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# Sensors for Everyday Life

Healthcare Settings

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Sensors were developed to detect and quantify structures and functions of human body as well as to gather information from the environment in order to optimize the efficiency, cost-effectiveness and quality of healthcare services as well as to improve health and quality of life. This book offers an up-to-date overview of the concepts, modeling, technical and technological details and practical applications of different types of sensors. It also discusses the trends for the next generation of sensors and systems for healthcare settings. It is aimed at researchers and graduate students in the field of healthcare technologies, as well as academics and industry professionals involved in developing sensing systems for human body structures and functions, and for monitoring activities and health.

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# Smart Clothes for Rehabilitation Context: Technical and Technological Issues

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**Abstract** Smart clothes have the potential to improve rehabilitation processes by allowing clinicians to gather measures on patients' functional capacity, activity level, exercise compliance, the effectiveness of treatment, and the ability of patients to perform efficiently specific motor tasks at rehabilitation centers, at home or in community settings. The chapter provides an overview of smart clothing for health monitoring and healthcare, mainly for rehabilitation context. We present recent advances in the field of researches related smart clothes with capability of human body vital functions (i.e. heart beats, respiration) and activity monitoring, as well as several commercial smart clothes for rehabilitation context. Technical and technological issues related smart clothes design and development, and several directions for future research are also presented. Manufacturability, connectivity, integrations of things for smart clothing, durability, testing, wearability, maintainability and affordability of smart clothes are discussed.

## 1 Introduction

"It can feel your heartbeat ... look..." Sure enough there was a big red spot on the plastic shirt just over her heart, a spot that spread out into an expanding ring that moved on over her shoulders and down to her sleeves. Her heart beat again, and a new spot started - each beat of her heart started a new red splash in the blue heartshirt.

Source: Wetware, by Rudy Rucker, 1988.

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