



A Good IT Helper for Rural Doctors

Intel and Haoyisheng* Doki* Series of Medical Information Products support Rural Health Undertaking in China



With economic and social progress, people have increasingly higher requirements for healthcare services. The construction of rural healthcare systems, the basic components of healthcare system, has direct bearing on the success of the new medical reform in China. Therefore, it has become a focus on how to build an efficient and reliable rural healthcare system. Intel, the leader in technology, has been exploring together with governments, medical institutions and medical equipment vendors on how to better integrate information technology with medical reform and make it a strong driver for rural healthcare services.

"Make IT the most valuable helper for rural medical workers" reflects the philosophy of Haoyisheng*, a group long committed to offering comprehensive service platform for China's medical practitioners, and is consistent with the concept that Intel pursues in this field. Intel and Haoyisheng jointly launched the Doki* series of medical information products that integrate all software and hardware products required by rural medical services, providing an efficient, easy-to-use multi-functional medical platform to rural medical workers, and contributing to the construction of rural healthcare system.

CHALLENGES

- The construction of rural healthcare systems will have direct bearing on the success of the new medical reform in China. How to integrate IT with actual demands in rural healthcare system and make IT a real helper for rural medical workers is a challenge for all IT vendors and rural medical workers.

METHODS

- Based on the strong data processing capability and compatibility of Intel® architecture, Haoyisheng launched the Doki series of medical information products, providing an efficient, easy-to-use multi-functional medical platform to rural medical workers, and contributing to the construction of rural healthcare system.

GAINS

- By matching its advantages in IT industry with medical equipment vendors, Intel provided new concepts for the construction of rural healthcare system, which improved the level of rural healthcare services.

"At rural healthcare institutes, we mostly go to towns and villages to provide basic medical services for the crowd. The lack of portable diagnostic device is usually an important factor that holds back our services," said Zhang Jing, director of prophylactic section, Yuduo Health Center, Jiangyan City. "In fact, we made a lot of efforts to change this situation. For example, a PDA was provided for each doctor who made house calls to help recording patient information and searching medical information. However, due to low speed, simple function and inconvenient network connection of PDA, the doctors' efficiency was hardly improved, and some doctors even suspected the value of IT products to their work. The Haoyisheng Doki series of medical information products are really helpful. They have become an essential tool for our work."

Strong data processing capability to easily cope with complicated application requirements.

"As rural medical workers, we usually have to deal with complicated problems rapidly and effectively," said Dr. Ding Zhangqing from Jiaodun Health Service Station, Yuduo Town, Jiangyan while operating the DokiStation* in front of him. "This workstation is useful. It has strong processing capability and hot-swap function, so that we can use it easily in office or during ward round. We can make house calls at any time with it."

In fact, equipped with Intel® processors, the Doki series of medical information products including the DokiStation have strong data processing capabilities and can cope with complicated problems that may be encountered in providing rural healthcare services. "As soon as we began designing the Doki series of medical information products, we took into full consideration complex cases that may be encountered in providing rural healthcare services, and leveraged the strong performance of Intel products so that the data processing capability and remote background data transmission capability can meet the requirements of medical workers," said Shi Tongyi, CEO of Haoyisheng. "Seen from practical applications, our Doki series of medical information products have greatly improved the efficiency of rural medical workers."

"Doki series of medical information products have brought much convenience to our work," said Dr. Ding Zhangqing. "We used PDA's to help with the diagnosis and treatment, but we found the functions of PDA's were too simple and the speed could not meet our requirement. The DokiStation we are using operates quickly with a variety of vital sign sensors for cardiogram, blood pressure, blood oxygen, fetal heart, lung function, body temperature, etc. DokiPAD*, a medical tablet PC, is pre-installed with medical software, multi-parameter detector software and assistant diagnostic system, and features quick response, which brings much convenience to our work and helps us respond to the patient's conditions at any time during the diagnosis and treatment."



Powerful interconnection and intercommunication make business expansion easy via network

In addition to the daily work in the rural healthcare institutes, the rural medical workers need to get into the community and are responsible for common disease diagnosis, rehabilitation therapy, disease prevention, spread of health knowledge and scientific popularization of medical knowledge

among the residents in the community. By virtue of Intel architecture, the Doki series of medical information products boast powerful function in terms of interconnection and intercommunication. Take the DokiPAD for an example, by integrating a wireless network (WiFi, 3G and Bluetooth*), the DokiPAD can easily access to the Internet to expand its function and allow rural medical workers to work conveniently via the Internet, thus greatly improving the work efficiency.

"Once upon a time, we always took a lot of articles in cases when we went to the countryside. When coming back to the health center after diagnosis, we shall collect materials for storage. Sometimes, when there were cases we had never seen, we shall invite the upper-level medical institution for group consultation. Now, everything becomes easier thanks to the DokiPAD, which can access to the Internet via WiFi or 3G network to conveniently read the materials and extract information so that the diagnosis data can also be collected and stored at first moment. What's more, we can also, via webcam, invite experts for remote group consultation, which greatly improves our work efficiency." said Zhang Jingjin, Director of Security Department in the Yuduo Health Center, Jiangyan City, as his finger gently slid the DokiPAD screen to extract the required materials.

Powerful compatibility, with rich peripheral products to strengthen the medical capabilities

Small but complete, the rural healthcare institutes are directly oriented to the communities and rural areas. So they shall bear as many functions as the large hospitals. Therefore, the rural healthcare institutes shall choose the medical devices that have powerful compatibility and various necessary medical apparatuses that can help the rural healthcare institutes connect with each other. To meet such requirement, Haoyisheng specially designs the compatibility of Doki series of medical information products with the help of the good compatibility of Intel architecture.

Take the DokiDetector* (portable multi-parameter detector) for example, it has several external medical devices to provide important patient information for medical clinic diagnosis. It provides real-time detection on important parameters such as electrocardiosignal, heart rate, blood pressure, oxyhemoglobin saturation, lung function, body temperature and fetal heart rate of the human body. It realizes real-time detection, information storage and export for each parameter and serves as the important tool for clinical diagnosis. Through the signal detection and preprocessing module, the DokiDetector converts the biomedical signal into the electrical signal and conducts the preprocessing like interference suppression, signal filtering and amplification. Then, through the data extraction and processing module, it samples, quantizes, calculates, and analyzes the parameters. Then it compares the display result with the set threshold, stores the results to RAM in real time or transmits them in real time to the network.

"The integrated design adopted by DokiDetector can complete the detection and analysis for several physiological parameters at the same time. Boasting the powerful function, DokiDetector, therefore, is particularly suitable for our rural healthcare institutes." said Zhang Jingjin, Director of Security Department in Yuduo Healthcare Center, Jiangyan City.

Introduction of Doki* series of medical information products:

- DokiStation* – Doctor workstation. Adopted Intel® Atom™ processor; the built-in interfaces include laser barcode, USB interface, RS232 interface, RJ45 interface, VGA output, sensor of vital signs such as electrocardio, blood pressure, blood oxygen, fetal heart, lung function and body temperature; meanwhile, it has built-in tools like medical software, multi-parameter detector software, auxiliary medical system and medical database. It is a comprehensive antimagnetic and antibacterial workstation for doctors. Its hot-swap modular design allows doctors to realize mobile application in both office and ward.
- DokiPAD* – Medical tablet computer. Adopted Intel Atom processor. It has several external interfaces such as microphone, audio output, mini-USB, laser barcode scanning, IC card reader and RFID module, and built-in tools such as medical software, multi-parameter detector software, auxiliary diagnosis system and medical database. It is a light, portable, 9-inch touch-screen medical tablet computer that can be easily put into a bag, and is helping healthcare staff complete ward rounds in the hospital, at external clinics and at home sickbed visits.
- DokiDetector* – Portable multi-parameter detector. It has several external devices such as standard five-lead ECG connection cable, standard blood pressure cuff, oxyhemoglobin saturation probe and extension lead. It provides important patient information for medical clinic diagnosis and real-time detection on important parameters such as electrocardiosignal, heart rate, blood pressure, oxyhemoglobin saturation, lung function, body temperature and fetal heart rate. It utilizes real-time detection, information storage and export for each parameter and serves as the important tool for clinical diagnosis.

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