Wearable Technology: Enhancing the Quality of Life

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ABSTRACT

Wearable technology refers to electronic devices that are worn on a user's body or linked up to their clothing. Wearable devices have far outmatched the expectations of the market, and become the fastest raising consumer technology device to date. Wearable devices will have "far-reaching" impacts by creating a new category and disrupting or even stimulating change within the industries outside of the technology. Wearable devices might motivate people to retreat further into themselves and also their machines, kind of leading to greater social isolation. In this paper, we have discussed about some of the available wearable devices followed by applications and future aspects of wearable devices.

Keywords: Wearable devices, hand-held devices, sensors, portable electronics.

1. INTRODUCTION

The wearable devices can be specified to electronic technologies or computers that are fused into items of clothing and accessories which can easily be draped on the body. These wearable devices can perform many of the same computing functions as mobile phones and laptop computers do. Moreover in few cases, wearable technology can even outperform these hand-held devices completely. Wearable technology tends to be more refined than hand-held technology in the market today because it can provide sensory and scanning features which are not generally noticed in mobile and laptop, such as biofeedback and tracking of physiological function.

2. AVAILABLE WEARABLE DEVICES

The significance and uses of wearable technology has by far reached to a good number of audiences and can influence various fields of health and medicine, fitness, aging, disabilities, education, transportation, enterprise, finance, gaming and music. Other wearable technology gadgets include devices that have small motion sensors to take photos and synchronize with one's mobile phones. The main aim of all these wearable technologies in each of these fields will be to smoothly integrate functional, portable electronics and computers into everyone daily lives. Prior to their presence in the consumer market, wearable equipments were primarily used in the field of military technology and had the biggest implications for healthcare and medicine. To achieve situation awareness, a wearable device manipulates various types of sensors to figure out the user's location and what the person is doing. The device can monitor the user's choices and build a model of their preferences. We've given below a description about various wearable devices:

2.1. Activity Tracker
An activity tracker is a device or application for monitoring and tracking fitness-related metrics such as distance walked or run, calorie consumption, and in some cases heartbeat and quality of sleep. The term "activity trackers" now primarily refers to wearable devices that monitor and record a person's fitness activity. e.g. Fitbit , Nike + iPod, Nike Fuel band, Sony Smart Band etc.
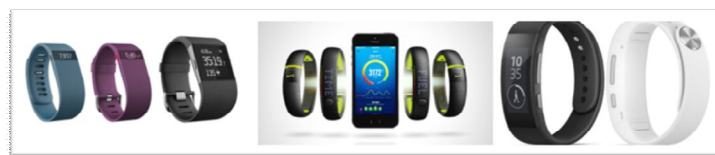

Figure 1: Activity Tracker

2.2. E-textiles
E-textiles, also known as smart garments, smart clothing, electronic textiles, smart textiles, or smart fabrics, are fabrics that enable digital components (including small computers), and electronics to be embedded in them. Many smart clothing, wearable technology, and wearable computing projects involve the use of e-textiles. Electronic textiles are distinct from wearable computing because emphasis is placed on the seamless integration of textiles with electronic elements like microcontrollers, sensors, and actuators.

Figure 2: E-textiles

2.3. Smart watch

A smart watch is a computerized wristwatch with functionality that is enhanced beyond timekeeping. Many smart watches run mobile apps, while a smaller number of models run a mobile operating system and function as portable media players. Such devices may include features such as a camera, accelerometer, thermometer, altimeter, barometer, compass, chronograph, calculator, cell phone, touch screen, GPS navigation, Map display, graphical display, speaker, scheduler, watch, SD cards that are recognized as a mass storage device by a computer, and rechargeable battery. It may communicate with a wireless headset, heads-up display, insulin pump, microphone, modem, or other devices.
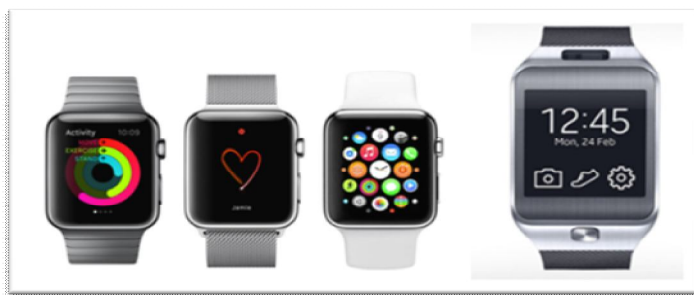

Figure 3: Smart watch

2.4. Smart Jewellery

Brands like Kovert Designs have brought the idea of smart watches to items of jewellery finding ground somewhere between the two. Smart jewellery is mostly aimed at women right now, and the most common usage is to discreetly notify the user of texts, calls or emails when their phone is out of reach.

Figure 4: Smart Jewellery

2.5. Head-mounted display

A head-mounted display (or helmet-mounted display, for aviation applications), both abbreviated HMD, is a display device, worn on the head or as part of a helmet, that has a small display optic in front of one (monocular HMD) or each eye (binocular HMD). There is also an optical head-mounted display (OHMD), which is a wearable display that has the capability of reflecting projected images as well as allowing the user to see through it.

Figure 5: Head-mounted display

2.6. Implantables

Implantables are a group of wearables that you have no choice but to carry with you wherever you go. These are devices surgically attached somewhere under your skin. They might be for medical reasons, like insulin pumps, or for contraception or, on the other hand, you might just fancy sticking some magnets in your fingertips.

Fig 6: Implantables

3. APPLICATIONS OF WEARABLE DEVICES

Wearable technology refers to mobile electronic devices that are worn on a user's body or attached to their clothes. While the technology is in its infancy stage, analysts at Morgan Stanley believe it will become a $1.6 trillion business in the near future. "Wearable devices will far surpass market expectations, and become the fastest ramping consumer technology device to date, in our view," a group of Morgan Stanley analysts wrote in a note on Thursday. The analysts add that wearable devices will have "far-reaching" impacts by creating a new category and disrupting or even accelerating change within industries outside of technology. The analysts project sales of wearable devices will grow at a 154-percent annual compound rate through 2017, where 248 million devices will be sold. The figure will grow even further where sales of wearable technologies will reach one billion in 2020. *The analysts identify six sectors where wearable technologies could be prove to be disruptive:*

3.1. Traditional watches: Wearable technology will change how consumers view traditional watches.

3.2. Apparel: wearable could accelerate an already strong health and wellness trend.

3.3. Payments: Apple Inc.'snew Apple Pay payment system, if adopted to its upcoming watch, could make Pay even easier to use, generating intense competition for others to follow suit.

3.4. Chinese Retail: Alibaba Group Holding Ltd and Baidu Incare working with Intime to equip stores and malls with technology to improve customer experience and data analytics.

3.5. Health care: wearable devices could address health care system inefficiencies.

3.6. Industrials: wearable devices could be a catalyst offering users something unique as many companies are building smart home products.

4. REFERENCES

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