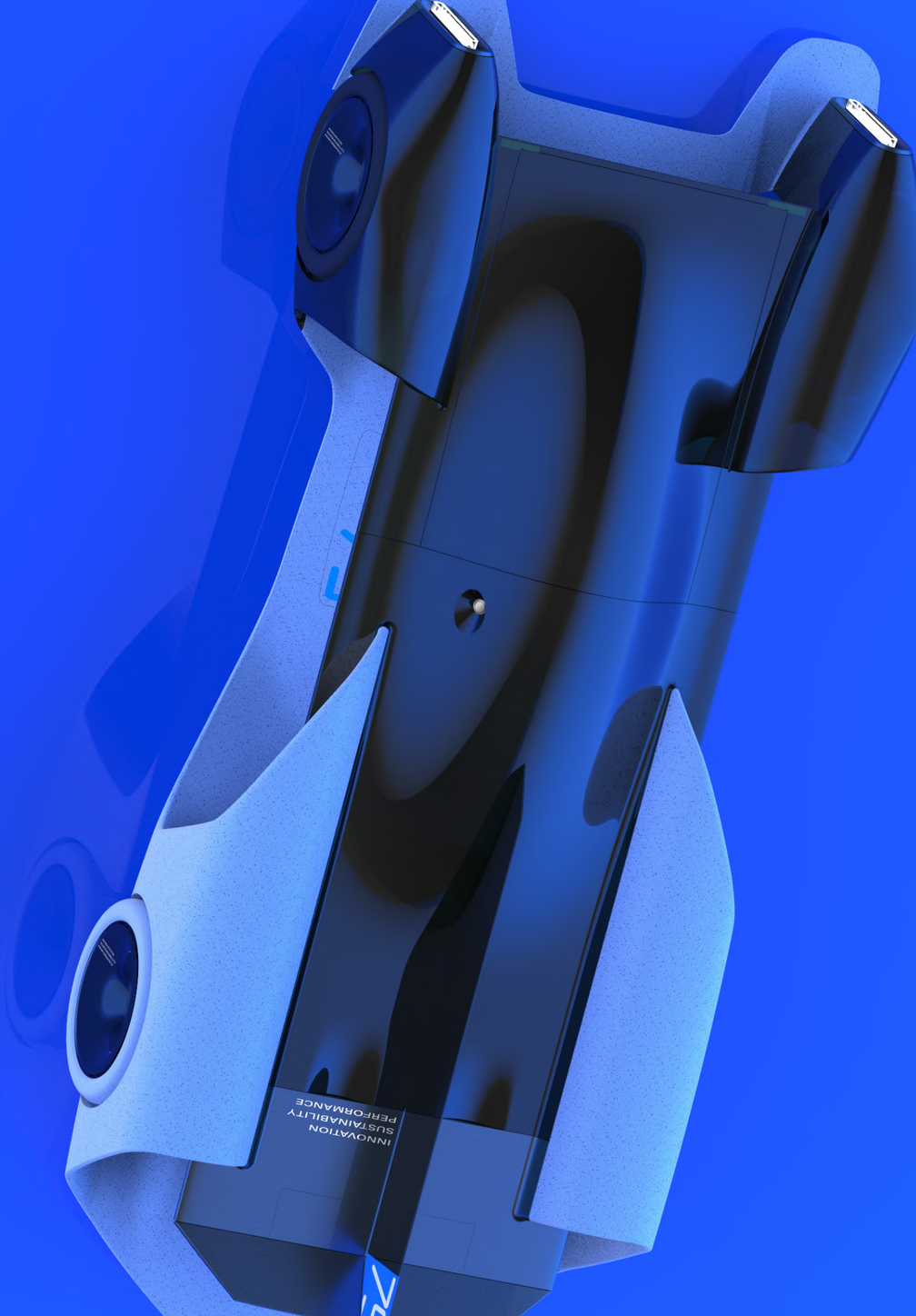
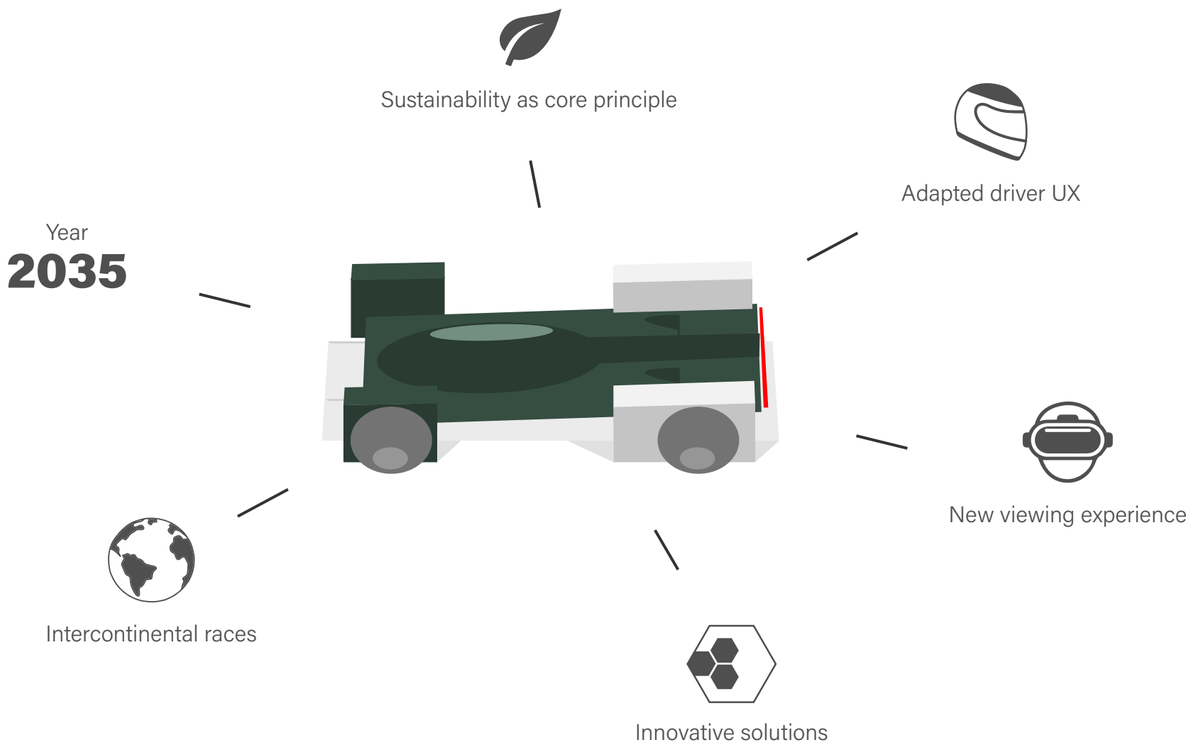
Francis L’Ecuyer

Intercontinental Hydrogen Endurance Racing Car



How can motorsport in 2035 adapt to a shifting cultural behaviour and become more environmentally and socially sustainable while maintaining a strong and involved fanbase?



WHY

Climate crisis

Rise in popularity

Innovation in motorsport

Changing behaviors

Profitability of evolving business

PERSONAS

The driver:

Age: 20 - 40 years old
Income: High
Lifestyle: Active lifestyle, influencer
Interests: Sports, cars, travel

- Winning mentality
- Performance driven
- Long stints
- Star driver
- Connexion to the car

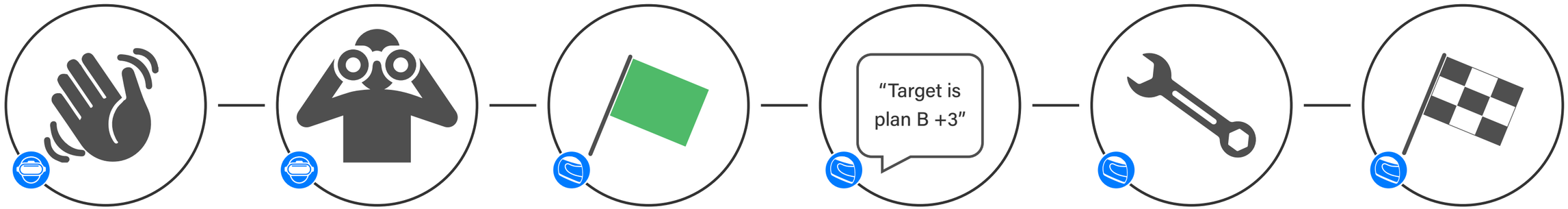
The supporter:

Age: 15 - 45 years old
Income: Varied
Lifestyle: Connected, sustainable, loyal
Interests: Motorsport, music, entertainment

- Online community
- Virtual race attendance
- Part of the team
- Virtually explore region
- Sustainability

STORY

The increasingly popular virtual reality technology offers a great opportunity to bring supporters closer to the action and allow them to visit the different regions in which the series takes place.



Fans meet in the virtual portal using avatars.

Virtual exploration of the course and the region surrounding it to find the best viewing spots

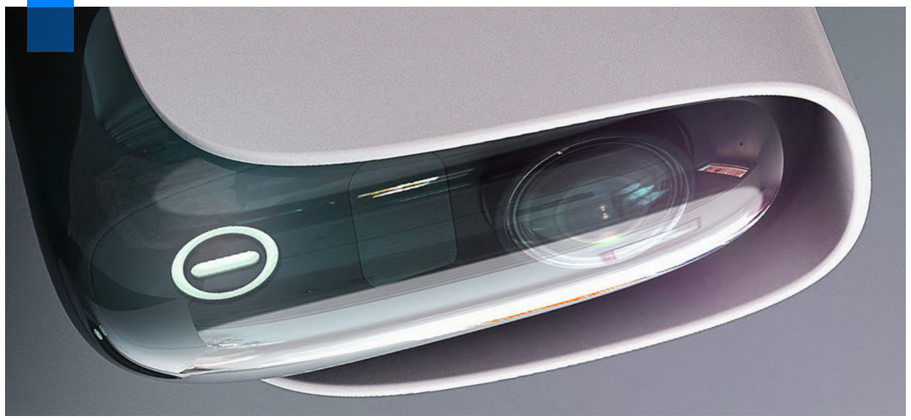
The endurance race starts

The driver is in constant communication with his team

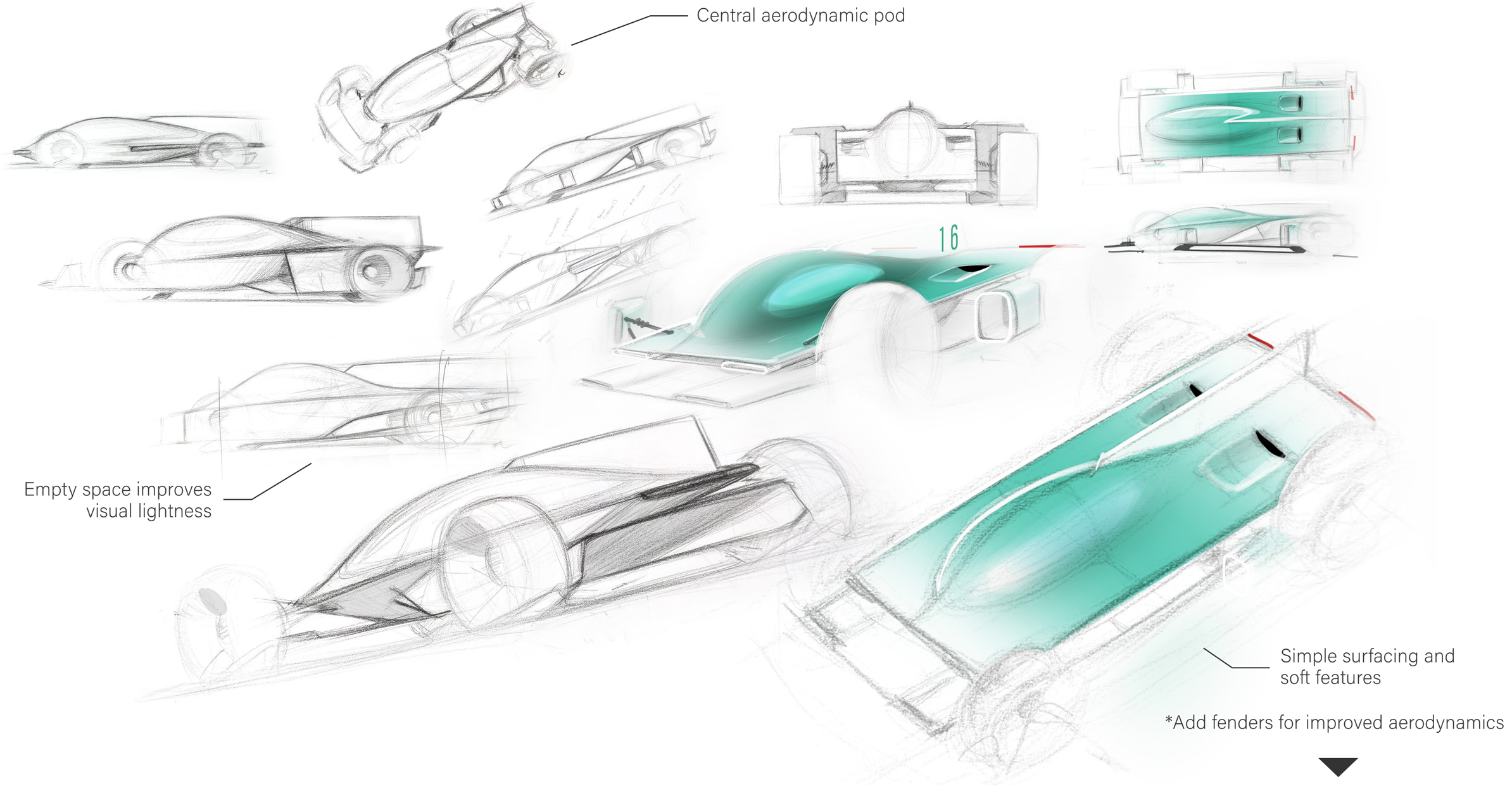
Pit stops for refueling, tyre changes and driver switch

Race finish

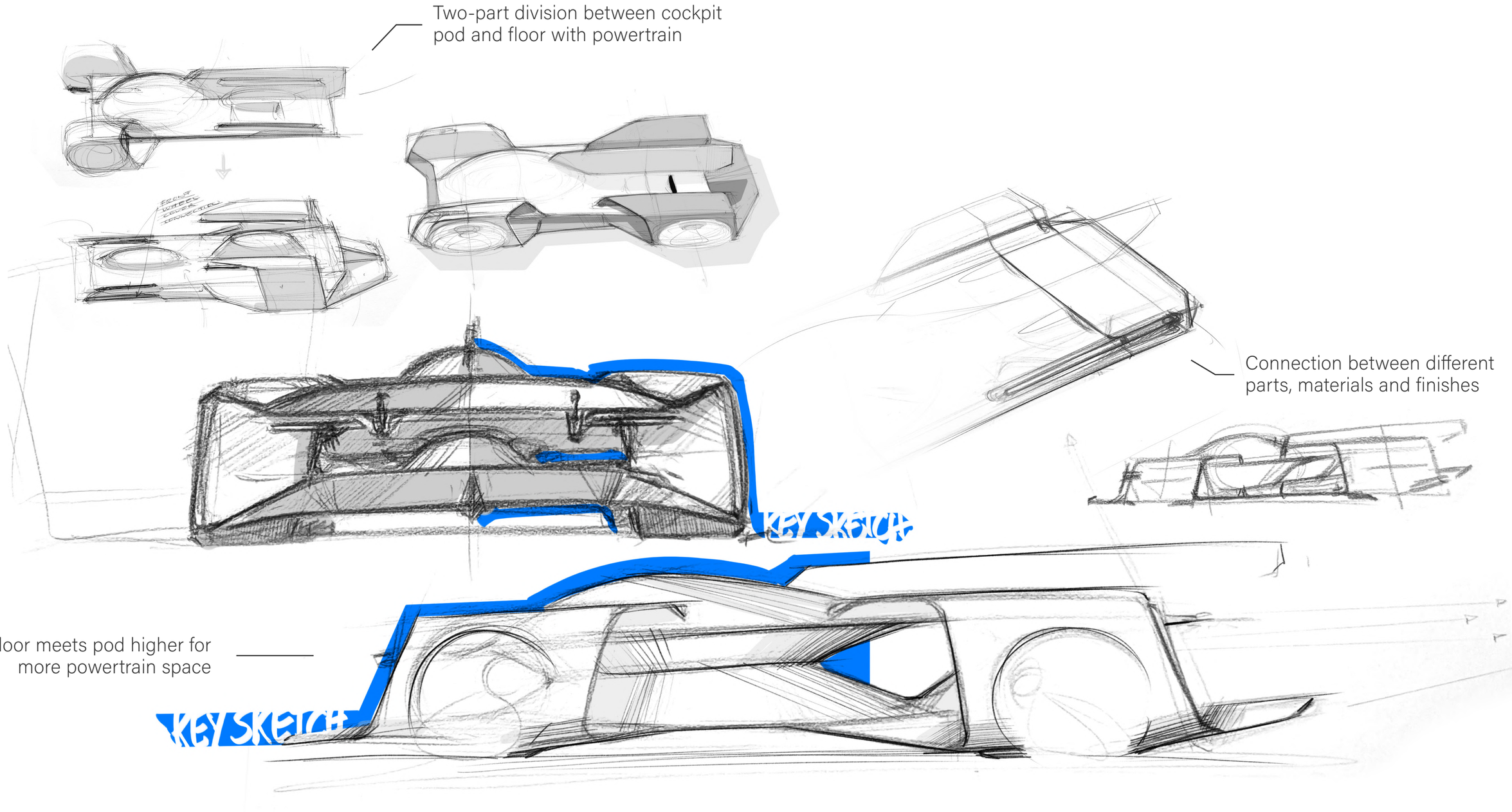
Qualifying (Track) → Sprint race 1 hour (Track) — Determines order for → Intercontinental endurance race

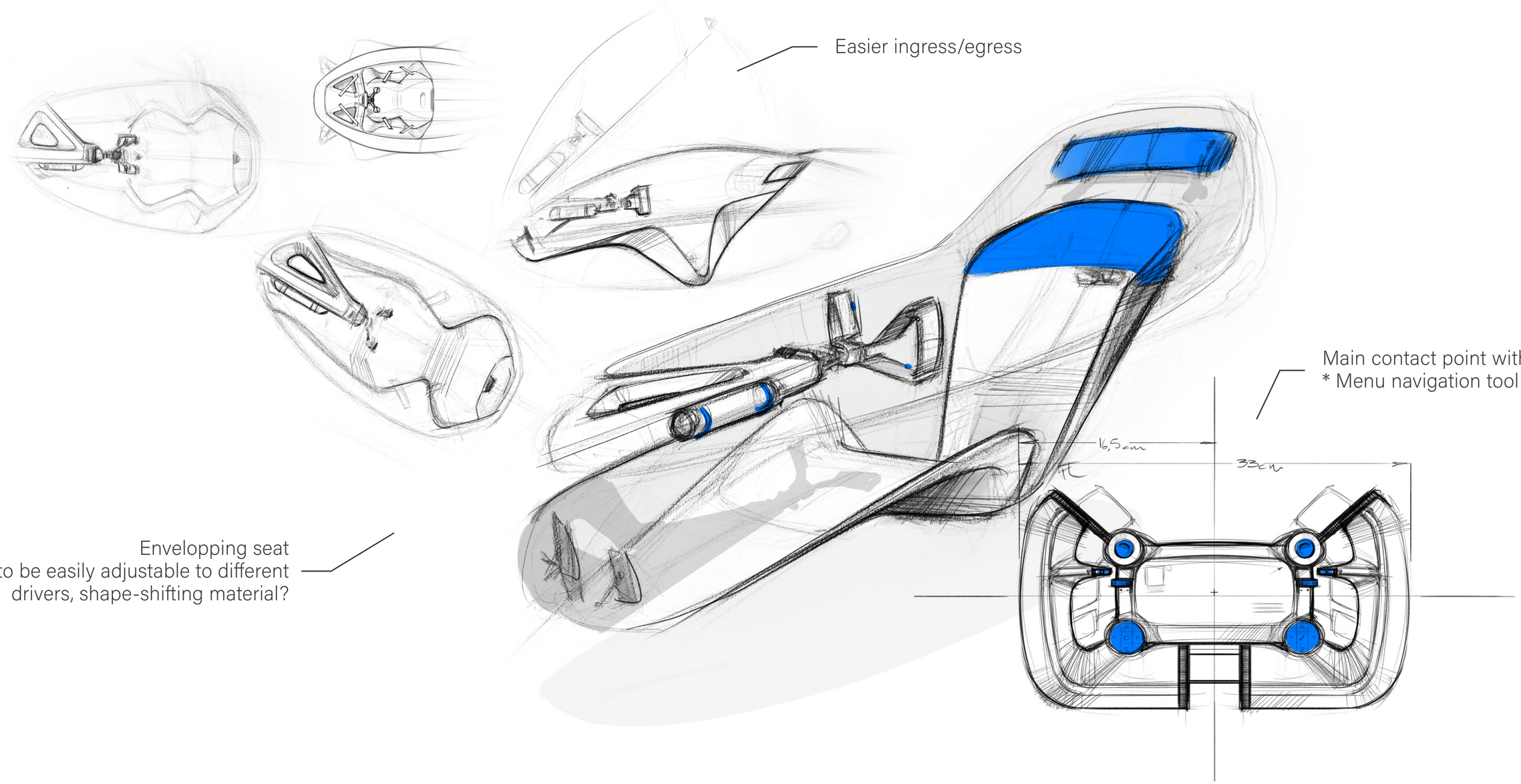


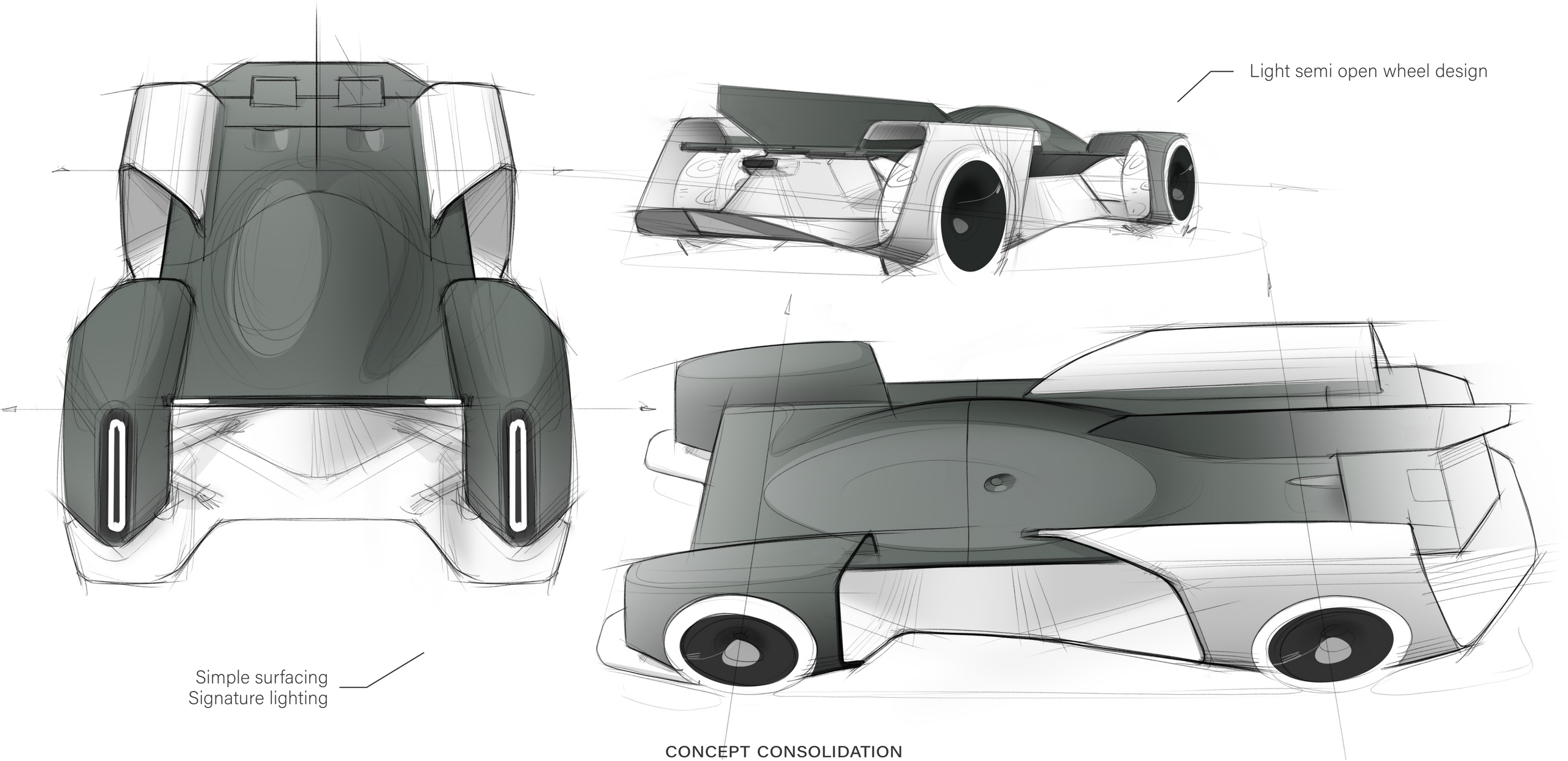
INSPIRATION BOARD



INITIAL SKETCH DEVELOPMENT


Two-part division between cockpit pod and floor with powertrain
Connection between different parts, materials and finishes
Floor meets pod higher for more powertrain space
Key sketch
Key sketch

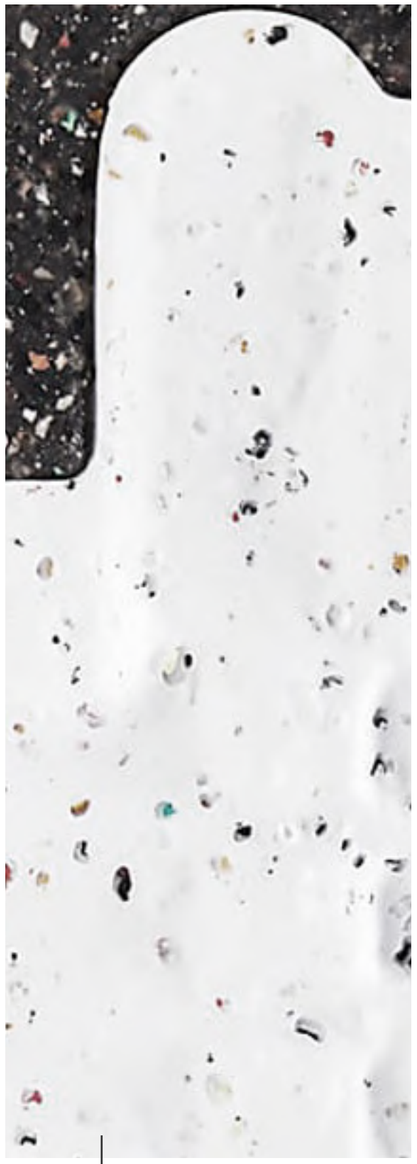

Easier ingress/egress
Main contact point with driver
* Menu navigation tool
Envelopping seat
* Needs to be easily adjustable to different drivers, shape-shifting material?
16,5cm
33cm



CONCEPT CONSOLIDATION

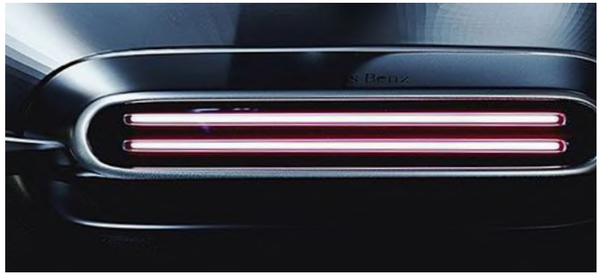
EXTERIOR CMF

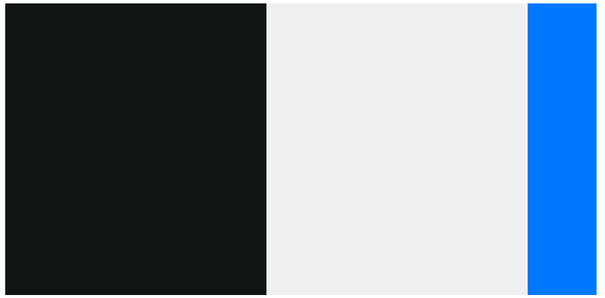
Vibrant graphics



Reinforced recycled plastic:
- Graphene reinforcement
- Material circularity

Layerd graphene sheet bodywork:
- Controlled transparency
- Sustainable production
- Light

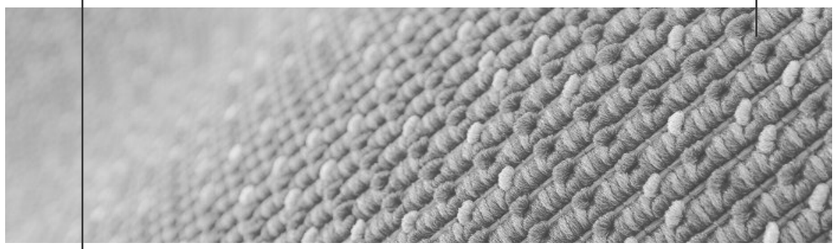


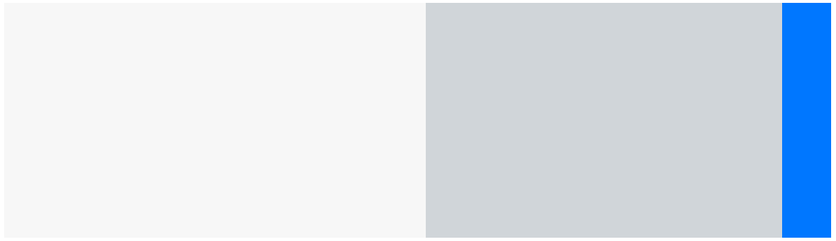


INTERIOR CMF

Kenaf: - Sustainable production
- Fire-retardant

Econyl: - Material circularity
- Easily shapable





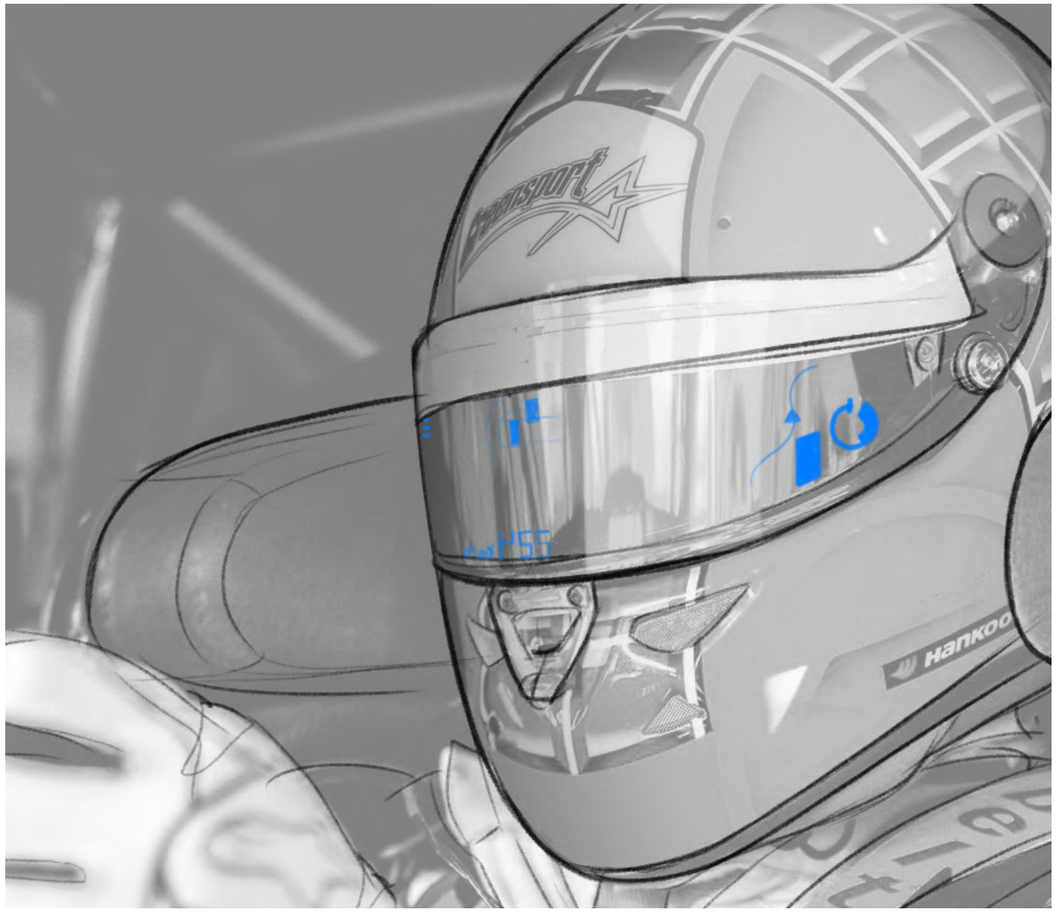
Shape-shifting - 3D printed inflatable
- Can adjust to drivers measurments

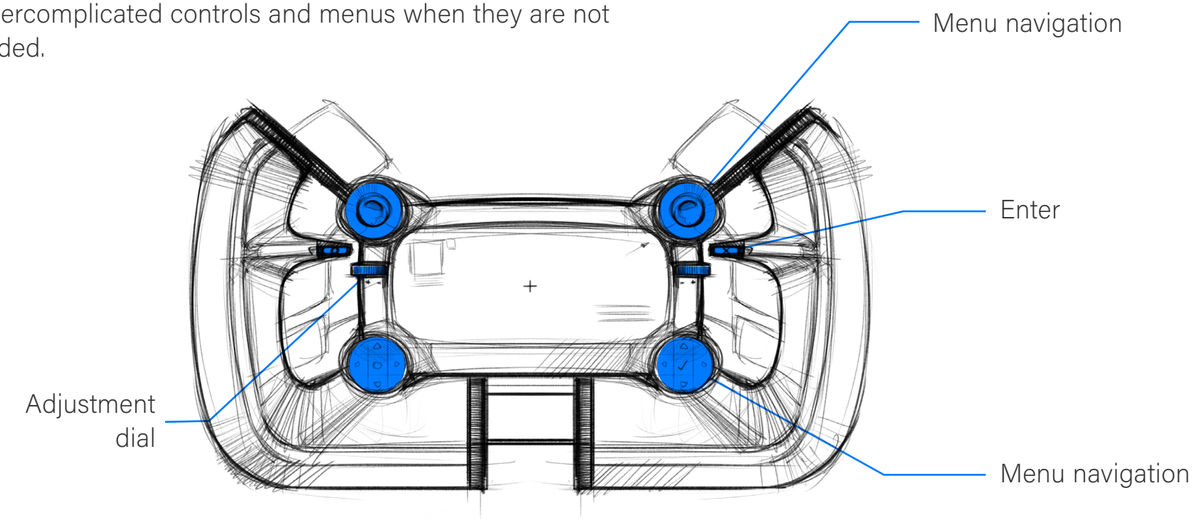
SPECTATOR EXPERIENCE

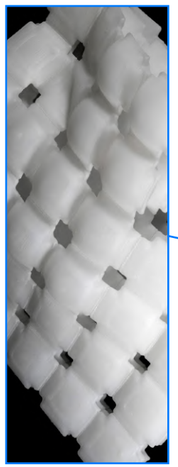
The race viewing VR system not only allows spectators to attend the race like they were there but also to explore the region in which the race takes place prior to the event.

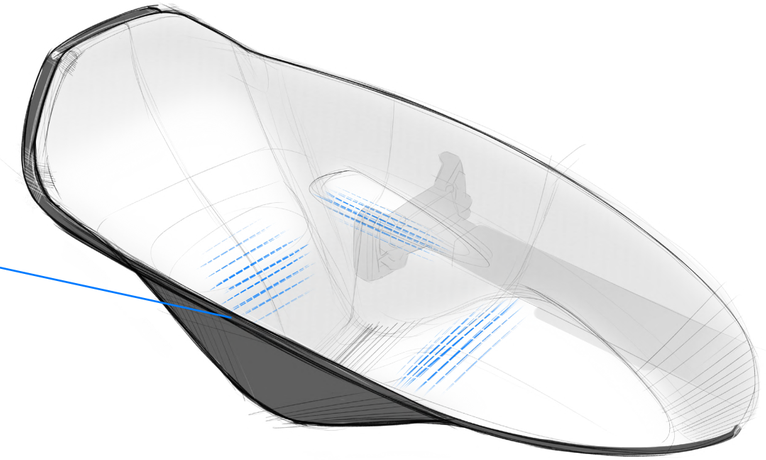
DRIVING EXPERIENCE

The eye tracking technology paired with the AR visor and the steering wheel controls allows the driver to navigate menus quickly without being bothered by overcomplicated controls and menus when they are not needed.

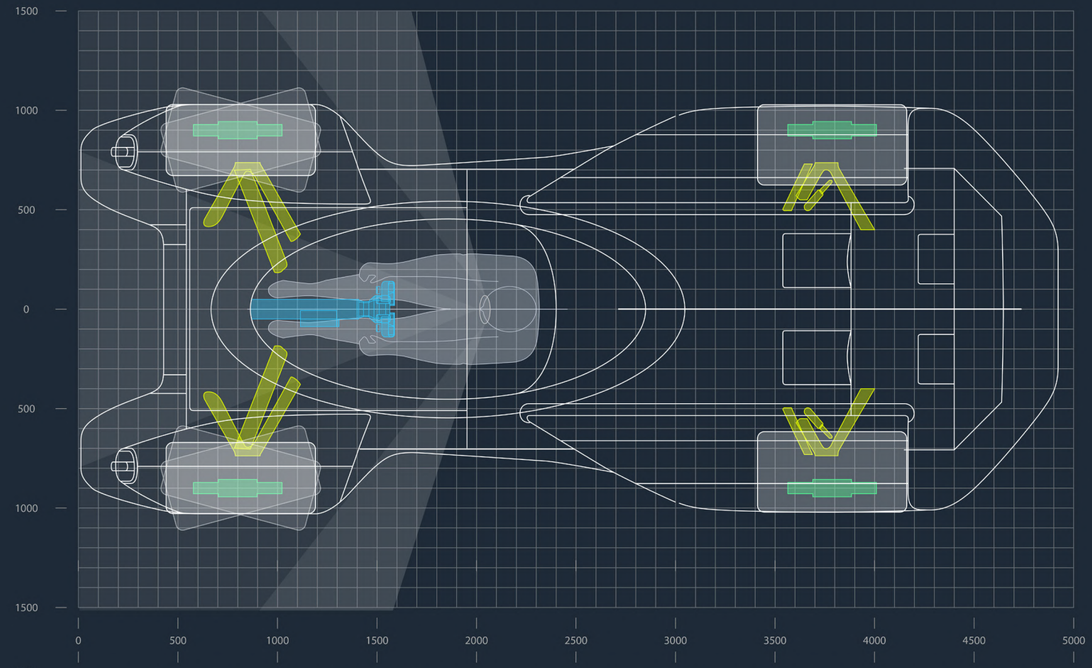








The inflatable micro-cushions under the textile layer have presets saved for every driver, negating the need to adjust the seat during driver switches



PACKAGE DRAWING

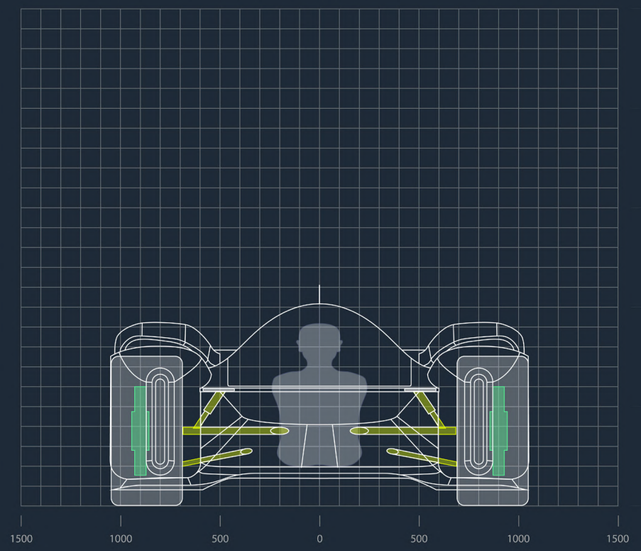
FMP

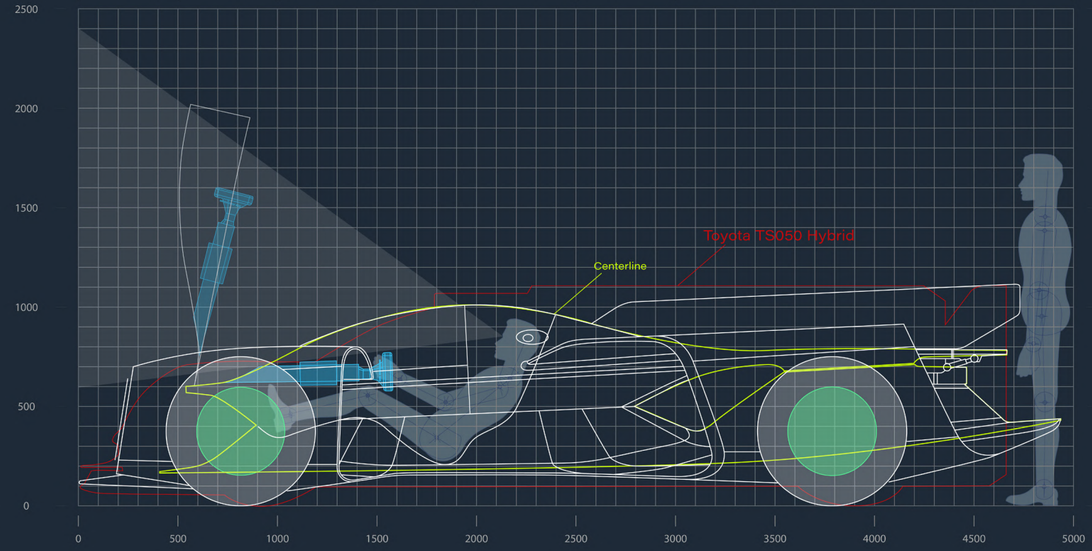
Francis L'Ecuyer

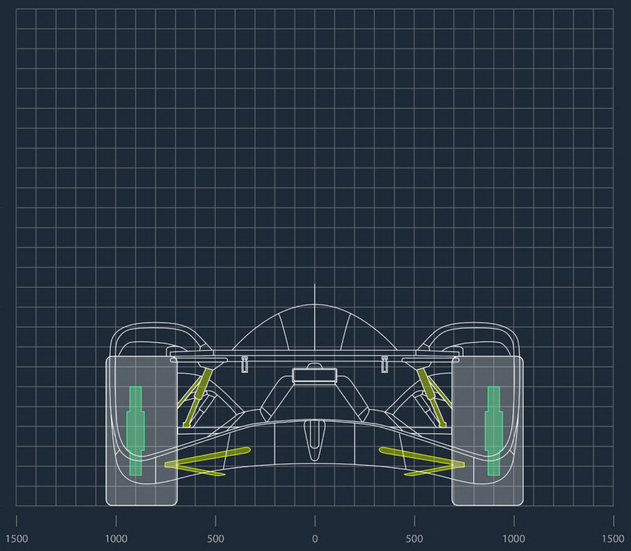
Steering

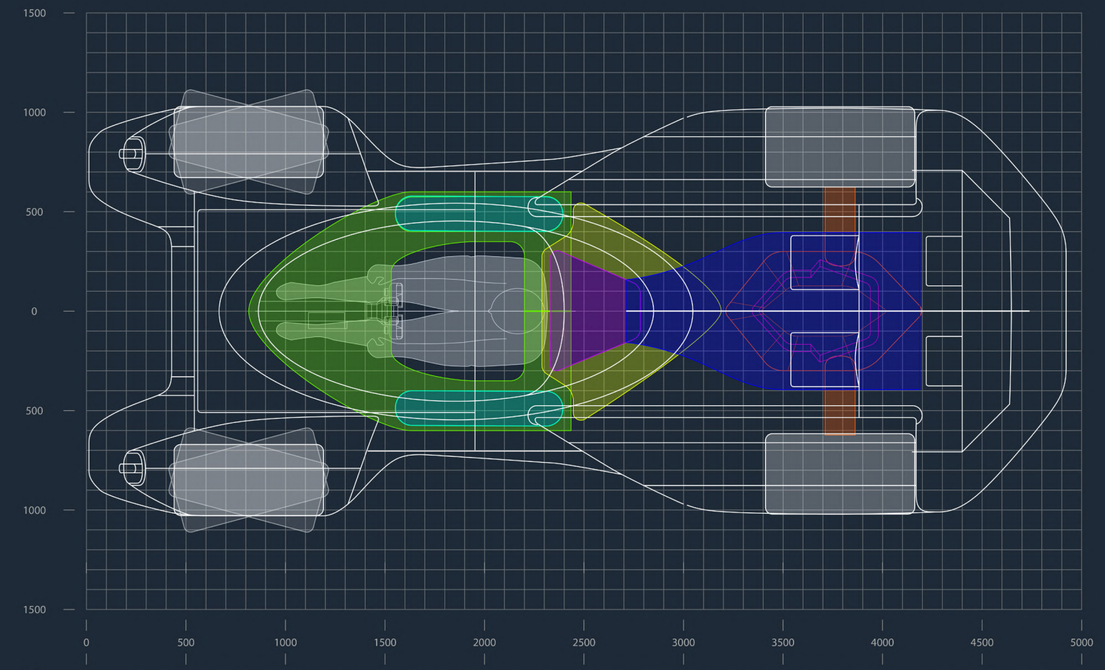
Suspension

Brakes







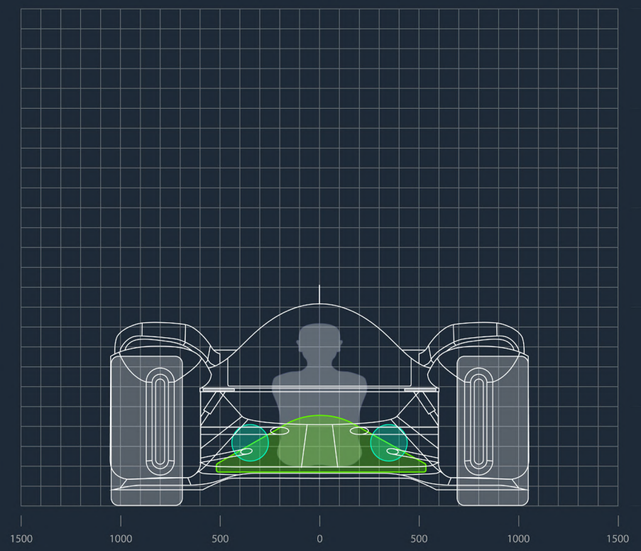


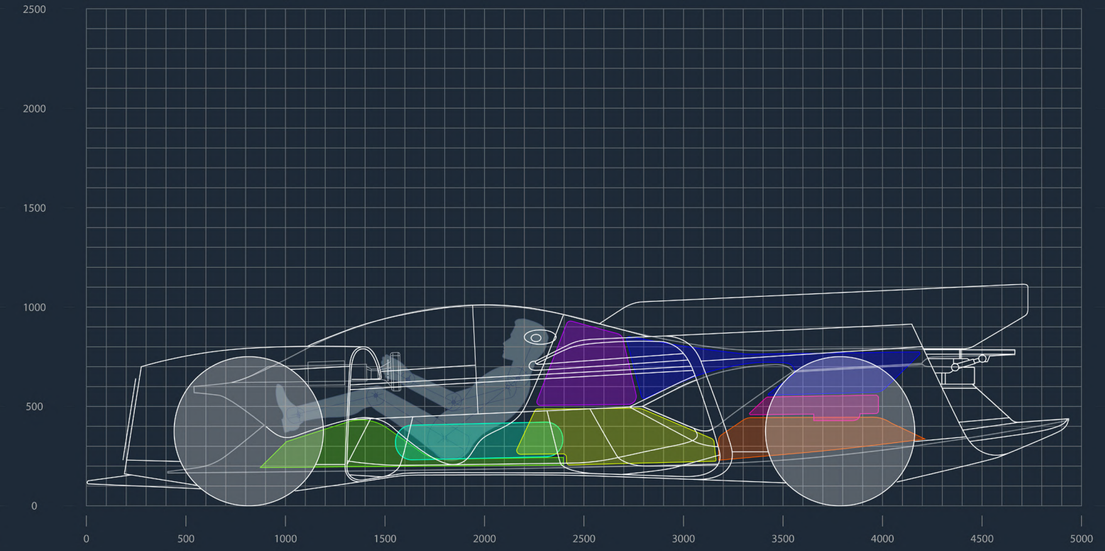
PACKAGE DRAWING

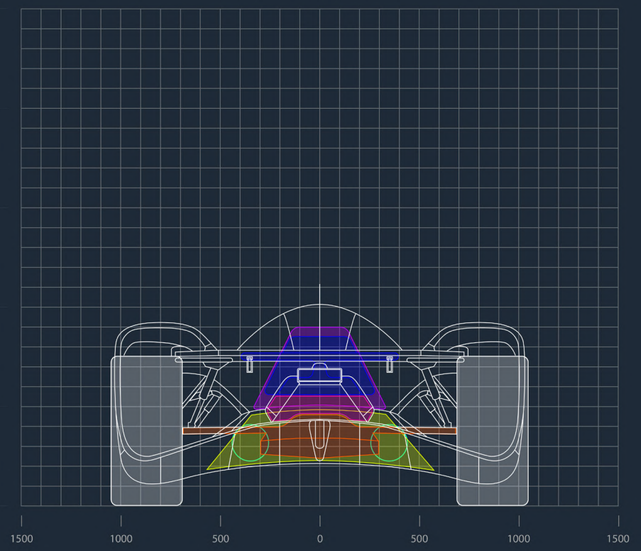
FMP

Francis L'Ecuyer

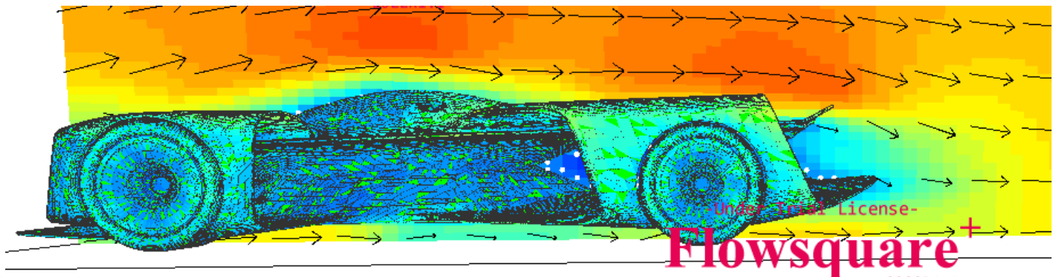
- Hydrogen tanks
- Battery packs
- Humidifier
- Hydrogen fuel cell
- Motor
- Air intake and compressor
- Cooling

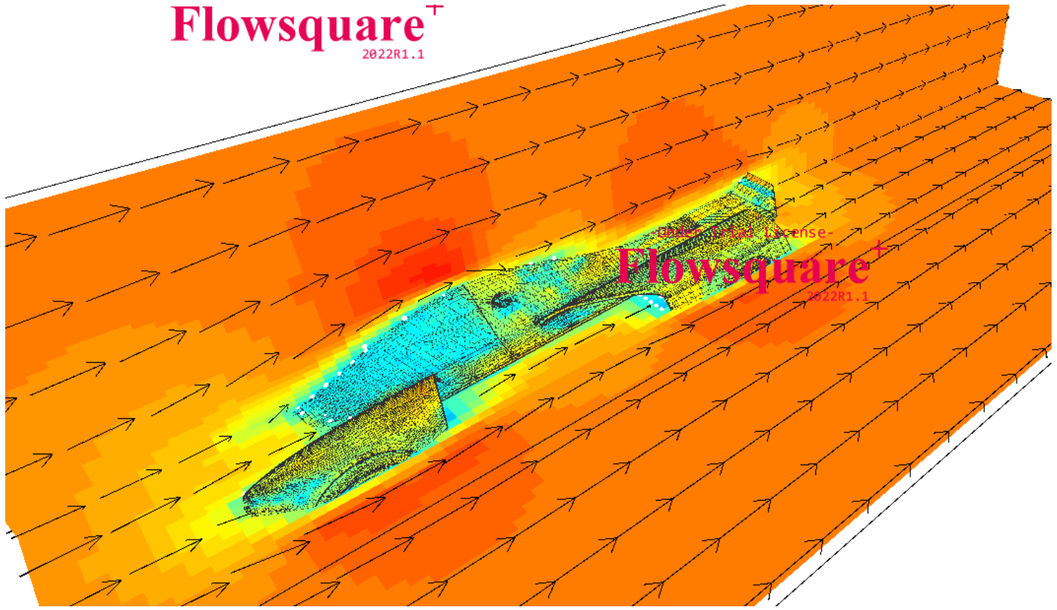


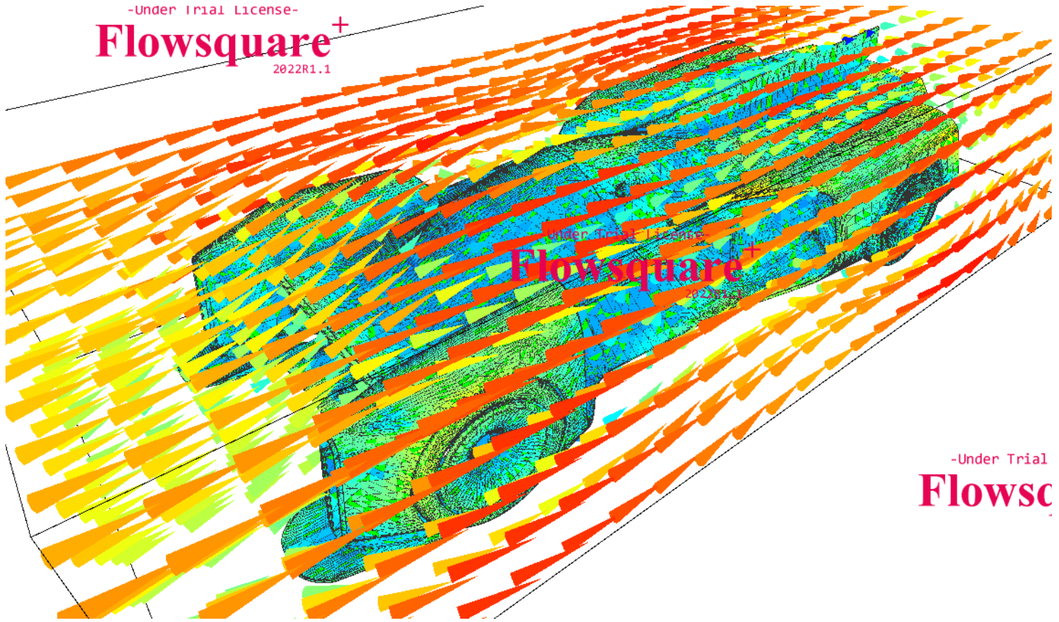


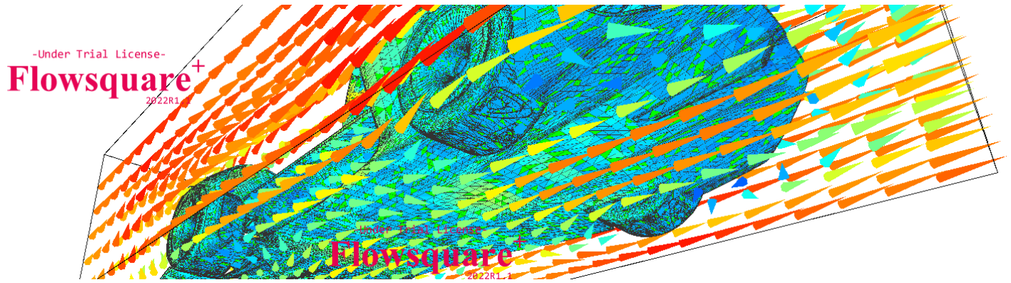


AERO ANALYSIS - VELOCITY



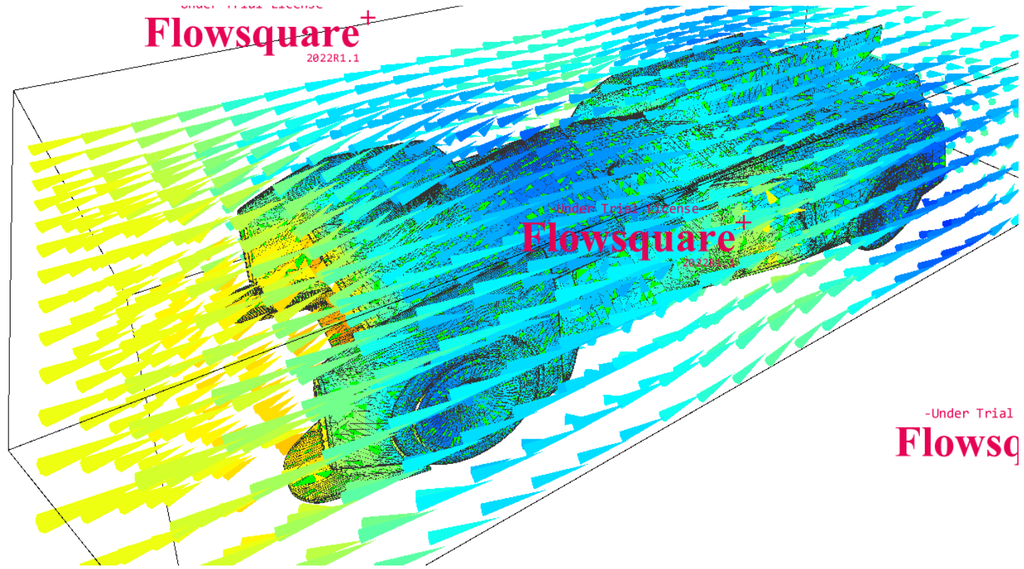


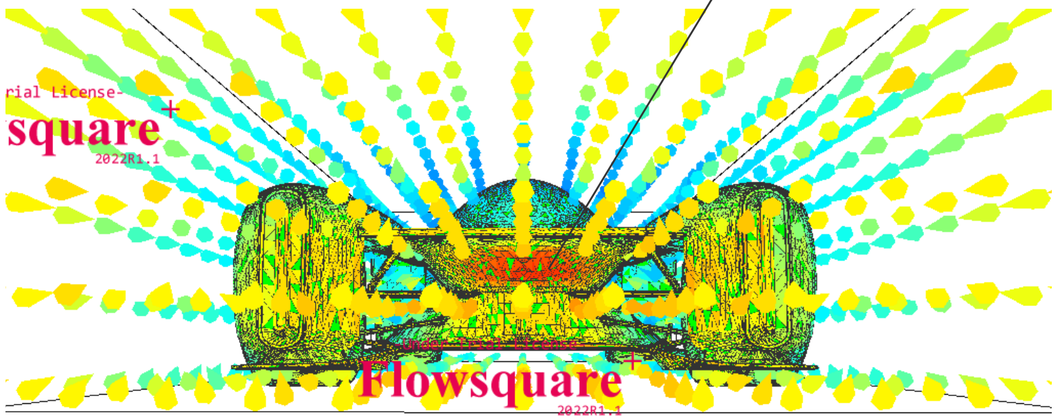




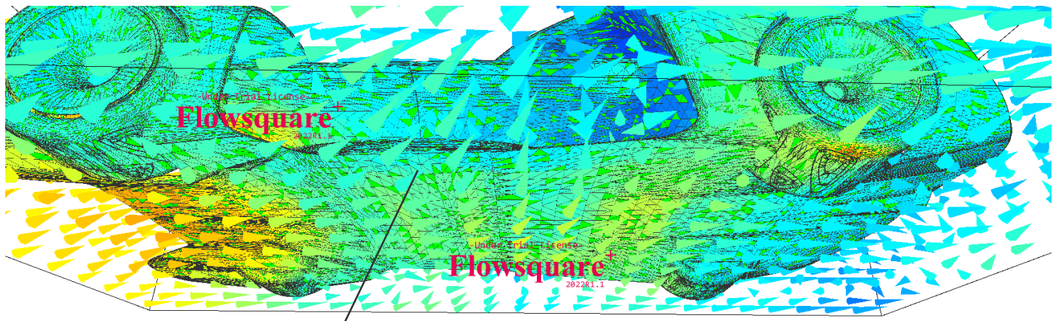
The drag seems adequate but the concept could benefit for directing the air through the tunnel more efficiently.

AERO ANALYSIS - PRESSURE

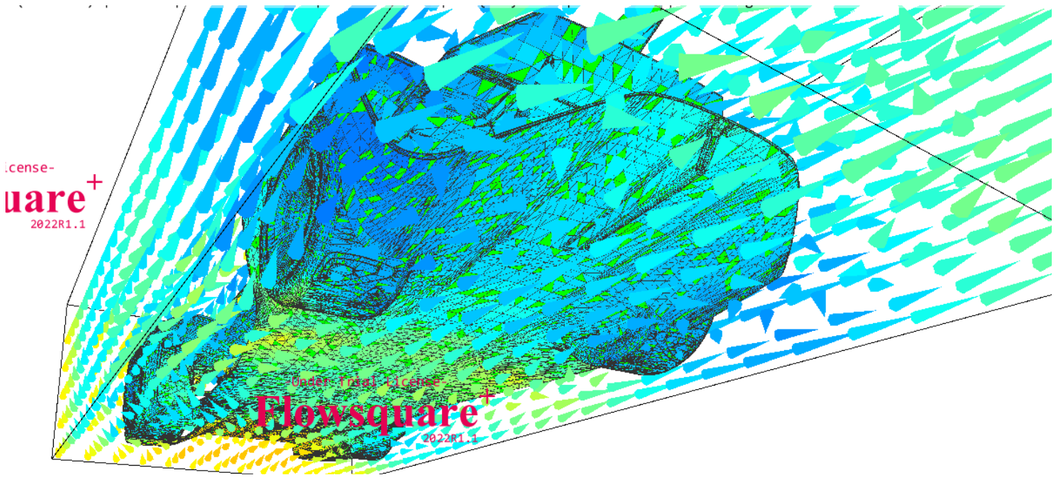




Reshaping certain front surfaces could reduce air resistance

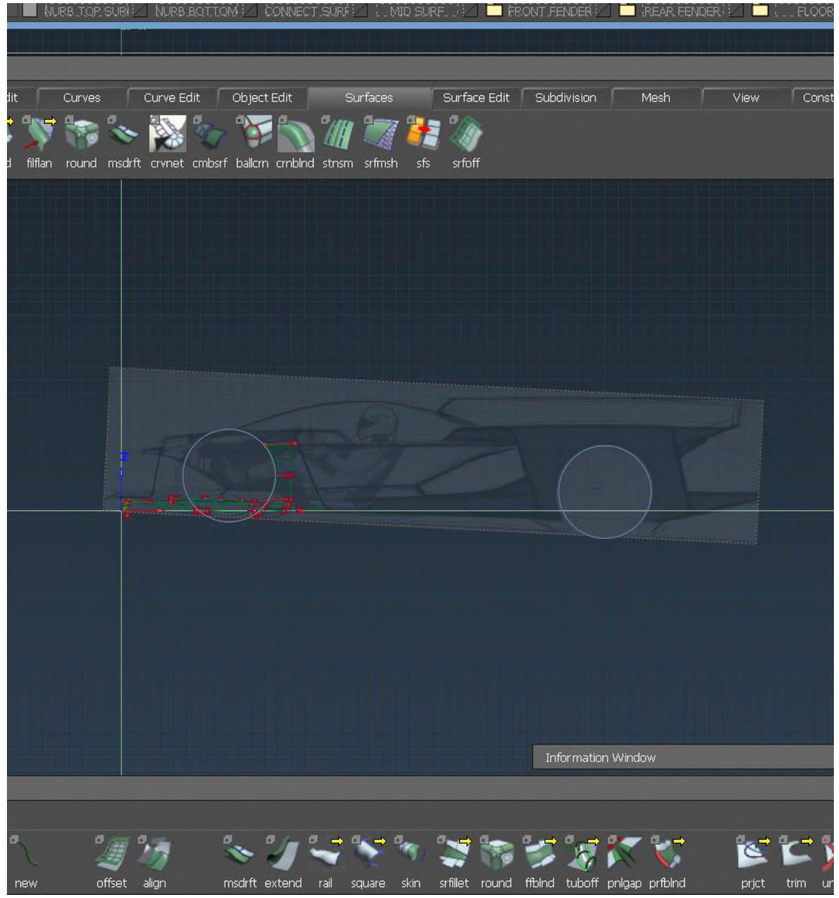


Closing off the floor with sideskirts would improve ground effect and downforce

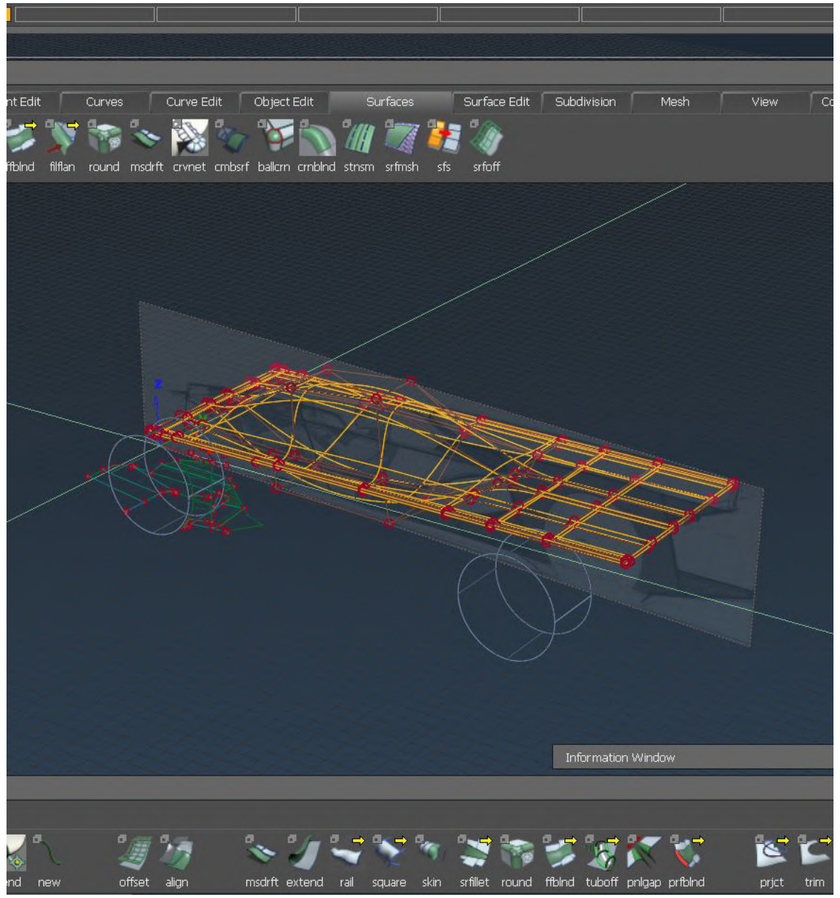


Lowering the ground at the front would increase rake and improve downforce

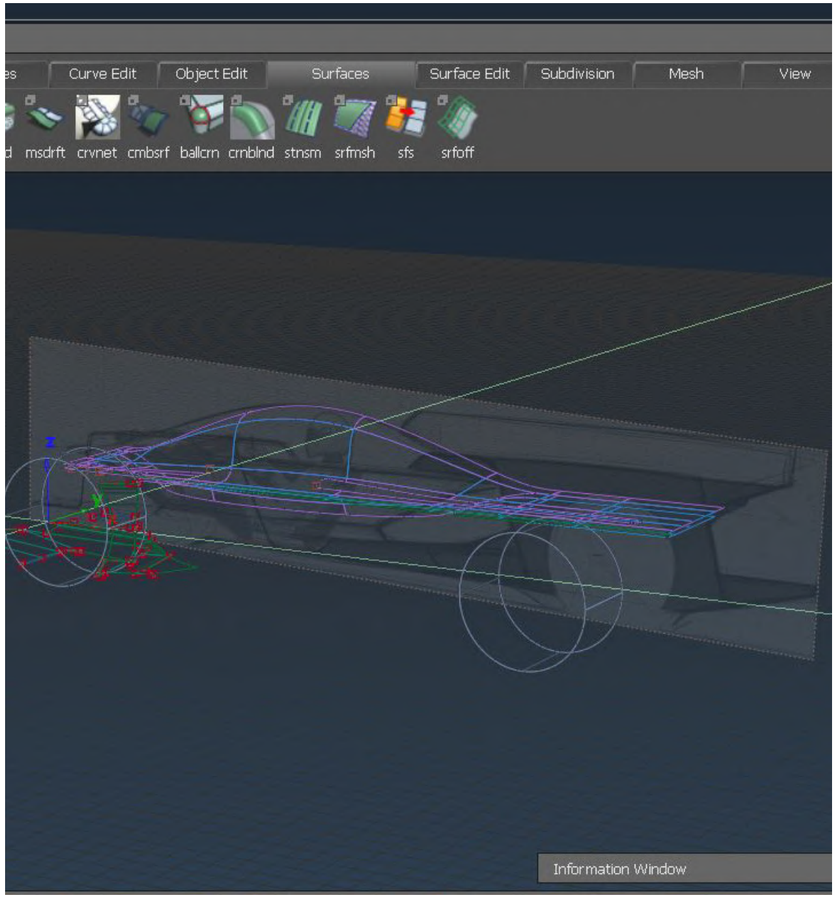
3D DEVELOPMENT PROCESS



1 - Added canvas and basic curves

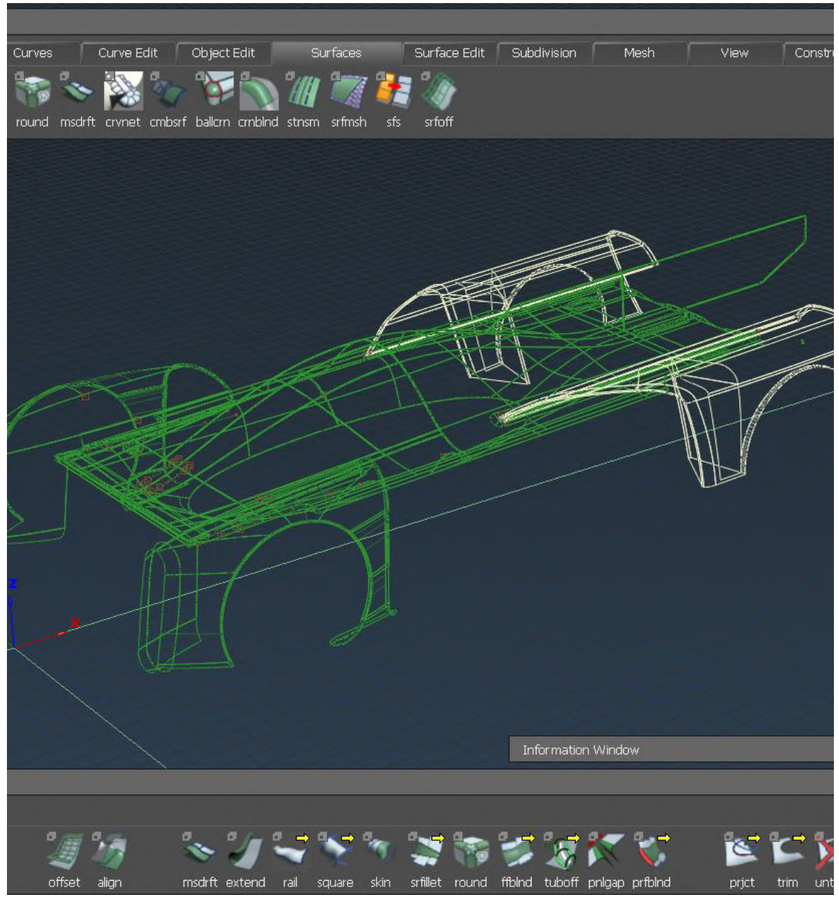


2 - Created subdivison mesh for the central pod surfaces

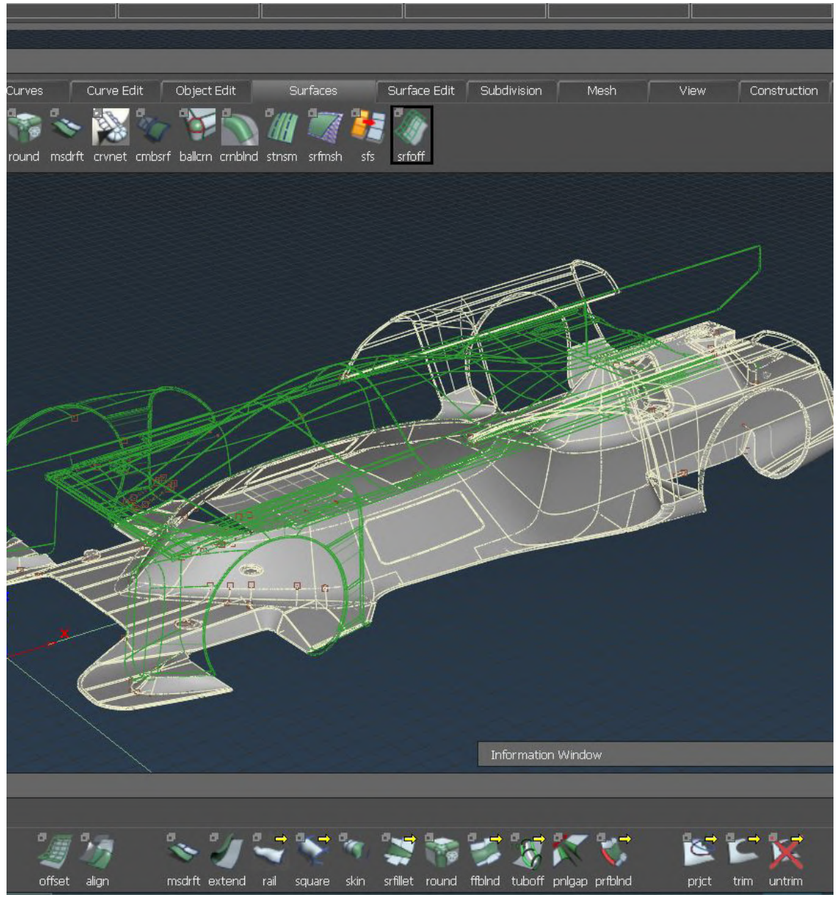


3 - Converted the subd mesh into nurb based surfaces

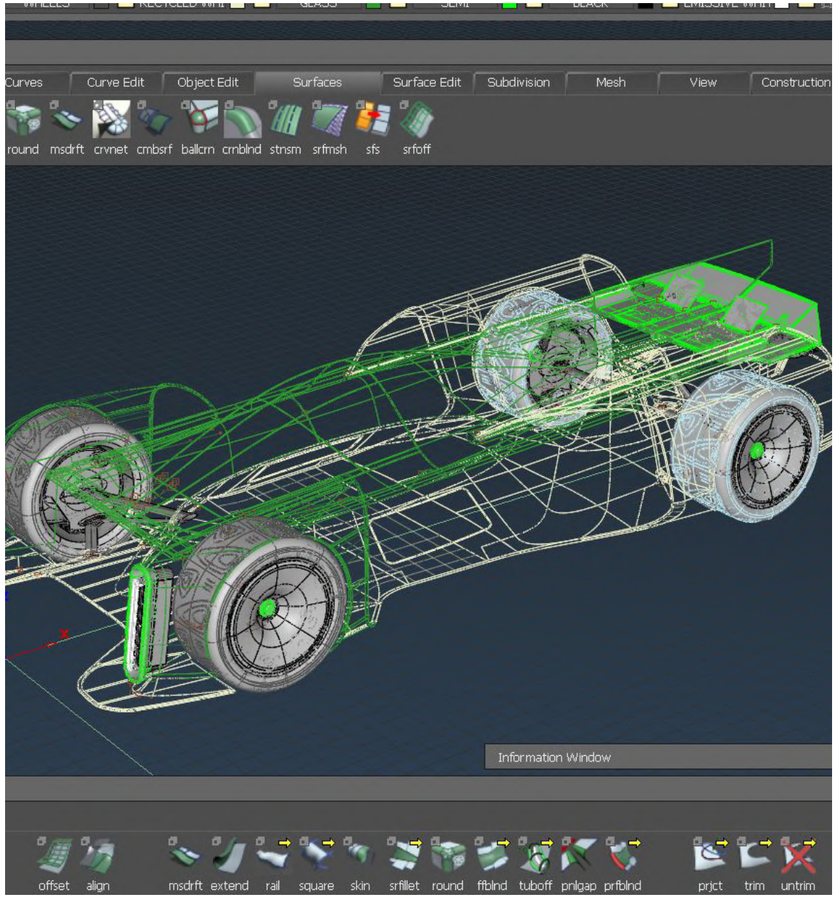
3D DEVELOPMENT PROCESS



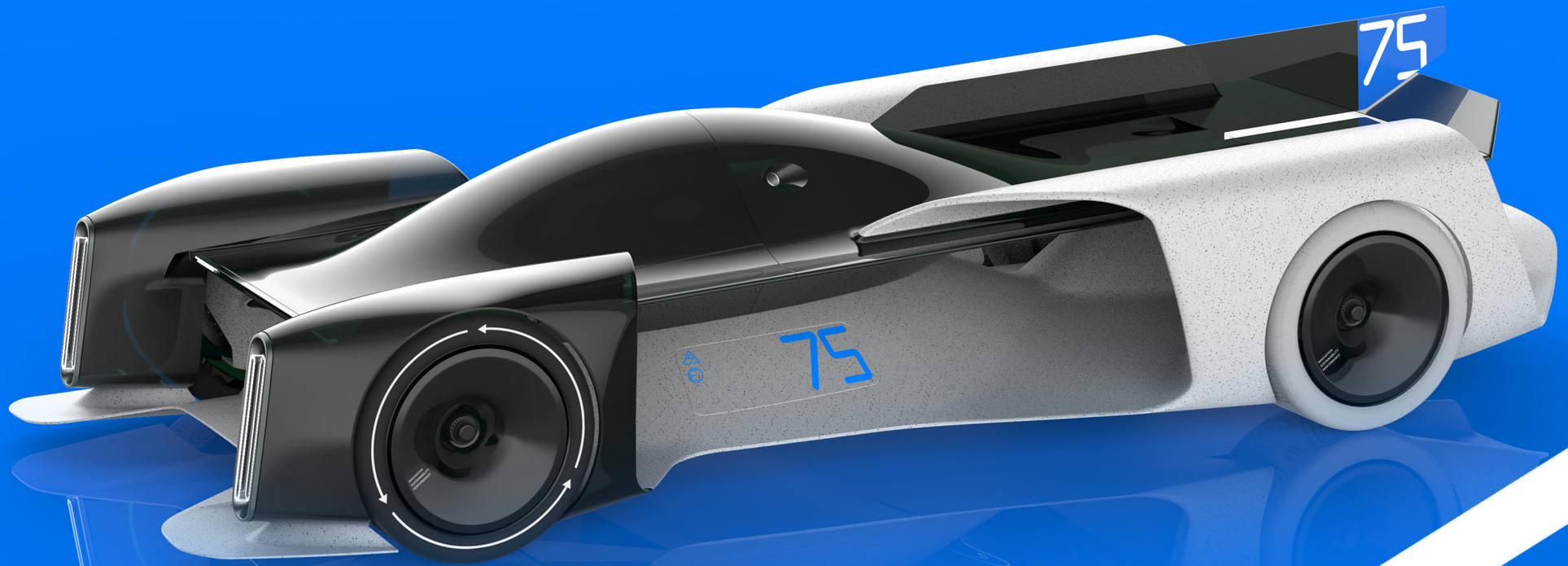
4 - Built the fenders and connected them to central pod



5 - Created the floor and bottom portion of the vehicle



6 - Finished by adding details, panel gaps and grouping layers for easier render file organization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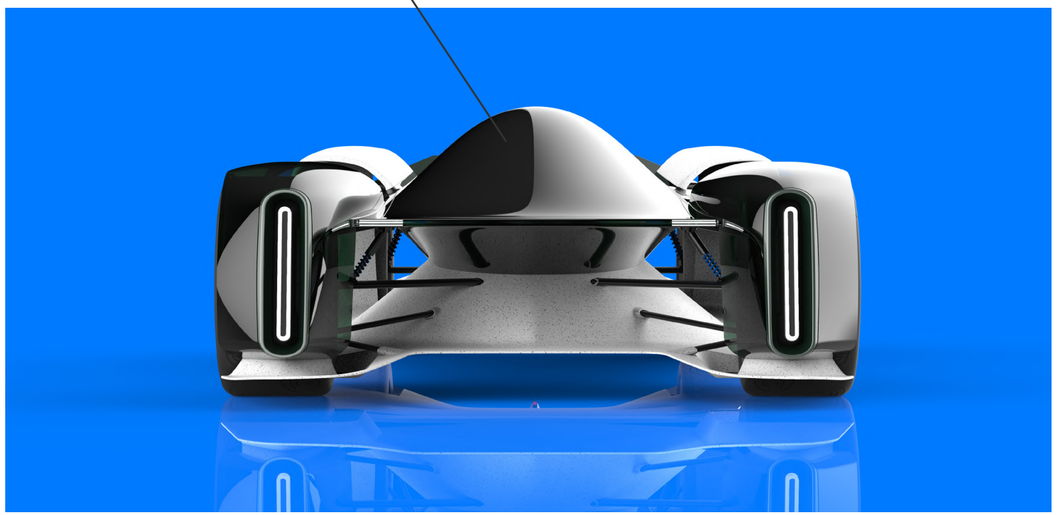
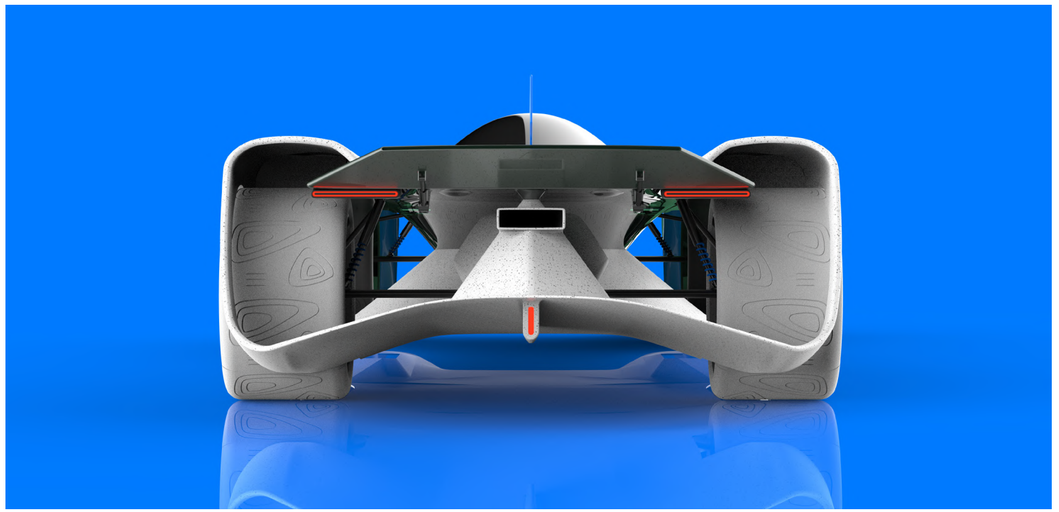
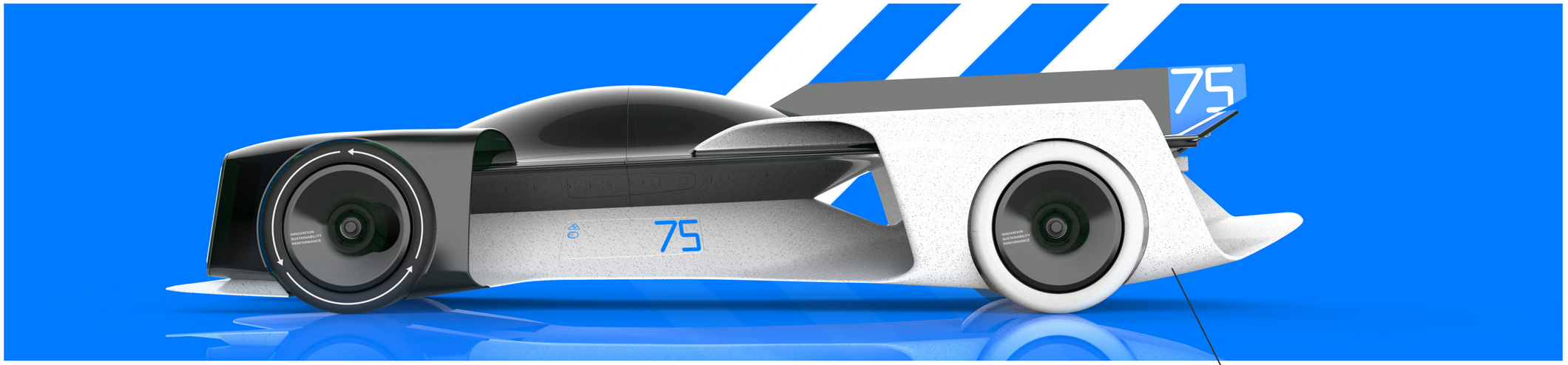
75

Layered graphene sheets with adaptive transparency

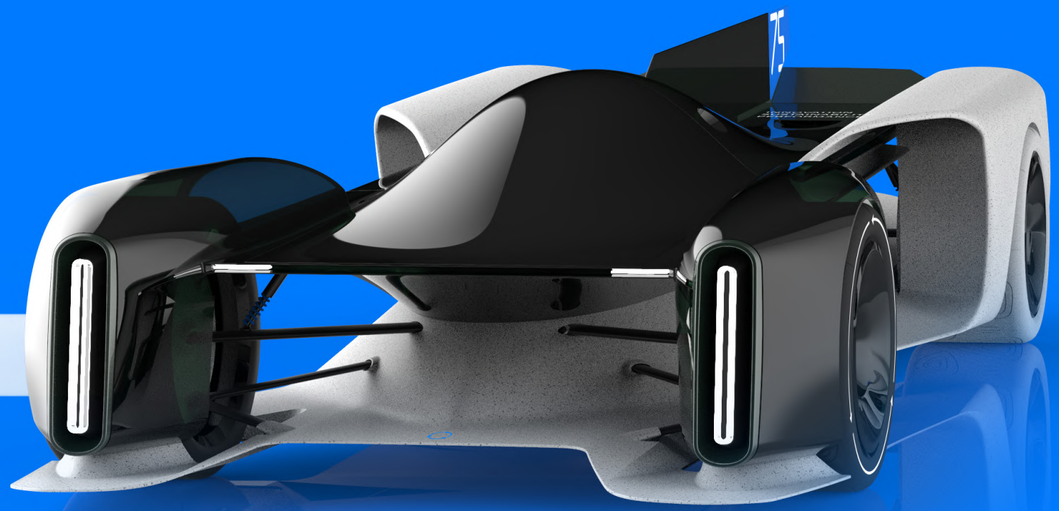






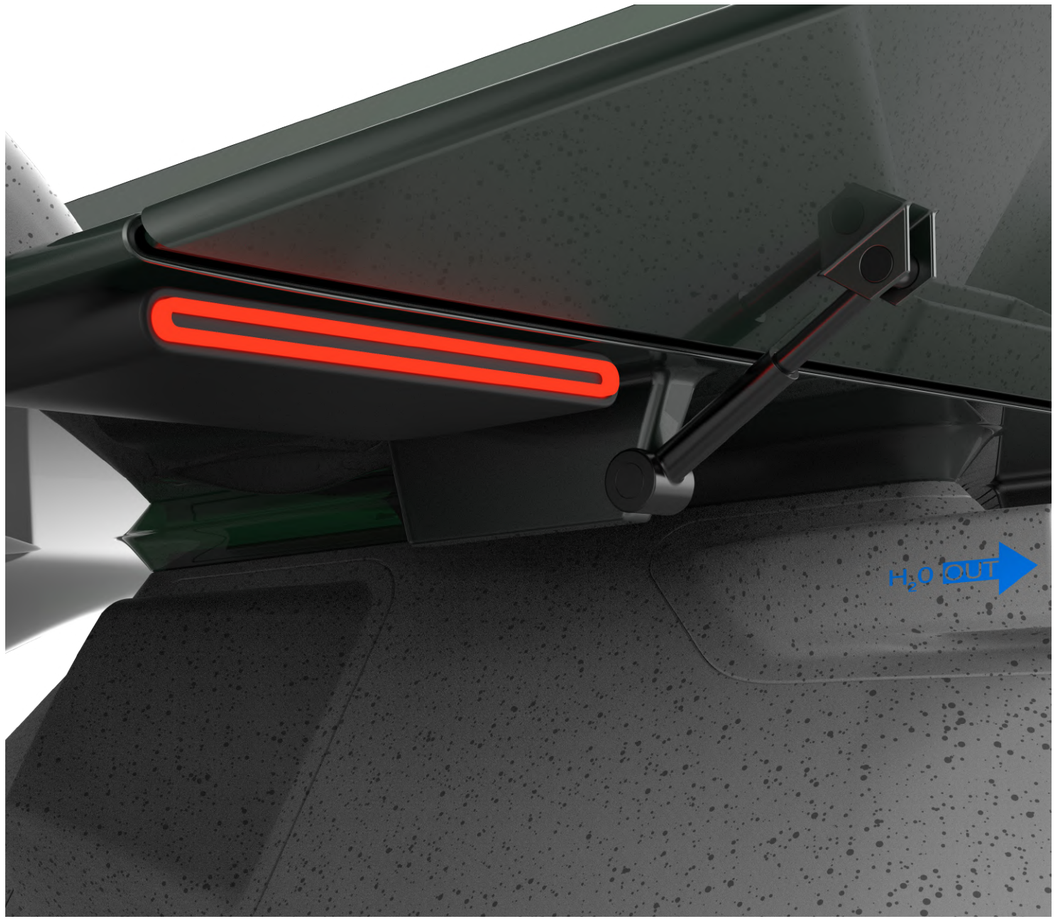
Graphene reinforced recycled plastic

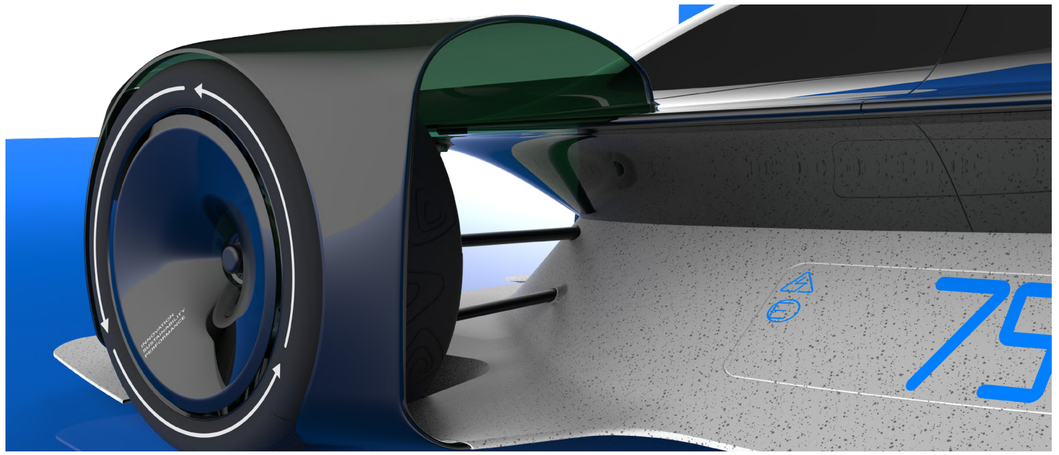
Steering column and windshield open
for easy access during driver changes

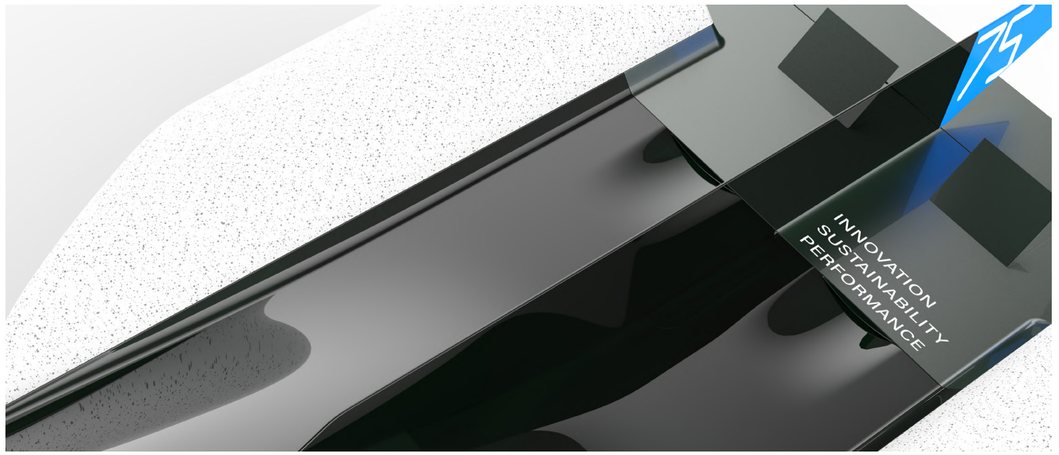


Semi opened body to maximise air
flow and minimize draft resistance

INNOVATION
SUSTAINABILITY
PERFORMANCE

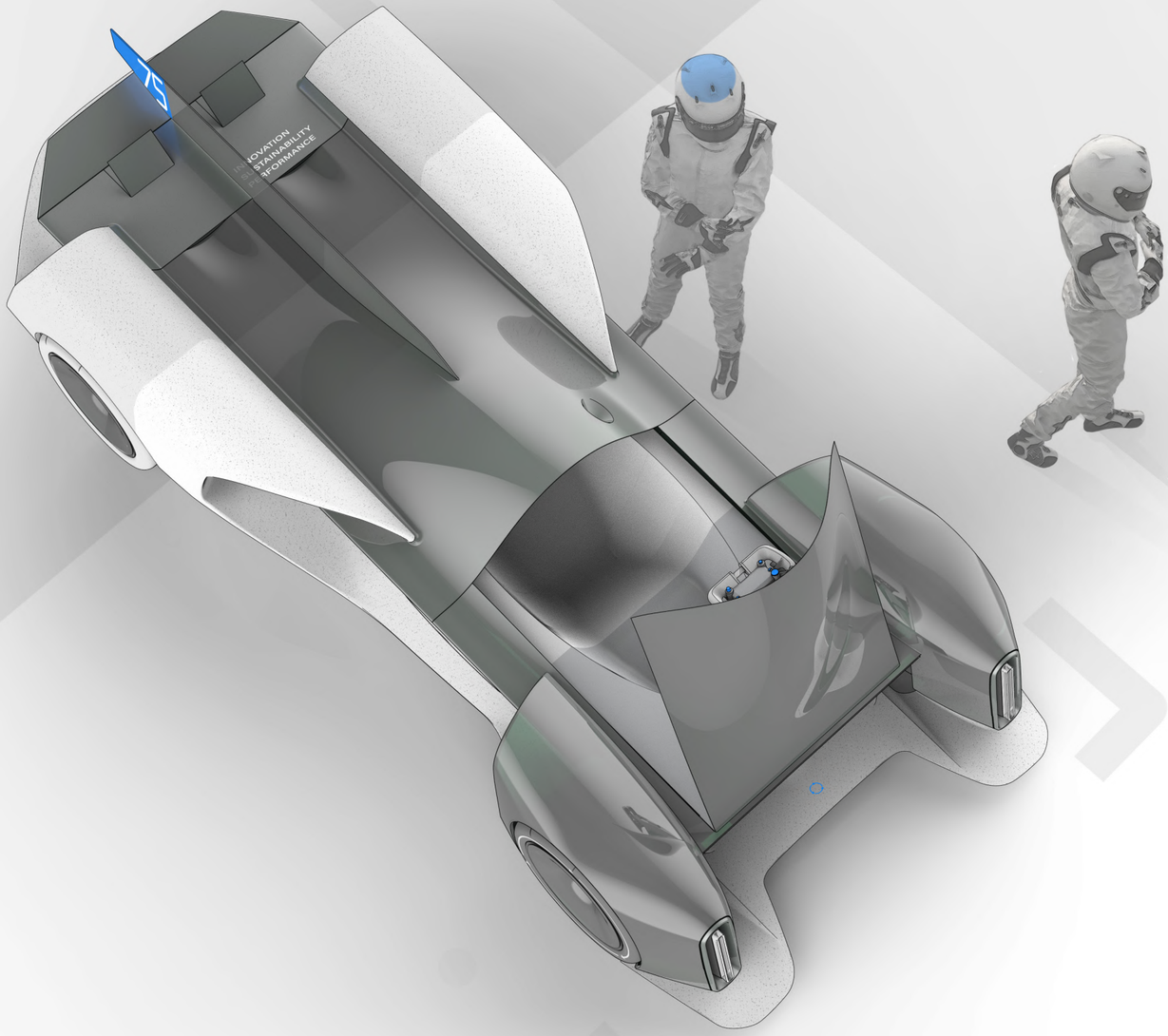


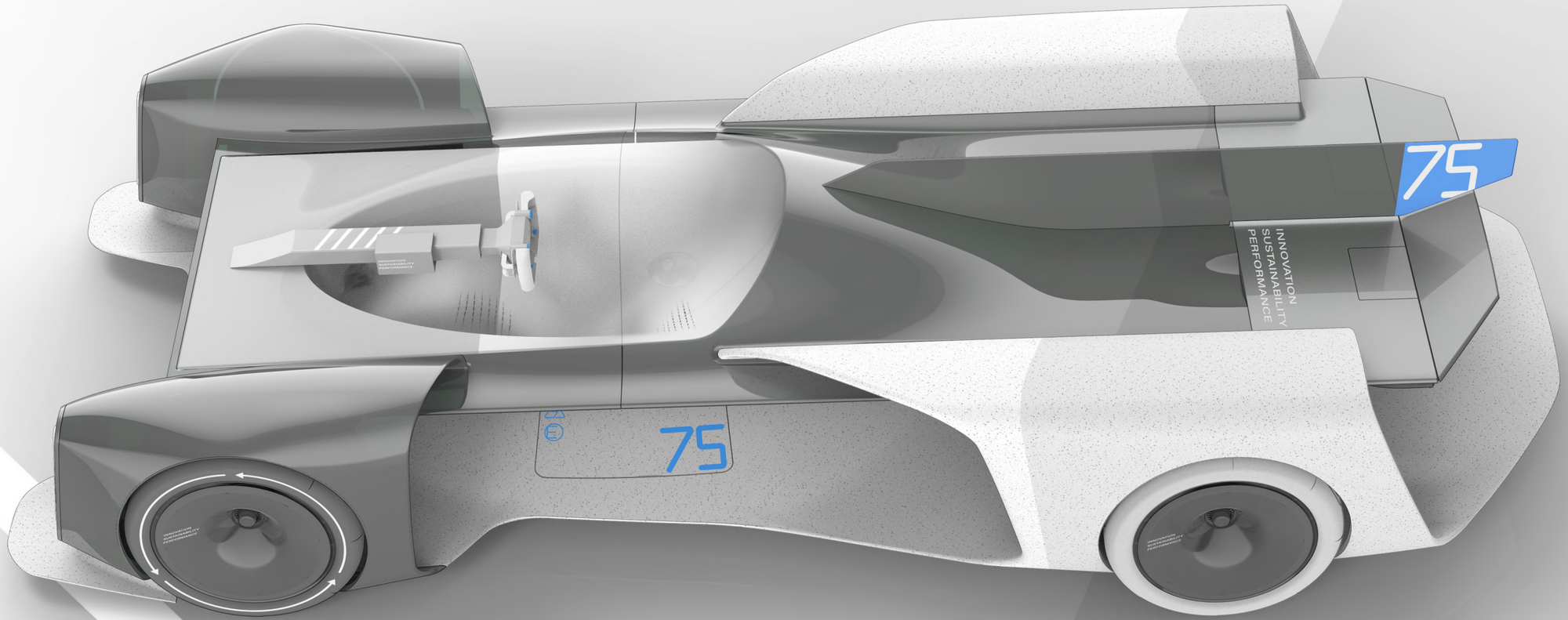




Dynamic aerodynamics for
improved braking

Background art by Bastien Grivet


INNOVATION
SUSTAINABILITY
PERFORMANCE



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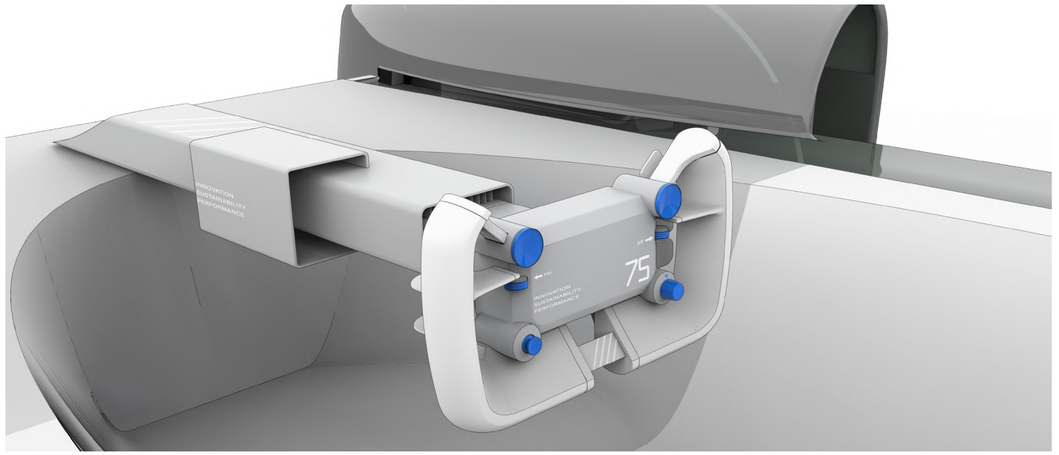
No screen needed thanks to AR helmet visor



3D printed inflatable shape changing cushions
with top layer of kenaf and econyl blend

75

INNOVATION
SUSTAINABILITY
PERFORMANCE