail Messages Review
	Service App	Service App Hub	Hub Vehicle Service app	Vehicle Service app	Vehicle and app	Vehicle, hub and app	Review the app
Expectations	Knowing proper address Knowing if you are in their service map radius Cheap	Common Language Arrives quickly	Safety of luggage Driver knowing the final destination	Privacy and space Comfort Less interaction with the driver	Proper time to stop Choice of destination Time factor	Should have money Money Change Internet (Payment App)	No further contact from driver Contact details privacy Benefits to daily users
	Nearby hubs	Easy to reach the hub Easy booking	Finding vehicle easily Good condition of vehicle	Personal Safety	No time limit	Close by hub to destination Easy to Reach/ Easy to End trip Easy to park and cheap	Close by places suggestions Benefits to daily user



Diving deeper; analysing Pedl and Uber

We took a look at the contrasting services in Pedl and Uber. With pedl being an up and coming cycle sharing service and uber being an established player in the taxi business.

We used an **experience mapping** of both services, simultaneously, to give us leads regarding stakeholders, liabilities and contact points of either service.

INSIGHTS

Cost

The cost of renting parking spaces is substantial in metro cities, especially around public transport hubs.

Dependence

A lot of commuters are forced to depend on someone directly for their mobility, for instance autorickshaw drivers. Hampering their freedom.

Green trend

The awareness of electric vehicles is seeing a global rise. With global manufacturers and governments working together to implement this vision.

Inconvenint

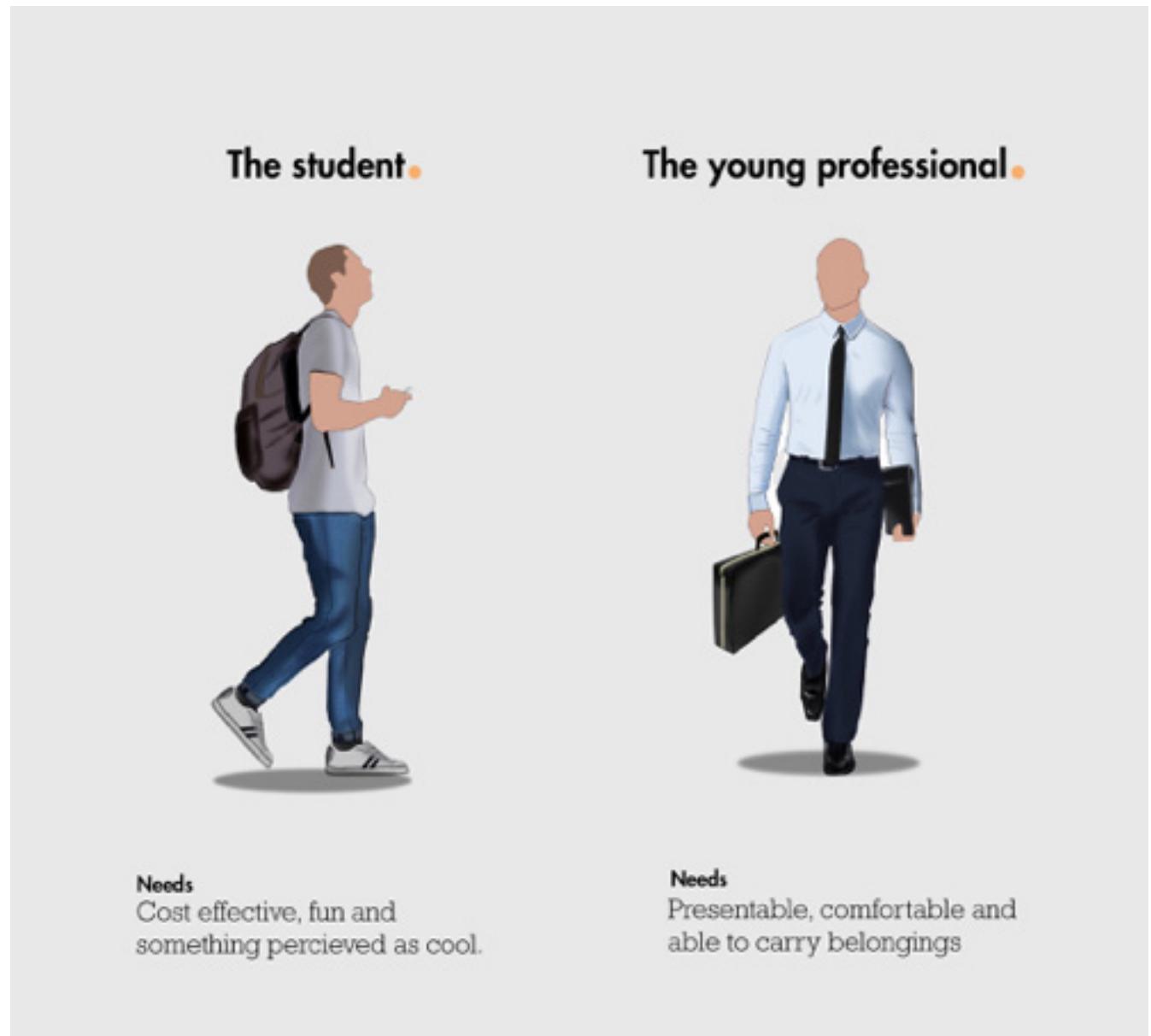
Cycles, though eco friendly, are inconvenient due to the physical strain and unruly traffic of India.

OPPORTUNITY

" A service provides the user an experience of **independent, convenient and environmentally friendly mobility** for the last mile commute."

Target users

After talking to our pool of users, we narrowed down to two sets of users namely, the student, the young professional.

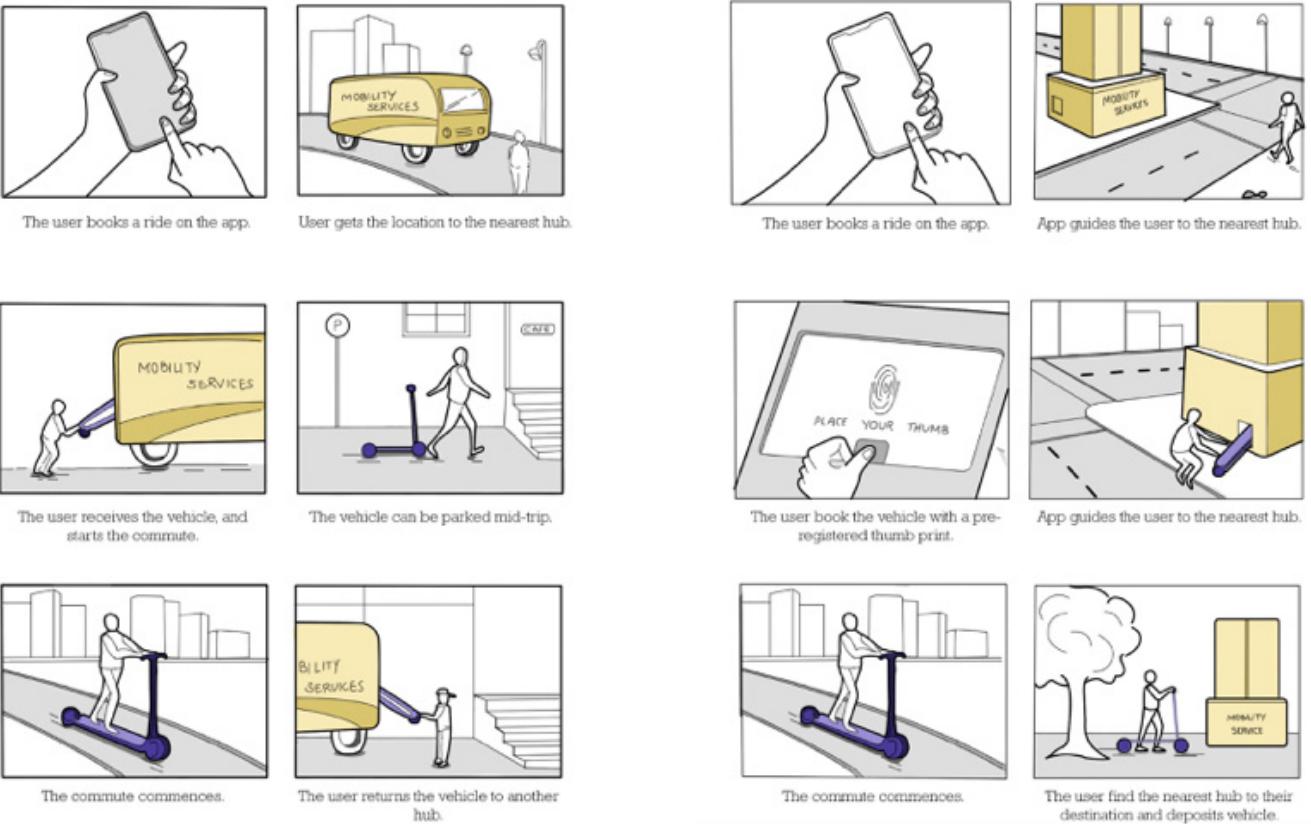


The chosen service concept:

After analysing the research content & experience maps and ideating on the possible concepts. We shortlisted two directions:

1. Concept having mobile hubs.
 2. Concept having compact stackable stationary hubs.

With the suggestions from the analysis jury members we chose to go ahead with a hybrid service concept where we have a combination of both stackable hubs near the public transport hubs and mobile hubs near the residential areas.





Experience map of the chosen service concept:

We mapped out our concept in detail to figure out the details of the service; the Stakeholders, the points of contacts and the expectation of the users at each stage. This helped us construct our scenario.

BRANDING THE SERVICES

Why sparrow?

- This sparrow is a symbol of **simplicity and community**. It also represents joy and protection.
 - Being a small bird who travels short distances, sparrow emphasizes our brand aptly.
 - Similar to sparrows, who come in a flock, our vehicles can be collected from a group available at the hub.



#F9B06E

Manhattan

It is a youthful color, associated with joy, combines the energy of red and the happiness of yellow. It targets the students.

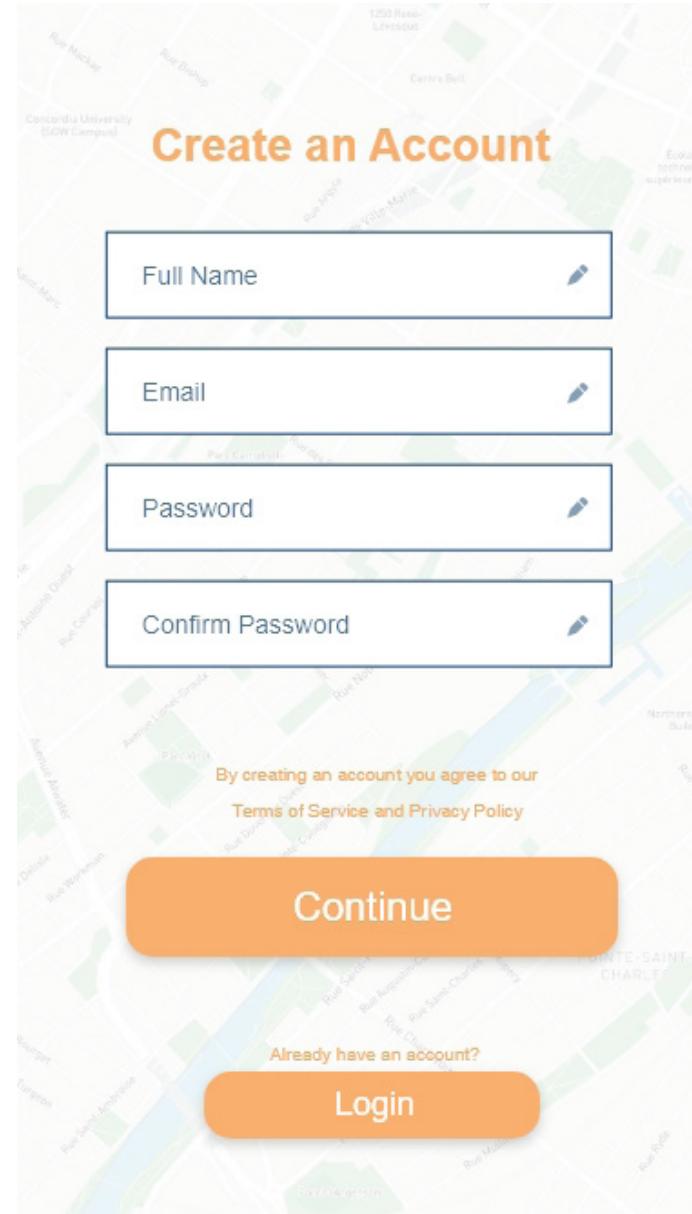
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Midnight blue

It is a corporate color, which signifies trust and reliability. It targets the young professional persona.

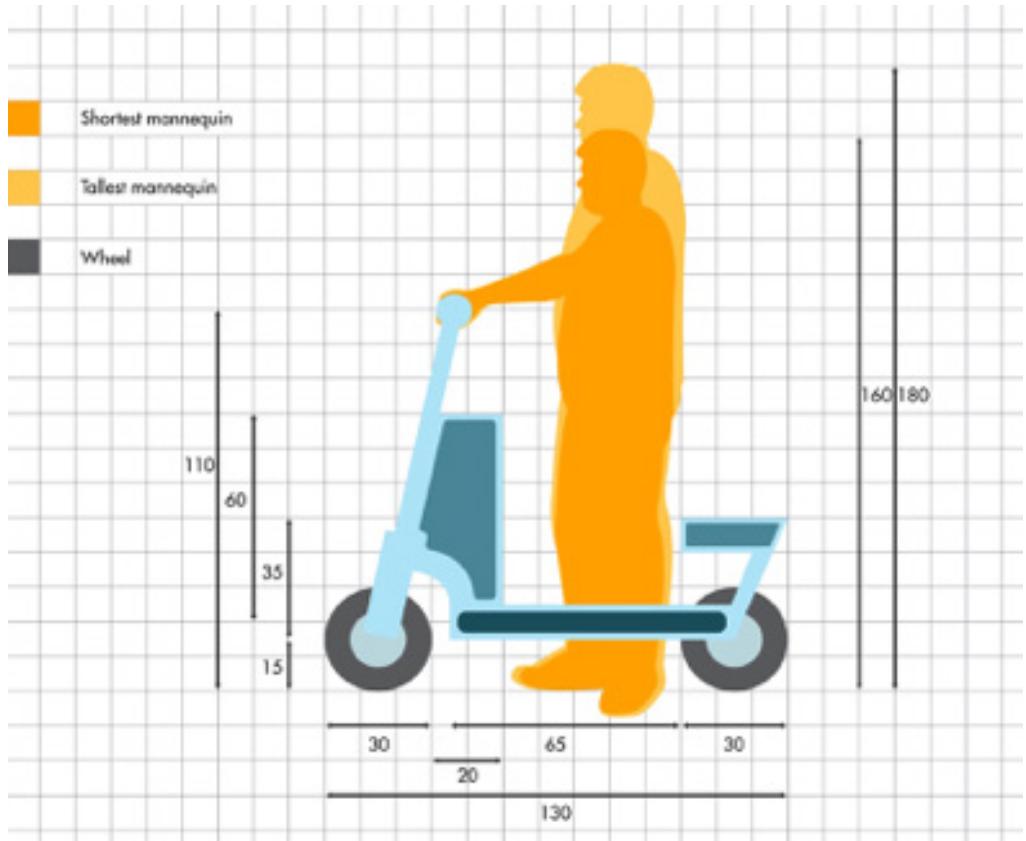
Mobile Application

The mobile application is one of the primary contact points for the service; so we made a working mockup of the application.





We started with initial **ideation sketch** ideations to explore the kind of architecture the vehicle could have.



Tentative packages

After the ideation we came up with two packages one with a seat and one without a seat.

We realized that the seat would need to be adjustable for a wide range of users however more moving parts would compromise robustness and increase maintenance costs.

The vehicle was designed with few constraints in mind.

- **Compact.**

The cost of renting parking spaces is substantial in metro cities, especially around public transport hubs.

- Low maintenance.

A lot of commuters are forced to depend on someone directly for their mobility, for instance autorickshaw drivers. Hampering their freedom.

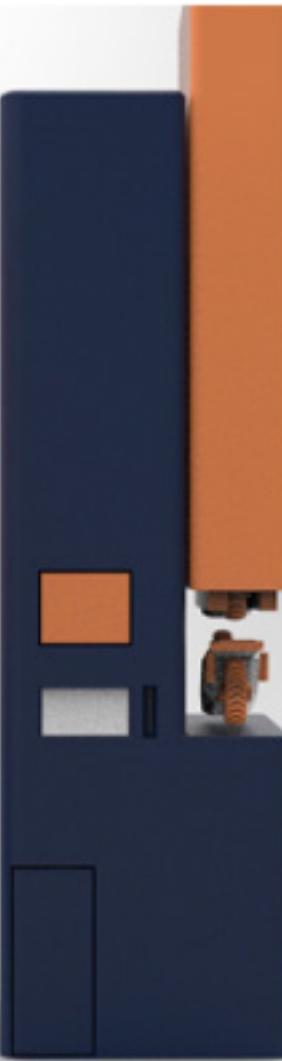
- Robust.

The awareness of electric vehicles is seeing a global rise. With global manufacturers and consumers.





The Hub.



Scooter refill



Internal stacking

The Scenario:



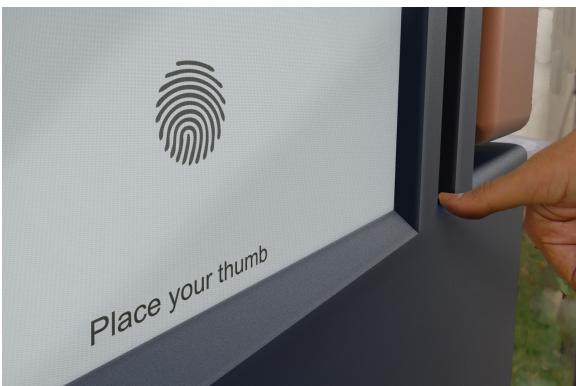
1. The user leaves home.



2. He opens the app and looks for the nearest sparrow hubs.



3. The user locates the hub and walks towards it.



4. He verifies his account through fingerprint identification.



5. He receives the vehicle from the Sparrow hub.



6. He starts riding.



7. He stops at a shop and locks the vehicle through the vehicles monitor.



8. He unlocks the vehicle using the app.



9. He comes out with the parcel.



10. He places the parcel on the hook.



11. He rides to the hub, closest to his destination.



12. He puts the vehicle in the hub.

Render animation and the working prototype

Please watch these videos.

- A 33 seconds render animation video highlighting the features of the vehicle.
<https://youtu.be/283zh0yJKNw>



- 2 minute 18 seconds video showcasing the working prototype and explaining the build we chose.
<https://youtu.be/SyMSAJtYN0s>



- 4 minute 30 seconds video of me explaining the project to a journalist in Autodesk University Meet Delhi 2018
https://www.youtube.com/watch?v=Oa_



Centaur Automotive

Internship project with co-designer Shreyas Dalvi at Centaur automotive

BRIEF

Come up with a design language for their new bike start-up and also design a body for their pedal assisted e-bike prototype frame.

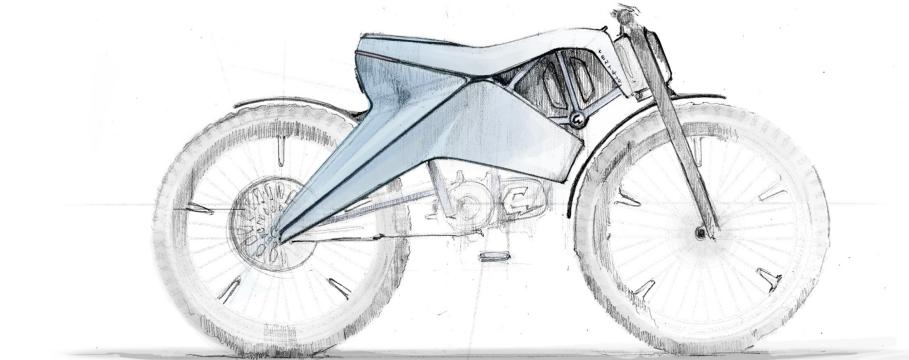


CLEAN BOLD MINIMAL

MY ROLE

Along with co-designer, understand what the startup team is looking for in the design language and understand the trends of their target user. Decide the mood & inspiration board accordingly.

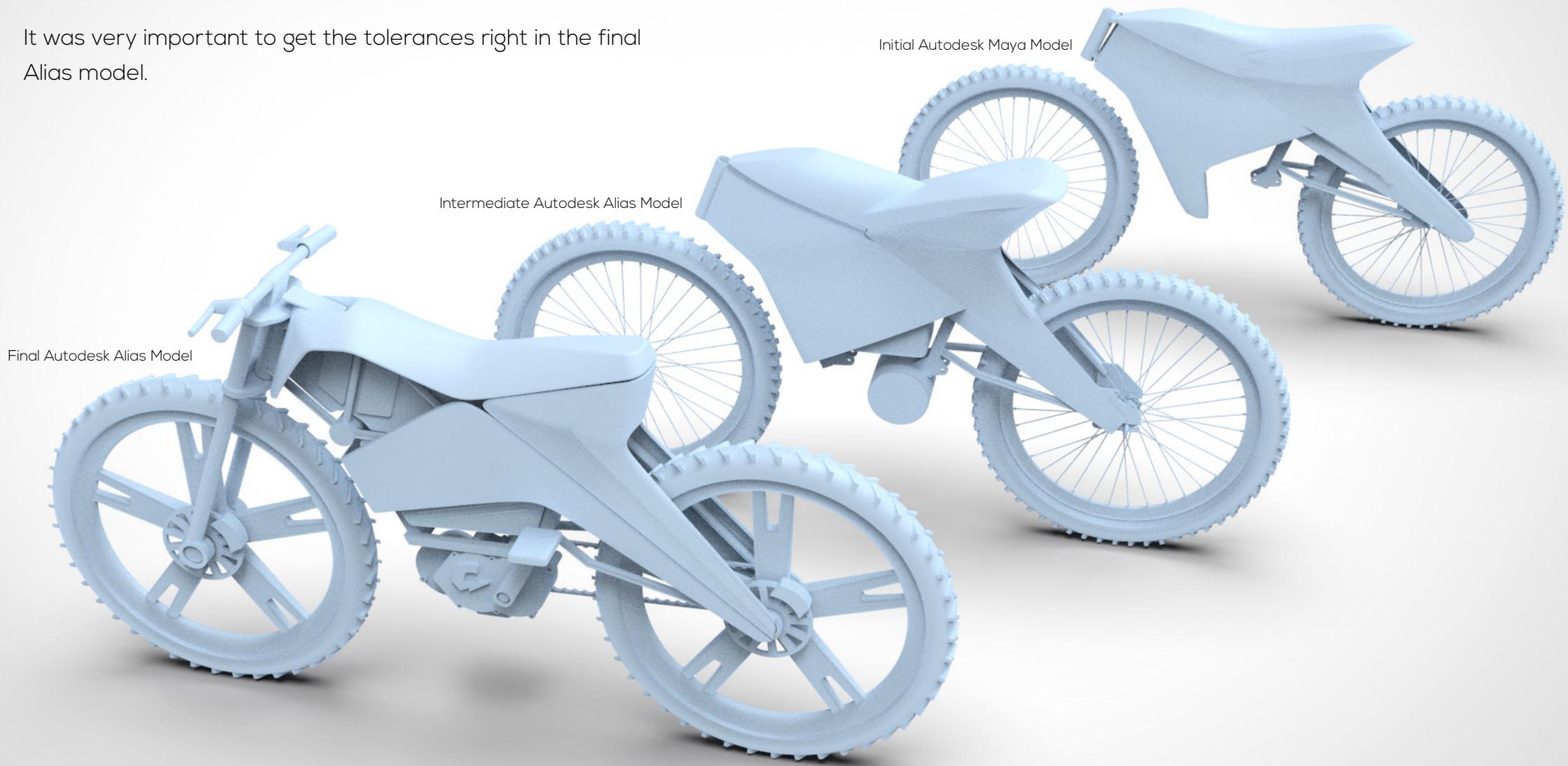
3D Modeling & Prototyping was completely my responsibility.



Sketch by co-designer Shreyas Dalvi

Since we had to design around a given frame and make 1/5 scale mockup of the design at the end of the project.

It was very important to get the tolerances right in the final Alias model.



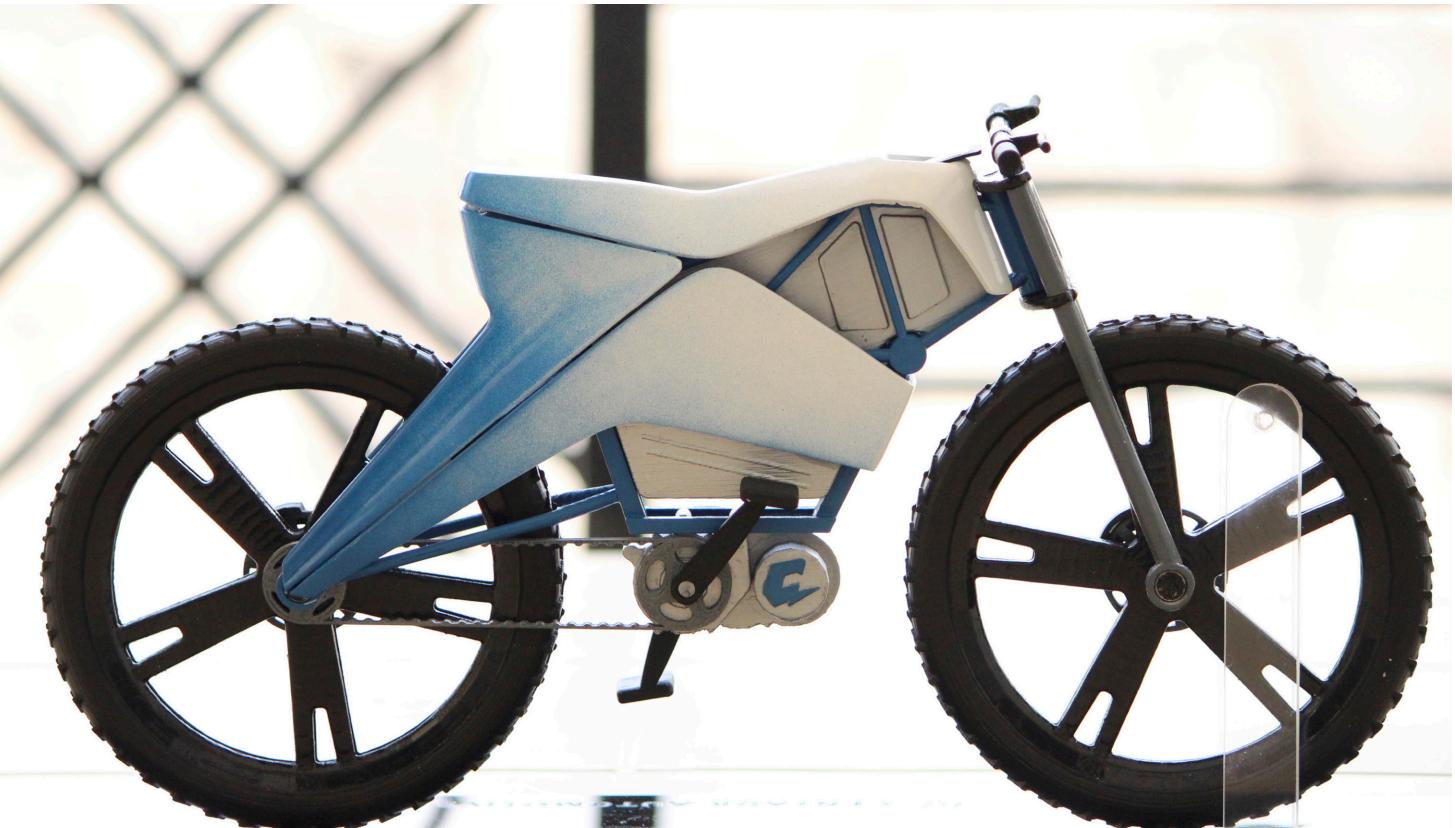
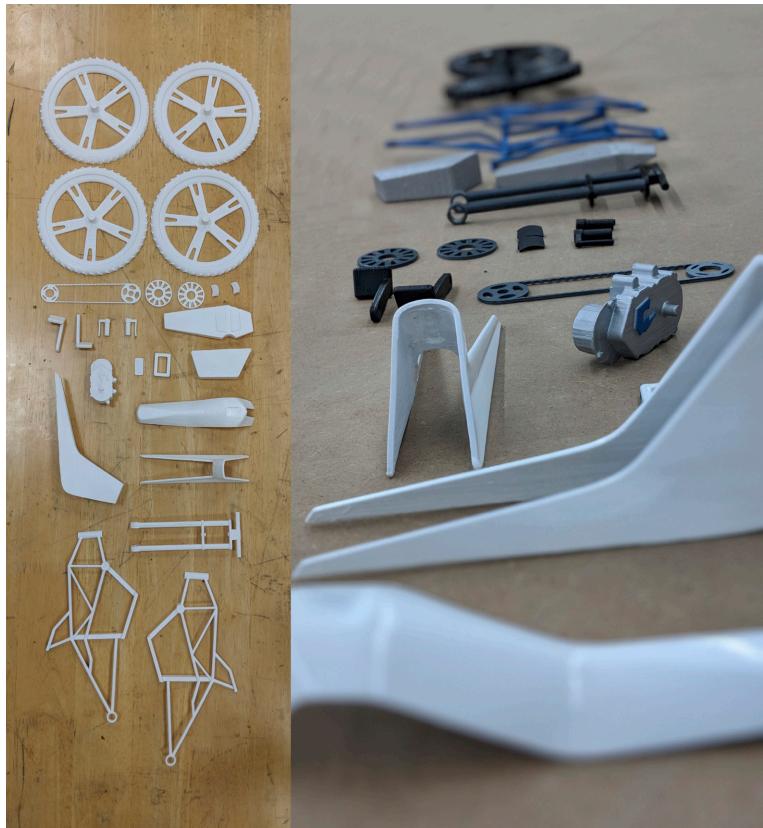
3D Printed 1/5 scale mockup

24 Parts.

Slicing software: Simplify3D

Material: PLA

3D Printer: Wanhao duplicator



Mahindra Command Center Truck

Team project given by **Mahindra** - Year 3
Rise.

BRIEF

To design a command center truck for Mahindra Adventure expedition event crew for 2025.

MY ROLE

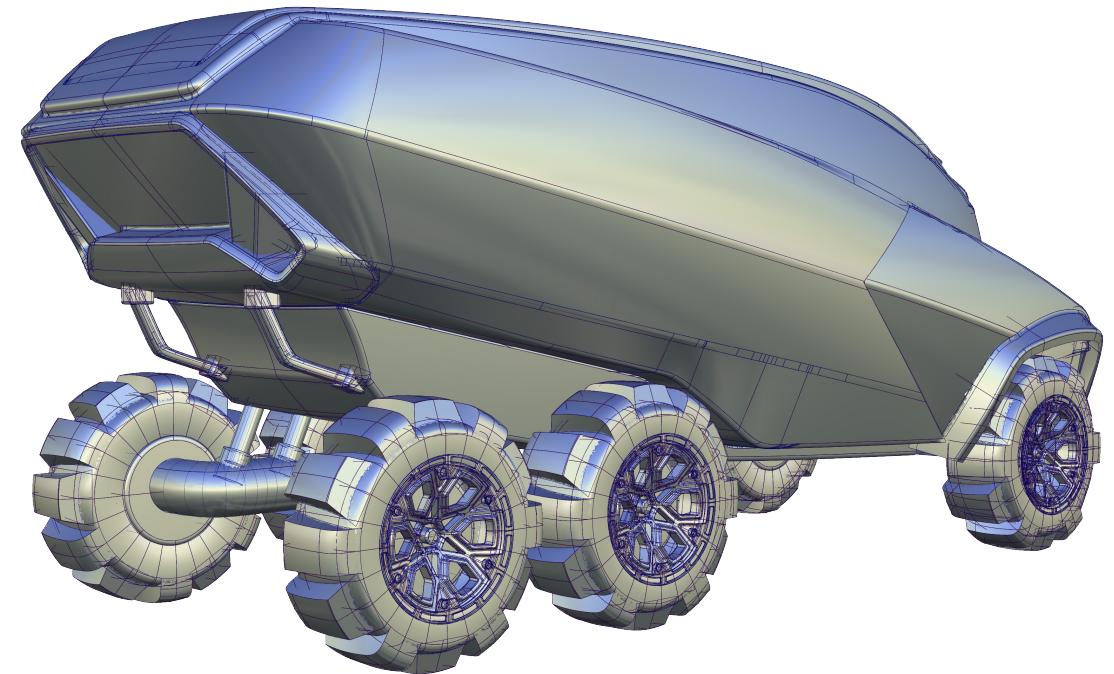
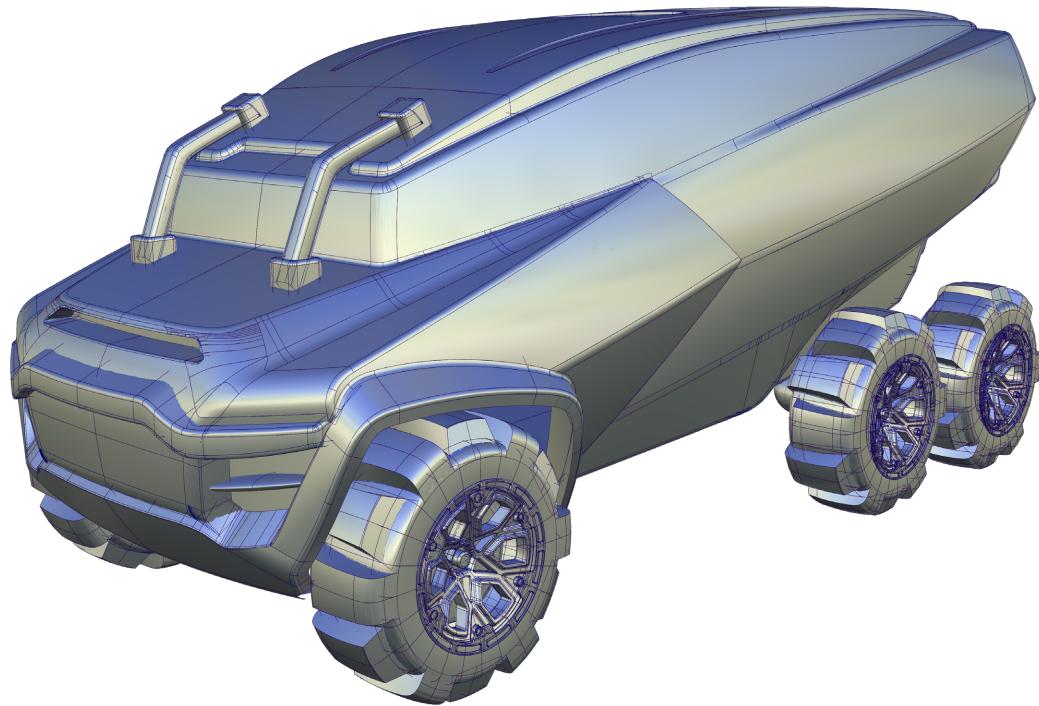
I was supporting the team initially in research and analysis phase for brainstorming ideas and frameing the brief.

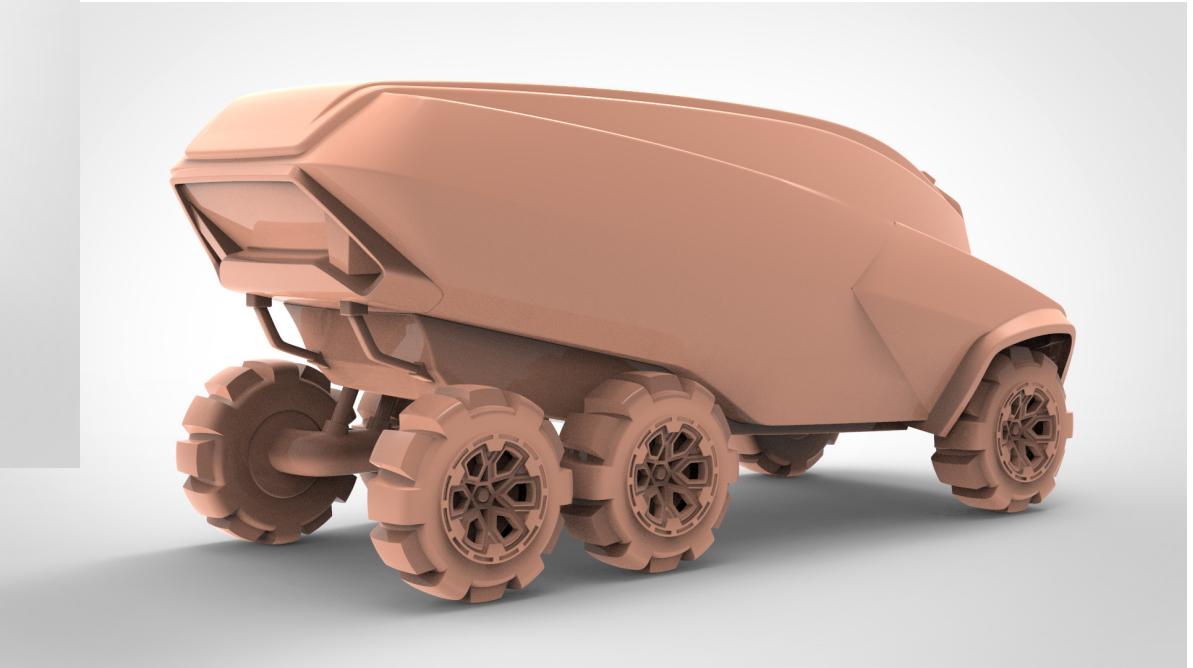
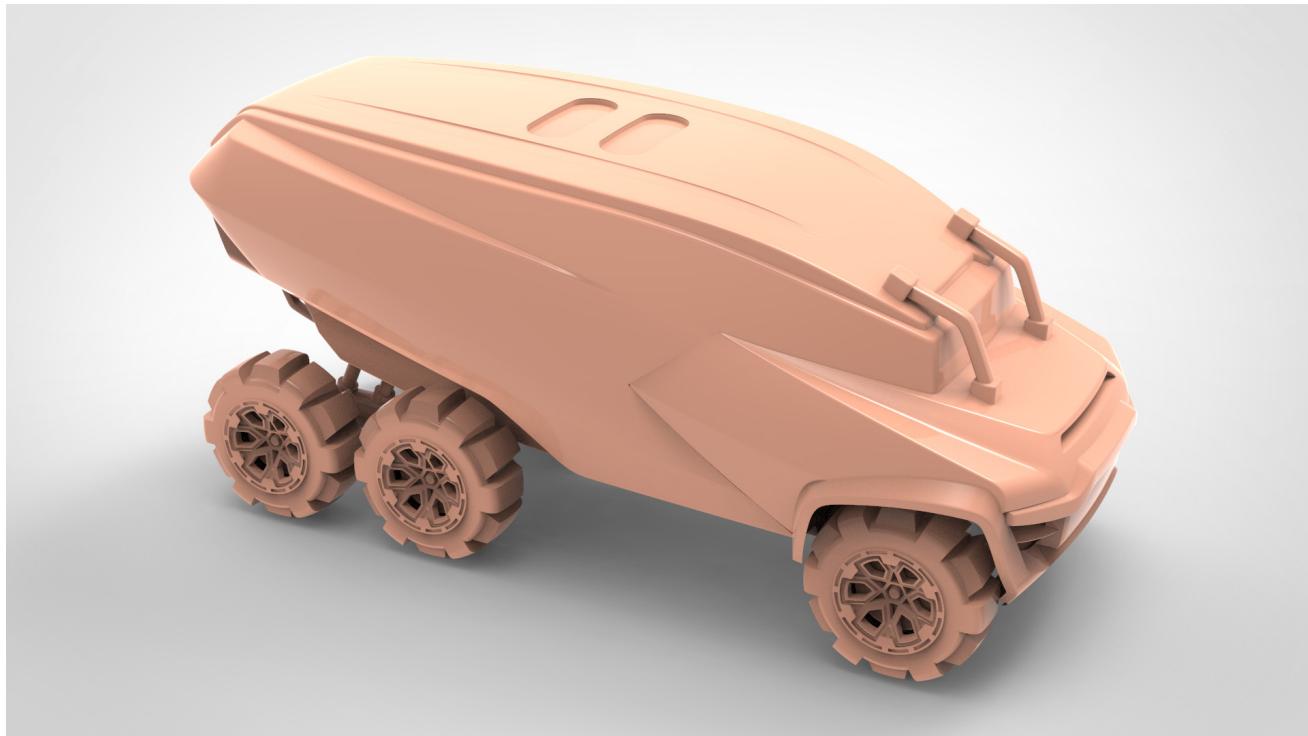
Later while they were working on the sketches, renders and clay model.

I was supporting them with digital 3d models in every step.



The initial form models were modeled with Autodesk Maya. I used those initial polygonal models as reference for modeling the final design in Autodesk Alias.





Rendered with Luxion Keyshot.

Citroen DS9 Concept Rim

Class assignment - Year 3

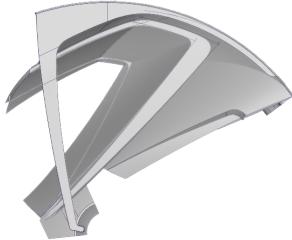
BRIEF

Model a rim of your choice in Autodesk Alias in a week.

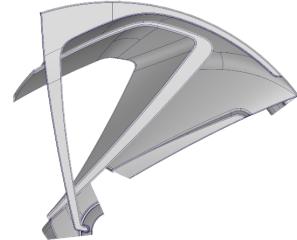
I chose Citroen DS9 concept rim because I felt this was challenging to model and henceforth I would learn the most out of this assignment. I dedicated approx. 3 hours every day.

Rendered with Luxion Keyshot.

Curve network



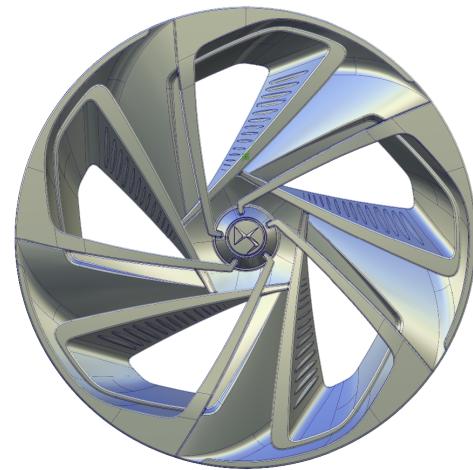
Intersection model



Surfaces with primary filets



Final details & logo





Interior Vray Render

Class assignment - Year 3

BRIEF

Setup the lighting, texture map and assign material in 5 hours with Vray.



Maya Modeling Vray Render

Personal Project - Year 3

BRIEF

Model an interior in Autodesk Maya and explore Vray stereography.



Cubemap



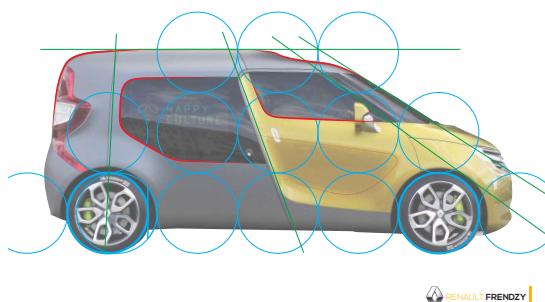
Renault Urban Pickup

Transport design project - Individual - Year 2

BRIEF

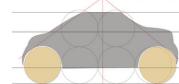
Design a new segment vehicle for the Renault brand by understanding and reflecting the design philosophy of Renault Frendzy Concept car.

Proportional Analysis



Aim

To design a smart & versatile
'Urban Pickup'.
To solve the purpose of seating
people and carrying cargo.



Aesthetics Moodboard

Design Moodboard



A photograph of a vibrant, multi-story house with a unique, rounded architectural design. The exterior is painted in various colors, including pink, purple, and yellow, and features large, multi-paned windows. The house has several protruding, rounded sections that create a playful, almost organic appearance. It is set against a clear, bright blue sky.



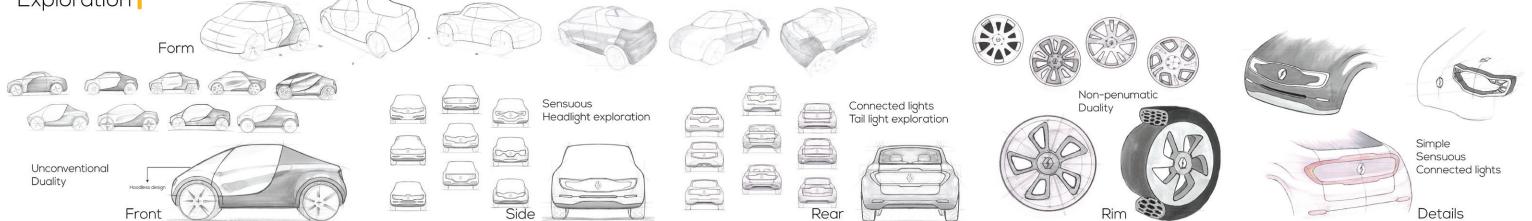
Purpose of the course



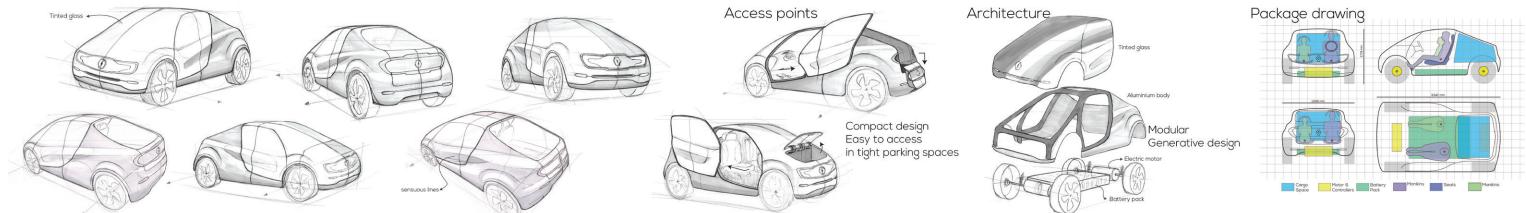
The diagram illustrates the components of an autonomous delivery vehicle system. It features a central box labeled "Autonomous delivery vehicle" containing a small icon of a car. To the left, a plus sign (+) is followed by an icon of a person standing next to a large, dark grey shape representing a "Owner / nursery". To the right of the central box is an icon of a person standing next to a smaller grey car-like shape representing a "Customer". A double-headed horizontal arrow is positioned above the central car icon, indicating communication or interaction between the vehicle and its users.

RENAULT 

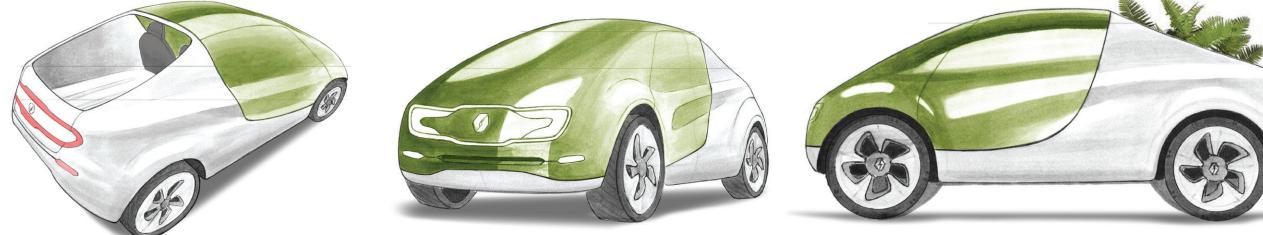
Exploration



Development |



Final Render |



Hemantha P D TDY2

Washing Tool Hand Powered

Autodesk Fusion 360 - Hand tool design competition - Year 2

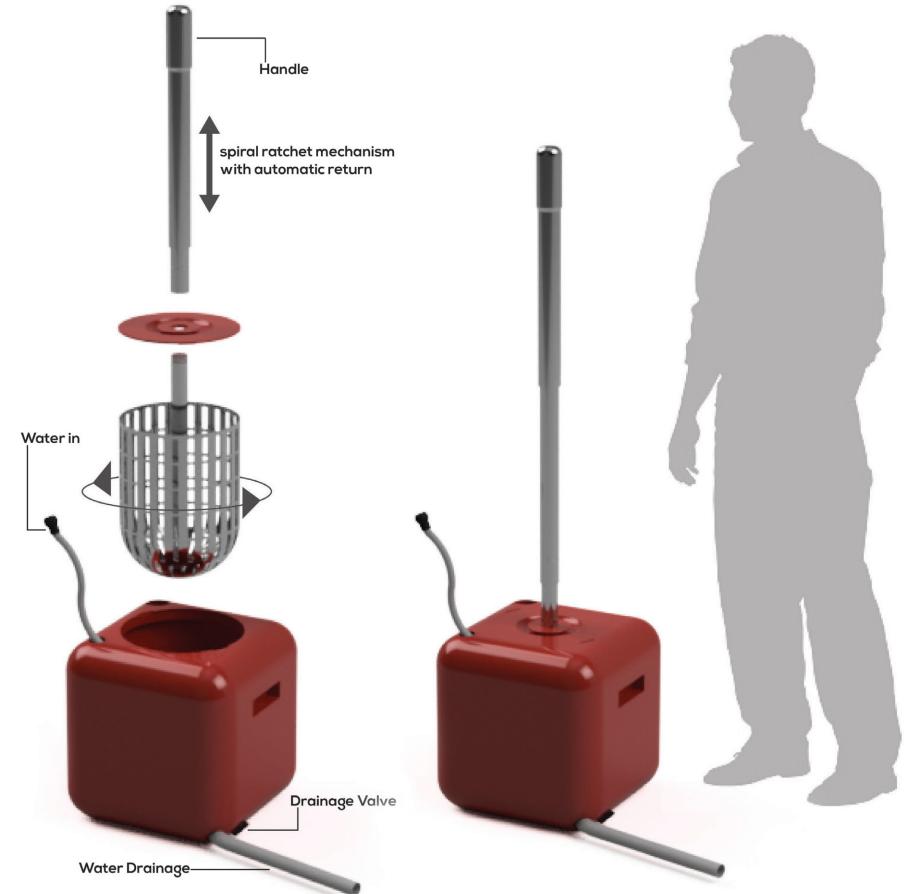
BRIEF

Design a hand powered tool to wash cloths.

Simple design with minimal parts, making it extremely affordable.

The ultimate solution to wash cloths for a bachelors or a student like myself.

Winner, Autodesk Fusion 360 hand tool design competition



FUSS - Farm Utility Support System

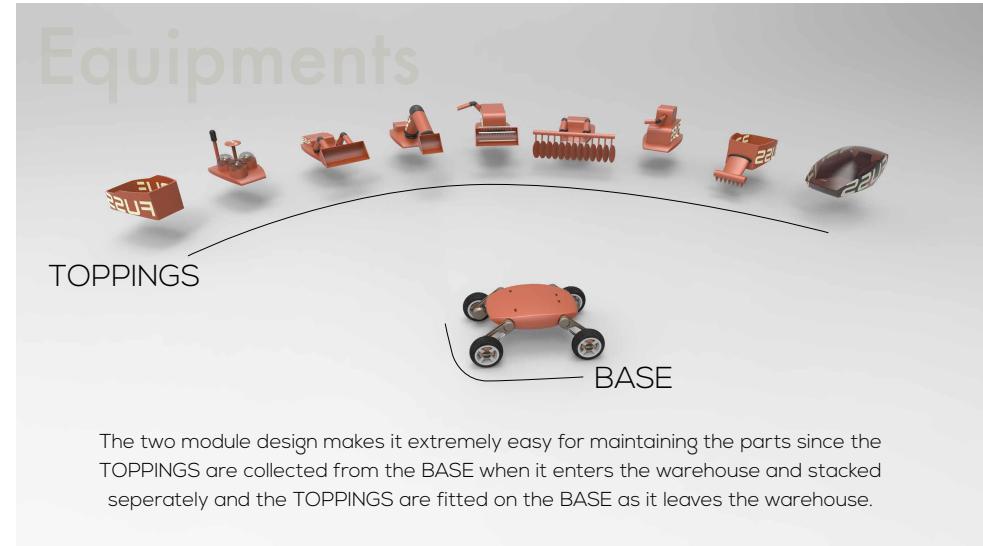
Personal Project - Year 2

BRIEF

Design an efficient farm support system using the future technologies.

FUSS is an Artificially Intelligent Service System which provides efficient farm support to the user and eradicates the burden of huge investment needed for farming.

The idea is to have a sharing service of autonomous farm equipments having modular architecture.



Natural Air Purifier

Product design for 3D printing - Personal project - Year 3

BRIEF

Design an open source natural air purifier.

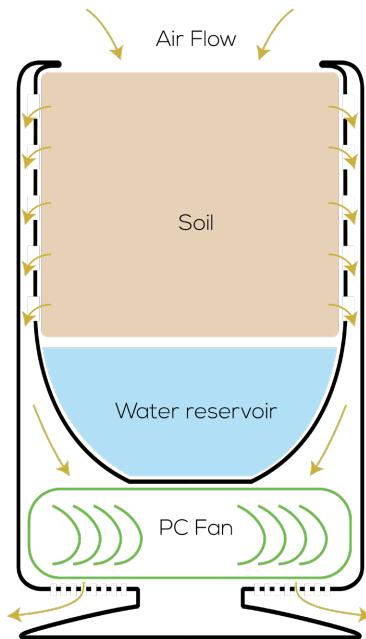
THE IDEA

Few plants like peace lilly (*Spathiphyllum*) remove pollutants in air through their roots.

Using a commonly available PC fan to create a low pressure area inside the pot, we can significantly increase the air purification rate.

Since the air filter is the plant itself, it never needs to be replaced.

Planned to upload the stl file on www.thingivers.com, so any one can print it for themselves for free, but realised the idea was not a viable solution.



Thanks for watching.