UX-based Personalized Smart Wearable Devices

Background

People are surrounded by products tailored to their specific function, size and shape. In order to fulfill this ever increasing tendency towards mass personalization, companies strive to involve customer in the co-creation process so as to provide highly individualized products in a cost-efficient way. To achieve this customer-centric product development process, both information technologies (e.g. Web 2.0, Internet of Things, and Virtual Reality) and manufacturing techniques (e.g. adaptable design, reconfigurable production system, and additive manufacturing) are deemed to be the enabling tools.

In this research project, we aim to developing a series of personalized healthy smart wearable devices for individual customers based on 4 important concepts:

- **Personalization.** With the tendency towards high value-added product and service-experience oriented customer demand, the product should be personalized in order to fulfill each customer’s own requirements and satisfaction.

- **Smart wearable device.** According to Ganter, only 15% of people worldwide are using wearable devices and in 2016, more than 2.746 billion devices will be sold. The market share will reach 28.7 billion US dollars, which about 20% are health related. Micro-nano sensors and low energy consumption technology (e.g. Bluetooth 4.0) are the key enablers.

- **Healthy.** People nowadays are becoming more and more health conscience. Products such as Fitbit band, Apple Watch, NIKE smart shoes are all health related which has a huge market not only among young people; there is an increased need for the elder people to improve the quality of their lives.

- **IoT-based Big data.** Monitoring user behaviour and get access to real-time data is a challenge. Amazon EC2 and ThingWorx IoT platform provides potential architecture and business environment for user big data collection and analysis.

Facilities

- Eyetribe II: eye tracking equipment
- Laser Scanner and Structure Sensor
- Metawear Sensor with Bluetooth 4.0 module
- Smart phones: Android-based
- Several FDM 3D printers

Innovations

- A smart wearable product prototype
- A user-friendly APP
- An IoT-based monitoring system
- A web-based configuration tool

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