Medical design: Smart products and services in medicine and healthcare

Kevin Tseng

Nowadays, we are surrounded by products and services that have a mind of their own in our life. These products and services consisting mainly of wireless technologies, such as ZigBee, RFID, GSM, GPS, microcontrollers, microprocessors, data storage chips, intelligent system or sensor networks, provide the basis to transform the products into “Smart Products” and build connectivity and embedded intelligence into all types of consumer goods and business models. Smart products can deliver specific information to the particular user and allow for completely new interactions with users. This enables researchers to develop new product or service opportunities for individual or organisation.

These “smart products and services” are rapidly changing our lifestyle by connecting the physical world to the virtual networks and bring potential to enable a broad range of applications, especially in medicine and health care. The potential of these new technologies can be utilised in medicine and health care, such as medical diagnosis, treatment, education and healthcare to the patients. In healthcare today; however, patients and medical professionals are confined into the same service structures by engineering thinking, whether they are dealing with chronic disease or have faced an undiagnosed issue. Many useful patient data and medical resources are remained disparate and inconsistent, which make even difficulties to provide a good quality of patient-centred healthcare and have a breakthrough medical innovation.

Therefore, our medical design research team aims to bring together a variety of state-of-the-art technologies, theory, and applications relating to smart products and services in medicine and healthcare by interdisciplinary research. Some of our previous research outcomes are introduced in my keynote speech, which includes:

- The development of a smart product or service for medicine and health car;
- Connected devices and consumer value in medicine and healthcare;
- The privacy issues of smart products or services in medicine and health care;
- Strategies for managing smart products and services in medicine and health care;
- Ergonomic issues of smart products and services in medicine and health care;
- Virtual and augmented reality in medicine and health care;
- User experience and evaluation for smart products and services in medicine and health care.