

Coexistent Perspectives ADCD7001

The relationship and influence between artistic design thinking and product design are briefly described

Question6-Design thinking-from process to product

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Illustrations

Figure1.Baiwen, e, 2019.Souhu. [image] Available at:

https://www.sohu.com/a/345275308_673884

Figure2.Imluffy, e, 2021.Zhihu. [image] Available at:

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Introduction

People are the mother of design thinking. Design thinking is an innovative way for people to solve difficulties and obstacles. It uses designers' understanding and skills to match technical feasibility, business strategy and user needs. Design thinking may break the tradition and convention. It is an active thinking of people, which may deny the status quo and use targeted features in product design from different aspects and perspectives to open the expanded thinking of design. Design thinking has many characteristics, such as power, comprehensiveness, purpose, divergence and so on. Based on design thinking, active and unified design thinking can be applied to product design. Product design is a series of technical work from the formulation of new product design specification to the design of product samples. Design thinking has extensive application value in product design. Starting with the theoretical analysis of design thinking and product design, this paper puts forward the significance of its application in product design, and then puts forward the relationship between design thinking and product design, and summarizes the influence based on the relationship. Based on this, this paper discusses the application of design thinking in product design and provides reference for relevant people.

Key words: Design thinking, product design, relationship and influence

1. An overview of product design and artistic design thinking

Concept of product design

Product design is a series of technical work from the formulation of new product design specification to the design of product samples. Its work content is to formulate the product design task book and implement the project requirements in the design task book (including product performance, structure, specifications, type, material, internal and external quality, life, reliability, service conditions, should achieve technical and economic indicators, etc.).(He Shengming, The Dictionary of Finance and Economics, China Financial and Economic Press,1990) Product design should be: (1) designed products should be advanced, high quality, to meet the needs of users. (2) Make the manufacturer and user of the product can achieve better economic benefits. (3) Proceed from the reality, pay full attention to the resource conditions and production and living standards, and make the most appropriate design. (4) Pay attention to improving the serialization, generalization and standardization of products.

Related theories of art design thinking

Artistic design is the art designers in the process of artistic design through the perception of life and their own experience to obtain the art theme they need, and the collected art theme processing, so as to show a new artistic image, the artistic design of this process can be called artistic design thinking.

The essence of artistic design thinking

Artistic design thinking itself has three characteristics, namely artistic, scientific, and creative, they are interrelated, and artistic design thinking is the result of the

combination of many thinking contents and ways. (Cui Shuanghe. On the application of artistic design thinking in product design , Writer's Field; 2020) Artistic design thinking in the sense of beauty, color collocation, design innovation, wonderful inspiration and other aspects of the non-linear thinking mode. Artistic thinking is to look at things from the point of view of art and seek for artistic beauty, which is reflected as artistic sense and unique thinking mode. Scientific thinking, that is, thinking in line with the objective facts and logic of things, is a rational, step-by-step thinking mode. Creative thinking, that is, breaking the conventional thinking mode, mainly for breakthrough innovation, seeking change.

Characteristics of artistic design thinking

Artistic thinking plays a decisive role in the process of artistic design and external design. The scientific thinking mainly acts on the internal structure design and functional design. In the whole process of product design, artistic thinking and scientific thinking both play an important role. (Cui Shuanghe. On the application of artistic design thinking in product design , Writer's Field; 2020)

Artistic thinking is the foundation, all design is based on artistic thinking, scientific thinking is the role of supporting design, and creative thinking is an indispensable part of the whole design process. Product design, its first reflected for the appearance design, this is the image of the product design, but also to give people the first feeling of the product. If the appearance of product design is not designed according to the needs of consumers, the product will not be recognized by consumers in the first time, and there will be no consumers to pay for it. Therefore, artistic thinking is the

foundation of product design. In addition to the appearance, the function and quality of the product is also very important. Scientific thinking guides the designer to meet the requirements of consumers in function and quality in the process of product design, and to meet the requirements and guarantee in these aspects. The whole process is also a process of innovation and creation.

Creativity exists in artistic thinking and scientific thinking. The process of product design is the process of creating new things through R&D and innovation, and the reform and innovation of old things, which are the development of creative work. The final design results are the product of the designer's creative thinking, including the appearance of the design, including the design of the internal structure. In this process, artistic thinking plays a leading role. Designers first need to create and design external products, and need to combine consumer requirements. In terms of product performance, designers need to make scientific thinking run through the design process, achieve creative development and design, and finally design the finished product in line with objective science. Also to meet the needs of consumers. This is the embodiment of artistic thinking and scientific thinking.

Types of artistic design thinking

Artistic design thinking can be subdivided into image thinking, logical thinking and interconnection thinking.

Image thinking is the embodiment of artistic design thinking, that is, the product image conceived by the designer and the actual product image after the completion of product design. It mainly through the designer's analysis, thinking, innovation and

creation, in the mind of the image of the product appearance, according to the designed image appearance according to the steps to complete the design work.

Logical thinking is a form of reasoning and judgment in the process of thinking. It is a manifestation of scientific thinking and a non-realistic mode of thinking. Its main features are the most intuitive structure and function of the product, which designers deduce through concept and theory.

Interconnected thinking is also one of the important ways of artistic design thinking.

In the process of product design, designers will not only be inspired by the existing artistic knowledge, personal ability and reference objects, but also inspire new design ideas due to temporary inspiration, or create new ideas by connecting the original knowledge, which are the embodiment of interconnected thinking.

2. The significance of the application of artistic design thinking in product design

Meet consumer demand

The main task of product design is to gain the recognition of consumers. In the process of product design, designers should not only rely on their own design ideas to complete the product, and the demands of consumers are also a very important part. Therefore, designers should follow the market principles and aesthetic principles in the process of product design and creation. The market principle mainly requires designers to understand the functions of the finished products according to the market and consumer demand, estimate the product development prospects and have a full understanding of the market structure. The main aesthetic principle is that the external design of the product needs to meet the aesthetic needs of the public, meet the aesthetic level of consumers, so as to stimulate consumers' desire to buy. A well-designed product can generate a sense of possession for the intuitive demander.

Bring benefits to product designers

For product designers, a well-designed product is like their own postcard, which can not only bring profits to the product designer, but also make him get honor and recognition. In addition, artistic design thinking brings more design inspiration to product designers during their creation and encourages them to better supplement their relevant knowledge, which is also an opportunity for designers to improve their own level and one of the benefits they can get from

good product design.

3. The application of artistic design thinking in product design

Design products according to customer requirements

The application of artistic design thinking is based on the basic principle of meeting the needs of consumers. No matter the design products that have not been sold on the market or are already on sale, this principle should be followed. First of all, as a product designer, the product designer needs to conduct in-depth research and understanding of market expectations and consumer demands. Secondly, the application scope and target group of the product should also be understood, so as to ensure the basic function of the product combined with the needs. On this basis, when designing the appearance of the product, the designer should fully understand the preferences of consumers for the product. In terms of product image and use function, we must conform to the aesthetic habits of the public, which is also a means to improve the competitiveness of the product market. Product designers should pay attention to the fact that any designed product should be fully used in the lives of ordinary people in addition to some unique uses. Therefore, when designing products, designers should not put aside the preferences of ordinary people, carry out self-blind design, remember the strange design, and cater to the public aesthetic standards. In addition, in terms of internal functions and basic structure, it is also necessary to follow the needs of consumers. At the same time, it is also necessary to do a good job in the design of the product, to anticipate whether the appearance design and internal function design can meet the needs of consumers.

Highlight the connotation of product design

Artistic design thought must have soul. Although meeting consumer demand is a basic requirement, which may cause designers to make many compromises in the process of product design, an excellent design product should have its own main idea and connotation. Therefore, when designing a product, the designer's artistic design thinking is first reflected in the conception of the product concept, and the product's appearance, color matching, function and other aspects should reflect the idea of product design. In the design process, the designer should refer to the opinions of consumers and constantly adjust the connotation of product design in time, so that the finished product design can achieve the satisfaction of consumers as far as possible.

Focus on product innovation and flexibility

The homogenization phenomenon in the product market has a negative effect on the sustainable development of the product. The root cause of this problem lies in the lack of innovation and flexibility of product designers. Therefore, designers need to innovate and improve products through artistic design thinking in product design, so as to enhance the activity of products, so that the finished products can be separated from copies and have unique characteristics. In product design innovation, designers should not be limited to their own ideas and pay too much attention to the appearance of products, but should start from the actual operation of consumers, optimize and innovate the user experience of consumers, improve the market competitiveness of products, so that the designed products can bring comfortable and excellent product operation experience to consumers.

4. The concrete application of artistic design thinking in product design

Brand Name

Apple

The advent of Apple products has had a huge impact on every aspect of our lives. Every new Apple product is hotly debated and sold out as soon as it is released. Apple products have become synonymous with fashion in modern times. One of the reasons why Apple products can be loved by consumers is the unique design beauty of its products.

In the early stage, Apple mainly studied hardware products, online service consumption software and personal computers. Apple revolutionized personal computing with the Apple II and its successor, the Macintosh. The emergence of Mac computer series, iPod, iPhone, iPad and other hardware products, as well as the accompanying online services such as iCloud and App Store, and consumer software such as OSX and iOS, make Apple products far ahead of other companies' products in the market. Apple's design innovations in its products have made it famous around the world.

The rapid development of the information age has promoted the emergence and development of Apple products. As a "new star" in the field of electronic product design, Apple products' concepts in shape, function, material and other aspects run through the company's entire development history from beginning to end. From the birth of Apple products to now, the reason why it can quickly occupy the market, and can leave a strong impression in people's minds, to bring a huge impact on people's

aesthetic, the fundamental reason is that Apple products unique design ideas. In the past 30 years, Apple Inc. has launched a series of products such as iMac, iPod, iPhone, iPad, etc., which not only surprises consumers but also pushes Apple into subversion. The following chart shows the history of Apple products.

12 Years of iPhone

Every generation iPhone ever created from 2007 to 2019



Figure 1: 12 years of iPhone



「知乎@imluffy」

知乎 @imluffy

Figure 2: History of iWatch products

The Apple generation, the first experimental product launched by Apple in the early stage, although there were design deficiencies, its existing problems also provided ideas and basis for the design of Apple II. There are clear differences between the Apple II and the first generation. The interface of Apple II is simple, the graphic design is full of beautiful colors, and compared with the first generation, the second generation is lighter and more convenient in operation, giving consumers a better use experience. After the modest success of the Apple II, Apple's designers didn't want to be satisfied with the status quo. Instead, they kept on researching, launching the iPod line in 2001 and achieving success. With its simple shape and rich colors, iPod has become a unique presence in the MP3 market, which has been favored by the vast number of consumers. At the same time, the development and production of the Mac computer line is also moving forward. Apple is committed to the integration of family and education, and the iMac was born under this theory. iMac humanized design and rich color design, break the traditional computer rigid, single pattern. Today, based on the experience and lessons learned from previous products, Apple products continue to explore and innovate its design ideas, laying a foundation for Apple's future product design.

In product design, Apple Inc. always adheres to its own unique design aesthetic concept, and constantly explores and innovates to design Apple products that belong to Apple Inc. Therefore, there is a "blood relationship" between the old and new Apple products, and the new products are the inheritance and development of the old

products. For example, the iPod series of Apple Inc. has made gradual changes in the design style of the previous generation, so that the last generation will not seem outdated even when the next generation appears. It can be seen that Apple's product design is inherited. The appearance lines, comfortable colors and intuitive human-machine interface of Apple products give users a simple and comfortable feeling, and will continue the design style in the present and future design.

Apple's unique design aesthetics is the main reason for the success of Apple Inc., which is an important guarantee that it can occupy a position in the design. Design created Apple, and Apple's unique design ideas also have a significant impact on today's world design.

In the design process of Apple products, the concept of design aesthetics is well integrated, so that the design aesthetics in the product plays a great role, creating a unique position in the design industry of Apple, which has brought huge profits for the company. Through the practical application of design aesthetics in different products, the design concept of Apple Inc. has been formed to meet the needs of different users and make Apple products stand out among many products.

In product design, symbolic elements can give users different feelings and experiences in different locations and scenes. In Apple's design, its logo design gives people a refreshing feeling. Its logo gives people a strong tension, the shape design with a circle in the square, the overall look of an apple with a bite, very interesting (as shown in the picture 3). The buttons, indicators, headphone holes and other parts of the product are often represented by circles, in line with the overall design style of

Apple products (as shown in the figure 4).

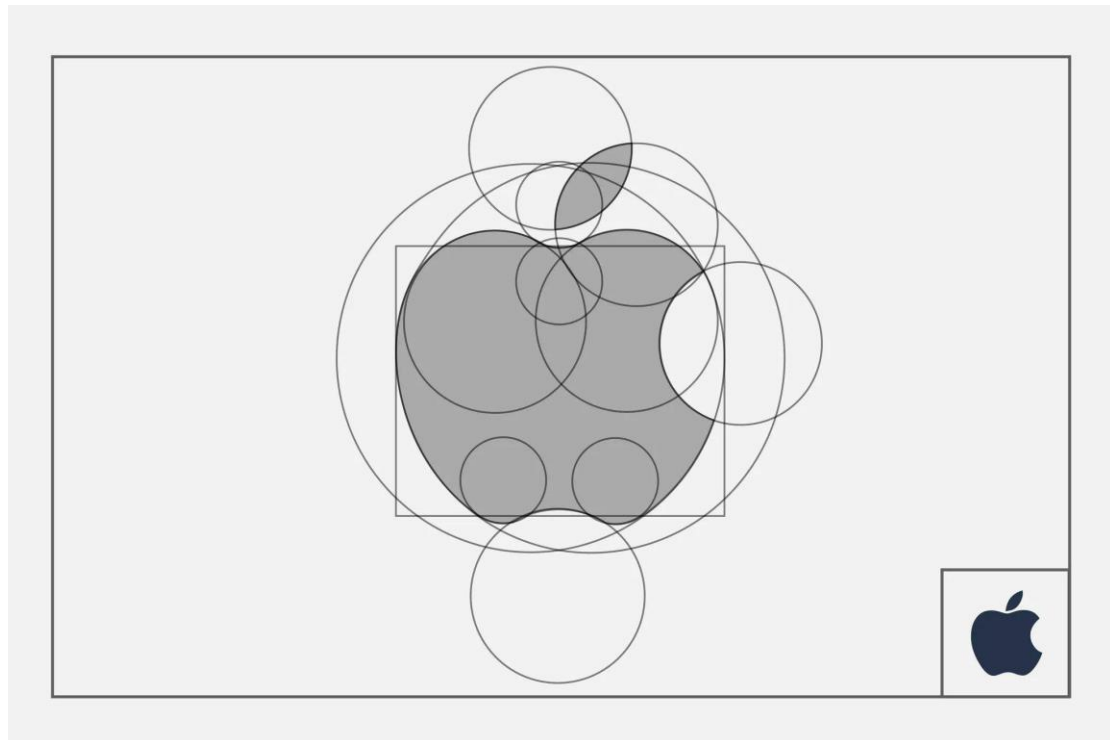


Figure 3: Apple's logo analyze



Figure 4: The circles in iPhone

In the updates of Apple products from generation to generation, take the iMac as an example, the shape of the product increases the dynamic and vitality by adding the elements of curves and arcs. This change breaks the traditional computer rigid, monotonous design form, so that the product design is full of free beauty.

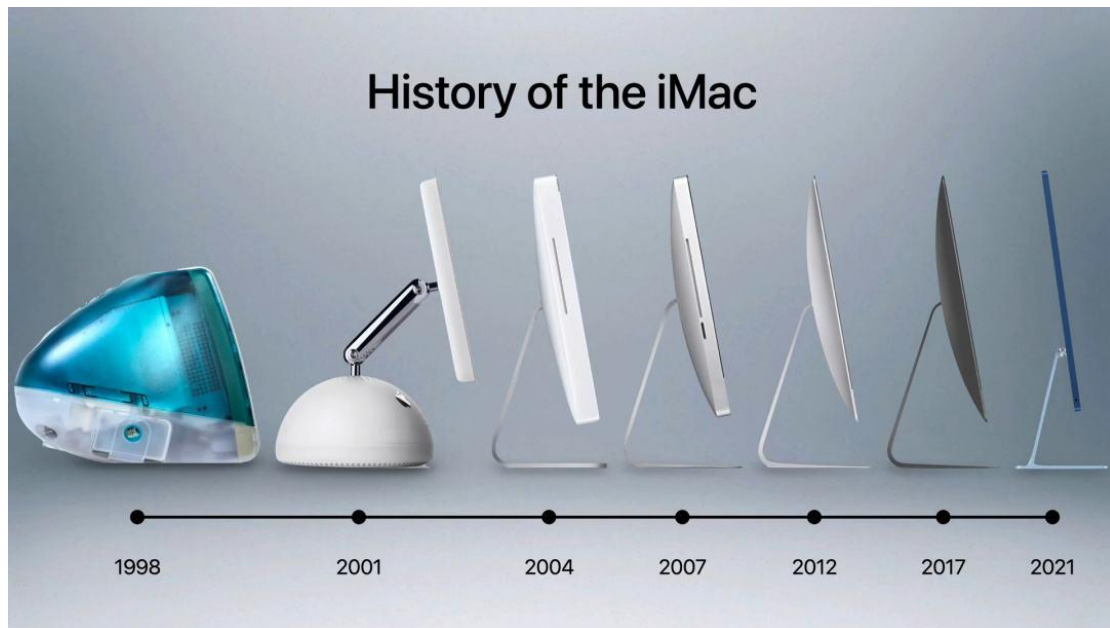


Figure 5: History of the iMac

Overall, the design of iPhone is a very symmetrical rectangle with rounded corners, and its camera, buttons and other simple symmetrical graphics, which makes the overall design of iPhone very harmonious and comfortable.

The design of Apple products combines design aesthetics to create a unique design symbol of its own. This article through the understanding of design aesthetics, and in Apple products to get an intuitive feeling, further understand its profound connotation.

Tesla

Instead of innovating in the traditional way of market demand and pure technology, Tesla attracts customers to buy through the design-driven strategy of technology and design language. The biggest difference between design-driven innovation and traditional market-driven innovation and technology-driven innovation lies in the initiative of product innovation requirements (see Figure 4). Tesla's design philosophy is extremely forward, "want people to think about a car in a new way". "Performance,

aesthetics and sexiness" are the key words of Tesla's design. Tesla wants consumers to think of its cars as more than just electric cars. It wants them to be able to see them, forget they are electric cars, and be impressed by their performance and design from the start. Through the super design and meticulous workmanship, so that consumers get more than expected satisfaction, consumer satisfaction through word-of-mouth marketing will promote orders. "The hardest part of the design is to appeal to the general public, and to do that, I thought it was important to make a beautiful car, and my team and I wanted to create a slim, sporty shape, to match the powertrain that J.B. Straubel created, to create something attractive enough, And it reminds people of the inherent brand spirit, for example, when you see it, you think of the iPhone "[17].

Tesla's design philosophy: Everything is based on first principles.

On the design concept of Tesla, Franz stressed. "We're going to use first principles and incorporate some of the principles of engineering into our design concepts, which allows us to do it in the best and easiest way possible.

The so-called first principle is that everything starts from the most essential place to solve its most original problem. This has been the underlying logic of Tesla since its inception. In Franz's view, a good designer is the most beautiful, invisible, and high efficiency, can solve the problem, and the solution is very reassuring.

The "sense of the future" that Tesla hopes to bring to car owners is not only reflected in the disruptive innovative products themselves, but also through the perfect service system.

Lean design is the use of the latest technology, from the user's point of view, design to

the extreme. Tesla's design is lean enough to make it exactly like a real car. In order to achieve a perfect design, Tesla vehicles adopt the latest and safest technologies in aesthetic, comfort, intelligence and lightweight. For example, to reflect the more forward-looking shape of the Model 3, designers used a slip-back design, unlike the hatchback styling of the MODEL S and MODEL X, which made the rear of the 3 look more compact. In order to increase the range, Tesla is trying to reduce wind resistance. In addition to the previously mentioned extreme design of the body shape, there were also major innovations in the wheels. It has a removable plastic cover on the outside of the spokes and a fancy name: the Aero Wheel. How to minimize the hollow between the spokes and optimize the aerodynamic performance at the wheel, we see the plastic cover is the biggest "contribution". Tesla has a breakthrough structure of chassis and body, because it is driven by motors and has no engine or transmission equipment compared to traditional cars. The largest component, the battery, is housed in a chassis with a high-density aluminum bracket. Because it is a brand-new design, Tesla has two compartments, the front and back compartments, and the huge space of the front and back back-up compartments has a buffer effect, which can enhance the safety of the car.



Figure 6: Tesla Model 3

In addition to its unconventional exterior, Tesla's interior is also a game-changing design for the automotive industry. The interior of the car is minimal, only the basic operation buttons remain, even the traditional car awarded with the dashboard is no longer there. Because of its innovative design, Tesla vehicles also offer a wide range of views that other cars in its class do not. Almost all functions and operations are pooled into the car's iconic center control screen. All the operations only need to be clicked and clicked on the large screen to complete the operation quickly. In the process of driving, adhering to the "safety first principle", the driving information of the vehicle will always be displayed on the screen, and other operations through the display screen will also be in place in one step, straightforward. Even now you can control it by voice, letting your car's voice assistant do most of the work for you. In fact, Tesla has improved the adhesive interaction between people and cars with the least amount of hardware, lower cost and more direct user interaction experience.

Touch control replaces the original physical keys, with voice control, greatly improving the sense of intelligent ride experience. In this era of approaching "autopilot" technology, Tesla has designed it this way, and I think they think that a good driving experience may be more than just distributed to the driver. Tap to unlock the vehicle, adjust the seat, steering wheel, rearview mirror and wiper, watch the driving video, connect the controller to play games, etc. In addition to these basic operation Settings, the visual design can even meet the requirements of viewing the air conditioning information of the main and deputy seats at the same time, to a certain extent to achieve human-computer interaction, increase the interest.

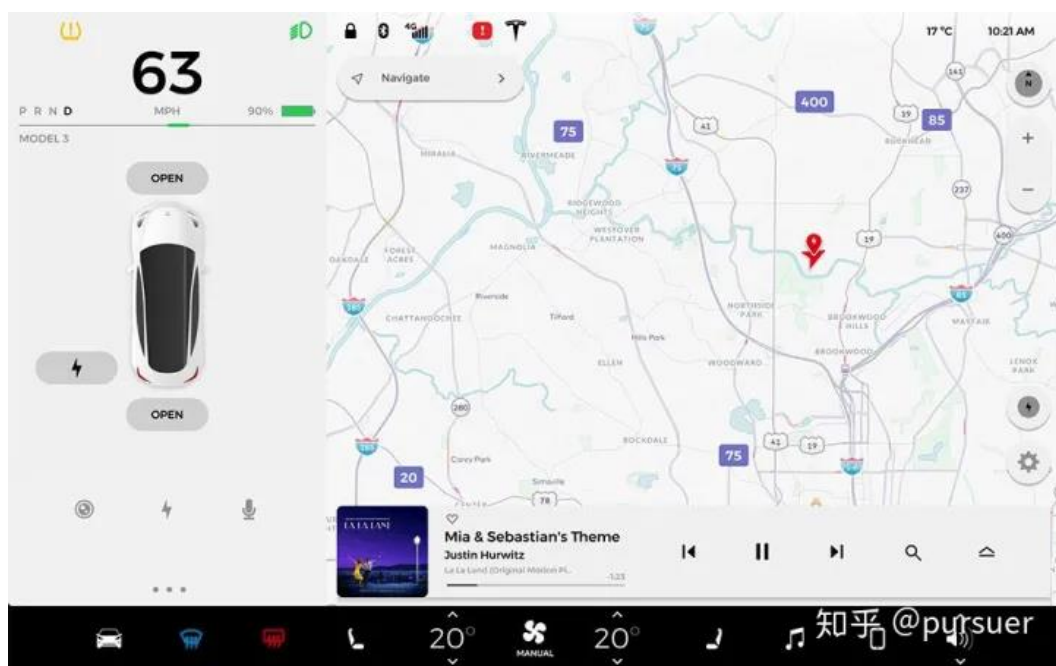


Figure 7: Tesla's UI design

In addition to the wide space and excellent view provided by the low dashboard, the entire Tesla lineup is equipped with a 360-degree panoramic sunroof, allowing you to look up at the sky and take a trip on demand. The scenery of late autumn, the stars at night, are no longer luxury, stop the car, look up, you can have the whole sky, worried

about summer will be too sun? Tesla has its own glass research and development team. The special treatment can make the glass block 99% infrared ultraviolet and most of the heat. In summer, you can not only enjoy the scenery outside the window, but also keep your skin healthy.

Why is Tesla making such a splash among streetcar brands? I think the design consideration of humanistic care is also one of the major reasons. For example, the "camping mode" and "pet loving mode" of its cars have solved quite a lot of life problems for the vast audience. "Camping mode" in the parking state can still maintain the temperature and power state of the car, can continue to charge the mobile phone, can also use the big screen to watch videos and play games, do not worry about fuel consumption, can have a short rest time at will; "Pet Mode" provides a comfortable environment for pets when the door is locked and the message "My driver will be back soon" is displayed on the center screen.



Figure 8: Tesla's dog mode

In addition to the human care of the automation design to the extreme, intelligent security is also not left behind. The Tesla Model 3 has improved sensor components: eight cameras that provide 360-degree visibility around the car within a 250-meter radius; Twelve ultrasonic sensors can complete this vision system. They detect objects at a certain distance in the same space with almost twice the accuracy of the previous ones. The package also incorporates a forward radar system with improved processing

capabilities. It provides additional data about its surroundings, with redundant wavelengths that can see through heavy rain, fog, dust and even beyond previous cars. This can help drivers observe the complex real-time road conditions, making it easier for drivers to drive Tesla vehicles. Meanwhile, the ultra-high vision algorithm further enhances the safety of Tesla vehicles. When drivers are not focused while driving and are about to have a traffic accident, the Tesla will immediately sense the abnormal state of the vehicle. And will make the next safe action through the visual algorithm, to reduce or even prevent the occurrence of the traffic accident.

Conclusion

When designing products, people often need to have a deep understanding of product design and aesthetic value, so that they can develop artistic design thinking during the design, so as to better improve the aesthetic taste and design ideas. In the new era, people have higher requirements for products. Only by in-depth analysis of people's psychology and needs can designers better innovate and design products in line with people's aesthetic taste.

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