

Design of Intelligent Health Care Glasses Based on the Concept of Traditional Chinese Medicine and Health

Wenjia Liang

Nanjing University of the Arts, Nanjing 210000, China.

Abstract: With the gushing development of electronic products, electronic products cover all aspects of modern people's life. In the face of ubiquitous electronic screens, modern people are trapped in it, I have to say that this is an era of excessive eyes. The arrival of this era means that the number of people suffering from eye diseases will also rise sharply, and the "eye" has become one of the problems that modern people can not ignore. This plan takes the regular Chinese medicinal drug as the primary look up theory, combines the standard Chinese acupuncture science with the present day electric powered acupuncture science, fills the surrounding eye muscles and blood, and realizes the purpose of health and beauty. This smart health care glasses choose different ways to wear according to the functional attributes of professional use, and use the fragmented time to create the value of health care prevention.

Key words: Eye Health Care; Smart Glasses; Traditional Chinese Medicine Electronic Acupuncture

1. Research background

1.1 The necessity of eye health care

With the development of society, all kinds of electronic products around us, prompting us to become phubbers, stay late people, computers, have to say, the era of high load with eyes has arrived. Smartphones can meet the large needs of modern people after the changing lifestyle. In the work, this demand is also particularly obvious, especially during the epidemic period, it is the use of the network online to work, work materials, work tasks need to be connected through the network. The popularity and rapid development of smart phones, on the one hand, make life more colorful and convenient; on the other hand, threaten physical health, some habits of bad eyes also cause many hidden diseases but are not valued. With the development of bad habits, eye problems also gradually appear, not only will cause dry eye myopia, and cause large and small eye problems in serious cases. It affects not only facial aesthetics, but also decreased facial muscle coordination, leading to a range of facial problems.(Cai Xiaogang.2016) Therefore, in such an era of excessive eye use, eye health care is very necessary.

1.2 Intelligent products have become a necessity of modern people

Smart products cover all aspects of modern people's life, such as smart home appliances, smart

wearables and smart medical devices, etc. Smart products are surging in, and people more and more people feel the convenience brought by electronic products to life.(Cao Lei.2014) As people gradually pay attention to the concept of health, wearable smart products have also become the mainstream sales products in the current market. Wearables refer to a wearable device that can be directly integrated into clothes or used as accessories alone. Wearable products have different forms, mainly including smart glasses, smart watches, smart bracelets, smart jewelry, smart shoes and socks, and so on. The author divides intelligent and wearable products into the following four categories: (1) convenience of life category (2) health care category (3) problem solving category (4) fashion change category.

According to the above four categories of smart wearable products, health care is one of the main applications. Through the daily monitoring of temperature, pulse, dynamic ECG, sleep quality and so on, a preliminary understanding of the health of each person. Some cardiovascular diseases, hypertension, diabetes and other chronic diseases can be monitored and treated with therapeutic smart wearable devices.

It can be seen that the emergence of intelligent products not only brings modern people the convenience in life, but also opens up a new era of health management.

2. Traditional Chinese medicine is an important theoretical basis for the design of health care products

2.1 TCM health science constitutes the "health care gene" of the Chinese nation

Compared with western medicine, the most distinct prognosis and cure technique of common Chinese medicinal drug is to "cure the disease". The fundamental spirit of ordinary Chinese remedy has been to "the solidarity of man and man" as the core idea, draw close the fitness from the whole, pay interest to the interior coordination and human concord and exterior environment, Chinese medicinal drug is in Confucianism, Buddhism, Taoism, on the foundation of the Chinese typical culture, by using Yin and Yang, 5 factors and the affect of historic Chinese philosophy. Health science of Traditional Chinese remedy has cultural attributes, which is inseparable from the integrity and innovation of Chinese normal culture. Traditional Chinese medication is an amazing ordinary Chinese culture, which is the gene of the Chinese nation, and which is rooted in the hearts of the Chinese people. Traditional Chinese remedy is no longer solely a scientific skill, however additionally an remarkable usual Chinese culture, and even a healthful and nice way of life.

2.2 The correlation between the eye and all parts of the body under the concept of traditional Chinese medicine

According to Chinese medicine, the eye is one of the five major organs of the human body, and it is closely related to the internal organs, and this correlation is mainly connected by the "meridians". "Su ask five zang organs generation" day: "all veins belong to the eye" shows that the relationship between the eye and meridians is close and important. "Shu" has " the essence of the viscera, the essence of the eye, the essence of the eye, the essence of the bone is the pupil, the essence of the tendon is the black eye, the blood, the essence of the mold of the white eyes, the essence of the muscle is the constraint, the essence of the

blood and the pulse, belong to the brain, and then out of the item^[16]." Simply put, the basic condition of the viscera can be roughly diagnosed by the different parts of the eyes, which is actually a simple summary of the "Five Wheel Theory" (Figure 1).

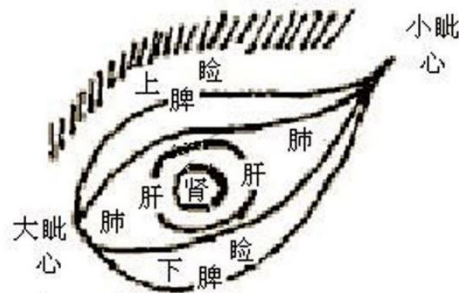


Figure 1. Five rounds of theory

Because the meridians are carefully distributed around the eyes, the continuous transmission of qi and blood, to ensure the close connection between the eyes and the viscera in matter and function. Therefore, once the meridians are dysregulation, it can cause eye disease syndrome. On the contrary, if the increase of eye health care, for other tissues of the body can also start to the recuperation effect.

2.3 The concept of TCM health is the inspiration source of health care product design

With the improvement of all aspects, with the enchancement of people's dwelling standards, the necessities for merchandise are additionally continuously multiplied , and more of the pursuit of products in line with the concept of health.(Cheng Jing, Xing Wanli.2017) The concept of health in traditional Chinese medicine is the inspiration for the design of health care products. For example, the traditional moxibustion (Figure 2), the mugwort warmth generated by means of the use of the moxibustion strip to stimulate the acupoints or unique components of the human body, and modify the physiological and biochemical feature of the human physique with the aid of stimulating the things to do of qi, so as to attain the cause of ailment prevention and treatment. But the regular moxibustion strip additionally has many hazards : (1) large smoke, inhalation of the body is very uncomfortable, (2) some parts of the body are not convenient for moxibustion.



Figure 2 Ai strip moxibustion

Therefore, in the modern design, the traditional moxibustion strip is designed into an intelligent moxibustion instrument (Figure 3), which not only avoids the short board of using the traditional moxibustion strip, but also is more convenient to use. This is also more in line with the modern health care methods.



Figure 3. Intelligent moxibustion instrument

3. Analysis of smart health care glasses design scheme

3.1 User positioning

on the basis ofAccording to the 2021 Beauty Trend Report, female consumers born in the post-850s and 1990s have become the main force in the market. The main reason why the post-85s and post-90s have become the main consumer lies in the tightening of the beautiful eye instrumentReduce the function of dark eye circles and eye bags. These functions are based on the "beautiful eye", the audience groupBe younger. The purpose of this design is to achieve healthy beauty, which refers to the use of TCM health care means to make the eye in a healthy state. This design targets users in middle-aged women, because in addition to the beautiful function of the eye, this product can also improve the professional problems such as muscle atrophy due to long-term bad eye habits. And 85,90 has not appeared such problems. This is also the reason why this design identifies middle-aged women as the main user group.

In order to have a deeper understanding of the user needs, this design selected user ms leaf as the research object, the author investigated the daily life of the day time planning, location, behavior, hope to have a deeper understanding of the user needs, below figure 4 for the leaves of a day schedule, the area with color indicates the degree of eye volume.

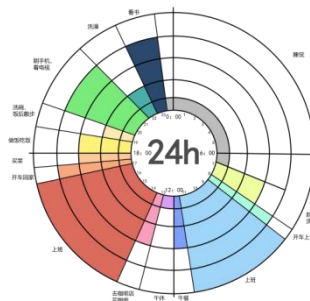


Figure 4: Ms. Ye's day arrangement

Through the above user portrait analysis and the user's 24 hours a day analysis from the daily life occasions, do things, use the eye conditions, the following will be summarized in a table (table 1), the table contains three parts: occasion, demand function and requirements for product appearance.

Table 1 User Summary Table

	occasion	place	With the eye	requirement
occasion	In private	family	Watch TV, swipe your cell phone	Relax, be comfortable, and be strong
			read a book	
	public places	in-vehicle	Look at the road	Not abrupt, good-looking, remind, do not affect the normal life
		company	Computer work	
		coffee shop	Look at things	
		supermarket		
park				
function	function		Rx	
	Level 1 function	pouch	Acupoint stimulation + hot compress + massage + other	
		kopiopia		
	Secondary function	blepharoptosis		
		ocular muscle dystrophy		
	Other functions	Facial muscle spasm		
Headache, head heavy				
surface	Exquisite, have a certain degree of fashion, technology			
	Daily wear is not abrupt			

3.2 Combined with traditional Chinese medicine acupoints, treatment method analysis

There are many fitness care remedies for the eye in usual Chinese medicine, acupuncture and moxibustion, essential fumigation treatment, ear factor and bean strain are very frequent fitness care therapy. Among them, the utility of acupuncture and moxibustion in ophthalmology is pretty common. By the use of the stimulation of acupoints to reconcile Yin and Yang, dredge the meridians, promote qi and blood circulation, and attain the motive of eye sickness fitness care, it has the traits of large indications, apparent healing effect, handy operation, and financial security .(Zhang Hongyan.2018) Traditional Chinese medicine treatment method is clinically mainly based on conditioning, advocating systemic

syndrome differentiation and treatment, and there is no side effects, and the safety is also very high. Therefore, it is most suitable to use Chinese medicine treatment as the purpose of health and beauty. Healthy beauty refers to the health care prevention as a means to make the eye to a healthy state.

According to the different symptoms above, the perieye acupoints can be determined as: sunny, sobbing, pupil shackles, four white, save bamboo, fish waist, silk bamboo empty, temple, 8 acupoints. The head acupoints are: hanging skull, head dimension and Baihui (Figure 5).



Figure 5 Acupoint point of smart health glasses

3.3 Core technology analysis

Acupuncture is used as the treatment method of eye health care. In various modern medical technologies, the traditional eye acupuncture can be used in the form of electronic acupuncture to directly stimulate the human eye acupuncture points through low-frequency electric pulse, so as to achieve the best effect of eye health care at different acupoints. Low-frequency electron pulses can generally be controlled below 1000hz in modern biological science research fields. Low-frequency electronic pulse can achieve excitatory nerve cells; relieve analgesia, and promote local blood circulation for treatment and health care to deal with more ocular symptoms.(Wei Xiuguo.2020)

3.4 Wear mode analysis

According to the different places to wear, the way of wear will be changed. Different occasions can choose different ways to wear.

Places are divided into two parts: private places and public places. For example: home, the car is private occasions, although the car is a more private space, but the car is also a means of transportation to go out, so the car is also attributed to public places. Companies, coffee shops, supermarkets, parks, cars and so on for public places. In public places, it tends to be convenient to use, not abrupt and fashionable in appearance, and the wearing way is a combination of glasses frame and glasses legs. In private occasions, it is more inclined to maximize comfort and functionality, and the function maximization is reflected in (1) the stronger stimulation of acupoints when the product is used.(2) The range of acupoints is wider, and the acupoints of the eyes and the head should be covered.(3) The symptoms will be more comprehensive, so the wear method is a combination of glasses frame and head cover.

Figure 6 below is some simple scheme design done according to the different acupoints and occasions. There are many acupoints in the eyes, which need to take into account all the acupoints, so the design of the glasses frame is also very difficult and has great limitations. Compared with the eyes, there are only three acupoints on the head, so the design style of the head cover part is much more flexible than that of the eye frame design.

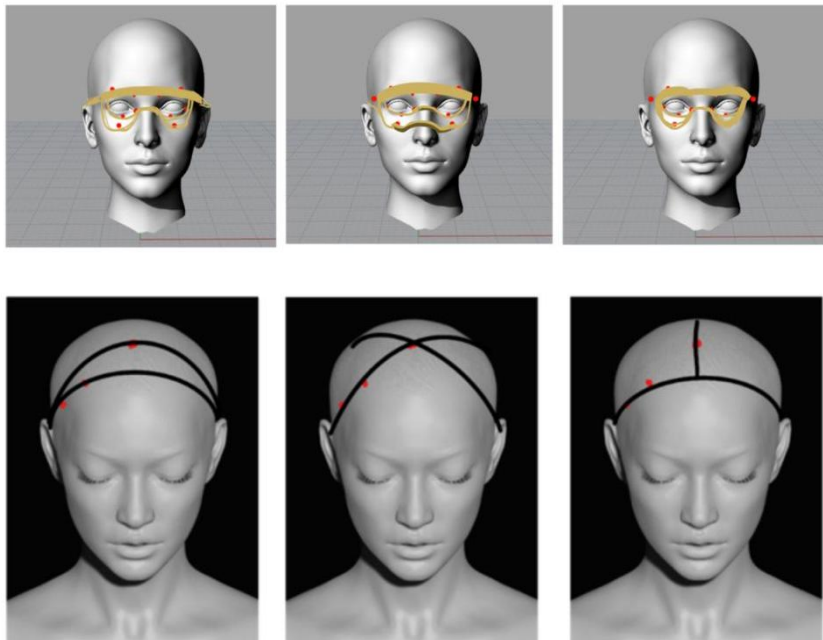


Figure 6. Simple sketch of the glasses frame and headgear

3.5 Intelligent health care glasses design scheme

Appearance modeling is mainly designed with exquisite, science and technology, fashion, these three key words. Depending on the occasion, the style of smart glasses is also different. Figure 7 below:

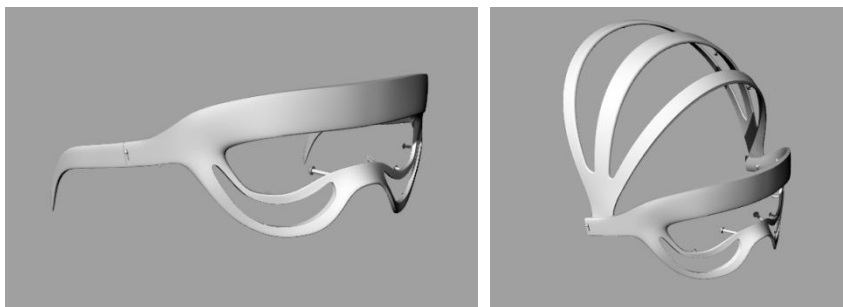


Figure 7. Style of smart health care glasses

In public places, wearing smart health glasses, like ordinary glasses more convenient outside. When in private occasions, such as at home, in order to wear them more comfortably, the mirror legs can be removed to make the ears fully relaxed, the head set is installed to maximize the function, and the head acupoints can also stimulate the massage.

4. Sum up

Traditional Chinese medicine and traditional Chinese culture blend with each other. The overall concept of "unity of heaven" of traditional Chinese medicine plays a great role in people's health care. Modern design often uses TCM health science in innovative health care products. This design combines acupuncture therapy in traditional Chinese medicine with modern electroacupuncture technology to achieve the purpose of health and beauty. Through the integration of excellent traditional culture and modern products, it is easier for the public to accept, so as to inherit and carry forward the excellent traditional Chinese culture.

At present, most of the eye products in China are eye beauty instruments, whose functions are mainly to lift, tighten, and eliminate fine lines of bags under the eyes. The ultimate purpose of this design is to achieve healthy beauty, tightening, eliminate pouch fine although is a part of this design function, but in addition to these functions, this design also has professional therapeutic effect: improve eye muscle atrophy, so this design in under the professional function attributes choose different wear way, not limited by the place, the use of fragmented time to create the value of health prevention.

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