Probe into the Idea of Product Intelligent Design Based on Information Age

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Abstract. With the development of the information age, the level of science and technology and technology has gradually improved, people put forward higher requirements for products, more and more the pursuit of personalization and diversification, the degree of innovation requirements are also more and more high. Traditional products are gradually eliminated by the market, intelligent products came into being. Based on big data analysis and cloud computing in the information age, we provide technical support for intelligent product design, provide greater development path for product innovation, and become an important driving force of Industrial 4.0 era. This paper mainly introduces the concept, characteristics and process of intelligent design, and through the demand analysis of market intelligent products, puts forward the prospect of product design in the future intelligent era.

Overview of Product Intelligent Design

Intelligent is a new term that appears with the development of modern information age, which refers to the comprehensive use of modern communication and information technology, computer network technology, industry technology, intelligent control technology and so on to a certain field, according to the definition of artificial intelligence, intelligence is to instruct the object to have sensitive and accurate perceptual function, The right thinking and judgment function and the work of effective execution function.[1]

Intelligent products require the following capabilities: First, smart products can perceive external things and obtain information, that is, perceptual ability, which is a prerequisite for intelligent activities of products, and second, intelligent products can store perceived external information, while being able to use existing knowledge to analyze, calculate, compare and judge perceived external information , Lenovo, decision-making, that is, the memory and thinking ability of intelligent products, and again, intelligent products can also interact with the environment, through interaction and continuous learning to accumulate knowledge, so that they can adapt to environmental changes, that is, the learning ability and adaptive ability of intelligent products, and finally, smart products can respond to external stimuli, Make decisions and communicate the corresponding message to respond, that is, smart products have behavioral decision-making skills. These capabilities are the criteria for determining whether a product is intelligent or not.[2]

The development of intelligent products stems from people's unremitting pursuit of high quality of life, the application of intelligent products can provide people with a more convenient, comfortable and safe living environment. At the same time, people can also be freed from the heavy and trivial housework, better enjoy the high quality of life. Intelligent product design through the design and technical means, so that the product has the memory thinking "wisdom" and behavioral language expression "ability", so as to provide people with more convenient and humane service. [3]The development of the information Age and scientific and technological progress continue to provide economic and technical support for intelligent products, for intelligent product development to provide greater space for innovation.

The Demand of Intelligent Product Design in the Information Age

In a broad sense, information refers to the message, information technology refers to the generation, collection, processing, transmission and storage of information technology, information

dissemination is the process of information issuance, reception and digestion. Modern society, information industry is highly developed and rapid development, the process of informationization is a dynamic development process, in this process, computer, communication, network and other information technology continue to popularize and apply, resulting in unprecedented increase in production efficiency, the overall expansion of the market scope, the fundamental change in the management mode and the significant decline in production costs, Resource allocation is fully optimized and fully utilized, people's quality of life has been comprehensively improved, so the demand for products that are closely related to people has also undergone fundamental changes.

People are surrounded by a lot of information every day, coupled with a fast-paced life and more and more competitive, pressure is very big, complex information can easily become agitated, people rely on electronic products more and more strong, the most typical is the development of smartphones, people every day through mobile phones to obtain a variety of information, mobile phones have become inseparable "Partners", people-to-people emotional communication and communication more and less, the sense of distance between people increased, loneliness increased, so the mind is more fragile, need to get more care. [4]And only the development of mobile phones is aimed at people's emotional needs, giving people more "care", such as intelligent bracelet, intelligent crutches for the elderly, smart medicine boxes, fingerprint recognition, product use data feedback to the terminal and other product design, health monitoring and care reminders into the product design, to make up for people's emotional vacancies.

The impact of the information revolution on product design can not be ignored, and constantly drive the development of digital design, the emergence of a new design discipline, but also promote the change of design methods and concepts. Digital design for designers to provide more convenient design tools and information exchange, greatly improve the quality of work and efficiency of designers, new design disciplines such as remote design, virtual reality and so on for information dissemination to provide a more intuitive and diverse form; changes in design methods and concepts have freed people from complex work, Spend more time and energy on innovative design and entertainment and leisure.

Of course, intelligent product design to designers also put forward higher requirements, the need for more professional collaboration to complete, such as intelligent bracelet, fingerprint recognition, product use data feedback to the terminal and other product design, such products not only need such as circuit engineers, software engineers, hardware engineers, such as technical personnel, More need for industrial design professionals integration technology and products, from product appearance, structural design, post-mold production control, production to mass production, etc., can coordinate all aspects, including design company, mold factory, accessories suppliers, real industrial designers, will not care which field is designed in which the product, Industrial design is not aimed at which technology or product type, but to consider a more integrated. This requires knowledge specialization and overall development.

Intelligent Design Features and Processes of Products

Features of Product Intelligence.
Intelligent products, should have intelligent type, humanization, network, communication and other characteristics. Intelligent, colloquially refers to the product "oneself" will think, can make the correct judgment and perform tasks, such as smart refrigerator, through program control, so that the refrigerator has similar people's thinking and judgment ability, refrigerator itself can be based on the barcode of the product to identify food, remind the daily nutrition collocation, monitor the shelf life of food, And according to the need of automatic network orders to purchase less than a reserve of food, etc., in addition, in the more mature modern internet technology, smart products can also stay in touch with people through the network, beyond space and time constraints, people can control intelligent products anytime, anywhere, customized personalized, humanized needs. Programs can also be based on the urgency of demand to use resources and avoidance methods, such as washing machines and dishwasher interconnection network, in the case of insufficient power supply, who is the most urgent electricity and so on. Intelligent products are also reflected in its communication,

that is, the interaction between products and people, this interaction is positive, on the one hand, can accept people's instructions and make corresponding judgments and feedback, on the other hand, through the screen capture or key touch of the strong and weak perception of human mood changes, active communication to obtain human needs. For example, the future toilet design can be at any time to test the user's excreta, to remind people of health status.

The progress of science and technology and the development of intelligence will make product design more humane, intelligent product design should make products will be more vitality and affinity to become people's life and emotional partner[5].

Intelligent Product Design Process.

The main features of intelligent design are based on the theory of design methodology, with the help of three-dimensional graphics software, intelligent design software and virtual reality technology, as well as multimedia, hypermedia tools for product development and design, expression of product conception, description of product structure. In short, the content of intelligent product design mainly includes the intelligent design of product function structure, the intelligent design of product modeling language, the intelligent design of product materials and color and the intelligent design of product UI [2]. Intelligent design process includes product planning-product development-production planning 3 stages.

First of all, product planning, that is, the conception of the product stage, mainly on the external characteristics of the product, such as color, shape, texture, ergonomics and other planning and design, put forward the original idea, and in the virtual three-dimensional software to create a simple model that reflects the entire product shape, by monitoring the simple model in the three-dimensional Adjust different shapes and colors and textures, which is the basis for intelligent product development and design.

Secondly, the product development and design, this stage mainly according to the principle of system synthesis, in the stereo model assembly, integration or decomposition of elements, to achieve its functional analysis, product analysis is an important means of communication product planning and development.

Finally, the production planning of the product and the processing and assembly of each component, that is, the realization stage of the product, mainly through the use of key technologies such as computer software, the solution element and assembly process visualization, explain the relationship between modeling and assembly, in the process to find each stage of the existence or potential problems, So that the product in the design and development process has been constantly improved and refined.

Conclusion

Intelligent products focus on "service" and "experience", product Intelligent design and R & amp; D of the ultimate goal is to provide better service. To the consumer value to meet the emotional needs, which also put forward specific requirements for product design, to ensure that the user-centric, product design in line with the user's mental model, on the basis of the original cognition to experience the conquest and self-realization. Therefore, the application of intelligent design products in people's life and work, to improve people's quality of life has a very important significance. Intelligent product design to designers also put forward higher requirements, from product appearance, structural design, post-mold production control, production to mass production, etc., the need for more professional talent collaboration integration technology and products, which requires knowledge specialization and all-round development. Therefore, industrial designers should strengthen the intelligent design research and development of products, enhance professional level and comprehensive ability, to provide people with a more convenient and safe life.

Reference

[1] W.G. Liu. Modernization, Informatization, Digitalization, Intelligentization and their Interrelationships [J]. China Railway, 2011,01:83-86.

[2] F.F. Hao. A Brief Talk on the Process and Trend of Intelligent Product Design [J]. Technology & amp; Enterprise, 2011,11:152.

[3] Y.W. Zhao and G.X. Zhang. The Direction of Product Design Development-intelligent, Digital, Dntegrated [J]. International Dcademic Developments, 2004,01:37-38.

[4] J.D. Wang and S.H. Zhu. Interpretation of Digital Education [J]. Digital Education, 2015,1:1-7.

[5] H.J. Li and J.W. Ding. Thoughts on the Construction and Application of Intelligent Grain Depot [J]. Grain and Oil Warehousing Technology Newsletter, 2016,01:1-5.