

# Preface

Over the past few decades, raising public awareness of the health, physical activity sensing creates new demands for smart sensor technology and monitoring devices capable of feeling, to classify and to provide feedback to users of health and physical activity in common, accurate and reliable fashion. Monitoring and accurately quantify the physical activity of users with devices inertial unit on the basis of measurements, for example, also proved an important role in health management of patients with chronic diseases. The purpose of this book will focus on MEMS-MOEMS sensor technology developed in the past few years, describing the scientific achievements on health and physical activity in addition to the smart systems manufacturing and integration.

Research monograph focuses on the dynamic aspects of microsystems, presenting a detailed numerical analysis of the different types of microsystems, which are studied from a mechanical point of view, thus focusing on the complex process and the internal dynamics of elastic structures such as natural vibration modes and their beneficial use. Computational models proposed to take into account the interaction between micro devices and parts of the human body. The adequacy of these models confirmed using experimental precision measurement methods. Some important issues such as the MEMS assisted for human obesity prevention or MOEMS based radial pulse measurements are presented in this book.

This monograph is of use to researchers, practitioners and manufacturers in the field of biomechanical microsystems engineering and may be used by Ph.D. students for advanced courses as additional material.

This research was funded by grants (No. SEN-10/15, No. MIP-026/2014 and No. MIP-081/2015) from the Research Council of Lithuania.

Kaunas, Lithuania  
December 2016

Vytautas Ostasevicius  
Giedrius Janusas  
Arvydas Palevicius  
Rimvydas Gaidys  
Vytautas Jurenas

Biomechanical Microsystems

Design, Processing and Applications

Ostaševičius, V.; Janusas, G.; Palevicius, A.; Gaidys, R.;

Jurenas, V.

2017, X, 282 p. 266 illus., 151 illus. in color., Hardcover

ISBN: 978-3-319-54848-7