

Chapter 1

The Promise and Perils of Wearable Technologies

John Gammack
Zayed University, UAE

Andrew Marrington
Zayed University, UAE

ABSTRACT

Wearable technology collectively describes some of the most exciting emerging technologies, encompassing smart gadgets, garments, jewelry, and other devices worn on the user's body. In recent years, high profile wearable devices such as the Google Glass, Apple Watch, and FitBit have captured both the public imagination and headlines. Wearable technology has the potential to change the world even more profoundly than other mobile technologies. The appearance of such high profile wearable devices in the end-consumer market has also lead to serious consideration of the implications of such technologies, previously limited to the pages of science fiction. The implications for security and privacy of individuals and organizations, and the potential dangers to both society and the economy, must be considered and addressed in order for wearable technology to successfully deliver upon its many promises. Through addressing such concerns, the pathway to a "wearable future" can be unlocked, and users can adopt wearable technology with confidence.

DOI: 10.4018/978-1-5225-1016-1.ch001

Copyright ©2017, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.

INTRODUCTION

The purpose of this chapter is to introduce the field of wearable technology, and to provide a general background for the later chapters in this book. Often referred to simply as wearables, wearable technology, by definition, means a smart gadget or garment worn on an individual's body. This term includes smart watches, smart eyewear, smart jewelry, and wristbands for fitness tracking, as well as clothing or accessories enhanced to sense, record and transmit personal information. The field of wearables is one of the most exciting technologies to emerge in recent times, and is forecasted to continue to grow well into the future, with increased adoption and the continuing innovation of new devices and applications.

Wearable technology also includes *implantables*: devices that are surgically placed within the body, perhaps for medical monitoring but with the potential for identification, tracking and alerting applications. Other arguably wearable technology includes smartphones, from which many of today's users are effectively inseparable, and which are frequently the communication link between a wearable gadget and the wider Internet. Just as smartphones have become ubiquitous and have engendered a reconfiguration of organizational and societal practice, the advent of wearables promises to evolve this trend towards a new normality.

Whilst the growth of wearables continues as their positive benefits become realized, their "hidden dangers" are less often considered. The developers and adopters of wearable technologies will have more success and satisfaction if implicit issues of privacy, security, and safety are known, addressed and managed. Many of these overlap with social and technical issues related to individual smartphone use, including user identity, tracking or stalking, but also bring new problems in an enterprise context, where corporate data and other information can become vulnerable to underhanded or insecure leakage. There are many implications of smart wearables, which will require policy and legislative revisions.

In this chapter we overview the emerging space of wearables and raise some of the general concerns raised by their potential widespread adoption, for individuals, for organizations and for society. The subsequent chapters expand on several of these issues, both conceptually and empirically, suggesting not only practical recommendations but also emerging issues for research or debate as our understanding develops.

15 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/the-promise-and-perils-of-wearable-technologies/164302

Related Content

HTNMote: A Platform for On-Board Real-Time Monitoring of Railcars

Sushanta Mohan Rakshit, Fahimeh Rezaei, Pradhumna Lal Shrestha, Michael Hempeland Hamid Sharif (2015). *Technological Breakthroughs in Modern Wireless Sensor Applications* (pp. 1-26).

www.irma-international.org/chapter/htnmote/129214

Analyzing the Performance and Efficiency of IT-Compliant Audit Module Using Clustering Methods

Soobia Saeed, N. Z. Jhanjhi, Mehmood Naqvi, Mamoon Humayun and Vasaki Ponnusamy (2020). *Industrial Internet of Things and Cyber-Physical Systems: Transforming the Conventional to Digital* (pp. 351-376).

www.irma-international.org/chapter/analyzing-the-performance-and-efficiency-of-it-compliant-audit-module-using-clustering-methods/257854

Applications of Independent Component Analysis in Cognitive Radio Sensor Networks

Zahooruddin, Ayaz Ahmad, Muhammad Iqbal, Farooq Alam and Sadiq Ahmad (2016). *Mobile Computing and Wireless Networks: Concepts, Methodologies, Tools, and Applications* (pp. 1173-1202).

www.irma-international.org/chapter/applications-of-independent-component-analysis-in-cognitive-radio-sensor-networks/138325

Visions for the Completion of the European Successful Migration to 3G Systems and Services: Current and Future Options for Technology Evolution, Business Opportunities, Market Development, and Regulate

Ioannis P. Chochliouros and Anastasia S. Spiliopoulou-Chochliourou (2005). *Mobile and Wireless Systems Beyond 3G: Managing New Business Opportunities* (pp. 342-368).

www.irma-international.org/chapter/visions-completion-european-successful-migration/26440

Multi-System Integration Scheme for Intelligence Transportation System Applications

Chih-Chiang Kuo, Jyun-Naih Lin, Syue-Hua Wu, Cheng-Hsuan Cho, Yi-Hong Chuand Frank Chee Da Tsai (2014). *International Journal of Wireless Networks and Broadband Technologies* (pp. 21-35).

www.irma-international.org/article/multi-system-integration-scheme-for-intelligence-transportation-system-applications/125874