

Intelligence IoT(Internal of Things) Telemedicine Health Care Space System for the Elderly Living Alone

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Abstract

This paper is based on the research topic of the intelligence Internet of Things(IoT) telemedicine health care for the elderly living alone system, which can be applied to the living system of the elderly living alone. The telemedicine system is mainly based on heart rate monitoring, myoelectric signal acquisition, and blood flow monitoring system. The physiological signals are taken from the patient's side and presented on a portable tablet or mobile phone. Generally, the normal physiological signals are firstly used by elderly people living alone. The body is taken down (no abnormal signal has occurred) and is defined as a normal baseline physiological signal (Base Line Data) for the patient.

Key words: IoT(Internal of Things), Telemedicine, Health Care Space

Introduction

When the elderly living alone feel uncomfortable at a certain time and the living conditions are poor, the monitoring module is put on and the physiological signals are monitored. The physiological signal presented at the moment is directly compared to a normal baseline signal (Base Line Data) of the patient. When the degree of mismatch is greater than 30%, the telemedicine system immediately sends a notification signal to the doctor, and these long signals are sent directly to the cloud to store the records through the WiFi for future reference.

The system is designed to have more blood flowing through the artery during the systole phase and less blood flow during the diastolic phase. It measures the pulse rate from the periodicity of the measured signal by measuring changes in blood flow in a particular part of the body. It can know the health of the body in the first place and inform the family's system of this information via the cloud.

With the demographic structure changing, countries around the world have gradually entered the era of aging and minority. This process, coupled with the increasing number of patients with chronic diseases, has led to an increase in medical expenditures year after year. In order to reduce medical costs and improve the quality and efficiency of medical services, the development of smart healthcare has become the most ideal solution.

Smart Health is the most complete definition. It applies IoT technology to the medical field, starting with a large amount of data mining. It transforms the data processing into information (Information), and finally uploads the information to the cloud, and generates intelligence through big data analysis. This

wisdom analysis can be used as a basis for decision-making by the government in the allocation of medical resources. In order to achieve more effective or more reasonable distribution of medical resources, to improve people's satisfaction with medical services, it can also be provided to medical institutions as a reference for clinical decision-making. When talking about smart medical care, I often equate with smart hospitals or several hospitals. In fact, the two are completely different. Smart hospitals are an important foundation for smart healthcare. It mainly provides high-quality medical care services for patients with acute and severe diseases in hospitals. Smart health care targets healthy people, unhealthy people, chronic patients, or patients who need to be tracked regularly after surgery. Its purpose is to prevent major diseases. Maintain more people's health with the least amount of medical expenses.

Architecture

The long-term care of the elderly living alone IoT technology in the field of intelligent medical applications IoT technology in the field of smart medical applications, mainly in material management visualization technology, medical information digital technology, medical process digital technology three In one aspect, as shown in Fig. 1. In the long-term care of the elderly, the specific application is divided into the following aspects:

(1) Health Management, health management is the whole process of testing, evaluating and intervening the health of elderly people living alone. It is based on the personal biomedical archives based on modern biomedical and information digital management technologies. Establish a basic database of population health, scientifically collect and analyze health management needs, standardize assessment methods and formulate efficacy evaluation standards, use information technology to manage, and give full play to the advantages of integrated Chinese and Western medicine for health management.

(2) Medical materials management

Medical device management traditionally, medical equipment management is difficult, equipment search time-consuming, RFID tags are attached to medical devices, and mobile device management systems are used to directly enter the system to complete device identification, location, management, and monitoring under wireless network conditions. And clearing, you can achieve full utilization and high sharing of large medical equipment, greatly reducing medical costs.

(3) Medical process management

Patient management RFID wristbands enable wireless mobile care and patient identification, especially for the management of elderly, children, mental illness, infectious diseases, and emergency patients. Doctors use location engines to combine access control functions to ensure that licensed personnel enter critical areas of the hospital. When the patient has an emergency, he can also call the emergency button on the label to call for help. The monitor quickly finds a nearby doctor or nurse and informs him about the treatment. In the aspect of medical emergency management, reliable and efficient information storage and inspection methods based on RFID technology in special cases such as more injuries, inability to obtain family contact, and critical illness. Medical emergency management is to quickly confirm the identity of the patient, determine the name, age, blood type, emergency contact number, past medical history, family members and other relevant details. The system completed the admission procedure and won valuable treatment for the emergency patients. In particular, 3G video equipment is installed in the ambulance, and the patient is on the way to the hospital. The emergency room can first understand the physiological condition of the patient and strive for the timing of gold rescue. If you are in a remote location, you can even take a remote medical imaging system for emergency rescue. In terms of information sharing and interconnection, a comprehensive integrated medical network is integrated and formed through the sharing of medical information and records. On the one hand, doctors who live alone in the elderly can check the medical history, illness history, treatment measures and insurance details of elderly people living alone. On the other hand, it supports the township and community hospitals to seamlessly connect with the central hospital in terms of information, and can obtain expert advice, arrange referrals and receive training in real time.

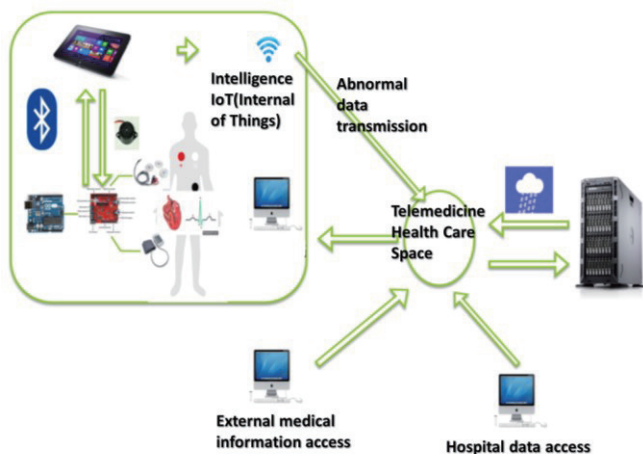


Fig. 1 Intelligence IoT (Internal of Things) Telemedicine Health Care Space System

In practical applications, relevant health information for elderly people living alone can be transmitted to the cloud via wireless and video, establish personal medical files, improve the quality of medical services at the grassroots level; allow remote doctors to conduct virtual consultations and provide medical experts for primary hospitals. Quality medical resources extend to primary care institutions. It constructs a

remote clinical education service system for clinical cases. It enhances the quality of continuing education for medical staff in primary hospitals.

Experiments and Results

The application of RFID to help the elderly live independently, indicating the independent living and safe care of the elderly living alone. Researchers use RFID and sensor technology to automatically identify and monitor human activity. Being able to identify an individual's normal routine maintenance and providing timely assistance in the event of a hazard has enormous potential value in an age of population ageing. It firstly optimizes the heart-warming signal acquisition technology and the effect of heart rate variability (HRV) spectrum analysis to infer the special intelligent robot identification human-machine interaction control system. It affects the autonomic nervous system of dementia patients. The ECG automatic level adjustment system is pre-verified to provide high accuracy and low power consumption. It senses different ECG signals generated by interaction with robot gestures. It mainly develops medical sensor patches for instant Bluetooth wireless transmission to smart phone systems. It enables real-time observation of heart rate, myoelectricity, and ultrasound imaging to observe the vascular system, so that friends who have been demented can help the health of the body to monitor immediately, benefiting the demented elderly population, and designing a normal heart rate waveform database for their physical health.

Conclusions

The intelligence Internet of Things (IoT) telemedicine health care space for the elderly living alone system is shown in platform. The instant heart rate monitoring platform integrates the intelligent robot, and discusses the regulation analysis of the autonomic nervous system of the demented elderly.

Acknowledgments

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