DECELERATION

A mobility designed to be slow...

Xintao Chen
Degree project
MFA Transportation Design
Umeå Institute of Design
Umeå University

2017
First of all, I would like to show great gratitude to every person I met during the master study in the Sweden country. It’s the first time I try to study abroad and also live abroad for such a long period of time. Thanks to all the helps and supports, it has been such an exciting yet meaningful journey that would probably influence my life ever since. Meanwhile, I want to hug my family for the financial support and cares from a far distance during three years.

Also, thank you Demian Horst, Jonas Sandström, Tomas Lindehell, tony catignani and all the staff from UID. Thanks for all these years tutoring which has left a strong impact on my design level already. At the same time, a big thank you to my classmates, all of them including Adam, Dominik, Fredrik, Kefeng, Martin, Robin, Robert, Tatu, and Xingyu. For the first time I make so many foreign friends, and I really feel happy and honored to study with these talented young designers. Even now I’m writing these words, all I could recall are the good memories with these guys throughout the study.

Finally, I have made this far, and with sincerely wish I would like to treasure this journey and people I met.

Thank you kind UID people, thank you for your time.
1. ABSTRACT

In 2030 mega city, there is a mobility designed to be slow...

What’s next for the luxury experience when autonomous technology is replacing your private chauffeur and there is no need for improving the performance of a vehicle? What if people get bored of applying unaffordable materials everywhere?

There is a potential to change the mindset and question the value of mobility. As it’s already happening, people start to treasure the travel experience. Vehicles play multiple important roles in our life that nowadays some of our life stories do happen during a ride.

Let’s push the boundaries to vision the most fancy travel experience. Could we dream about a romantic journey with a kind of mobility that just likes a moving architecture?

This project is focus on providing progressive solutions through a whole new kind of mobility.
1. ABSTRACT

2. INTRODUCTION
   2.1 My motivation
   2.2 Backgrounds

3. PROCESS
   3.1 Research
      3.1.1 The top market in China
      3.1.2 Luxury in life
      3.1.3 Storm of Technology
      3.1.4 Inspirations from auto startup brands
      3.1.5 Deceleration lifestyle
      3.1.6 Craftsmanship
      3.1.7 Potential of three dimensional traveling
      3.1.7.1 (Airships 101)
   3.2 Goals & wishes
   3.3 Design Approach
      3.3.1 Storytelling
      3.3.2 Inspirations
      3.3.3 Defining aesthetics/design philosophy

4. RESULT

5. CONCLUSION

6. REFERENCES
   6.1 Web & publications
   6.2 Images

7. APPENDICES
   4.1 Time plan
   4.2 (Budget)
2. INTRODUCTION

2.1 MOTIVATION

Personally, design for me is a journey that’s to meet new things, people and challenges. All that should lead to the goal to make the world a better place to live in. Especially when I have in mind about automobile, which is elaborately crafted by man as a machine to company us, I always would like to think what’s the ultimate good memory automobile should bring to people. And the dreaming really motivates me to push design to a premium level and result in a qualitative experience. I also believe in this strong emotion bond between automobile and users that they have the chance to become our second home in future, a mobile domain gives you warmth and sense of security.

As a designer, I’m actually interested in all creative fields. Collecting trendy stylish magazines, trying edgy digital games, reading sci-fi novels, they become part of my life hinting me the mindset of the design world. Are these fields to some extend picturing what’s the best we can do to promote life experience?

Then word occurred in my head is luxury, it used to be the privilege for only a small amount of people in history. Then it evolves into unaffordable experience in modern society, a kind of vision to people feel better about themselves in life. But I would say it should be more than that, more than a thing full of desire or waste so as to look down on others. Under the context world is becoming a better place, luxury is not supposed to be made for top affluents. Sincerely I hope luxury is a dream, for people to imagine the best of their life that’s worthwhile to fight for.
2.2 BACKGROUND

At all times people are looking for a higher level travel experience. Ideas have been constantly provided that car companies would like to offer affordable premium, progressive luxury and customized service to sell their brand. On the user side, they would feel happy to find their own identity in the ownership with the presence of a good quality car. The relation even lifts up your self-recognition as it showcases what you believe in and treasure most.

Definition of mobility evolved so much that meanwhile architecture plays a quiet and stable role as automobile plays the motion role in human society. Under the autonomous driving context, cars bring in more connection with users, of course with positive user perception, that they should also occupy more in our daily life taking care of the travel experience. From the very beginning people spend limited amount of time in their cars just for efficient commuting. Nowadays with such a broad category of cars, people are bond to their cars treating it as a grown-up toy, a companion for expedition and a statement of self-recognition. Then extremely speaking, would it be a lifestyle in future that people live on wheels? It doesn’t literally mean that one spends most of his time in a car like motor homes but more refer to a tight relationship in his life.

However, the whole industry already pushed traditional car business to extreme, taking care of every corner to feed the most picky demands.

The next big thing would only be to introduce the game-rule changing technology. Just like the coming earthquake on the track, autonomous car is giving challenges inevitably. While users let go the control of a car, they want some more to replace the joy of giving command. Or there will be questions that they feel like sitting in a public transportation without any identity. Now the concern is that all the efforts and heritage built for dynamic driving experience can’t be passed down anymore. By ripping off the roots of driving, designers can hardly proceed any driver-focused design or any kind that is visually made for presenting a dynamic driving feeling. Finally, this shift of thoughts would push everything to look clean and simple. And people might fail to realize the core difference between every car. Another possibility is that all brand value will present in a reduced design solution along with hidden functions and interaction features. In this scenario where everything becomes very subtle, design could almost be called invisible. Where would physical design go in this context?
Let’s take another path to the gold mine. Is there any potential that people think well-being, sustainability, slow pace lifestyle as luxury features? Just imagine the utopia for you to disconnect from the busy society besides your living room and calmly enjoy the time while taking a trip. What if automobile is not designed to transport you efficiently but to be much slower in order to enjoy the moment inside? The bold illusion is based on the hypothesis that future urban area has developed super efficient transporta-
tion with reliable infrastructure. It’s so convenient for everyone to take the public/shared transportation to everywhere freely that owning a car seems to be a less economic choice. Even think about the application of floating/flying personal mobility, which is displayed so many times by artists in sci-fi story. Would it increase the identification of yourself yet improve the travel experience at the same time? If people care so much about the journey inside an autonomous driving car, how about making the mobility more three dimensional to enjoy the scenery outside?

I would like to design a future flagship reflecting the progressive value of a brand.

Design a future flagship is an approach to reflect the soul of a car brand and keep the business more sustainable. The premium mobility experience would be a leading topic for the whole project. For years, car company takes great efforts to offer premium products both on design and service side. It started with bold decoration around car, for instance, putting shining chromes everywhere and proud standing badge on the engine hood. Then it evolved with cutting edge design philosophy, which accordingly embraces technology at the same time, offering unique premium experience to the next level.

I have this long-term thinking of what’s the good memory that could be brought to people in mobility. And this project would be the first step into the ideal blue-sky.
What’s next for the premium experience?

LUXURY EVOLVES
3.1.1 The top market in China

Assessment of China’s Luxury Car Market 2016 - It is Expected That China Will Become the World’s Leading Luxury Car Market by 2020 - Research and Markets.

In the first 11 months of 2015, China sold approximately 1,744,103 premium cars as compared with 912,203 units over the same period a year earlier. While the second half of 2015 witnessed slow growth in the luxury car market, sales have picked up in 2016. The outlook for the luxury car market in China is bright. It is expected that by 2020 China will become the world’s leading luxury car market, leaving the United States behind.

The Chinese luxury car market is set to benefit from the investment global players are making in the market. Local production will lead to overall advantages, thereby creating a streamlined value chain within China. Benefitting from local market research to a reduction in import duties, localization is the way forward for players in China. The future in China will see players strengthening their local production facilities and launching newer models catering to the young wealthy population.

Premium cars still feature one of the most important category in Chinese market. Also with the development of globalization, China is spreading its influence and expanding needs for luxury goods. The continue growing market results in the attraction for further investment into China, yet on design, more attention will be put there concerning the taste of eastern world. While the unique car culture of China brings a totally different preference for premium cars. As shown in the ranking of top 5 most important attributes by segment, wealthy consumer is more likely to own performance car with focus on exterior, while those who can’t afford would simply get their eyes on the price of the car. The mindset behind the statistic is delivering the message of luxury is still a shallow thing with the attitude to show off. However, as we expect the future of Chinese car market might change or to have more mature understanding about the products, there would be a shift in the preference of choosing luxury goods.

Private cars have been greatly spread over China in only a short period of 20 years. With young generation grown up with cars, would they be as rational to choose their cars as others in developed country with car culture? I expect for a positive change in the future when people start to truly face their needs and rethink about the role play of a car in their life.
3.1.2 Luxury in life

That's the definition of luxury goods by wikipedia and the concept is widely shared that these things are remarkably superior to the comparable substitutes due to the design, quality, performance, material. And it could also apply to many other things like service. Getting a full time chauffeur for example is a high level reflect of personal wealth. The demand upgrades accordingly to the rise of income to possess more wants than necessity. In most scenario, luxury is not necessary for daily work and living, even just useless.

But here I would like to define the word in a different way. Since the luxury is that most people can't afford it or only are able to enjoy it a couple of times in their life. Could it be a fancy dream for people to pursue for? I dream about an ideal future when people care more about well-being part in their life, luxury is not supposed to be evil anymore, without having ‘lust’ and ‘debauchery’ in it.  
-For kids, a trip with the whole family to the Disneyland can be called luxury.  
-For those who sunk in metropolis ocean for long, an escape to the country side is a luxury experience.  
-For the ambitious scientist, isn’t that luxury to have the accessibility to the most edgy field and advanced technology?

Therefore, I would see luxury as affection. A certain romance treasures the very glory moment in one’s life. Actually French design is hitting the nail of this thoughts many times. Just like many of their brands such as Louis Vuitton, Chanel, Dior, car brands as Peugeot, Citroen DS, their commercial is more likely to sell romantic story to vast majority. Picturing a superior lifestyle with full emotions, and that’s almost the visualization of love. However, love is not useless.

“In fact at the time the word had derived from the French ‘luxure’ which meant ‘lust’ and ‘debauchery’.

In economics, a luxury good is a good for which demand increases more than proportionally as income rises, and is a contrast to a “necessity good”, for which demand increases proportionally less than income. Luxury goods are often synonymous with superior goods and Veblen goods.”
“The single most important luxury goods of the 21st century are private space and time.”

Dr Dieter Zetsche,
Chairman of Daimler AG and head of Mercedes-Benz cars

World’s population increasingly urban with more than half living in urban areas. With nearly 38 million people, Tokyo tops UN’s ranking of most populous cities followed by Delhi, Shanghai, Mexico City, São Paulo and Mumbai. It’s only getting much more inhabitants in future. With such an expansion of scale, the public infrastructure is facing big challenge feeding the capacity of population. It’s easy to predict that people would get less privacy from suffering the public transportation or accommodation.

And if we look at what we have nowadays, it’s pretty hard to identify the superior design experience in mega city since it’s modern everywhere with everyone holding the iPhone. What’s the luxury part in the context as everyone gets the same style?

Private space and time as the single most important luxury goods also means the value of self-identification. For every one of us, it differs. Luxury, on the other hand, could mean totally different things for artists, musicians, entrepreneurs, and people with unique thoughts. Somehow this is a new opportunity for designers to think what matters most for certain group of customers.
3.1.3 Storm of technology

As a matter of fact, the marriage of luxury and technology always seems to be weird. For example, the vintage over-decorated style still owns its market in the top competition and gets reputation for its rich heritage and incredible craftsmanship while the edgy advanced product is believed to be outdated soon. Given the definition of typical luxury goods which are supposed to be crafted perfectly and durable for a long period of time, hardly could technology take part in these products and promote more value for rich people.

The understanding behind wealthy class somehow push the luxury goods be like the way they are as well. People with proper status would like to update their belongings as identification that should be long lasting, trustworthy and most importantly, unfordable. Meantime, field of pinnacle tech is a stormy place where the climate changes so drastically that the new black happening right now would be out of date half a year later. That’s why many of the technological innovations end up as mainstream commodities, and obviously, they are affordable to anyone.

So here’s a another conclusion that one could even say “old school luxury is the great fortune defender”. It’s the wealthy class playing in a conservative way in which revolution things seem to be a threat to their throne. In their world, impeccable design would continue to lead the taste or do a good job at passing down the heritage.
It’s a crossroad of traditional and modernity. By advanced manufacturing methods, impeccable design is not exclusive for the minority, while the leveling technology makes product more approachable to the public. With such a great success made by apple, they are showing the possibility to sell craftsmanship & advanced tech for everyone at the same time which shakes luxury market to its foundations.

If luxury good is not exclusive anymore, what’s next for its category?

Technology is now pushing luxury to change its form, but still it could be seen as challenges or opportunities at this stage yet with the fact younger customers and designers might be more likely to use the latest technology nowadays. Does it mean the shift in the business is already happening? When technology as a main feature is dominating in most of our life, I still believe in the existence of the premium experience.

Impeccable design is not new, of course. Apple was revolutionary because it made “impeccable design and craftsmanship available to everyone,” says Jen. “It’s no longer, ‘this is an inferior product because my neighbor has one’ - that notion has loosened up a lot.”
3.1.4 Inspirations from Auto startup brands

Why are Teslas so popular with nerdy tech start-up millionaires?

“One of the reasons they are tech start-up millionaires because they are fascinated with things on the cutting edge. Ferraris etc. are 100 year old technology -- albeit very refined 100 year old technology. Teslas are a hit at the future, and if you don’t appreciate that, you probably aren’t the type to become a tech millionaire.”

The resonance

Elon Musk, the founder of Tesla, is famous for lambasting the automotive industry. He likes to paint the established automakers as bloated behemoths tied to old technology and old thinking. Musk also likes to talk about how his company is changing, innovating, etc., Particularly how his product is “smarter” than anything else on the road.

While it sounds a really bold speech, the market is reacting positively showing the world is ready for the new changing in the automotive industry. Especially his stated goal of making world a better place resonates with young & wealthy tech nerds who would like to show how smart they are, and now this goes even further with more and more people sharing the similar value with them -- simply EV is cool to drive.
Technology is the great luxury destroyer

Faraday Future: “We have to be the best in every way”

It may be designed for people without a license, but Faraday wants its car to appeal to those who do have one. Hence 1,050bhp and a claimed 0-60mph time of 2.39secs, something it’s tried to prove with plentiful videos of the FF 91 beating a Ferrari, Bentley and a Tesla Model S on a drag strip.

Faraday Future, for example, has gathered hopes & credits on the Internet since its birth. From the very first FFZERO 1 prototype to the recent FF91 concept, the company is sending strong message of their brand value as premium, futuristic, sporty mobility. To compete with top brands like Ferrari, they set ambitious goals for future and try to go on a different track of competition.

“We’re the fastest production car. If you do like driving your car, you want to be the fastest car. Here you can smoke all the Ferraris. We have to be as good as possible in everything. We can’t compete in the old way. We have to be the best in every way. We have to do it all in one, like your phone.”

As the new born premium brand, it’s tricky to talk about design DNA concerning the absence of heritage. The strategy of selling its value is mostly focused around on the high-tech parameter. “better than better”, “all in one” is one of the most used slogan in these tech fields. In the vast competition involving Tesla, Faraday Future, NextEV, LeEco EV, showing the every edgy technology always seems to work every time as to defeat the traditional premium brand.

When it comes to tech, the expensive things need to come first, which also works as a strong sales pitch to wealthy class. We need something to get into production and then make them cheaper. That’s why Tesla starts with S and X. So without any hesitation, most of the auto start-up companies try to sell their products as premium goods. Even though the core value behind company might differ a lot, producing expensive things seem to be the first milestone to reach out for the far away future.

Faraday future, for example, has gathered hopes & credits on the Internet since its birth. From the very first FFZERO 1 prototype to the recent FF91 concept, the company is sending strong message of their brand value as premium, futuristic, sporty mobility. To compete with top brands like Ferrari, they set ambitious goals for future and try to go on a different track of competition.

“We’re the fastest production car. If you do like driving your car, you want to be the fastest car. Here you can smoke all the Ferraris. We have to be as good as possible in everything. We can’t compete in the old way. We have to be the best in every way. We have to do it all in one, like your phone.”

As the new born premium brand, it’s tricky to talk about design DNA concerning the absence of heritage. The strategy of selling its value is mostly focused around on the high-tech parameter. “better than better”, “all in one” is one of the most used slogan in these tech fields. In the vast competition involving Tesla, Faraday Future, NextEV, LeEco EV, showing the every edgy technology always seems to work every time as to defeat the traditional premium brand.
3.1.5 Deceleration lifestyle

The performance of automobile has been improved ever since it’s invented. What if in future, cars won’t have any problem with commuting people efficiently? What if the metro system is so mature and well developed that one can reach any corner of the city in half a day? And what’s the purpose of owning a private car except personal favor? For those who don’t get a car fever, public transportation could be the perfect choice to solve the problem of economy and efficiency.

How about design a mobility to move slow? In a speedy society where all the things need to work on time accurately, could it be an escape from that dreadful pace to have some privacy? What’s more, it could be an alternative choice for users to enjoy the travel experience or simply spend more time in mobility as they wish. In real life, slow moving transportation can be found as tourist railway or sky-rail cable way. And they are put in the specific scenario where routine is designed for this transportation. Deceleration mobility has the potential to be done in a similar way but ends up with a superior design solution.
New mindset of design world

In design world, especially those where have already established matured yet highly functional design goods, sustainability is widely noticed as the next big thing. Or let’s say, how to well integrate sustainable features into every product just like minimalism did in the past. We designers learn as the industry evolves, now except for concerning the users, the role play goes to the next level and relates to take social responsibility on environments.

At all times it’s seen as a really beneficial approach to have impact on both your clients and environment. “Sustainability—when it’s done right—is about resilience. That’s economic resilience in addition to climate resilience.” Says Julia Monk, Senior Vice President and Director of Hospitality Interiors at HOK—a global design, architecture, engineering and planning firm. And that’s the amazing part of the whole experience. Not only the design process will be more dynamic and smooth in the long run, the clients also would expect sustainability related to their personal health and well-being.

New opportunities also show up as place like China has undergone such a dramatic development in industrialization which causes painful feedback to the environment already. And for the whole country, actions should be taken before people suffer from the consequence of the rapid economy growth and over-development. In this part, many thoughts concerning lower carbon footprints or eco-friendly solution should be involved to benefit the country in a good way.

“Guests will expect housekeeping, dining, spa services, room features and other amenities to tie into individual health and well-being, as well as the greater community’s health.”

Julia Monk,
Senior Vice President and Director of Hospitality Interiors at HOK
Some inspiration from the eastern world shows value of the low pace lifestyle. “Zen” philosophy, for example, stands for emptiness or void. It’s really an spiritual idea representing the inner peace of oneself, through observing anything close enough and focus enough, suggesting that what you will see is an event not just a thing. “Zen” emphasizes rigorous self-control, meditation-practice, insight into Buddha-nature, and the personal expression of this insight in daily life. Finally it tells you to focus on living at present and enjoy the very moment you have.

When we look back on our life, there are some premium experience that’s worthwhile to memorize. However, due to the social media and your smart phone, we are doing sharing more than enjoying everything nowadays. We truly want to slow down the time when having our “prime moment” in life, while actually we are not so focused under these circumstances.

In terms of design, the idea is realized in a highly quite and calm down way. The gateway of a temple or a traditional wood yard would bring you into a peaceful space/slow sense of time. Deceleration thus gets people back on the focus of design experience.
3.1.6 Craftsmanship

Lexus has always pursued a uniquely uncompromising approach to creating premium automobiles. One that seeks innovation with a sophisticated fusion of seemingly incompatible ideas such as: high performance yet high fuel efficiency, or advanced technology yet exceptional ease of use. This “Yet” Philosophy of refusing to compromise.

Craftsmanship is a reflection of the manufacturing and the design part of luxury goods. Somehow it’s the most straightforward way to judge the value of things. As how people define unaffordable, craftsmanship in that part also means that it is collecting efforts from the talented and thus gives you a feeling of being exclusive. So in near future when everything is tend to be automotive, craftsmanship still survives, but it would be more like a basic requirement for all products.
KEY WORDS

DECELERATION
PROGRESSIVE LIFESTYLE

CRAFTSMANSHIP
DESIGN QUALITY
3.1.7 Potential of three dimensional traveling

While the future city will more likely to be dominated by efficient and economic autonomous mobility, a designed-to-be slow mobility seems to oppose the work flow of the existed transportation system. Especially when the travel experience matters most in the context which requires a high-level autopilot tech, a specific route or infrastructure could be designed as a way to support the idea. Anyway, this still might not be the best idea for the low pace traveling, and designing a whole system that would benefit only a small amount of people is also not worth it considering the social responsibility.

However, imagine in the future, a dirigible mobility could provide people three dimensional travel experience but with more economic and eco-friendly solution, and the evolution of materials and propulsion mechanism enables the mobility to be even lighter and smaller. Then it’s a dream-come-true vision that one day people could enjoy a memorable travel time in a whole different way.

The “guilty free” luxury experience

And also, a mobility designed to be slow.
Swimming in between Skyscrapers

Let’s talk about urban romance. In between the countless skyscrapers inhabit thousands of millions of people along with the stories telling the soul of a city. It’s always happening somewhere significant with our beloved ones, either in the Tokyo tower enjoying the night view of a city or on a tourist cruiser acrossing the bund in Shanghai, that the best story also needs best scenery to take part in. Without any doubt the city itself is such a charming thing that constantly attracts people to write their own stories.

Once again think about three dimensional traveling, would it be a chance to provide a whole new perspective to enjoy the urban life? Imagine yourself slowly swimming in between the skyscrapers or merchandise streets during a sunny day with your friends, and also you can go to any corner of the city at any time.
We’ve been traveling on the ground all the time as the public transport infrastructure is mostly built on a flat plane. However, with the unstoppable urbanization, simply the over-crowded inhabitants would inevitably make the city to grow in a vertical way. The form of the modern city doesn’t change much of our thinking on mobility. We still choose to commute on the ground then move via buildings. Even we design and well plan every corner of the city, barely do we have a chance to explore them as observing them on a scale paper model.

Let’s take a look again at the landscape of the city. Think more about the charm of the space brought by architecture, the very scenery you have never seen on the ground, and easy accessibility to the high buildings.

There, it’s a whole new world waiting to be discovered.
Hint from history

At this point, the challenge is to vision a kind of mobility that could travel in 3 dimensional way with a rather relaxing speed. It should be quite spacious from inside to entertain passengers and also compact from outside to fit the urban scenario.

Given the design input, it’s more appropriate to describe it as a hovering architecture. Then the idea is to find a proper mechanism to support the mobility. Here I took inspiration from history and found that there was a time people try to design a compact blimp to travel. Compare to a plane by the time when the aviation field was just about to develop, blimp was less efficient yet not reliable in terms of handling. However, it could be seen as an advantage if it’s slow and mild enough. Also with the modern autonomous technology, the blimp idea would be more like a moving living room for the users.

In this case, I’m inspired by the blimp idea and choose to develop the design with it.
Spiral effect of capacity & weight

There is a spiral effect influencing the size of a balloon airship. Every time the capacity is increased, there should be more gas to provide lifting force for the bonus weight, which also expand the size of the balloon part. Mechanism part including the structure to contain balloon would count certain weight as well.

Thus the balloon size differs drastically with the capacity and the infrastructure of the ship.

Relative lifting ability of 100% Hydrogen vs. Helium
60° F, Barometric Pressure 29.92" Hg

<table>
<thead>
<tr>
<th></th>
<th>Weight of Lifting Gas (per 1,000 cu. ft.)</th>
<th>Weight of Air (per 1,000 cu. ft.)</th>
<th>Net Lift (per 1,000 cu. ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>5.31 lbs</td>
<td>76.36 lbs</td>
<td>71.05 lbs</td>
</tr>
<tr>
<td>Helium</td>
<td>10.54 lbs</td>
<td>76.36 lbs</td>
<td>65.82 lbs</td>
</tr>
</tbody>
</table>
Three dimensional traveling

Taking reference from many concept design, dirigible mobility still draws attention of designers to dream about “fancy traveling”.

Anyway, given the mechanism of an airship which is supposed to float rather than fly in the air, the challenge is to provide energy to lift the machine and enable it stay quiet in the air. That’s also why most of the design would give a fish-like solution and simulate the physics as how ocean creatures live under water.

AIRBIA
A capacity to carry 400 people
Reach an average speed of 150km/h
Hover a height between 30-500 meters

AEOLUS
A capacity to carry 2-4 people
Capable of traveling for up to two weeks
Additional thrust and steering is provided by pedal power propulsion
Experience the prime moment with your beloved one.

Compact airship is not perfect for traveling high in terms of stability. Suitable for city exploring.
3.2 Goals & wishes

As the role of designer,

I would like to promote my automotive design skills in the final degree project, and this should be a good opportunity to show all I learned during the master programme. In this case, higher standards will be set to meet with a more demanding design requirement. This is to mean that rather than designing a good looking mobility, the whole user experience should also be included and taken care of.

In this project which could be described as pushing a deceleration lifestyle, efforts are supposed to be put on making a holistic design style concerning both exterior and interior, and even the way to use the mobility.

Meanwhile, I wish I could challenge the way people think about luxury. Or furthermore, I would like to discuss the problem under the context of a design fiction that what the mindset behind our customer is and if the mindset could be changed.

Last but not least, it’s my own strong wish to do a project concerning aviation field, and the dream of flying stays in my mind for a long while. That’s why I’m willing to dedicate this half year to the degree work. And hope finally I could achieve the illusion I was chasing for.
Some more things...

**THE VISION**

<table>
<thead>
<tr>
<th>What I like</th>
<th>Owning the personal space in the air.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What I miss</strong></td>
<td>The driving pleasure/ Traffic jam/ Efficiency of transporting.</td>
</tr>
<tr>
<td><strong>What surprises me</strong></td>
<td>A whole new world never seen before during sky traveling in mega city.</td>
</tr>
<tr>
<td><strong>Perfect if</strong></td>
<td>I could spend some of my daily life in the mobility.</td>
</tr>
</tbody>
</table>
3.3 Design Approach

MAX 3 PASSENGERS  MAX SPEED  30 km/h  Helium gas + Electric motor

Autonomous sensor  Solar panel module
DYSON FAN AS PROPULSION

AUTONOMOUS NAVIGATION

LIGHTWEIGHT STRUCTURE
3.3.1 Storytelling

-2050 mega city (Hongkong)

-customer: Tech entrepreneur

-daily routine with the mobility (work/entertain)
  -premium experience featured in the mobility
  -sustainability lifestyle
  -personal identification

-brand choosing & design philosophy (Lexus)
3.3.2 Inspirations

I'm looking for advanced aesthetics solution...
3.3.3 Defining aesthetics/design philosophy
Sketch process

After setting the story and scenario for the whole concept, I go straight in to the sketching phrase. Also I set the goal for myself that’s to come up with different directions providing multiple solution for the blimp design.

Without too much of thinking but keep in mind the Lexus design language and the proportion of a compact blimp, sketching diversified in several geometry shapes, which also indicated the architecture of the mobility. In this case, it’s quite possible to judge the feasibility of the proposal concerning how the cabin is connected to the air balloon or where to place the propelling system or etc.

Inspired by aircrafts, the sketches are discussing how this mobility is floating in the air with a rather aerodynamic shape. Also there is a potential the framework around body could be crafted into a Lexus way that makes the design look ultra-lightweight.
Like the silhouette of most blimps that’s quite similar to a whale, these sketches are discussing the design in a realistic way. The body of “whale” is supposed to be the huge gas container while the fins down the body work as propelling units. Smooth surface treatment gives it more chance to deliver a mild and calm down feeling.
I’m also trying to push a holistic design geometry that well integrates Dyson fan propelling and air balloon into one monocoque. However, these sketches inspire me more of a huge aircraft than a private blimp. Proportion is hard to read due to the hidden cabin while propelling units might be too huge in this case.
Since deceleration is the leading idea for the design, it’s worth a try to input the architecture approach. Imagine the blimp is almost static in the air, and it looks quite at the same time. That could be a strong visual to sell the concept. These sketches are showing the blimp with a quite even proportion and the form that gives anti-dynamic feeling.
Quick prototypes are introduced right after the sketching phrase. At the beginning of the process, I choose several sketches as a base to do CAD model in Alias.

At this point, no detailed models would be built. The idea is to use simple curves or surfaces to quickly form a volume/structure/shape to realize sketches into 3D.

I would prefer to call this process “character building”. Shown in the previous sketches, many features have a strong potential to be refined but somehow on the raw paper it’s hard to read the clear idea behind each feature. In this case, I combined many sketches and model them in 3D. With different perspective, it’s clear that how the structure works on design. Finally, whatever features or structures just help build the character of the blimp that’s more likely to leave an impression to the audience.

First prototype features a strong triangular shape. The balloon part and gondola is clearly connected in the middle with a huge wrapped around framework. Thus the passenger inside has a broader sight of the scenery outside. Four dyson-fan propelling system is distributed underneath gondola. The whole design has a unique alien feeling and the shape could be described as “edgy dumpling”.

Sketch model
Second prototype shows a more conventional design. It’s also more obvious to read the functionality of each part. Given the ocean-creature-inspired body, it’s predictable how the air balloon works in real life. However, stretched tail also hints a rather speedy performance. Slim cabin volume might be a problem for the space inside in which case passengers needs to be positioned in a low stance.
Third prototype visions a floating boat in the air. The architecture of the design shows buoyancy is provided both by four dyson fans and air balloon. With many flat surfaces and even proportion, the design is expected to be quite even it’s in the cruising mode. Angled cabin silhouette shows the potential that passengers could see more scenery underneath.
Inspiration image round 2

- Visual guideline for decision making
- Graphically communicating the emotion behind
Chosen direction

Prototype 1 -----chosen direction

_Rough rendering to add more details on the design
_Try difference stance to get the right character
With the help of alias model, I start approaching interior design at the same time. It’s a very good opportunity to do a whole new layout for the interior. Keeping in mind the idea of travel experience, I try to bring in a warm and premium hotel feeling inside.
Basically the whole design is for rent, and the users will be able to book the service online. Dock system including refilling the gas is provided by LEXUS.

The users need to enter the cabin in the rear where the ladders come out automatically to welcome the users.
The interior will provide users a comfortable environment during the whole trip. Food service is prepared before the users enter the blimp. The whole journey is planned in an autonomous cruising way and the users are only allowed to choose the route to travel.

Glass windows in the front and on the ground provide vast view for the users. Instrument panel with UI control draws down from the ceiling part.
Throughout the development of the CAD model, I’m trying to approach the final design to a detailed level. Either on the surface treatment or the proportion, each step includes the thinking of ergonomics and aerodynamic.

On the final model, the basic character feature from prototype could still be read, but the design looks more believable in a way that the pumped air balloon is crafted in a mild soft shape yet the cabin package is optimized for passengers inside.

Efforts have also been done into the framework of the blimp. Now the gas envelope is seamlessly attached onto the frame which continues to connect the cabin ceiling part. Envelope fabric has got certain tension on the surface to mimic the effect that it’s stretched by metal frame.
4. RESULT

Urban scenario testing

As promised, the concept will be showcased in a city context. And the image on the left pictures how the blimp works in such a vibe. This is a key process in the entire project which is meaningful in testing the emotion feedback from the audience.

Is it really worthwhile to develop an air balloon in city area?

What would be the following problems for this new type of mobility?

What is the new experience of traveling when it comes to three dimensional?

Here I would like to leave these questions open to the audience. Since it is more like a design fiction project, the value of the design should be a question mark to challenge the mindset of mobility. Either good or bad, the final result should give enough hints for people to answer the questions.
Design features

Hovering optimized architecture

Proportionally speaking, the body is given a quite even layout. From the very front nose cone to the rear stabilizer, the shape of blimp is stretched in a dead straight way yet the four dyson fans are placed on the same horizontal level. The strategy behind is to create a architecture-like mobility which is stable for hovering in the air.

Also with the busy city context which includes potential security problems, body sensors are stuck out of the air balloon part to detect obstacles around.
Proportionally speaking, the body is given a quite even layout. From the very front nose cone to the rear stabilizer, the shape of blimp is stretched in a dead straight way yet the four dyson fans are placed on the same horizontal level. The strategy behind is to create a architecture-like mobility which is stable for hovering in the air.

Also with the busy city context which includes potential security problems, body sensors are stuck out of the air balloon part to detect obstacles around.
Maintained by the Lexus company, the landing/taking off part is operated by the Lexus service point where they also refill the helium gas and fix the body position with dock. The blimp is given buoyant force by helium while the mobile function is still powered by electric dyson fans system.
Service

The blimp is not a private belonging for sure. Given the daily maintenance including gas refilling and components changing, it's quite impossible for people to own this mobility. Thus the whole travel service will be provided by Lexus auto with fully trained staff to take over the operation part. For users, it's important to book the service in advance and get to the dock system for the travel.
5. CONCLUSION

Reflection

Back to the moment when I started master programme, I made a deal with myself that there would be no playing safe throughout the study, which means I always need to challenge myself on each project either bringing new design approach, new software into the project or doing different type of mobility that I am not even familiar with. I strongly believe these efforts would result in a next level understanding of my design philosophy.

For the degree thesis, the idea of dirigible mobility originated from my dream that has been haunting me for a long while. Illusion only tells emotion to myself and doesn’t send any practical message before I truly get into the project. Without any knowledge of the aviation field, I took the bold decision to design the flying vehicle. To achieve a certain understanding of the dirigible mobility, I study the history of the blimp by researching into the historical blimp models. At the same time, technical inputs about the functionality and mechanism are also collected to support the topic. That’s basically all the preparation for the early research part.

Also it was a big struggle for me at the beginning to vision the role of this mobility. As a vehicle designed for city background, what could be the usage of it since the transportation system is already mature enough on the ground. Or let’s say, what do we benefit if blimps are widely applied in urban area. In this case, the thesis is trying to answer the questions by offering a design fiction scenario. It is pointed out at the first stage of research that the definition of luxury will be challenged in the future and the next level exclusivity will be presented in another way which focuses on the private experiences. Then conclusion is that the deceleration lifestyle could well communicate the exclusivity and privacy feature. And this idea also would relate to the application of the blimp vehicle.
For the design development, the emphasis is put on exploring a practical yet advanced design solution. As many projects I did before, discovering a fresh form is a main task to approach the final design. But this time, I also try to include more of the story telling part. From the user perspective, the blimp concept is not designed as a single art work but a kind of new transportation works for the user, taking care of their travel experience. Thus during the design development, some more bonus design features are concerned like the landing portal, interior view, city scenario and day & night situation to make the design more mature.

Another tough task is to finish the CAD model. This is a whole new challenge since the vehicle is totally different from a car. And given the real size of the model around 20 meters, alias modeling could be complicated in a way that details are carefully taken care of. Another thing is the ergonomic checking, and with the help of VR set, I try to make real people sit in to check the inner space. Finally, the blimp concept is ready to fit in maximum 4 people inside with a compact overall size.

After having a digital model, story telling could be done with digital rendering. In this part, it shows my understanding of the design and the topic. The blimp is interacting with the environment to showcase the realistic scenery, and also as a user it’s easier to get the design principle behind through high quality renderings.

In the end, outputs from Vred would represent the final design along with the story. The blimp concept communicates a new form of mobility, also providing another possibility of future. And the whole project is to challenge the industry and try to inspire people about future mobility.

Learning

As in the master programme, self design ability is tested by transforming a blue-sky vision to a believable convincing design. At this point, I’m glad I take consideration of mature thinking along the road and try to work like a real professional designer. Researching into the context, defining users group, working with physics and developing a visual style, all these contribute to a final holistic design, which exists for a profound reason. Anyway, to really achieve these goals, I need to learn the proper management of time and process. From research to design development and finally results, each part should be well executed according to the schedule. Even though there are some moments I fall behind the schedule, overall speaking I approach the goals pretty much on time.

Another thing is the presentation skill. That’s a long term training from the first year of master programme till the very end. I’m glad that I manage to deliver my ideas clearly with red line presentation slides during thesis period. And throughout all the presentations, original ideas go through all the way to the examination without too much changing on topic. And this is the learning I really try to apply to my future career.

Communication plays a more important role when the project is proceeding forward. I need to know how to take feedbacks and integrate them into my project after each presentation. And at the same time finding the right person for help also benefits me a lot in the process.

At last, I would, again, show my gratitudes to the tutors in school and myself as well. Things I learned at UID make me work in a more professional way which definitely will help me get into design career smoothly. This learning story is about a young ambitious kid who loves cool cars and jet fighters that gradually becomes a transportation designer. While growing up in design field, more people are involved in my arena, more thinking of the people is involved in my arena. At the end I realize design is about the relation with people.

That’s all what I learned.
6.1 Web & publications

3.1.1 The top market in China

P5  Assessment of China’s Luxury Car Market 2016  

The Future of Luxury Auto  

3.1.2 Luxury in life

P6  Luxury goods  
https://en.wikipedia.org/wiki/Luxury_goods

flock of origami birds fills french courtyard for the festival des architectures vives  

3.1.3 Storm of technology

P8 Technology is the great luxury destroyer  

What Does Luxury Design Mean in the Technology-Saturated Digital Age?  
http://www.socialregisteronline.com/what-does-luxury-design-mean

3.1.4 Auto startup premium brands

P10 Why are Teslas so popular with nerdy tech start-up millionaires?  

P11  Faraday Future: “We have to be the best in every way”  
http://www.topgear.com/car-news/future-tech/faraday-future-we-have-be-best-every-way

Faraday Future reveals the “FF 91”  

Faraday Future’s first car — the FF91 — is here  
3.1.5 Deceleration lifestyle

P13 The Future Of Sustainable Design
http://www.forbes.com/sites/rahimkanani/2014/03/07/the-future-of-sustainable-design/#41355954502f

Sustainable Design
https://www.dezeen.com/tag/sustainable-design/

Sustainable Design
http://inhabitat.com/tag/sustainable-design/

P15 LEXUS Design

3.1.7 Potential of three dimensional traveling

P21 Hydrogen and Helium in Rigid Airship Operations
http://www.airships.net/helium-hydrogen-airships/

P22 4 Airship Designs That Are More Than Hot Air?
http://webecoist.momtastic.com/2009/09/06/more-than-hot-air/
6.2 Image

8. https://mir-s3-cdn-cf.behance.net/project_modules/max_1200/433fb436320547.5717a071c4649.jpg
12. https://skeibu-img.dgn.lt/l_5_419232643/naujas-apple-iphone-7-visos-spalvos-su-garantija.jpg
14. http://68.media.tumblr.com/d3a1f8696e6d8254dfce1cd4d0d9f/tumblr_inline_ookke5ydqKrzri6fj_500.png
15. http://1.bp.blogspot.com/-lyzSdI4Mt8v8/ULutoGBB_GL/AAAAAAAADqM/zjczy_MprQ/s1600/cities-iv-03.jpg
17. http://www.mbcad.de/typo3temp/pics/SolidWorks_Sustainability_01_609996d2f8.jpg
7. APPENDICES

7.1 Time plan
7.2 Budget

BUDGET  30,000 Kr

- PRINT OUT
- MATERIALS FOR EXPERIMENT
- SCALE MODEL
- CLAY
- TOOLS