Journal of Innovation and Development
ISSN: 2958-4752 | Vol. 7, No. 1, 2024

Exterior Design and Application of Intelligent Elderly Care Bracelet in the Era of Science and Technology

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Abstract: With the continuous development of the economy and society, various types of smart wristbands are emerging one after another, and the competition in the elderly care industry is becoming increasingly fierce. Among them, the convenient elderly care ability has become one of the main indicators to measure the competitiveness of elderly care. In the decades of development, the demand for elderly care in China has been increasing, and the ability of smart elderly care wristbands has been continuously improving. However, there are still many problems in their ability, which need to be further improved. This article takes the intelligent elderly care bracelet as the research object. Firstly, it explores the background and significance of the topic, summarizes and sorts out a series of theories and methods involved, and reviews the research status of intelligent elderly care at home and abroad. Then, it introduces the relevant theoretical basis for the ability of the bracelet we designed. Further analysis of the current situation of the elderly care bracelet industry.

Keywords: Smart Wristbands; Appearance Design; Functional Applications; Smart Elderly Care.

1. Introduction

1.1. Research Background

In recent years, the issue of elderly care has gradually become a focus of attention in the academic community and the whole society, and has shown increasingly significant influence in the development process of the times. This article takes the appearance design and application of intelligent elderly care bracelets in the technological era as the theme, and comprehensively reviews and summarizes recent research in the academic community. So far, a large number of research results have emerged, and the discussion on the issue of smart elderly care bracelets continues[1].

1.2. Research Significance

The research significance of this article mainly lies in two aspects. The first is based on theoretical value, and the second is based on practical significance in reality.

In the first research significance based on theoretical value, it is undeniable that there are many academic monographs, topics, and papers related to intelligent elderly care bracelets, but there are very few in-depth discussions from the perspective of the functions of elderly care bracelets. This article will develop the intelligent elderly care bracelet market to enhance its comprehensive competitiveness. The research materials and results have enriched the theoretical research on elderly bracelets to a certain extent. Based on practical significance in reality, this article can conduct targeted research on the functions of elderly bracelets, which helps designers to have an overall understanding of the functions, identify the current problems of elderly bracelets, and further improve management[2].

2. Appearance Design of Intelligent Pension Bracelet

With the rapid development of science and technology, intelligent, portable and multi-functional equipment has gradually become an important part of people's daily life. In the field of old-age care, the intelligent old-age bracelet, as a new type of old-age assistance device, has attracted widespread attention for its unique advantages [3, 4].

With the progress of society and the development of science and technology, the problem of aging is becoming more and more serious, and the intelligent elderly care bracelet, as a new type of pension product, has attracted widespread attention. This chapter will focus on the appearance design of the pension bracelet, including size and weight, material, color, interface design and adaptability.

Size and weight

Considering the wrist size and weight tolerance of the elderly, the size and weight of the bracelet should be moderate, not too large or too small to ensure comfort. Too large or too small bracelets may cause discomfort to the elderly and even affect their daily lives. Therefore, when designing a pension bracelet, it is necessary to fully consider the physiological characteristics of the elderly to ensure that their size and weight are suitable for the elderly.

material

Choose wear-resistant, non-slip, soft and skin-friendly materials to ensure the comfort of long-term wear. The material of the old-age bracelet needs to have good wear resistance to cope with wear and tear in daily use; anti-skid can prevent the bracelet from slipping in the process of the elderly; softness can reduce the pressure on the skin of the elderly and improve the wearing comfort; the skin-friendly can reduce allergies of the elderly when wearing the bracelet. The risk of symptoms.

Colour

Adopt mild and natural colors to meet the aesthetic needs of the elderly and improve recognition. The color design of the elderly bracelet should avoid overly bright or stimulating colors, so as not to bring visual discomfort to the eld

2.1. Application of Intelligent Hand Ring for the Aged

Rationale.

The theoretical basis of the smart elderly care bracelet mainly includes sensor technology and personalized monitoring algorithms.

Sensor technology is the key to the smart elderly care bracelet to achieve sports monitoring and health monitoring functions. Through sensors such as gravity sensors, accelerometers, gyroscopes, etc., the bracelet can monitor the movement and movements of the human body, so as to obtain basic data In addition, some bracelets are also equipped with bioelectric sensors, such as heart rate sensors, blood pressure.

Personalized monitoring algorithms transform the data obtained by sensors into judgments and recommendations on individual health status. The algorithm analyzes and evaluates the individual's exercise frequency, intensity, and health status based on the physical sign information entered by the individual, combined with sensor data. For example, by analyzing exercise data and physiological parameters.

In addition, the smart pension bracelet also integrates GPS positioning, voice call, emergency call and other functions, so that the elderly can quickly get help when they need it. These features mainly rely on modern communication technologies such as Bluetooth, Wi-Fi, 4G/5G, etc.

2.2. Problem Analysis.

The size of the smart bracelet is set

We take into account that the audience is the elderly, and if the elderly wear our bracelets, they will not like the particularly large dial, which will make the elderly very uncomfortable after wearing, which will seriously affect the comfort of the elderly. Problems with the storage of power in the bracelet.

As a guarantee for the elderly in their daily lives, the storage of power is particularly important, and the elderly usually don't care too much about the power of the bracelet, so the standby time of our bracelet must be long, and the remaining power is only enough to support a day.

Inadequate product functionality.

At present in the market, many elderly bracelets only call and GPS positioning function, the survey shows that such a function can not meet the needs of the elderly, They also need heart rate tests, blood pressure tests and other functions in order to monitor the health of the elderly. In order to achieve early detection of elderly diseases early medical treatment, but enterprises are not so in line with the needs of the elderly products moved to the market. At present in the market, many elderly bracelets only call and GPS positioning function, the survey shows that such a function can not meet the needs of the elderly, They also need heart rate tests, blood pressure tests and other functions in order to monitor the health of the elderly. In order to achieve early detection of diseases in the elderly early medical treatment, but enterprises are not so in line with the needs of the elderly products moved to the market.

Lack of purchasing power of the elderly due to price problems.

Some of the elderly want to wear smart band are purchased by their children, and children in many cases willing to pay on the elderly is very limited economy. Therefore, we must achieve the price of products applicable to the consumption level of the majority of the masses, to serve the masses.

2.3. Problem Solving Measures

Setting the size of the smart band.

We can use high-density and low-volume chips, and cancel the bracelet shell originally needed, and use domestic The tempered screen is used as a dial, so that the volume can be reduced, and the quality of the main bad can be improved, killing two birds with one stone The battery of the bracelet.

We use lithium batteries, which can greatly increase the power storage capacity of the bracelet. Under normal circumstances, a charge can be used for about half a month, and when the power is only enough to support the elderly for one day, our bracelet will vibrate and alarm every 6 hours to remind the elderly to charge.

Product insufficiency

We will according to the needs of the elderly, in our bracelet to add heart rate testing, blood pressure testing and other functions, This can better detect the health of the elderly, but also can better protect the safety of the elderly, and we also plan to add Chinese medicine function in the bracelet, The use of Chinese medicine pulse general law, preliminary judgment of the wearer's physical health can timely remind the wearer to go to the doctor.

Price question.

The price problem is mainly materials and patents, materials, we will use home-made, toughness, not easy to aging materials, This can make the bracelet wear longer, so that the bracelet cost-effective. Patents, we will try to find functional aspects to meet our requirements, and low-cost patents to use. This can be very good to reduce our costs, so that the price of products to be reduced.

In short, the application of intelligent pension bracelet is mainly reflected in the following aspects.

Health monitoring: With built-in sensors, Real-time monitoring of heart rate, blood pressure, sleep quality and other health data for medical staff to provide timely and accurate health information. Monitoring of this data could not only help seniors better manage their health, but could also facilitate telemedicine.

Positioning and security: Hand ring with GPS positioning function, can grasp the location of the elderly information at any time. At the same time, through the built-in emergency call and other functions to ensure that the elderly in danger can be timely help. This is especially important for older adults who easily get lost or are at risk of falling.

Daily Life Assistance: The bracelet can provide functions such as reminding to take medicine and recording activities to help the elderly better manage their daily life. These functions should be designed to take into account the memory and vision of the elderly to ensure that information is clearly and accurately communicated.

Social interaction: Through the bracelet, the elderly can have a simple exchange of information with family and friends, enhance social interaction and reduce loneliness. This design can not only help the elderly to maintain social contact, but also improve their quality of life.

Psychological support: The bracelet can provide such as music playing, story telling and other entertainment functions, to provide psychological support for the elderly. These functions can help the elderly alleviate anxiety and depression, improve their mental health.

To sum up, intelligent old-age bracelet should take into account both aesthetic and practical, in order to meet the special needs of the elderly. Through the careful design of the above aspects, The bracelet can not only provide health monitoring, location safety, daily life assistance and social interaction for the elderly. Can also become their psychological support partners, together to build a more intelligent, convenient and warm pension environment.

2.4. About the Extension of Smart Old-age Care

As an emerging old-age auxiliary device in the era of science and technology, the intelligent old-age bracelet provides convenience for the life of the elderly with its humanised appearance design and rich application functions. In the future, with the continuous progress of technology and the in-depth development of research, the intelligent old-age bracelet will further improve and expand its functions and inject more scientific and technological strength into the old-age service. At the same time, how to better integrate the smart old-age bracelet into the lives of the elderly and improve the quality of life of the elderly will be a question worth continuing to discuss.

2.4.1. Conceptual Definition

Smart old-age care refers to the use of advanced IT technology to develop an Internet of Things system platform for the elderly, communities and institutions at home to provide real-time, fast, efficient, connected and intelligent elderly care services. With the help of the comprehensive service platform of "pension" and "health", it connects medical services, operators, service providers, individuals and families to meet the diversified and multi-level needs of the elderly. Intelligence and science and technology have become a new development hotspot of the elderly care industry, which is an important direction in the development of China's old-age care industry at present.

With the help of the intelligent platform, many high-quality pension service resources have been integrated. The platform effectively connects these resources with the elderly to meet the different service needs of the elderly. Smart old-age care uses advanced technical means to provide more convenient, efficient and personalised services for the elderly, and also provide more scientific, standardised and refined management means for the government and society.

The concept of smart old-age bracelet in the era of science and technology mainly refers to the use of modern technology, especially the Internet of Things technology and wearable device technology, to provide more convenient and comfortable elderly care services for the elderly. This smart bracelet is not only a simple wearable device, but also provides all-round support for the lives of the elderly through the integration of multiple functions.

2.4.2. Development History

In the process of application development, the application of smart bracelets in the era of science and technology has developed rapidly. First of all, with the popularisation of the Internet of Things and wearable devices, smart bracelets have begun to be widely used in the field of health monitoring, such as heart rate, blood pressure, sleep and other aspects. In addition, the smart bracelet also has sports monitoring, message reminder, intelligent assistant and other functions, which greatly facilitates the daily life of the elderly.

With the continuous progress of technology, the functions of the smart bracelet are becoming more and more abundant. For example, the addition of fall warning, one-click S0S call for help, two-way family call and other functions make the smart bracelet add the function of security on the basis of health monitoring. In addition, the smart bracelet also has GPS positioning, blood glucose monitoring, body fat monitoring and other functions, making it a personal health assistant for the elderly.

2.4.3. Handling at Home and Abroad

In the era of science and technology, the appearance design and application of smart pension bracelets are poor in different countries and regions.

In China, the smart old-age bracelet has been widely used. These bracelets mainly use MCU (microprogram controller) + G-Sensor (gravity sensor) + BT (Bluetooth device) and other technologies, and some are also equipped with display screens to monitor the movement and sleep quality of the elderly. The application of intelligent elderly care bracelet is mainly guided by the needs of safety and intelligent products for the elderly, and is committed to providing technical products to meet the needs of safe and intelligent products and affectionate and professional elderly care services for the elderly. For example, smart watches, smart bracelets, intelligent rehabilitation robots, etc. solve the main problems in the elderly's home care through scientific and technological forces.

In foreign countries, some developed countries have researched on wearable smart devices such as smart bracelets earlier than in China, and the technological level is also more advanced. In Europe and the United States, the old-age bracelet has become a relatively mature intelligent old-age product. For example, in the United Kingdom, Germany and other countries, the government has begun to promote the use of pension bracelets and provide corresponding subsidy policies. At the same time, some medical insurance companies have also begun to use pension bracelets as one of the medical insurance services. In Japan, old-age bracelets have become a very common old-age device, with more than 1 million elderly people wearing old-age bracelets.

3. Summary and Outlook

With the deepening of the ageing of the population, the number of elderly people is increasing year by year, and the health and quality of life of the elderly have become the focus of social attention. As an important equipment for health management and life assistance for the elderly, the market demand for smart old-age bracelets is increasing day by day. With the continuous development of artificial intelligence, the Internet of Things and other technologies, the technology used in the intelligent elderly bracelet will also be continuously upgraded, and the service function will be gradually optimised and improved. At the same time, the continuous research and development of various sensors also provides stronger technical support for smart pension bracelets. Many manufacturers have launched smart pension bracelets in the market, and the service quality and price are also different. Brand competition is fierce, which is a good thing for the elderly. They can choose the products and services that suit them in many brands. In recent years, policy support for the healthy old-age care of the elderly has been increasing, and the cause of promoting the health, happiness and longevity of the elderly has become the common responsibility of the whole society. As a new type of health management and life assistance for the elderly, the smart old-age bracelet has also been strongly supported by policies.

With the ageing of the population, the pension industry has gradually become one of the key development areas. In the next five years, pension products will also be widely used in the domestic market. The following is an analysis of the prospects of the future pension market.

China's ageing rate is very rapid. By 2030, people over the age of 65 will account for more than 25% of the country's total

population, about 413 million people. This will lead to a huge demand for long-term pensions and a demand for high-quality and diversified pension services. Therefore, the pension industry has become one of the key industries for future development. In the capital market, the pension industry has also attracted a lot of attention and has performed well in the domestic and foreign stock markets. The listing of enterprises in the A-share market in the first half of this year and the establishment of various funds illustrate the optimistic expectations of the market for the future pension market. The trend of the pension market in the next five years is diversification. At present, most of the elderly care products are mainly care, supplemented by medical services and rehabilitation. In the future, elderly care institutions will increase diversified services to provide more comprehensive services such as health management, culture and entertainment, tourism and vacation for the elderly. At the same time, according to statistics, more than 50% of the elderly have sleep problems, and more elderly care institutions will provide 6-8 hours of old-age care services in the future to help the elderly improve sleep quality. With the continuous development of Internet technology, future elderly care services will become more intelligent and online. This will allow the elderly to browse health Q&A, nutrition recipes, rehabilitation videos and other content through mobile phones or tablets to improve health awareness and self-management. Modern medical technology promotes the integration of medical and elderly care industries, and escorts the elderly with humanised services. Top hospitals will enter elderly care institutions and launch "inpatient elderly care" services to provide more comprehensive medical security for the elderly. The pension market in the next five years will become a promising new opportunity. The pension industry will also continue to adapt to the changes in the market and launch higher-quality and more diversified service categories to meet the growing needs of the elderly. For investors, the future pension market will also become an industry worthy of attention and vigourous development.

Acknowledgments

Summary of the 2023 Liaoning Province College Student Practice Innovation Training Project "Appearance Design and Application of Intelligent Elderly Care Bracelets in the Era of Science and Technology" (X202310142122).

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