

Health monitoring system based on iOS platform

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Abstract

With the aging of our country, more and more attention has been paid to the health monitoring of the elderly. Chronic disease has long illness and poor prognosis, often accompanied by complications, poor quality of life and other characteristics, although the incidence of morbidity, high mortality, but still can be prevented and controlled, the important point is: physiological balance, dynamic balance and body to keep the patient's disease for a long time, and give timely and effective treatment in the event of danger. Therefore, health monitoring and health management are particularly important. The aging of the population, high incidence of chronic disease and high mortality factors, resulting in the demand for chronic disease health care is increasing, and the current health care for chronic diseases in our country still has data confusion, low accuracy and poor real-time, single function, complex operation and poor real-time performance, the price is more expensive. Many problems need to be improved. Therefore, the design of effective and effective health monitoring platform to improve the existing deficiencies. Providing real time health services for patients with chronic diseases, so as to realize the transformation from "treating diseases primarily" to "giving priority to prevention". A health monitoring system based on iOS platform is proposed. Combined with mobile medical idea, smart bracelet, mobile phone application and server are designed to realize real-time monitoring, display and storage of human ECG and blood oxygen parameters. The experimental results show that the system has good transmission performance, small size, good portability, and can meet the needs of daily health monitoring.

Keywords

Health monitor; iOS platform; Chronic diseases, mobile health.

1. Introduction

The pace of modern life continues to accelerate, people's living pressure continues to increase, chronic diseases are becoming a major health threat to modern people. With the continuous improvement of people's living standards, people's attention to health is also constantly improving. Due to the shortage of medical resources and imbalance, the "difficult medical treatment and expensive medical treatment" has become a stubborn problem in developing countries. The development of medical service and health service level cannot meet the needs of the people. The contradiction between healthy and convenient means of detection of health management system has become particularly urgent demand.

In recent years, with the development of network and electronic technology, wear type health monitoring equipment, continuous improvement and development of the smart mobile terminal equipment, mobile medical has good conditions for development. The stability and fluency of iOS operating system have won many users for it, so choose the platform based on iOS.

With the development of society and the popularization of health knowledge, the quality of life of people of the increasingly high demand on the health of individuals and families pay more and more attention, no longer satisfied with the treatment of disease, focus on disease prevention and health care.

2. System overview

At present, the main intelligent terminal systems are android, iOS, Windows 8 and so on. IOS is a mobile operating system developed by Apple Corp [1]. The Apple Corp in the early January 9, 2007's Macworld conference released this system, originally designed for iPhone use, later applied to iPod, touch iPad and Apple TV and other products. IOS, like Apple's Mac OS X operating system, belongs to a Unix like commercial operating system. IOS terminal gradually popularized, and swift, Objective-C application development, making the development more convenient.

The apple mobile phone as a smart terminal, because of its stability, iOS operating system fluency has won a lot of users, so the choice is based on iOS platform.

3. System scheme design

The invention provides a health management system based on iOS platform, through the health parameters acquisition end of physiological parameter acquisition, the collected data is transmitted to the intelligent terminal, intelligent terminal real-time transmission of the collected data to the server, and then processing server and analysis, and then we can draw curves and health advice, so as to realize a physiological information real-time monitoring, on-line diagnosis, medication and health management software to remind information management features such as intelligent as a whole. The system architecture diagram is shown in Figure 1.

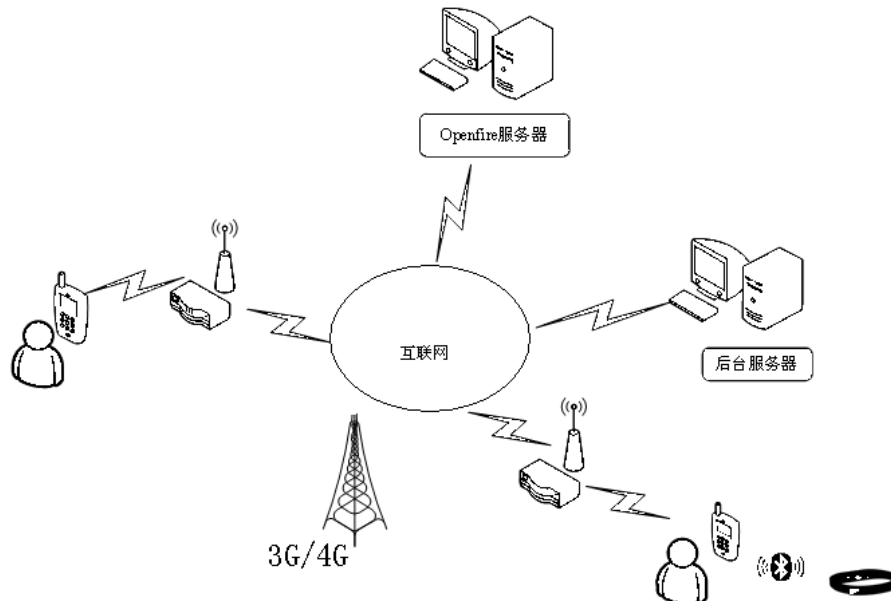


Fig. 1 The system architecture

4. Mobile client design

The mobile phone with iOS operating system is used as the terminal and the mobile phone software is designed. In order to realize the mobile phone Bluetooth and Bluetooth module communication, data storage and drawing display function, using the official APPLE Core-Bluetooth framework design of mobile phone software, Bluetooth wireless communication. The framework provides a Bluetooth communication method strictly, choose ECG or blood oxygen collection equipment, testing equipment, through connected devices, connecting service to find values of these steps, then establish communication, realize data transmission and drawing function. Smart bracelet and mobile phone

terminal via Bluetooth 4 transmission format for the NSData packet to the iOS device, unwrapping processing by mobile phone software, mobile phone software to get the original data, through the Great Central distributed multithreading development mechanism of initialization of a thread, a thread of the original data stored in the file; another thread will the data map display. The drawing function is completed by iOS's drawing function library Quartz 2D. The functions of mobile phone terminal software is shown in Figure 2.

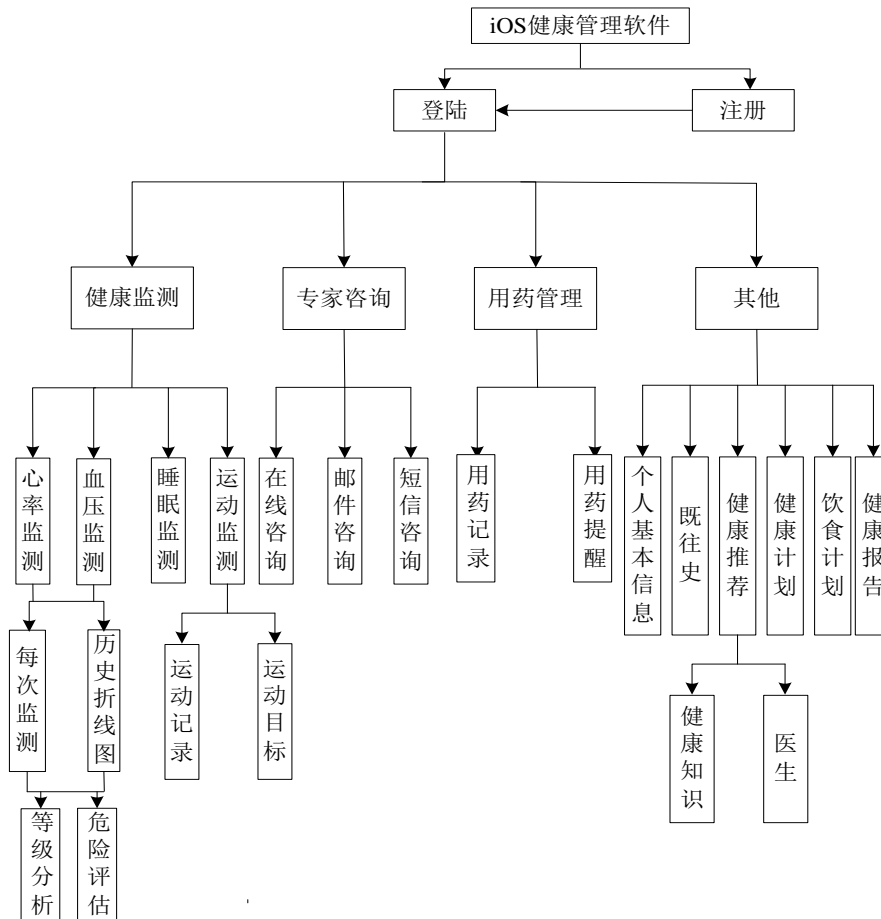


Fig. 2 The functions of mobile phone terminal software

5. Server design

In order to realize data storage and data security, design server to store data. The data sent by mobile phone is sent to the server to save in the form of files. Mobile phone client software by using the put method of AFNetworking network communication framework will be stored with the data file or image uploaded to the server, using the get method in the framework of the file download server. The server data stored on the mobile phone users accidentally deleted data, through the network can be downloaded at any time before the file, to protect the security of user data. The functions of sever is shown in Figure 3.

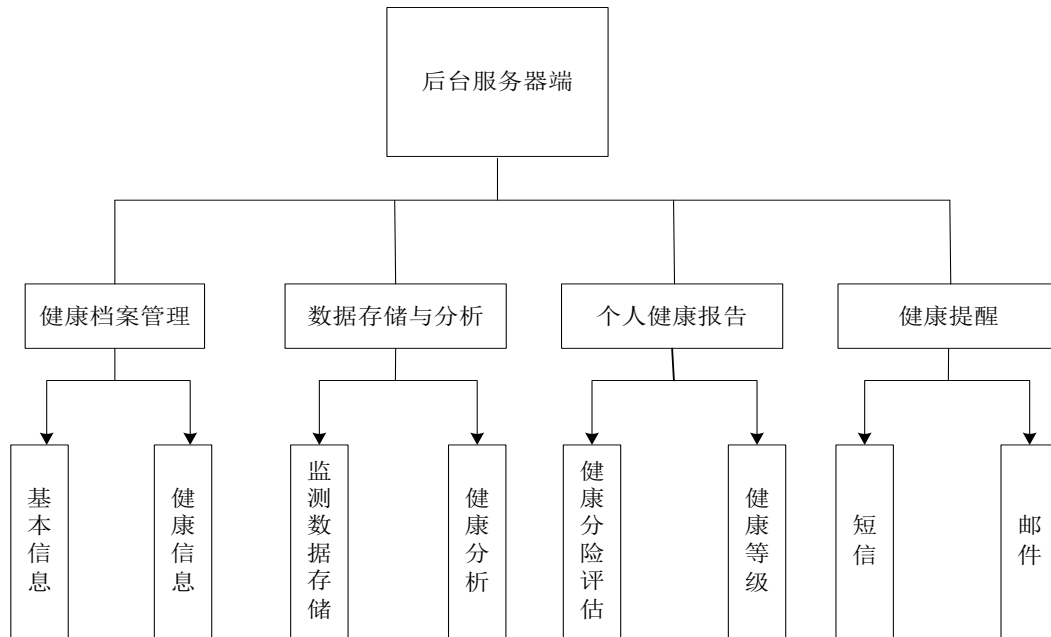


Fig. 3 The functions of sever

6. Concluding remarks

With the continuous development of sensor technology, wireless transmission technology and smart phone platform, wearable intelligent mobile terminal is widely used in health monitoring. Health management system based on the iOS platform provided by the invention, the smart bracelet on human physiological parameters collection, the collected data is transmitted to the intelligent terminal, intelligent terminal real-time transmission of the collected data to the server, the server processing and analysis, and then we can draw curves and health in order to achieve a proposal to physiological information real-time monitoring and on-line diagnosis, medication and health management software to remind information management features such as intelligent as a whole.

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