

DESIGN PROJECT II

# **Reimagining Toyota LiteAce**

Compact adventure getaway mobility

Submitted in partial fulfillment of the requirements  
of the degree of Master of Design

by

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## Approval Sheet

This Mobility & Vehicle Design Project II titled 'Reimagining Toyota LiteAce Compact adventure getaway mobility' by Muhammed K Abdulla is approved in partial fulfilment of the requirements for Master of Design Degree in Mobility & Vehicle Design , IIT Bombay

Project Guide:



Internal Examiner




External Examiner:



## **Declaration**

I declare that this written submission represents my ideas in my own words and where others ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated any idea/data/ fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited of from whom proper permission has not been taken when needed.



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## **Acknowledgment**

My project Design of ‘Reimagining Toyota LiteAce Compact adventure getaway mobility’ has been a great experience overall. It has taught me how to look at the problems faced by users on day to day basis and how to design for the people. All these wouldn’t be possible without proper guidance so I would like to sincerely thank my guide, Prof. Kanika Jolly and Prof. Unnimohan M for thier valuable guidance throughout this project. A big thank you for all the users and the people who contributed to my project. Finally a huge thanks to all my classmates for the valuable inputs and feedback throughout course of the project

## **Abstract**

This project explores the concept of transformation of a revered automotive classic. Inspired by the iconic Toyota LiteAce, this design initiative aims to breathe new life into the compact adventure vehicle landscape, bridging the gap between heritage and innovation. The report provides a comprehensive overview of the design journey, including all the background research and analysis. It also delves into the creation of a lifestyle-centric configuration, aptly named the “voyager,” which prioritizes comfort, practicality, and adaptability.

The project’s core objectives involve the meticulous customization of the LiteAce, ensuring that it retains its compact charm while embodying the dynamic spirit of modern adventure. It is an exploration into the future of adventure vehicles, where the road is an invitation to new horizons, and the journey is as integral as the destination.

## **Contents**

1. Introduction	1
2. Background Research	2
3. Adventure getaway mobility	5
4. User Research	9
5. Keywords	17
6. Secondary Research	18
7. Project Justification	24
8. Product Research	27
9. Design Brief	30
10. Ideation sketches	36
11. Final Design Renders	42
12. References	53

# 1 Introduction

In the ever-evolving landscape of automotive design, where innovation meets the spirit of adventure, the “Reimagining Toyota LiteAce” project emerges as a trailblazing initiative. This endeavor seeks to redefine the very essence of compact adventure mobility, taking inspiration from the revered Toyota LiteAce—a stalwart in its own right—and propelling it into a new era of contemporary exploration.

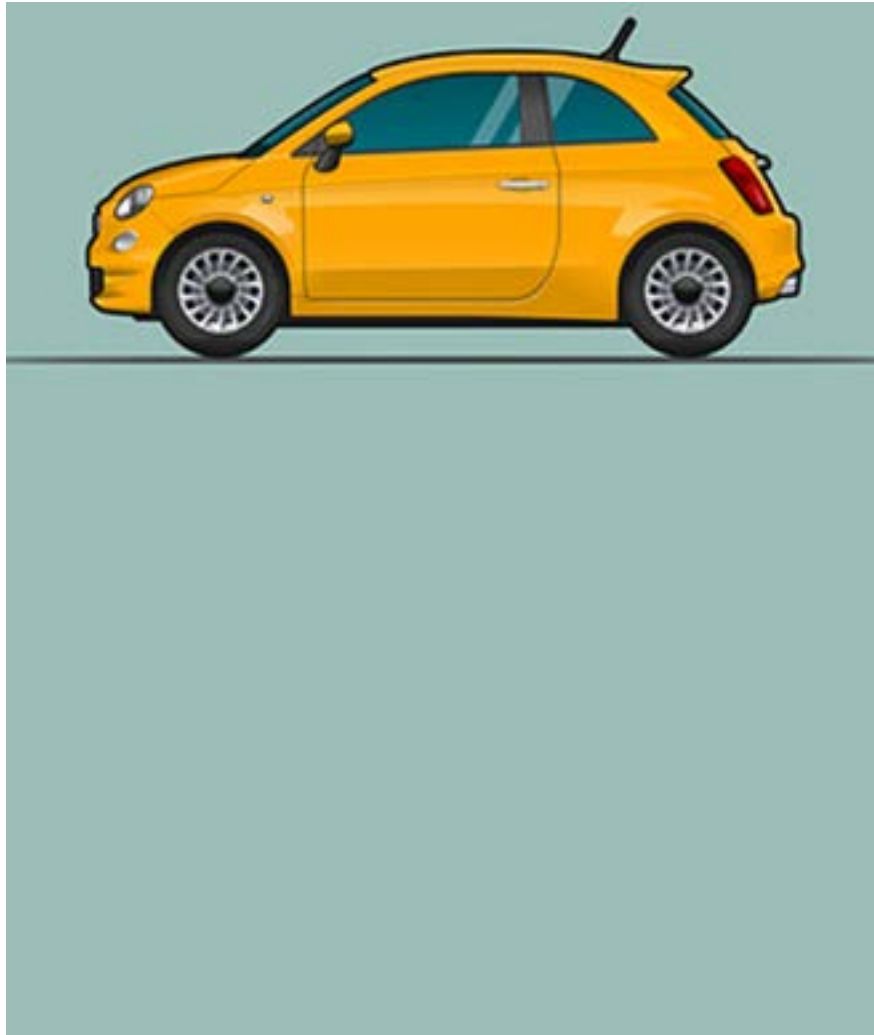
The concept of adventure mobility has undergone a significant evolution, spurred by a societal shift towards experiences over possessions. In this paradigm, the vehicle becomes more than a means of transport—it transforms into a conduit for exploration, freedom, and a connection with the great outdoors. The rise of compact adventure vehicles reflects this shift, offering a harmonious blend of versatility, off-road capabilities, and urban adaptability.

The vision driving this project is multifaceted. At its core, it seeks to infuse the LiteAce with a renewed sense of purpose—one that transcends the traditional boundaries of urban mobility. The objective is to create a compact adventure getaway that seamlessly blends rugged off-roading capabilities with everyday comfort. This vision stems from the understanding that modern adventurers, with a penchant for exploration, demand more from their vehicles than ever before.

## 2 Background Research

### 2.1 Compact vehicles-

#### Case of Indian automotive market



The surge in demand for compact vehicles in the Indian automotive market is a reflection of the intricate interplay between urban dynamics, economic considerations, and changing lifestyles. In congested Indian cities, where navigating in traffic and finding parking spaces pose daily challenges, the appeal of compact vehicles is evident. Their practicality and maneuverability address the complexities of rapid urbanization, making them apt for the same

Economically, the popularity of compact vehicles is anchored in affordability and fuel efficiency. In a diverse socio-economic landscape, the relatively lower upfront costs of compact cars resonate strongly with cost-conscious consumers. Government policies, including lower taxation on sub-4-meter vehicles and incentives for fuel-efficient cars, further enhance the appeal of compact vehicles.

Changing lifestyles, marked by smaller families and increasing urbanization, contribute significantly to the rise of compact vehicles. The younger demographic, in particular, prefers easy-to-maintain, city-friendly cars that seamlessly integrate into their fast-paced urban lifestyles. Major automakers strategically respond to this demand by diversifying their portfolios within the compact category, offering options from hatchbacks to compact SUVs. This strategic diversification fosters competition and continuous innovation as automakers strive to introduce features aligning with the evolving demands of Indian consumers.



## 2.2 Lifestyle change

### Impact in Indian automotive market

The shift in lifestyle towards using mobility for exploration and adventure purposes, particularly in the context of lifestyle-oriented mobilities, adds a fascinating layer to the dynamics of the Indian automotive market. This evolving trend is reshaping the way consumers perceive and engage with vehicles, transcending traditional notions of transportation and expanding into realms of experiential living.

In the bustling urban landscape of India, where the compact vehicle has already established its relevance, the emergence of lifestyle-oriented mobilities represents a desire for more than just practical urban commuting. It signifies a yearning for vehicles that align with the ethos of exploration and adventure—a shift from viewing vehicles as mere tools for transportation to considering them as companions for journeys and experiences.

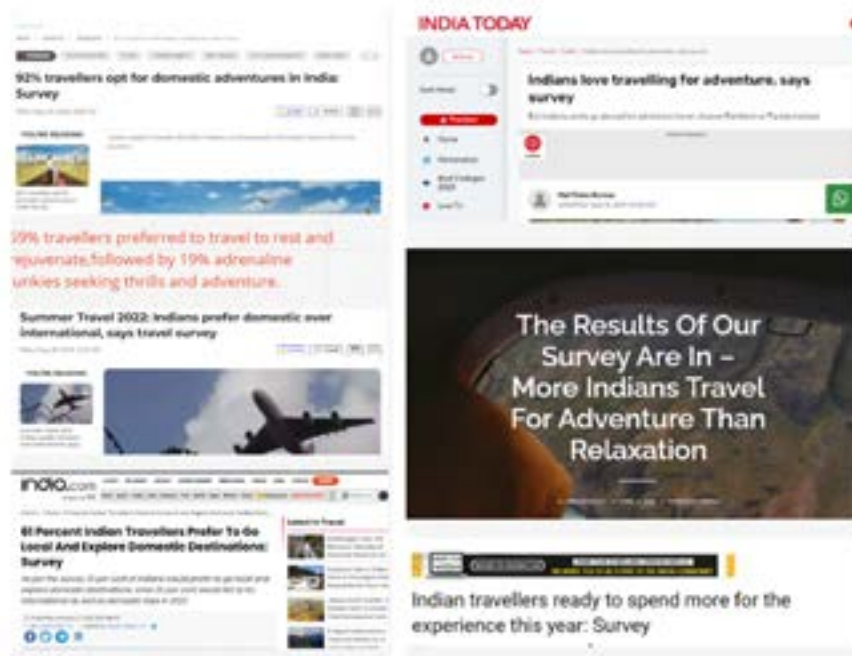
The compact vehicle, known for its maneuverability and adaptability in urban settings, becomes a versatile partner in this lifestyle transformation. Its compact size allows for easy navigation through city traffic, making it a seamless choice for urban dwellers who seek not just convenience but also the flexibility to embark on impromptu adventures beyond city limits. The lifestyle-oriented mobility trend underscores the idea that vehicles are no longer confined to the routine commute but are enablers of spontaneous exploration.

## 2.3 Adventure and Travel preferences

In recent years, more Indians are embracing adventure and travel as essential components of their lifestyles. This shift is influenced by economic prosperity, with a growing middle class having increased disposable income to allocate towards leisure activities. The younger generation, constituting a significant portion of the workforce, is particularly keen on unique experiences, rejecting conventional norms in favor of exploration and adventure.

Globalization and the pervasive influence of the internet and social media have exposed Indians to diverse cultures and destinations, inspiring a desire for thrilling adventures. The popularity of adventure sports and tourism has also soared, offering individuals opportunities for trekking, water sports, and other exhilarating activities. Improved infrastructure, better connectivity, and the development of remote areas have further facilitated the accessibility of adventurous destinations.

Moreover, this trend aligns with a broader cultural shift where experiences are prioritized over material possessions. Seeking stress relief, wellness, and a break from routine, individuals view adventure and travel not merely as recreational pursuits but as avenues for rejuvenation and self-discovery. As a result, the landscape of leisure preferences in India is evolving, with adventure and travel becoming integral elements of a well-lived life for a growing number of individuals.



### 3 Adventure getaway mobility

Adventure Getaway Mobility encapsulates the concept of flexible and compact vehicles designed for outdoor enthusiasts seeking an immersive escape. It represents a fusion of adventure and mobility, allowing individuals to venture into diverse landscapes while maintaining a sense of comfort and independence. These vehicles, equipped with versatile features, serve as a mobile base for exploration, whether in rugged terrains or serene retreats. They embody the spirit of spontaneous travel, providing a platform for unforgettable experiences in the great outdoors.

Adventure Getaway Mobility has a fascinating history, tracing back to the iconic VW camper, which symbolized freedom and spontaneity in the 1960s. Over the years, this concept evolved, giving rise to purpose-built adventure vehicles like the Toyota LiteAce, designed specifically for compact yet comfortable travel. These vehicles cater to the modern adventurer's desire for flexibility and convenience, offering a perfect blend of off-road capability and on-road comfort. The future of adventure getaway mobility looks promising, with an emphasis on sustainability and smart technologies. As electric and hybrid options emerge, coupled with advanced connectivity, the next era promises a seamless and eco-conscious adventure experience, reshaping the way we explore the great outdoors.

**Nomadic**  
**Counterculture**  
**Freedom**  
**Adventure**



### 3.1 Campervan culture of the 70's

The campervan culture of the 1970s is iconic, representing a unique era of nomadic exploration and countercultural movements. During this time, campervans became symbolic of freedom, self-expression, and a rejection of conventional lifestyles. One of the major models that left an indelible mark on this culture was the Volkswagen Type 2, commonly known as the “VW Bus” or “Microbus.” Its distinctive design, spacious interior, and association with the hippie movement made it an emblematic vehicle of the era.

Another notable model was the Chevrolet G-Series van, particularly the G10 Sportvan. These vans were converted into campers, offering a compact yet comfortable living space. The Ford Econoline also played a significant role, providing a platform for camper conversions that catered to the growing interest in mobile living. These vans often featured vibrant and psychedelic paint jobs, reflecting the artistic and bohemian spirit of the time.

The impact of the 1970s campervan culture extended beyond the vehicles themselves; it influenced a lifestyle characterized by wanderlust, communal living, and a connection with nature. Campervans became not just modes of transportation but mobile homes that facilitated a nomadic existence. Individuals and communities embraced the ethos of hitting the open road, seeking adventure, and forming a sense of camaraderie at campgrounds and festivals.

### 3.2 Current scenario of Adventure getaway mobility



In the dynamic realm of adventure getaway mobility and camping vehicles, people's perceptions and cultural influences play a pivotal role in shaping the current landscape. Modern vehicles in this segment are not just modes of transportation; they embody a lifestyle choice that reflects a desire for exploration and connection with the outdoors. The perception of camping has evolved beyond a mere outdoor activity to a cultural phenomenon, symbolizing freedom, self-expression, and a break from conventional norms.

Contemporary consumers seek adventure vehicles that align with their cultural values and personal preferences. The customization options offered by manufacturers cater to diverse cultural influences, allowing users to tailor their vehicles according to specific activities and regional preferences. This cultural resonance extends beyond the vehicles themselves, permeating the entire camping experience and contributing to a sense of community among enthusiasts.

Sustainability, a growing cultural value, is increasingly becoming a central theme in the adventure mobility and camping segment. Consumers, influenced by an eco-conscious culture, actively seek vehicles that minimize their environmental impact. This cultural shift aligns with a broader societal awareness of the need for responsible outdoor exploration. As people's perceptions continue to evolve, manufacturers are adapting to cultural cues, ensuring that adventure vehicles not only meet functional needs but also resonate with the cultural values and aspirations of contemporary consumers.



### 3.3 Future of Adventure getaway mobility

The future of adventure getaway vehicles promises an intriguing blend of innovation, sustainability, and a deep understanding of evolving cultural dynamics. As technology continues to advance, the next generation of adventure vehicles is expected to push the boundaries of connectivity and smart functionalities. Vehicles will likely feature enhanced autonomous capabilities, augmented reality interfaces, and advanced energy-efficient systems, providing an unparalleled level of convenience and futuristic appeal for users.

Sustainability is poised to be a driving force in the future adventure mobility landscape. Manufacturers are anticipated to prioritize eco-friendly materials, explore alternative propulsion systems, and integrate renewable energy solutions. This heightened focus on sustainability aligns with an increasingly eco-conscious culture, where consumers place a premium on reducing their environmental footprint. Future adventure vehicles are likely to be designed with a holistic approach, considering the entire lifecycle of the vehicle, from production to end-of-life disposal.

Cultural influences in the future adventure vehicle market will be characterized by a global convergence of preferences and a celebration of diverse lifestyles. Manufacturers are expected to embrace a more inclusive approach, offering customizable features that cater to a broad range of cultural influences. The concept of adventure will continue to transcend geographical boundaries, becoming a universal expression of freedom and exploration. As societies become more interconnected, the future of adventure getaway vehicles will reflect a harmonious coexistence of technology, sustainability, and a rich tapestry of global cultural influences.



## 4 User Research



The user research aimed to explore the preferences and needs of potential buyers and current users within the adventure vehicle market. Also to uncover insights that would inform the design and features of the project. The target demographic included individuals with variations in terms of age, geography, requirements, likes, and personalities, reflecting the diversity within the adventure vehicle enthusiast community.

The research involved a combination of in-depth interviews, surveys, and observational studies conducted with individuals across different demographics. The data collected was analyzed to identify patterns, commonalities, and unique insights that would contribute to the creation of distinct personas.

The research yielded three distinct personas within the expected target group. These personas, while sharing a similar economic status and a passion for adventure, diverged in terms of age, geography, requirements, likes, and personalities. Each persona represents a unique facet of the adventure vehicle enthusiast community, providing valuable insights into the varied preferences and needs within our target demographic. The results of the research helps in designing a project that resonates with the diverse group of potential buyers and current users in the adventure vehicle market.



#### 4.1 User Persona 01

Rezani Ahmed

26 years old | male

S Bathery - Wayanad - Kerala

friendly / determined / curious /independent / creativity

Rezani is a Btech graduate, currently running an automobile detailing studio in the city of Sulthan Bathery in Wynad. Converted his passion into profession , he is involved in a smal group of off-rodgers which organizes small events and drives in weekends and holidays. he likes to travel in small and optimized group.





### 1. Mahindra Thar

capable and spacious for the user  
comfortable Interior.  
better built quality and details

could have been more compact without  
compromising the appearance.



### 2. Force Gurkha

capable and spacious for the user  
comfortable Interior  
superb ride quality and engaging

cheap looking and primitive interior  
could have add more features like cruise,  
steering mounts electric mirrors etc.



### 3. Maruti Suzuki Jimny

capable for the user  
compact and easy for off roading  
relatable interior to gypsy

less road presence  
limited interior space



### 4. Mahindra Bolero/

capable and spacious for the user  
comfortable Interior

longer and difficult to maneuver



### 5. Isuzu D-Max

capable and spacious for the user  
comfortable Interior  
rugged appearance

better equipped off-roader

expensive  
difficult to maneuver

## Available Options

Rezani Ahmed



The user currently uses a Gypsy and aspires to  
upgrade to a vehicle as capable and compact as a  
gypsy, and more advanced in technologies and  
comfort. The current Indian market does not provide  
any such vehicles in EV platform so the user only  
has options in IC engine such as Thar, Jimny etc.

## Key words

COMPACT

BUILT-QUALITY

DETAILS

FLEXIBLE

MANEUVERABLE

AFFORDABLE



## 4.2 User Persona 02

Gayathri Kol

37 years old | female

Jhansi MP (hometown)

Mumbai MH (work)

hardworking / friendly / determined / humble / independent

Gayathri kol is an accountant working in mumbai and originally from the rural areas of Jhansi. She lives with the family and is happy and comfortable with them. Also has a small friends circle to which she opens up. Eventhough living in a city like Mumbai, she keeps intrests in visiting rural past and spending momentsin the remote areas.



### 1. Maruti Suzuki Jimny

compact size  
stylish interior  
easy to handle

Less storage options  
harsh ride quality and stiff suspension



### 2. Mahindra Thar

capable and spacious for the user  
comfortable Interior  
convertible option add to the joy of open roof cruising

Impractical due to 2 doors  
Less Storage



### 3. Tata Harrier

capable for the user  
comfortable Interior

not flexible for long journeys  
expensive of all



### 4. Mahindra Scorpio N

capable and spacious for the user  
comfortable Interior

not flexible for long journeys  
longer and hard to maneuver  
expensive

## Available Options



The user currently shares a creta with the husband and need a secondary vehicle which they can take for their dream journeys . They want to have it compact as it is to be used in cities aswell as rural roads. She wanted to spend more time with the family and want to have more memorable time with her daughter. tthe vehicle should be comfortable spacious and capable for her small family to go for adventures

### Key words

AFFORDABLE

MANEUVERABLE

JOYNESS

BUILT-QUALITY

STORAGE

COMPACT



#### 4.3 User Persona 03

Rangayana Iyer

61 years old | male

Madikeri - Karnataka

stubborn / determined / curious /independent / discipline

Rangayana Iyer is a planter from the town of Madikeri. He started his career in farming and agriculture from his early years as he followed his fathers path. he has farmlands in other places as well growing ginger, cardamon etc, which he visits occasionally. he also go to hunting and adventure trips with his dog and riends in the jungles of western ghatts occasionally.





### 1. Mahindra Scorpio

Brute Character  
Spacious and comfortable  
Feel of reliability

Big for narrow tracks  
huge for the user in cas of seating capacity



### 2. Mahindra Thar

Brute character  
Superior interior  
Same feel of major

Impractical due to 2 doors  
less storage options



### 3. Mahindra Bolero/

capable and spacious for the user  
high ground clearance

less road presence  
longer and difficult to maneuver



### 4. Isuzu D Max

Robust construction  
capable and spacious for the user  
high ground clearance

longer and difficult to maneuver  
Difficult to control

## Available Options

Rangayana Iyer



The user currently uses a Mahindra major as primary vehicle and uses the same for long travels, plantation visit and to transport smaller tools and produces back and forth. he requires a vehicle with road presence and brute character with added features and comfortable interiors if he switches to another vehicle.

## Key words

ROBUST

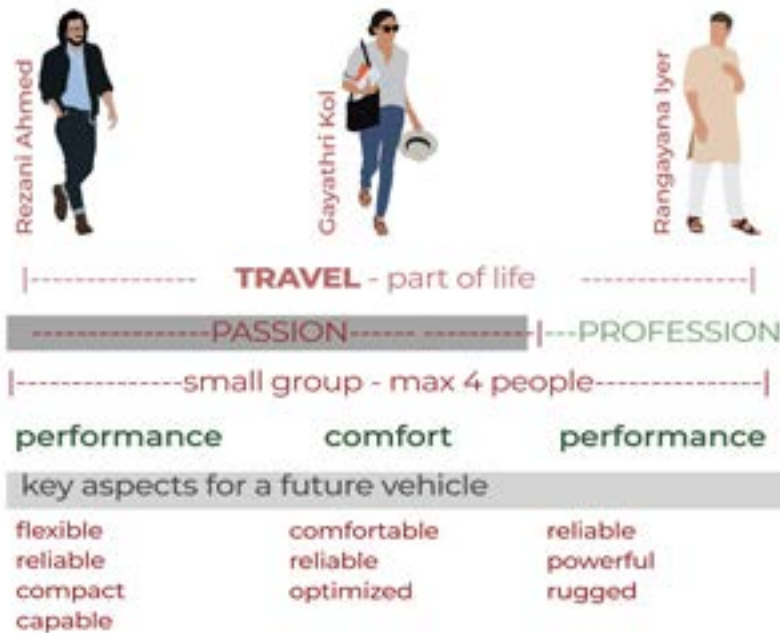
COMPACT

MANEUVERABLE

BRAND VALUE

BUILT-QUALITY

CHARACTER



#### 4.4 Persona Comparison

To understand the intricate landscape of adventure vehicle enthusiasts, a comparison of three diverse personas has unveiled intriguing commonalities, shared likes, and converging expectations. This insightful analysis provides a foundation for identifying key features that resonate across different demographics, shaping the blueprint for a project that aligns with the varied tastes and expectations of our target audience.

This comprehensive comparison underscores the unity within the diversity of adventure vehicle enthusiasts. By identifying common factors and understanding shared expectations, it is possible to create a most acceptable outcome, offering a vehicle that not only meets individual preferences but also speaks to the collective desires of our dynamic and diverse target audience.

## 5 Key Words



Keywords are derived based on the preferences and requirements of the users from the mobility. These keywords are often similar in many cases which made them top priority. The extracted keywords are then arranged on order of priority as to deeply understand the desires and needs of the targeted user group.

The major keywords came up were

- Compact
- Storage
- Affordable
- Maneuverable
- Robust
- Build Quality
- Flexible
- Character

## 6 Secondary Research

### 6.1 Activities



The secondary research conducted delves into a comprehensive exploration of potential activities for our adventure vehicle. This investigation involves the compilation and analysis of existing data and literature to identify a spectrum of activities wherein our vehicle could be employed. Each activity is meticulously studied, considering a range of factors including specific requirements, associated challenges, and inherent opportunities.

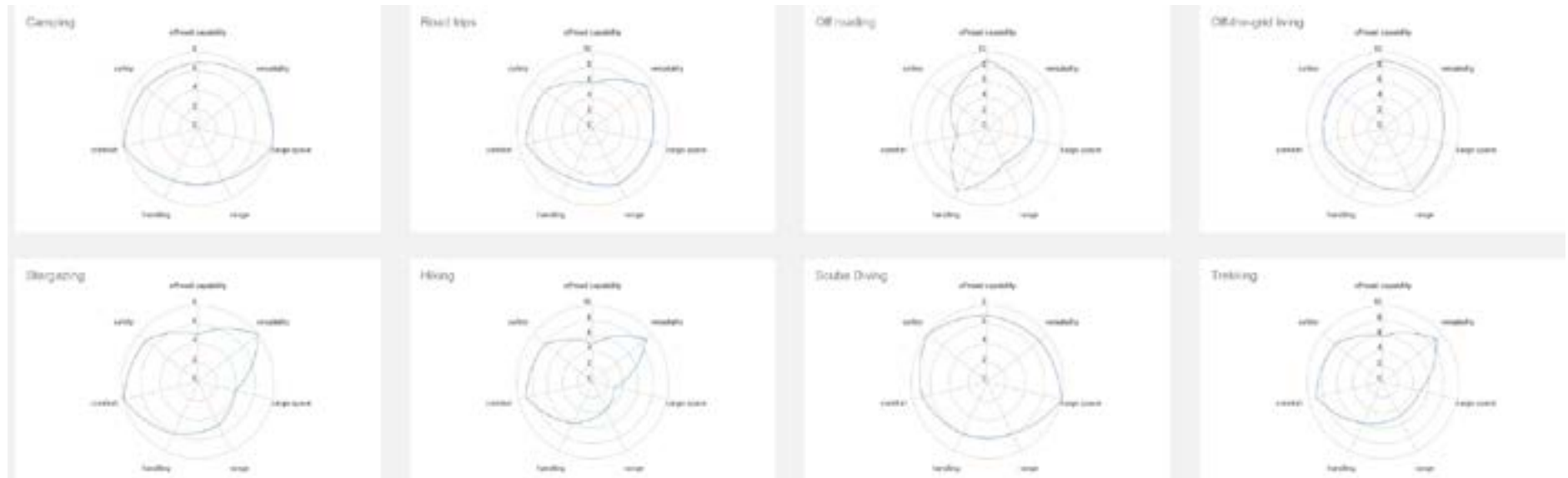
The identified activities span a diverse array, encompassing camping, road trips, off-roading, beach outings, wildlife safaris, trekking, stargazing, overlanding, and more. For each activity, the research meticulously examines the unique demands placed on the adventure vehicle, detailing the requisite features and functionalities necessary for optimal performance. Challenges associated with each activity are outlined, ranging from varied terrains to environmental conditions, providing insights into potential hurdles that the vehicle must overcome.

Opportunities within each activity are also scrutinized, identifying areas where the adventure vehicle can excel and enhance the user experience. This involves understanding the distinctive advantages our vehicle can bring to the table, whether it be in terms of adaptability, comfort, or sustainability.

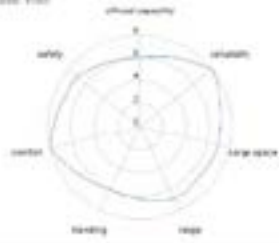


## 6.2 Activity Profiling

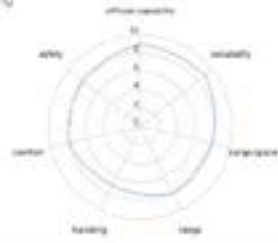
In order to evaluate the required capability of the vehicle, a radar chart with 7 parameters that are common to all the activities discussed above are made. These help in comparing, grouping and evaluating all the activities. The parameters used are Off-Road Capability, Versatility, Cargo Space, Range, Handling, Comfort and Safety.



Historical site visit



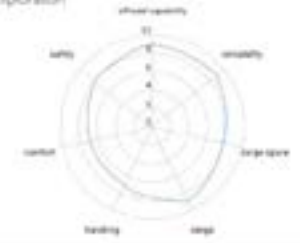
Overlanding



Photography



Desert exploration



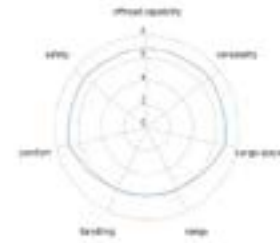
Kayaking



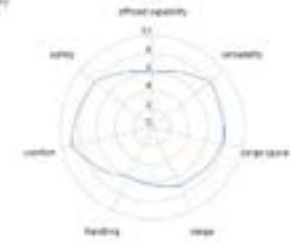
Fishing



Surfing



Beachday



Wildlife Safari



Mountain Biking



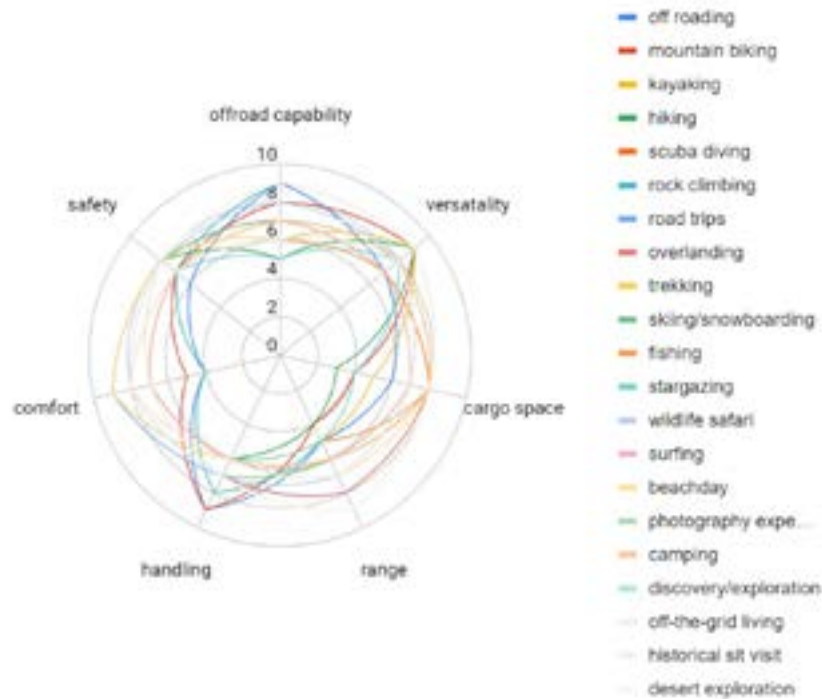
Rock Climbing



Skating/Snowboarding



## 6.3 Comparative Analysis



## 6.3 Comparative Analysis

All the radar charts depicting the performance of adventure activities across key parameters are systematically superimposed and analyzed. This comprehensive comparison allows for a holistic view of how each activity fares in terms of the specified parameters. By overlaying these charts, patterns and trends emerge, revealing which parameters consistently exhibit higher or lower scores across multiple activities. The superimposition serves as a powerful visual tool, enabling us to distill valuable insights into the relative importance of each parameter across diverse adventure scenarios. Through this process, we can derive conclusive results on which specific parameter holds the utmost significance, guiding us to prioritize and focus on the key aspects that have the greatest impact on the overall performance of the adventure vehicle.

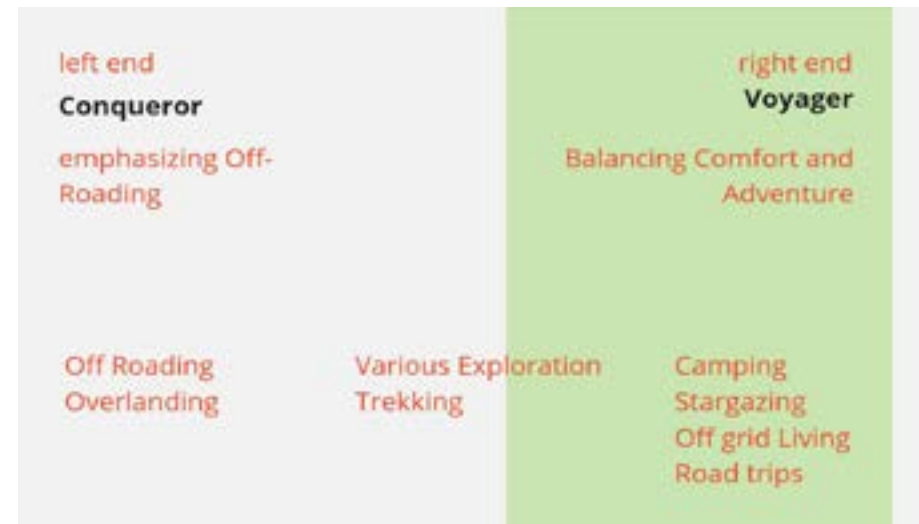
To overcome the parameters and achieve high ratings in the evaluation of adventure vehicles for different activities, several factors and design considerations must be taken into account. Here's what to consider for each of the parameters . these factors are then categorized according to primary and secondary importance.

	OFFROAD CAPABILITY	VERSATILITY	STORAGE OPTION	FUEL /RANGE RELATED	HANDLING	COMFORT	SAFETY
primary	VARIOUS DRIVE OPTIONS	MODULAR INTERIOR	CONVERTIBLE STORAGE OPTIONS	HYBRID POWERTRAIN		ERGONOMIC AND SUPPORTIVE SEATING	
			BUILT IN STORAGE	EV POWERTRAIN		NOICE INSULATION	
secondary	SUSPENSION OPTIONS	EASY INSTALL/REMOVAL	REMOVABLE CARGO TRAYS	LIGHTWEIGHT CONSTRUCTION	TRACTION CONTROL	INPORTAINMENT FEATURES	ADVANCED ASSISTANCE SYSTEMS
	TIRE SIZE AND TYPE OPTIONS	UNIVERSAL COMPATIBILITY FOR PRODUCTS	ROOF RACKS	AERODYNAMIC SOLUTION	OPTIMIZED WEIGHT DISTRIBUTION	ADJUSTABLE / RETRACTABLE STEERING COLUMN	ROBUST STRUCTURAL DESIGN
			REAR MOUNTED STORAGE	LARGER FUEL TANKS/BATTERIES	RESPONSIVE STEERING SYSTEM	CLIMATE CONTROL SYSTEM	REINFORCED SAFETY CAGE
					STIFF CHASIS		OFF ROAD STABILITYSYSTEMS
					ADVANCED AND ADJUSTABLE SUSPENSION		

Activity	Additional Features	Importance
Camping	Roof-mounted cargo box or storage for additional camping gear	7
	Exterior awning or canopy for shade and outdoor living space	8
	Portable campfire or fire pit for campsite ambiance and cooking	7
	Exterior shower with hot water for post-camping cleanup	6
	Interior soundproofing for a peaceful night's sleep	6
	All-terrain tires for accessing remote campsites	7
	Exterior insect screens or netting for bug-free outdoor relaxation	6
	Interior entertainment system with a library of camping-related content	8
	Integrated hammock attachment points for relaxation	7
Stargazing	Built-in telescope or stargazing equipment storage	8
	Adjustable reclining seats or loungers for comfortable stargazing	9
	Interior planetarium-style lighting for celestial atmosphere	7
	Noise-canceling technology for a quiet stargazing environment	6
	Exterior telescope mount or platform for stable stargazing	7
	Stargazing smartphone apps integration for celestial navigation	6
	Skylight or panoramic sunroof for unobstructed night sky views	8
	Star chart and astronomy guidebook storage	7
	Exterior telescope cleaning and maintenance station	6
Road Trip	Removable or collapsible rear seating for more cargo space	8
	Rearview camera and parking assist features for urban navigation	7
	Mobile Wi-Fi hotspot and wireless charging stations for devices	8
	Exterior campsite setup (tables, chairs, and grilling equipment)	7
	Rooftop tent or sleeping quarters for spontaneous road trip overnight stays	8
	Built-in cooler or refrigerator for snacks and beverages on the go	7
	Road trip-themed interior decor and customization options	6
	Mobile work and office setup for remote work during road trips	8
	Roof-mounted cargo racks for additional luggage and gear	7

## 6.4 Strategic Diversion

From the previous analysis it became evident that there were distinct clusters of preferences, each favoring specific features and design elements. Recognizing this diversity, it is opted for a strategic approach to cater to varied user needs effectively. The first variant is designed for those who seek a balance between light adventures, comfort, and urban maneuverability. Emphasizing seamless transitions and tech-savvy features, this variant caters to users with dynamic lifestyles. On the other hand, the second variant remains focused on off-road capabilities, extended nature stays, and a work-leisure balance, maintaining its appeal to those who prioritize rugged, nature-centric adventures. This approach ensures that our product line accommodates a broad spectrum of users, offering tailored solutions that align with varied aspirations and requirements.

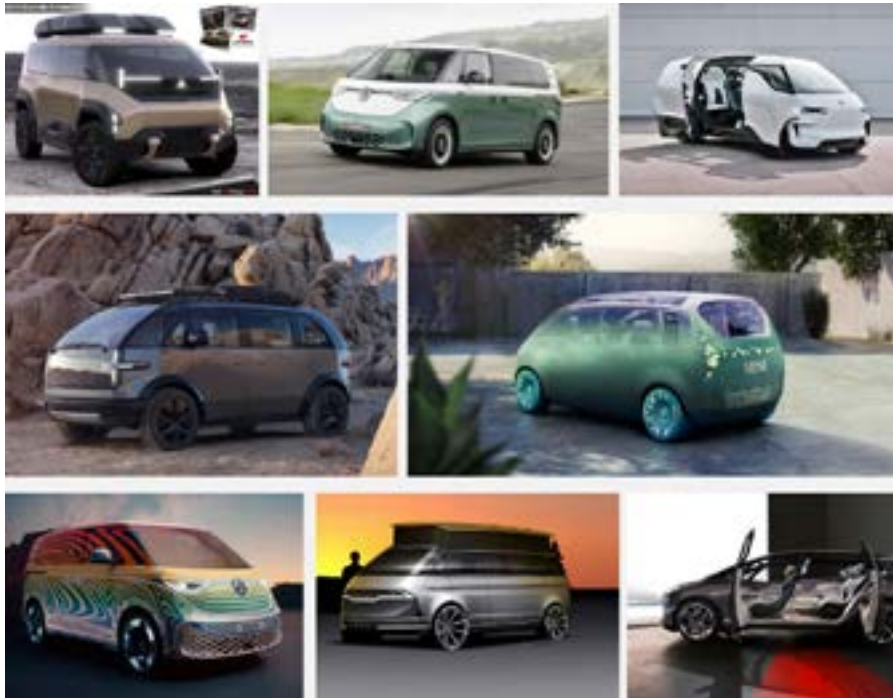


## 7 Project Justification

### 7.1 Vehicle body type

#### Why mini van body type?

The selection of the mini-van body type for development stems from a confluence of factors that respond to evolving automotive trends, changing consumer perceptions, and a redefined lifestyle orientation. One key rationale for opting for the mini-van body type is the inherent spaciousness it offers. This design provides ample interior space, making it an ideal canvas for creating versatile and functional interiors that cater to various user needs, be it for adventure, daily commuting, or family outings.



A significant shift in trends is evident, with a departure from traditional vehicle conceptions. The mini-van, once associated primarily with family transport, is undergoing a transformative resurgence. Moreover, a lifestyle-oriented conception of vehicles, where functionality meets personalization, has driven the choice of the mini-van body type. This aligns with contemporary preferences for vehicles that seamlessly integrate into diverse aspects of users' lives, blending utility with style.

On a global scale, the automotive landscape is witnessing a notable shift towards innovative concepts in the van body type. Leading automotive brands are introducing groundbreaking designs that redefine the traditional perception of vans. Noteworthy examples include Canoo's visionary approach, the MINI Urbanaut concept, Mitsubishi's DX, and Volkswagen's Microbus revival. These concepts showcase a convergence of modern design, sustainability features, and adaptable interiors, reflecting a global trend towards reimagining the van for the future.

## 7.2 Vehicle brand

### Why TOYOTA?

The selection of the Toyota brand for the project is underpinned by a confluence of factors that speak to its global standing, technological prowess, unwavering trust, and enduring longevity. At the forefront is Toyota's renowned commitment to cutting-edge technology. The brand's consistent innovation in vehicle design, hybrid technology, and sustainable mobility aligns seamlessly with the contemporary requirements of our adventure vehicle. Leveraging Toyota's technological expertise ensures that our project integrates the latest advancements, enhancing the overall user experience.

Toyota's expansive global presence is another compelling reason for its choice, catering to a diverse spectrum of lifestyles and climates. Trust is a cornerstone of Toyota's brand identity. Over the years, Toyota has consistently delivered vehicles renowned for their reliability, durability, and performance. This legacy of trust instills confidence in our project, assuring users that the adventure vehicle will not only meet but exceed their expectations. The brand's commitment to quality and safety aligns perfectly with our vision for a dependable and secure adventure companion. The longevity of the Toyota brand further solidifies its suitability for our project.

In essence, the choice of the Toyota brand for our adventure vehicle project is a strategic decision based on a blend of technological innovation, global influence, unwavering trust, and enduring longevity. It positions our project within the context of a brand that not only has a rich heritage but also a forward-looking commitment to shaping the future of mobility.





### 7.3 Model Preference

#### Why Toyota LiteAce?

Choosing the Toyota LiteAce model for our adventure vehicle redevelopment project is driven by a blend of heritage, compact design, popularity, trust, practicality, and flexibility. The LiteAce's rich heritage within the Toyota lineup signifies a legacy of reliability, fostering a sense of time-tested performance. Its compact design enhances maneuverability, making it well-suited for urban and adventure settings alike, aligning with modern preferences for eco-conscious and sustainable mobility.

The enduring popularity of the LiteAce globally reflects its widespread appeal and adaptability. Users recognize its reliability and dependability, contributing to a sense of trust that is invaluable for our redevelopment project. The LiteAce's practicality is evident in its well-thought-out layout and functionality, providing a user-friendly experience. Its flexibility allows for versatile customizations, catering to a broad spectrum of user preferences and lifestyle needs.

In essence, the LiteAce model encapsulates a perfect synthesis of tradition and modernity, making it an ideal candidate for reimagining the future of compact adventure mobility. Its compact design, popularity, trust, practicality, and flexibility converge to position the LiteAce as a compelling choice for our transformative adventure vehicle project.



## 8 Product Research

Toyota LiteAce has earned a reputation as a spacious and lifestyle-oriented machine, appealing to users seeking practicality, fuel efficiency, and customization options. Its popularity over the years is a testament to its adaptability to diverse user needs, making it a reliable choice for families and businesses alike.

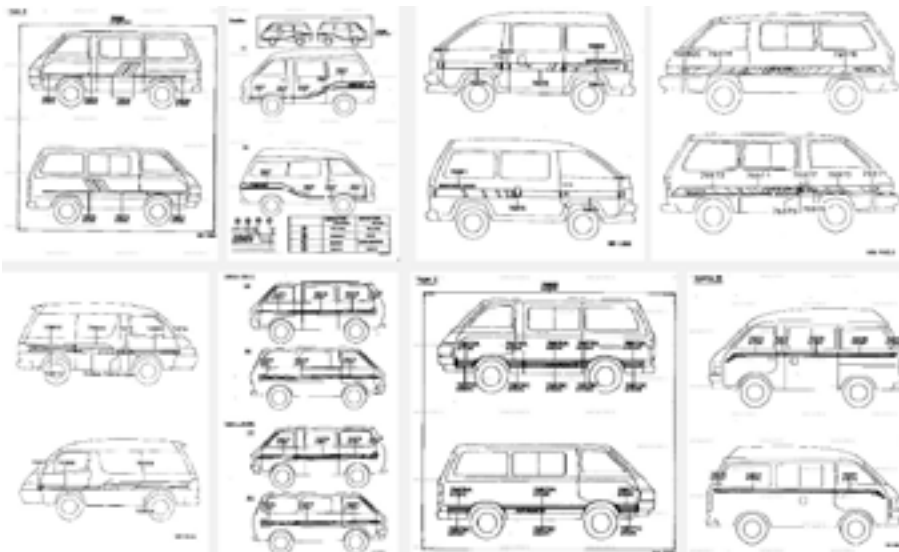
### 8.1 LiteAce-user perception

The LiteAce has been a popular choice for families seeking a reliable and efficient vehicle for daily commuting and weekend getaways. Its sliding side doors make it easy to access the rear seats, and the flat floor enhances the overall interior space, making it convenient for passengers to move around. The rear seats are often designed to be easily foldable or removable, allowing users to adapt the interior to their specific needs, whether it be for transporting goods or creating a comfortable space for travel.

One of the key factors contributing to the LiteAce's perception as a spacious lifestyle-oriented vehicle is its clever design. Despite its compact exterior dimensions, the LiteAce boasts a well-thought-out interior layout, maximizing the available space for both passengers and cargo. The boxy shape of the van contributes to a more upright cabin, providing ample headroom and a sense of openness.

### 8.2 LiteAce and iconic decals

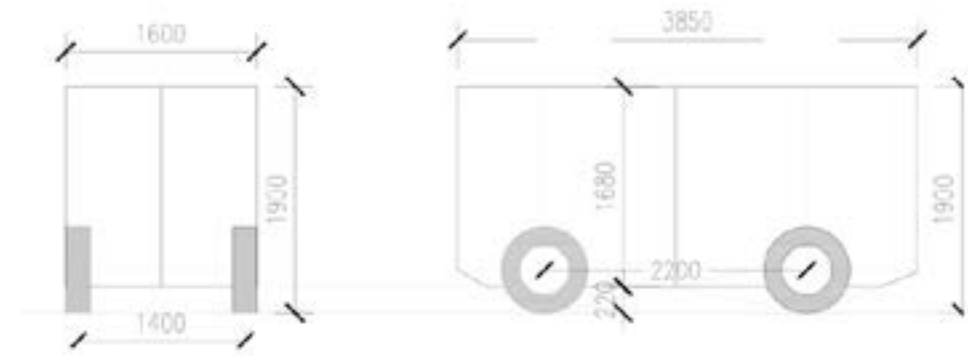
For customization, Toyota has offered various decal options for the LiteAce, allowing users to personalize their vehicles and express their individuality. These decal options often included a range of graphics and design. This aspect added a touch of personal flair, making it more than just a functional but also a reflection of the owner's style.



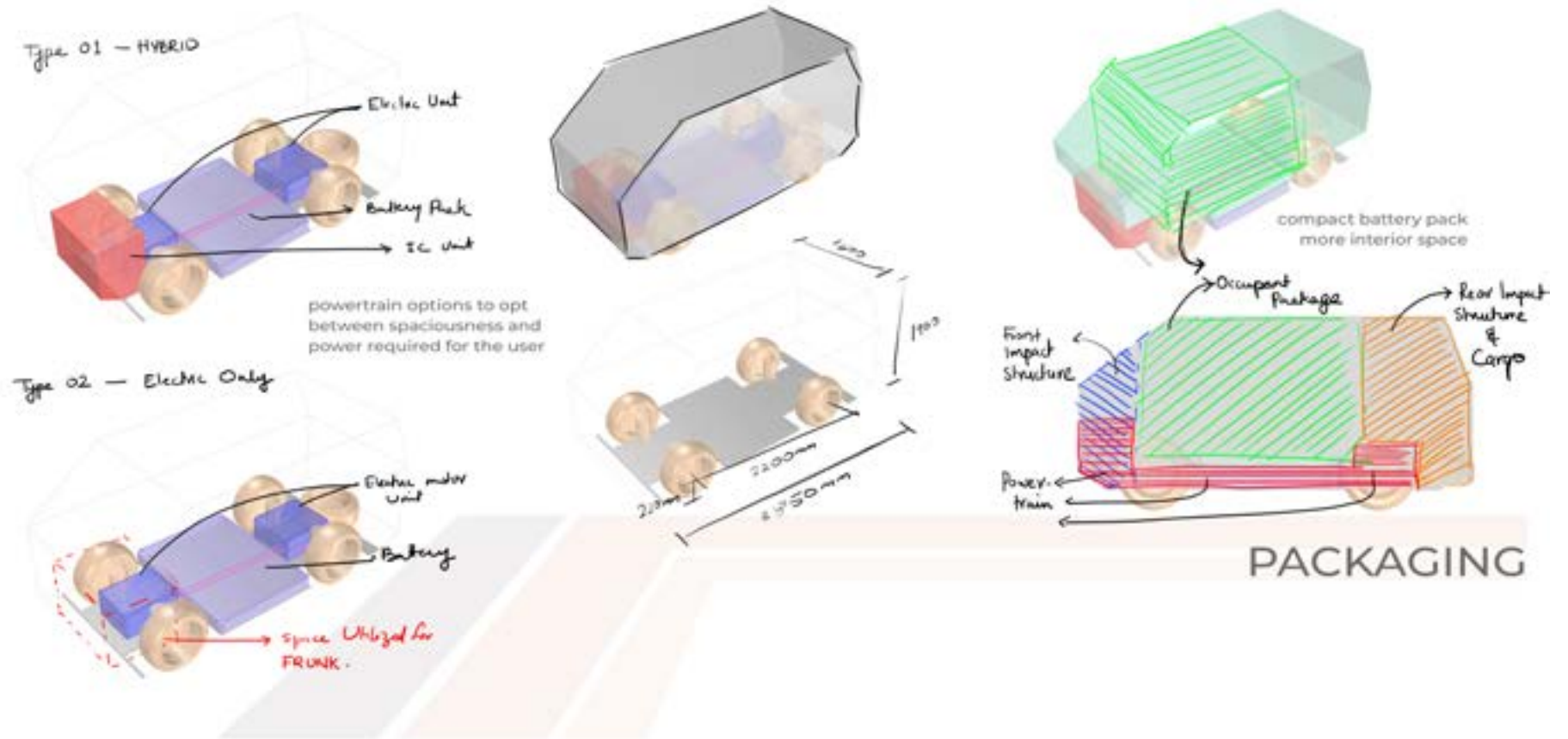
### 8.3 Dimension study

Previous generations of liteace are studied in order to obtain optimal dimensions and other specification of the vehicle. These are the matched with the other requirements and standards to reach to the final product dimensions.

	PREVIOUS LITE ACE-01	PREVIOUS LITE ACE-06	FINAL	REMARKS
LENGTH	3040	3995	3850	longer wheelbase is recommended for better stability and maneuverability.
WHEELBASE	2075	2100	2100	longer wheelbase is recommended for better stability and maneuverability.
WIDTH	1610	1650	1600	
AXLE TRACK	1340	1410	1400	advised for enhanced stability and reduced rollover risk.
HEIGHT	2105	1910	1900	
GROUND CLEARANCE	161	161	220	A minimum ground clearance of 8 to 10 inches (20 to 25 centimeters) allows the vehicle to clear obstacles and navigate rough terrain effectively.
APPROACH ANGLE	30	29	30	A minimum approach and departure angle of 25 degrees is recommended for off-roading.
DEPARTURE ANGLE	22	24	22	
BREAKOFF ANGLE	24	22	24	A minimum breakover angle of 20 degrees helps avoid getting stuck on uneven terrain.
TURNING RADIUS	4.9m	NA	4.9m	a relatively small turning radius



## 8.4 Packaging Ideation



## 9 Project Brief

Seeking to develop a compact adventure getaway vehicle based out of TOYOTA Liteace - compact mini van offering modern features, improved comfort, and safety, making it more versatile for a broader range of customers.

The product should offer the functionality and versatility of a larger adventure vehicle while maintaining a smaller, more maneuverable footprint. This vehicle should cater to outdoor enthusiasts and adventurers looking for a multipurpose, off-road-capable, and comfortable getaway experience.

The primary objective is to create a versatile and adaptable vehicle which is good in off-roading and also provides a comfortable driving experience for lifestyle-oriented adventurers.

9.1 Moodboard - exterior





## 9.2 Moodboard - interior



### 9.3 Design DNA - TOYOTA



#### 9.4 Design DNA - LiteAce



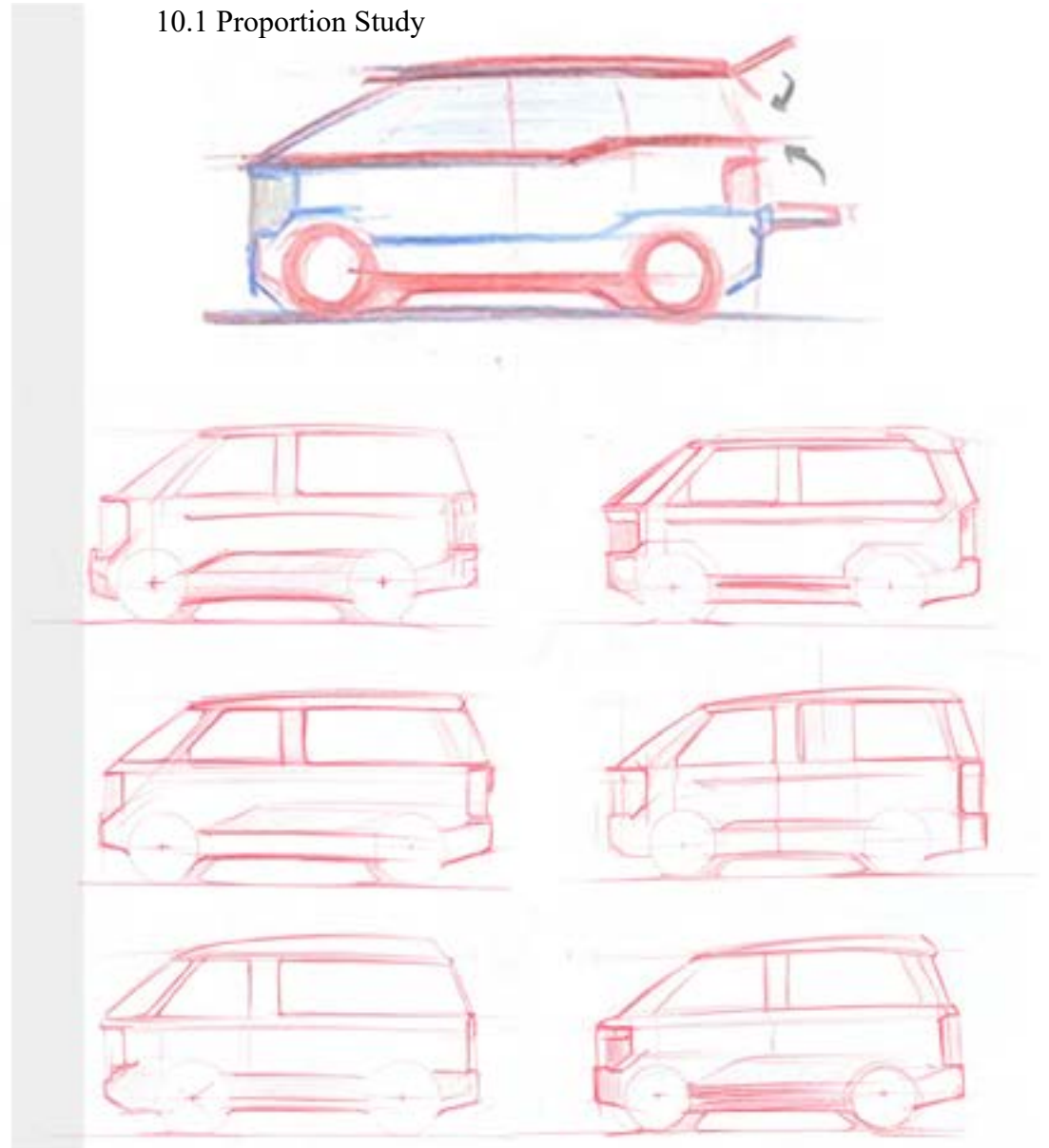
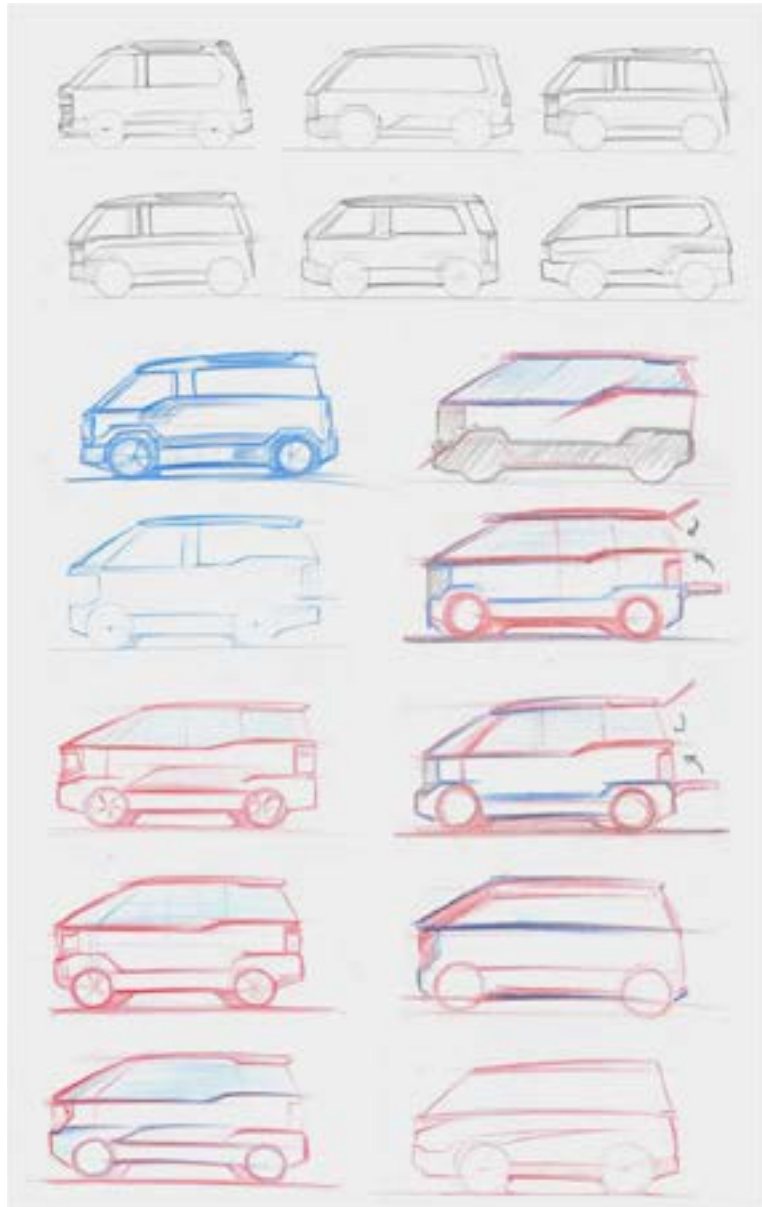


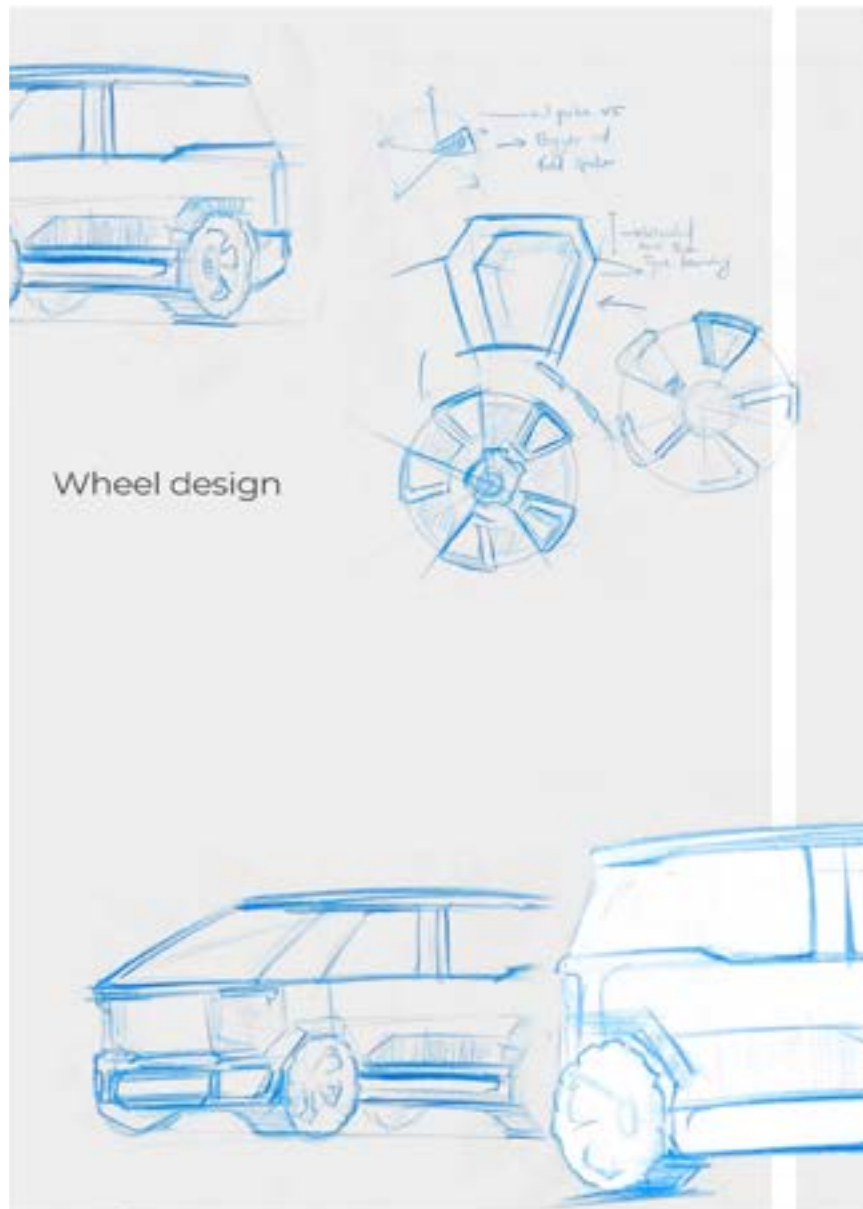
## 9.5 Design Themeboard



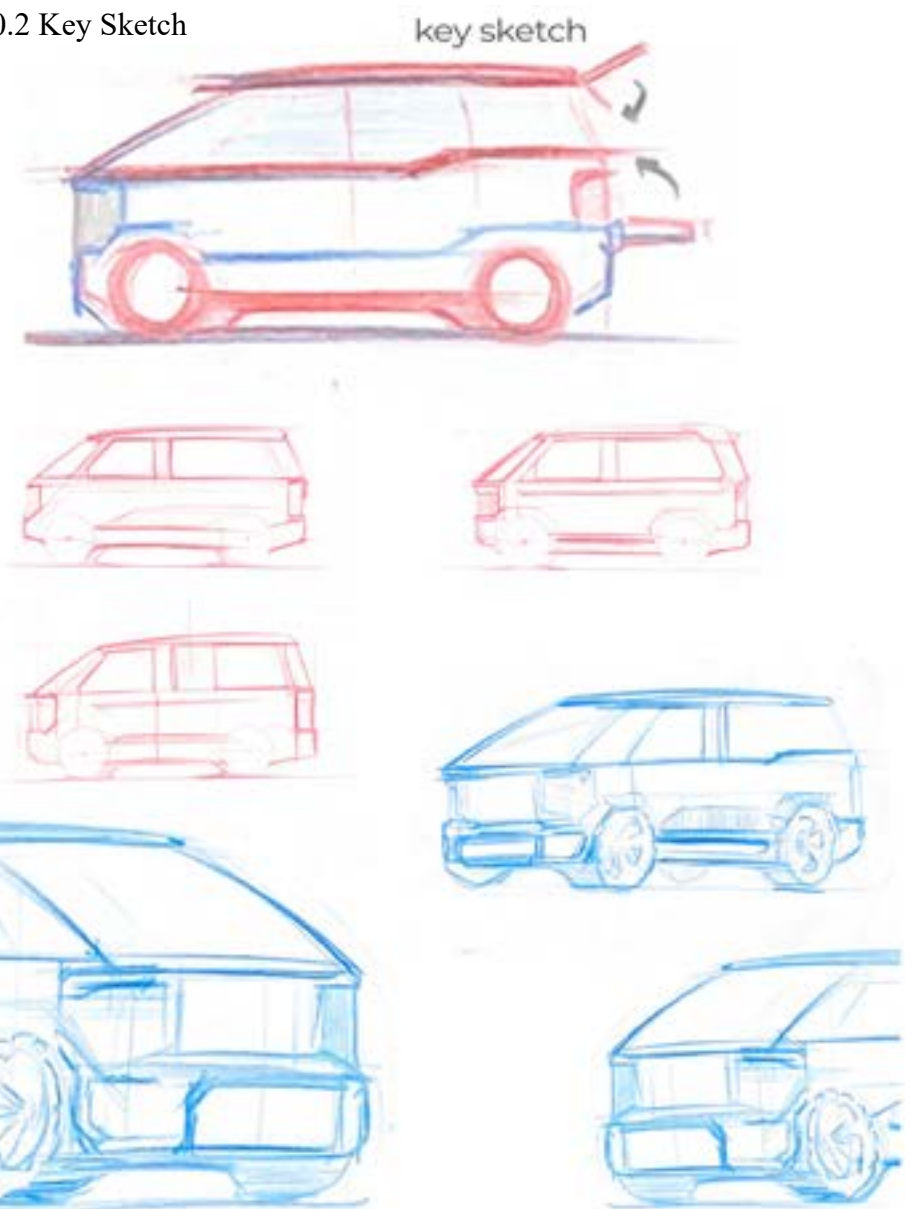
## 10 Ideation Sketches

### 10.1 Proportion Study



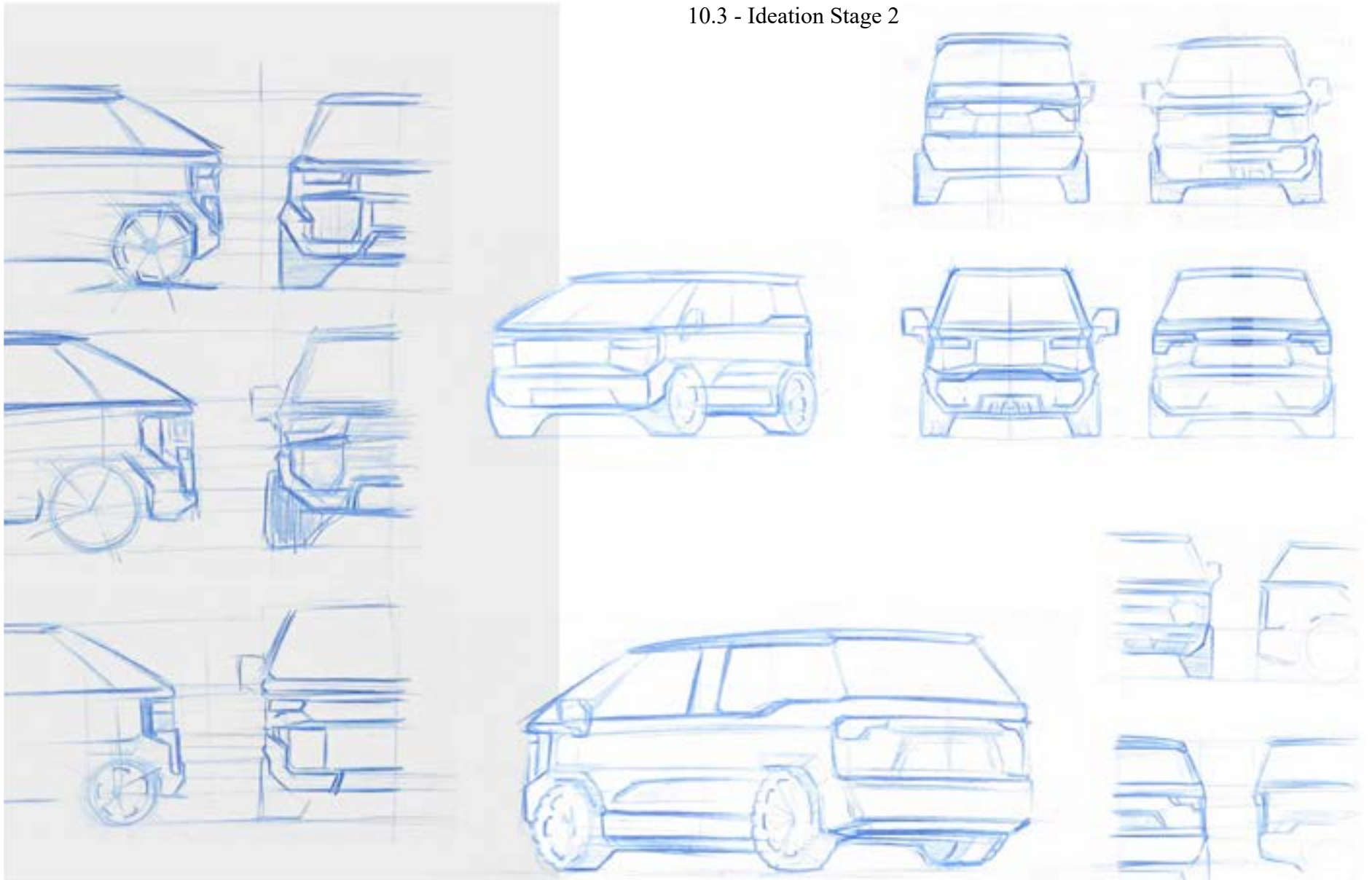


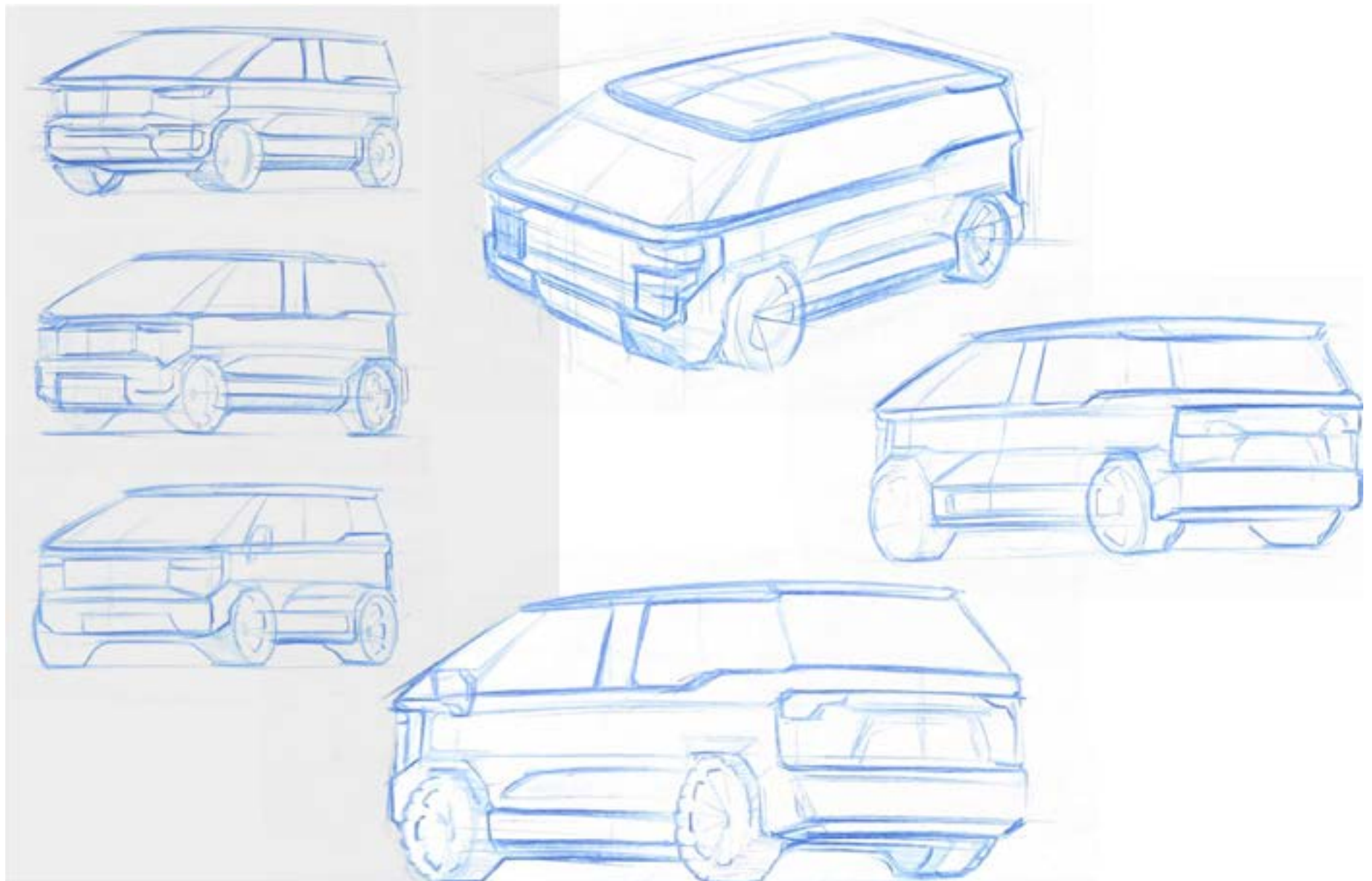
## 10.2 Key Sketch

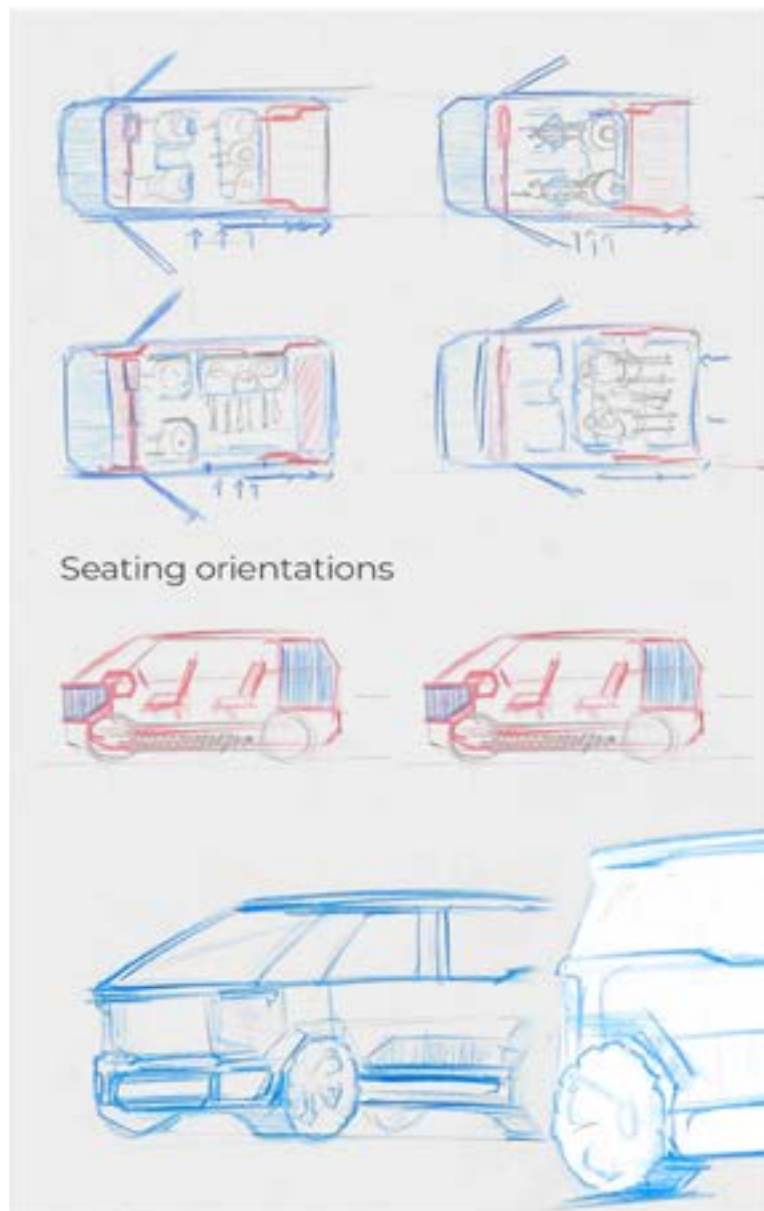




### 10.3 - Ideation Stage 2

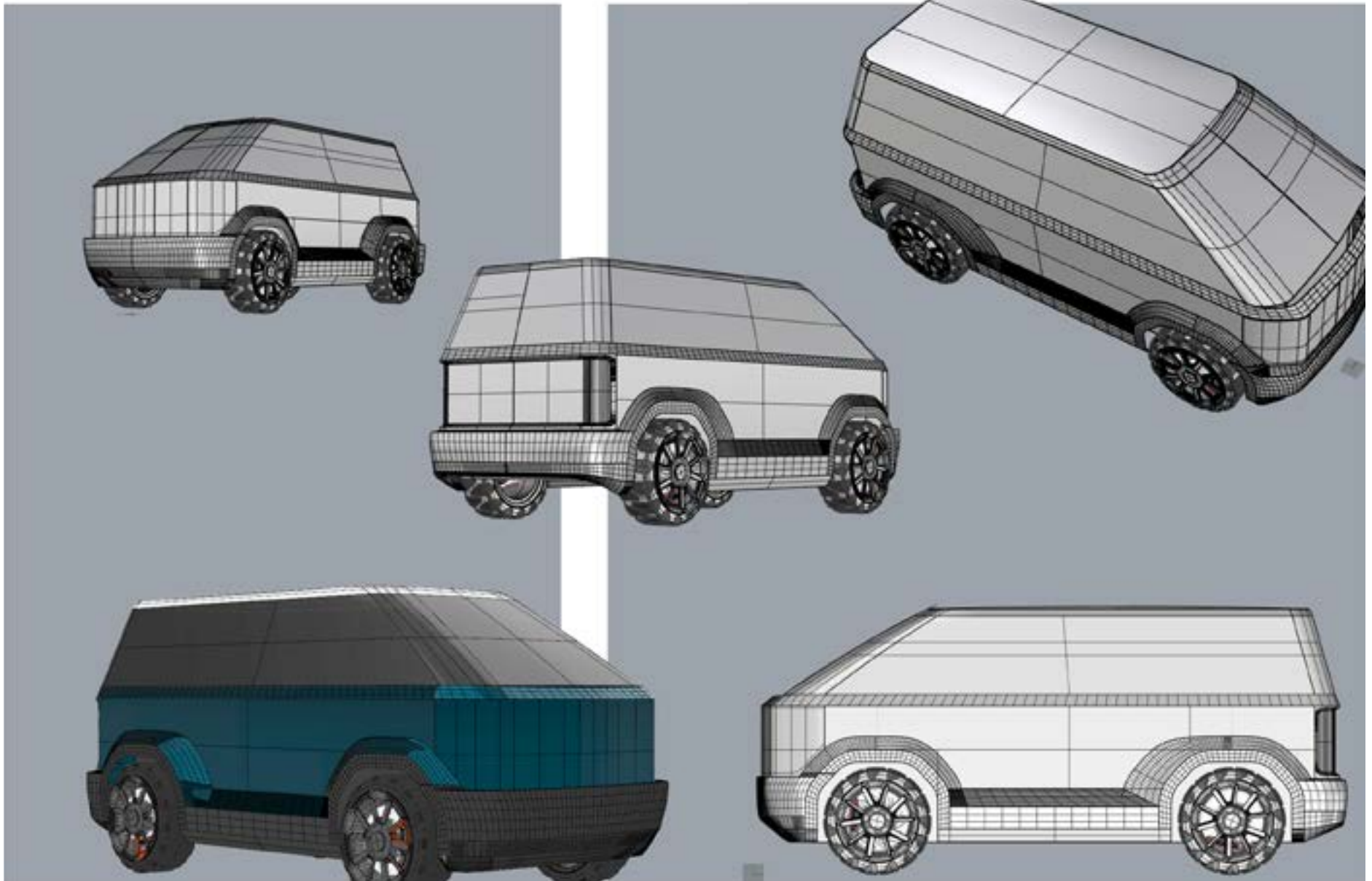








### 10.3 CAD Ideations Stage 1





## 11 Final Design

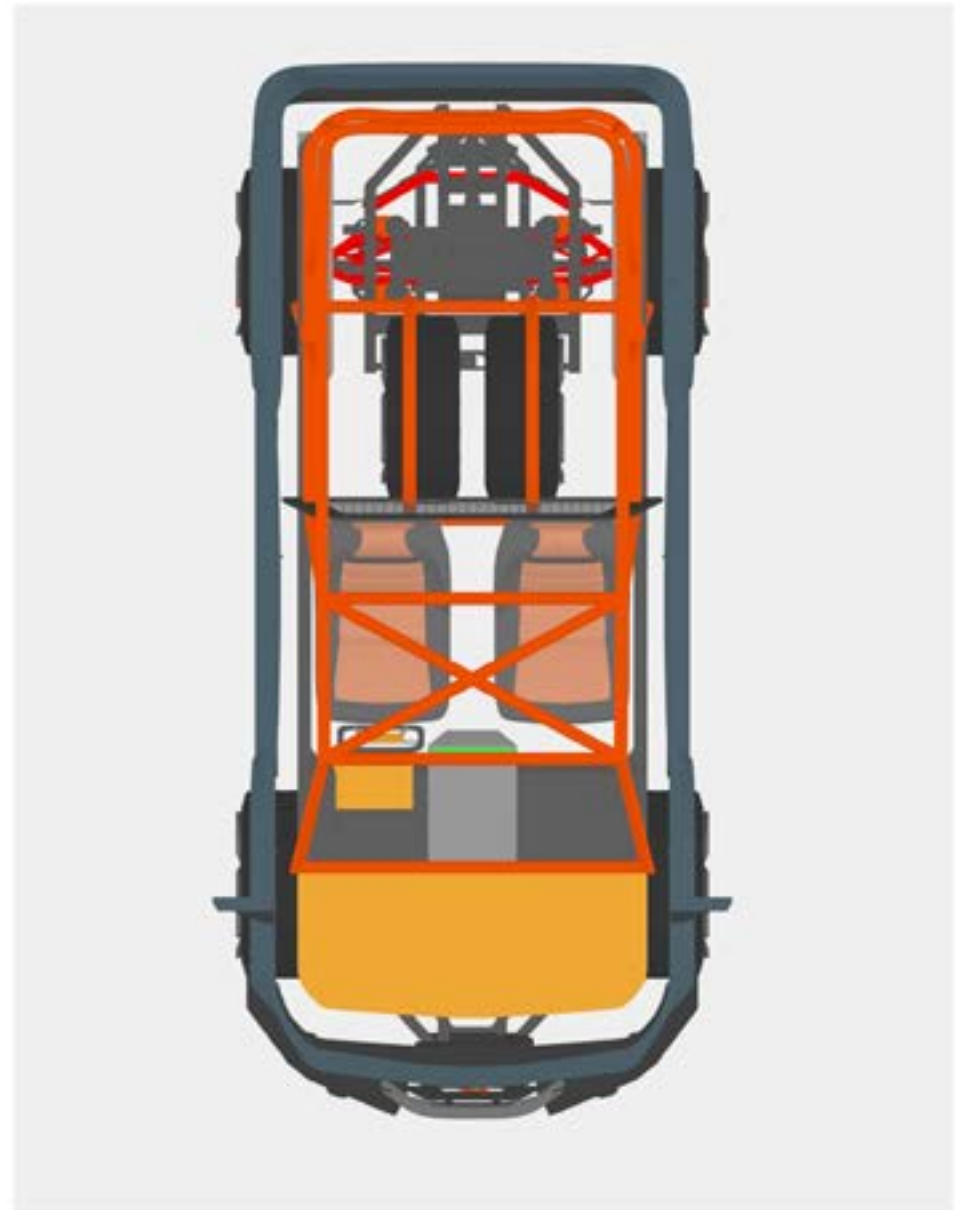
### 11.1 Final CAD Model-Exterior





## 11.2 Final CAD Model-Interior







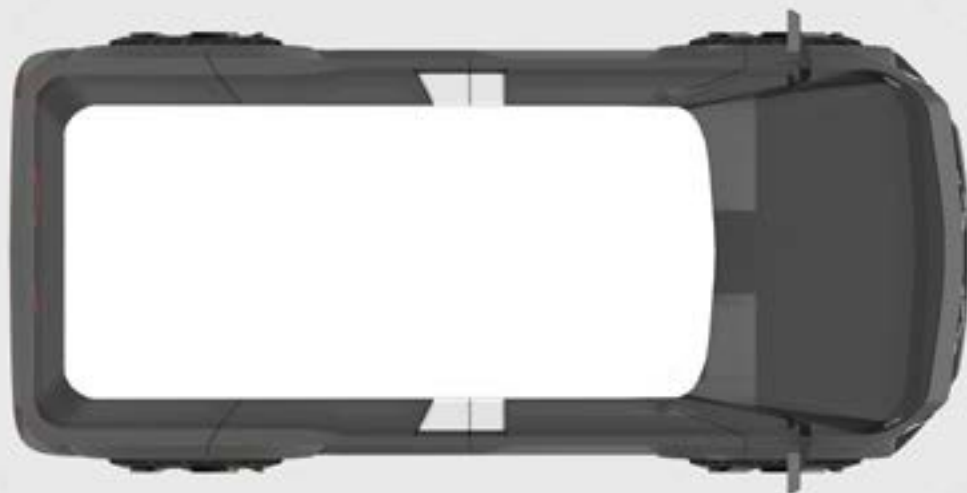


11.3 Final Renders















## 12 References

Yan, Y., Su, M., & Barnes, B. R. (2013). Toyota's Globalization Strategies - The Global Growth of Toyota. *International Journal of Business and Management*, 8(2), 45-54.

Decals- toyota liteace (2023). Retrieved 17/11/2023, from <https://toyota.7zap.com/en/gr/van/651340/yr21lg-mds/3/7553/mbx924/>

Liteace poster. (2023). Retrieved 17/11/2023, from <https://www.red-bubble.com/i/poster/TOYOTA-LITE-ACE-VAN-ADVERT-by-Throw-backM2/124014828.LVTDI>

THANK YOU