Wristband digital watch & bracelet with health-oriented Applications & design

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Though wearable computing have a long history of development, until the recent years it can play a good role in product designs. In the early stage, it tended to minify personal computer to movable and wearable products. The new direction to integrate wearable computing is to meet people daily needs at lower costs.

The Applications of wearable technology is not a real new issue. Early in 1999, IBM used to publicize the wearable PC products. Personal computer could be minified to be put into a wearable small box with the most advanced micro display, micro hard disk and all kinds of minified electronic circuit technology at that time. The computer could be put into a small box and hang on the waist already. Until today, under the SoC technology development, computer microform shall not be a problem. The major questions are what the use purpose of computer microform is and what the service of integrated service is. These are the key questions of the product practicality.

This intelligence wristband can collect the user's sports data. Then through the mobile device, APP together with the meta analysis services of cloud computing, this wrist band can provide personal health suggestions.

Digital watch / wristband can record the individual sport status and sleeping quality

Wearable electronic circuit technology, such as SoC System on a chip together with the flash memory, personal computers with the traditional structure can be easily replaced by ScC System on a chip principally. The size of final-end products could be also minified to a smaller size than USB. Once it has the embedded system, it would have excellent computing performances even with very limited hard-disk resources. Nowadays, the fully functional wearable computing technology is actually applied in the cellular phones and tablet personal computers and other mobile intelligence devices; thus, its demand is not really high any more. In the contrary, it is more important to focus on materials or to Apply Ecosystem to provide the best solutions. These are the key points that wearable technology is so much welcomed!

Taking the recently-popular products like intelligence bracelet or intelligence wrist as examples, we know that their electronic circuit and design structure are simple-designed cases. Their MCU added with a small flash memory constructed an embedded computing environment. Viewing intelligence bracelet or wristband products, we know that most of them only have accelerating MEMS sensors which detect the status; besides, they save simultaneously what MCU detects. Electronic or wrist bank itself does not deal with the recording information. At most, they note the shaking, moving marks with the information structure during the recording process.

The Applications of intelligence bracelet, wristband keep going on.

Among the Applications of intelligence bracelet and wristband, some of the design are very outstanding and delicate which can achieve the level of jewelry or accessories art design. For example, the design of wristband itself can be flexibly surrounded. Or the products are provided with cloud Application service, or they are equipped with the functions of alarm clock, personal sport recording and analysis, health reminders and so on. The electronic bracelet and wristband products basically can only clip or record the information of pedometer. As to integrating the figure analysis and reminder information, they need to rely on the end intelligence mobile's APP or the reading and analyzing results from the cloud computing. Electronic bracelet or wristband itself can't handle raw data.

The electronic bracelet or wristband are much alike. Both are designed with the health-orient Application concept. In other words, they are just like pedometer device to collect personal health information. It seems there is no difference. However, the electronic bracelet or wristband are designed with jewelry or accessories

as industrial art so that consumers would love to buy them to go with their dresses every day.

Intelligence bracelet or wristband provide multifunctional services or functions

Compared with pedometer, the intelligence bracelet or wristband have more different concept to make the products are more user-friendly. Apart from the embedded MCU, accelerator, memory disk, they are equipped with vibrator element which mobile phones are often equipped with. Meanwhile, they are also powered by lithium-polymer battery. Together with the vibrator element, the electronic bracelet and wristband provide the function of reminder which pedometer doesn't offer. Through MCU, it can control the function of reminder and furthermore it creates the electronic alarm clock. In other words, because of MCU's gradual control of vibrator element's trembling frequency from the light level to the strong one so that the user can be awaked by the gradual alarming reminder, rather than be shocked. This is indeed a fresh experience for the users.

Additionally, the design concept also put the focus on the issues of the health-oriented Applications. Due to the accelerating MEMS sensors of the electronic bracelet and wristband are more accurate than common pedometers; thus they can not only detect, record and mark the user's daily walking steps but also the user's sleeping gesture or other information during the sleeping time. As to the facts that MCU can record and mark the shaking frequency, telling daily movement from sleeping moves. Through the recording and marks from the MCU's embedded system, the electronic wristband and bracelet provide more complete and accurate information of personal health and sleep quality.

Integration of APP and Cloud Services

These wearable electronic bracelet and wristband are mainly designed for the purpose of health. In fact, they mainly depend on the accelerometer. One famous bracelet is known for its integration with MotionX technology. However, it lacks the information provided by GPS so it clips limited information of the user's movement. Though it emphasizes that based on the recording information of the user's activities, sleep and eat, it can provide meaningful health consultancy with its accelerometer and MCU's information collection. In the aspects of activities, it can sense, record, and analyze the consumed calories of the user's step walking and their exercise. In the aspects of sleeping quality improvement, it can enhance its sensibility of accelerometer to record the information and then further use the cloud service or movement computing. At last it can proceed with statistics analysis. As to the part of eating, the user need to record what's been eaten via mobile APP and then the APP together with the statistics from the cloud service, the intelligence bracelet can provide the user with a sound food analysis and suggestions.

Another well-known electronic bracelet and wristband is not only equipped with accelerometer, MCU, memory disk, but also low-consumption Bluetooth 4.0 wireless transmission technology support. As what is the above-mentioned product, it also has 3.5mm audio connector so as to update the information with the mobile phone at the same time. Additionally, it provides Bluetooth 4.0 wireless transmission technology so that it can record the movement information. Meanwhile, it can use it to exchange information with the mobile phone which

provides the GPS location information; that is, when the bracelet or wristband records the user's movement and it also can mark the user's location.

Extreme simple design meets the Application demands

Most of the electronic bracelet and wristband products tend to adopt the low-technology and low-complexity 3.5mm audio connector to transmit the information. Basically, the MCU of both products have developed a mechanism which change statistics into high-frequency audio transmission. From the APP of intelligence mobile phone and tablet personal computer, they use the high-frequency audio transmission after changing the statistics, they use recording, detune and clip the embedded movement data. This way of connection is pretty simple and instinct. For the user, there's only one simple step, plug in the electronic bracelet and turn on APP and proceed information Sync saving. There is no need to go through the process of verification and inspection; even, there is no necessity to touch NFC to get started. The user only needs to plug in so as to get the information simultaneously updated and to avoid the process of data synchronization.

Although the data source is pre-packaged and then through the 3.5mm audio connector to proceed analysis capture, the process is relatively simple for the user. And the whole process is also equipped with low-tech operational logic and low-technical content, the user simply plugs his or her headphones can easily handle data synchronization and transmission. In the aspect of product design, it is indeed a foolproof, easy and effective design. The dynamic data were clipped and transmitted to smart mobile devices, the user can not only use the App on the local side analysis and processing, but also through 3G/Lte to pass data to the cloud service to analyze and generate health advice, the whole smart bracelet and wristband would establish its Ecosystem. Its practicality and convenience also perform excellently.

As for the design of wearable computing, from the perspectives of the market applications, it is not necessary theory that the most integrated function, most avant-garde miniature electronic technology will definitely grab the market first. The above-mentioned electronic bracelet and wristband products for modern people who are enthusiastic in knowing the "health" issues. They use a simple accelerometer sensor, MCU, lithium polymer batteries, flexible circuit board integration, anti-allergic contact with the flexible rubber shell design, or even abandon high-complexity, high-cost wireless data synchronous transmission design, with a 3.5mm audio plug connector. This plug-in way can automatically extract dynamic data storage applications. And then for the user, with user experience, Ux, the App optimized integration with the cloud application services, it can construct both low-cost, high value-added, convenient application wearable computing applications model.