

Sensor Technologies: Healthcare, Wellness and Environmental Applications (Expert's Voice in Networked Technologies) by Michael J. McGrath



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Sensor Technologies Healthcare Wellness And Environmental Applications Experts Voice In Networked Technologies

Ramona Nelson, Nancy Staggers



Sensor Technologies Healthcare Wellness And Environmental Applications Experts Voice In Networked Technologies:

Sensor Technologies Michael J. McGrath, Clíodhna Ní Scanaill, Dawn Nafus, 2014-01-23 Sensor Technologies Healthcare Wellness and Environmental Applications explores the key aspects of sensor technologies covering wired wireless and discrete sensors for the specific application domains of healthcare wellness and environmental sensing It discusses the social regulatory and design considerations specific to these domains The book provides an application based approach using real world examples to illustrate the application of sensor technologies in a practical and experiential manner The book guides the reader from the formulation of the research question through the design and validation process to the deployment and management phase of sensor applications The processes and examples used in the book are primarily based on research carried out by Intel or joint academic research programs Sensor Technologies Healthcare Wellness and Environmental Applications provides an extensive overview of sensing technologies and their applications in healthcare wellness and environmental monitoring From sensor hardware to system applications and case studies this book gives readers an in depth understanding of the technologies and how they can be applied I would highly recommend it to students or researchers who are interested in wireless sensing technologies and the associated applications Dr Benny Lo Lecturer The Hamlyn Centre Imperial College of London This timely addition to the literature on sensors covers the broad complexity of sensing sensor types and the vast range of existing and emerging applications in a very clearly written and accessible manner It is particularly good at capturing the exciting possibilities that will occur as sensor networks merge with cloud based big data analytics to provide a host of new applications that will impact directly on the individual in ways we cannot fully predict at present It really brings this home through the use of carefully chosen case studies that bring the overwhelming concept of big data down to the personal level of individual life and health Dermot Diamond Director National Centre for Sensor Research Principal Investigator CLARITY Centre for Sensor Web Technologies Dublin City University Sensor Technologies Healthcare Wellness and Environmental Applications takes the reader on an end to end journey of sensor technologies covering the fundamentals from an engineering perspective introducing how the data gleaned can be both processed and visualized in addition to offering exemplar case studies in a number of application domains It is a must read for those studying any undergraduate course that involves sensor technologies It also provides a thorough foundation for those involved in the research and development of applied sensor systems I highly recommend it to any engineer who wishes to broaden their knowledge in this area Chris Nugent Professor of Biomedical Engineering University of Ulster

Sensor Technologies Michael J. McGrath, Clíodhna Ní Scanaill, 2013-12-17 Sensor Technologies Healthcare Wellness and Environmental Applications explores the key aspects of sensor technologies covering wired wireless and discrete sensors for the specific application domains of healthcare wellness and environmental sensing It discusses the social regulatory and

design considerations specific to these domains The book provides an application based approach using real world examples to illustrate the application of sensor technologies in a practical and experiential manner The book guides the reader from the formulation of the research question through the design and validation process to the deployment and management phase of sensor applications The processes and examples used in the book are primarily based on research carried out by Intel or joint academic research programs Sensor Technologies Healthcare Wellness and Environmental Applications provides an extensive overview of sensing technologies and their applications in healthcare wellness and environmental monitoring From sensor hardware to system applications and case studies this book gives readers an in depth understanding of the technologies and how they can be applied I would highly recommend it to students or researchers who are interested in wireless sensing technologies and the associated applications Dr Benny Lo Lecturer The Hamlyn Centre Imperial College of London This timely addition to the literature on sensors covers the broad complexity of sensing sensor types and the vast range of existing and emerging applications in a very clearly written and accessible manner It is particularly good at capturing the exciting possibilities that will occur as sensor networks merge with cloud based big data analytics to provide a host of new applications that will impact directly on the individual in ways we cannot fully predict at present It really brings this home through the use of carefully chosen case studies that bring the overwhelming concept of big data down to the personal level of individual life and health Dermot Diamond Director National Centre for Sensor Research Principal Investigator CLARITY Centre for Sensor Web Technologies Dublin City University Sensor Technologies Healthcare Wellness and Environmental Applications takes the reader on an end to end journey of sensor technologies covering the fundamentals from an engineering perspective introducing how the data gleaned can be both processed and visualized in addition to offering exemplar case studies in a number of application domains It is a must read for those studying any undergraduate course that involves sensor technologies It also provides a thorough foundation for those involved in the research and development of applied sensor systems I highly recommend it to any engineer who wishes to broaden their knowledge in this area Chris Nugent Professor of Biomedical Engineering University of Ulster What you ll learn The relevant sensing approaches and the hardware and software components required to capture and interpret sensor data The importance of regulations governing medical devices A design methodology for developing and deploying successful home and community based technologies supported by relevant case studies Health wellness and environmental sensing applications and how they work The challenges and future directions of sensing in these domains Who this book is for Sensor Technologies Healthcare Wellness and Environmental Applications is targeted at clinical and technical researchers engineers and students who want to understand the current state of the art in sensor applications in these domains The reader gains a full awareness of the key technical and non technical challenges that must be addressed in the development of successful end to end sensor applications Real world examples help give the reader practical insights into the successful development deployment and

management of sensor applications The reader will also develop an understanding of the personal social and ethical impact of sensor applications now and in the future

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Chapter Goal

Reader should understand the key challenges and drivers for sensor application development The reader should also understand how sensor technologies can play a role in addressing some of the key challenges facing global society in the short to medium term

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Chapter Goal

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Hardware and Software Overview

Chapter Goal

Reader should have a high level understanding of the key hardware and software components which are necessary for the development of sensors systems and why technologies are selected for specific applications

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Environments

SDK s

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Chapter Goal

Reader should understand the various approaches to the design of sensor network architectures scaling from body worn systems to ambient sensing to city scale deployments The reader should also understand the advantages and disadvantages of current and evolving sensor network architectures

- 1 Sensor network architectures
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 - o New communication standards

Chapter 5 Adding Vibrancy to Sensor Data

Chapter Goal

Reader should understand the various methods to interpret and display sensor data to the user They will understand the

importance of creating a data analysis plan from the outset and the different types of data analysis throughout the application stack

1 Data Literacy How can we intuitively answer questions with sensor data and contextualise answers

2 Data Quality a Calibration b Trust and Repudiation

3 Sensor Fusion combining sensory data from disparate sources

4 Data Mining

5 Data Visualisation

6 Openness data integration virtual sensors

7 Exploiting the power of the cloud

Chapter 6 Regulation and Standards

Chapter Goal Reader should understand the key technologies which impact or influence the development of sensor deployment and applications including the emerging standards and regulatory considerations

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4 Standards Bodies and Industry Groups o Continua Healthcare Alliance o ISO IEEE 11073

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Chapter 7 Biosensing in Everyday Life Driving Biocontextual Aware Computing

Chapter Goal Reader should understand the social relationships that create opportunities and barriers for widespread consumer based biosensing The reader should understand how the social world is shifting from sensor technologies of should to sensor technologies of could to facilitate new understandings of health and wellness and drive new methods and practices of personal data sharing

1 Data Security and Ownership Sharing and Managing Personal Data

2 Game Changing Pressure for Affordable Healthcare

3 Continuous Personal Data is Improving Lives

4 Emerging Tech Empowered Citizens

5 Sensing for Self Discovery Culture and Play

6 User feedback Supporting sustainable human behaviours leveraging the gaming culture

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Chapter Goal Reader should understand how to design a sensor deployment for a home or community The chapter informs the reader how to formulate the research question the deployment will address how to develop prototypes and manage and deploy them successfully The chapter will finish with exemplar case studies of real world sensor deployments

Study Design The Right Question Home Deployment Elements Home Deployment Management The Prototyping Design Process Case Studies

Chapter 9 Body Worn and Ambient Sensor Applications for Assessment Monitoring and Diagnostics

Chapter Goal Reader should at the end of this chapter have an understanding of the key characteristics of how body worn and ambient sensor applications and how they vary according to the domain in which they are deployed The reader will be presented with the key challenges faced in each domain and emerging solutions for these challenges

1 Drivers and Inhibitors Incidence of chronic diseases aging demographics Adjusting provider compensation prevention medical work practice changes

2 Hospital based sensing for assessment and diagnosis

3 Supervised Assessment and Monitoring in Community Settings

4 Home Based Applications o Clinical grade sensing for patient monitoring o Body worn sensing e g PERS for monitoring and alerting o Passive sensing for monitoring and alerting e g ADL s

5 Key challenges

Chapter 10 Wellness Fitness and Lifestyle

Chapter Goal Reader should understand the key trends in how people use body worn sensors to manage their fitness and wellbeing Key applications include sensors for measuring activities in sports performance activity

weight management and sleep tracking 1 Drivers and Inhibitors 2 Sports and fitness applications running walking cycling field sports Vital signs and physiological parameters Fitness gaming Wii Fit Kinect muscle movement body stress levels speed distance location Fitness Statistics and Analysis 3 Outdoor Activities o Pressure mountaineer and paragliding o GPS hiking cycling golf 4 Obesity and weight management 5 Sleep o Baby Monitoring o Sleep Quality health and social impacts o Sleep Apnoea Chapter 11 Environmental Monitoring for Health and Wellness Chapter Goal Reader should understand how sensors and sensor networks are used for environmental monitoring one of the key emerging applications domains Apart from disaster monitoring sensing also has the potential for air quality weather monitoring pollution etc with benefits for both urban and rural dwellers 1 Drivers and Inhibitors o Correlations to health impacts 2 Home Sensing o Carbon Monoxide o Smoke Detectors o Passive Infrared PIR o Temperature o Sound o Sustainable Living 3 Smart Environments 4 Environmental Parameters Noise Water Bacteria Air Quality Radiation Urban Heat Islands 5 Weather Exceptional Event and Disaster Management Intelligence Chapter 12 Conclusions and Future Directions Chapter Goal Reader should understand the key conclusions that the authors have outlined in the previous chapters The reader should also gain an understanding of the key trends which will affect future sensor applications and how people will utilise these novel applications in their everyday lives 1 Summary of the overall conclusions 2 Future Directions for Sensing o Use Centred Healthcare o Citizen centric sensing o Influence of urbanisation on health wellness and lifestyle choices o Sustainable human behaviour change Mobile Health Applications for Quality Healthcare Delivery Moumtzoglou, Anastasius, 2019-01-11 One of the central engines of the current shift towards decentralization and reorientation of healthcare services is mobile healthcare mHealth mHealth offers unique opportunities to reduce cost increase efficiencies and improve quality and access to healthcare However the full impact of mHealth is just beginning to be felt by the medical community and requires further examination to understand the full range of benefits it contributes to medical staff and patients Mobile Health Applications for Quality Healthcare Delivery explores the emergence of mHealth in the healthcare setting and examines its impact on patient centered care including how it has reshaped access quality and treatment Highlighting topics such as patient management emergency medicine and health monitoring this publication supports e health systems designers in understanding how mobile technologies can best be used for the benefit of both doctors and their patients It is designed for healthcare professionals administrators students health services managers and academicians *Proceedings of the XV International symposium Symorg 2016* Ondrej Jaško, Sanja Marinković, 2016-06-03 *M-Health Innovations for Patient-Centered Care* Moumtzoglou, Anastasius, 2016-01-26 The integration of mobile technology into the medical industry has revolutionized the efficiency and delivery of healthcare services Once limited by distance and physical barriers health professionals can now reach patients and other practitioners with ease *M Health Innovations for Patient Centered Care* is a pivotal reference source for the latest scholarly research on the incorporation of mobile telecommunication devices in the health field and how this technology has increased overall

quality of care Highlighting various types of available technologies necessary support infrastructures and alterations in business models this publication is ideally designed for medical professionals upper level students and e health system designers interested in the effects of mobile technology on healthcare delivery

Health Informatics - E-Book Ramona Nelson, Nancy Staggars, 2016-12-08 Awarded second place in the 2017 AJN Book of the Year Awards in the Information Technology category See how information technology intersects with health care Health Informatics An Interprofessional Approach 2nd Edition prepares you for success in today s technology filled healthcare practice Concise coverage includes information systems and applications such as electronic health records clinical decision support telehealth ePatients and social media tools as well as system implementation New to this edition are topics including data science and analytics mHealth principles of project management and contract negotiations Written by expert informatics educators Ramona Nelson and Nancy Staggars this edition enhances the book that won a 2013 American Journal of Nursing Book of the Year award Experts from a wide range of health disciplines cover the latest on the interprofessional aspects of informatics a key Quality and Safety Education for Nurses QSEN initiative and a growing specialty area in nursing Case studies encourage higher level thinking about how concepts apply to real world nursing practice Discussion questions challenge you to think critically and to visualize the future of health informatics Objectives key terms and an abstract at the beginning of each chapter provide an overview of what you will learn Conclusion and Future Directions section at the end of each chapter describes how informatics will continue to evolve as healthcare moves to an interprofessional foundation NEW Updated chapters reflect the current and evolving practice of health informatics using real life healthcare examples to show how informatics applies to a wide range of topics and issues NEW mHealth chapter discusses the use of mobile technology a new method of health delivery especially for urban or under served populations and describes the changing levels of responsibility for both patients and providers NEW Data Science and Analytics in Healthcare chapter shows how Big Data as well as analytics using data mining and knowledge discovery techniques applies to healthcare NEW Project Management Principles chapter discusses proven project management tools and techniques for coordinating all types of health informatics related projects NEW Contract Negotiations chapter describes strategic methods and tips for negotiating a contract with a healthcare IT vendor NEW Legal Issues chapter explains how federal regulations and accreditation processes may impact the practice of health informatics NEW HITECH Act chapter explains the regulations relating to health informatics in the Health Information Technology for Education and Clinical Health Act as well as the Meaningful Use and Medicare Access CHIP Reauthorization Act of 2015

Smart Sensors Networks Fatos Xhafa, Fang-Yie Leu, Li-Ling Hung, 2017-06-14 Smart Sensors Networks Communication Technologies and Intelligent Applications explores the latest sensor and sensor networks techniques and applications showing how networked wireless sensors are used to monitor and gather intelligence from our surrounding environment It provides a systematic look at the unique characteristics of wireless sensor networks through

their usage in a broad range of areas including healthcare for the elderly energy consumption industrial automation intelligent transportation systems smart homes and cities and more The book shows how sensor networks work and how they are applied to monitor our surrounding environment It explores the most important aspects of modern sensors technologies providing insights on the newest technologies and the systems needed to operate them Readers will find the book to be an entry point for understanding the fundamental differences between the various sensor technologies and their use in for different scenarios Indexing The books of this series are submitted to EI Compendex and SCOPUS Presents numerous specific use cases throughout showing practical applications of concepts Contains contributions from leading experts around the globe Collects in one place the latest thinking on an emerging topic Addresses the security and privacy issues inherent in sensor deployment

Sensor Network Methodologies for Smart Applications Krit, Salahddine,B?la?, Valentina Emilia,Elhoseny, Mohamed,Benlamri, Rachid,B?la?, Marius M.,2020-06-26 Technologies in today s society are rapidly developing at a pace that is challenging to stay up to date with As an increasing number of global regions are implementing smart methods and strategies for sustainable development they are continually searching for modern advancements within computer science sensor networks software engineering and smart technologies A compilation of research is needed that displays current applications of computing methodologies in the progression of global cities and how smart technologies are being utilized Sensor Network Methodologies for Smart Applications is a collection of innovative research on the methods of intelligent systems and technologies and their various applications within sustainable development practices While highlighting topics including machine learning network security and optimization algorithms this book is ideally designed for researchers scientists developers programmers engineers educators policymakers geographers planners and students seeking current research on smart technologies and sensor networks

Advanced Sensor Technology Ahmed Barhoum,Zeynep Altintas,2022-11-16 Advanced Sensor Technology Biomedical Environmental and Construction Applications introduces readers to the past present and future of sensor technology and its emerging applications in a wide variety of different fields Organized in five parts the book covers historical context and future outlook of sensor technology development and emerging applications the use of sensors throughout many applications in healthcare health and life science research public health and safety discusses chemical sensors used in environmental monitoring and remediation of contaminants highlights the use of sensors in food agriculture fire prevention automotive and robotics and more Final sections look forward at the challenges that must be overcome in the development and use of sensing technology as well as their commercial use making this book appropriate for the interdisciplinary community of researchers and practitioners interested in the development of sensor technologies Covers a range of environmental applications such as protection and improvement of water air soil plants and agriculture and food production biomedical applications including detection of viruses genes hormones proteins bacteria and cancer and applications in construction such as fire protection automotive

robotics food packing and micro machining Provides an outlook on opportunities and challenges for the fabrication and manufacturing of sensors in industry and their applicability for industrial uses Demonstrates how cutting edge developments in sensing technology translate into real world innovations in a range of industry sectors **Sensors for Everyday Life** Octavian Adrian Postolache, Subhas Chandra Mukhopadhyay, Krishanthi P. Jayasundera, Akshya K. Swain, 2016-10-27 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 Smart Sensors and Systems Chong-Min Kyung, Hiroto Yasuura, Yongpan Liu, Youn-Long Lin, 2018-04-22 This book describes the technology used for effective sensing of our physical world and intelligent processing techniques for sensed information which are essential to the success of Internet of Things IoT The authors provide a multidisciplinary view of sensor technology from materials process circuits and big data domains and showcase smart sensor systems in real applications including smart home transportation medical environmental agricultural etc Unlike earlier books on sensors this book provides a global view on smart sensors covering abstraction levels from device circuit systems and algorithms *Modern Sensing Technologies* Subhas Chandra Mukhopadhyay, Krishanthi P. Jayasundera, Octavian Adrian Postolache, 2018-08-24 This book provides an overview of modern sensing technologies and reflects the remarkable advances that have been made in the field of intelligent and smart sensors environmental monitoring health monitoring and many other sensing and monitoring contexts in today s world It addresses a broad range of aspects from human health monitoring to the monitoring of environmental conditions from wireless sensor networks and the Internet of Things to structural health monitoring Given its breadth of scope the book will benefit researchers practitioners technologists and graduate students involved in the monitoring of systems within the human body functions and activities healthcare technologies and services the environment etc Body Sensor Networks Guang-Zhong Yang, 2014-04-16 The last decade has witnessed a rapid surge of interest in new sensing and monitoring devices for wellbeing and healthcare One key development in this area is wireless wearable and implantable in vivo monitoring and intervention A myriad of platforms are now available from both academic institutions and commercial organisations They permit the management of patients with both acute and chronic symptoms including diabetes cardiovascular diseases treatment of epilepsy and other debilitating neurological disorders Despite extensive developments in sensing technologies there are significant research issues related to system integration sensor miniaturisation low power sensor interface wireless telemetry and signal processing In the 2nd

edition of this popular and authoritative reference on Body Sensor Networks BSN major topics related to the latest technological developments and potential clinical applications are discussed with contents covering Biosensor Design Interfacing and Nanotechnology Wireless Communication and Network Topologies Communication Protocols and Standards Energy Harvesting and Power Delivery Ultra low Power Bio inspired Processing Multi sensor Fusion and Context Aware Sensing Autonomic Sensing Wearable Ingestible Sensor Integration and Exemplar Applications System Integration and Wireless Sensor Microsystems The book also provides a comprehensive review of the current wireless sensor development platforms and a step by step guide to developing your own BSN applications through the use of the BSN development kit

Digital Health Shabbir Syed-Abdul,Xinxin Zhu,Luis Fernandez-Luque,2020-11-14 Digital Health Mobile and Wearable Devices for Participatory Health Applications is a key reference for engineering and clinical professionals considering the development or implementation of mobile and wearable solutions in the healthcare domain The book presents a comprehensive overview of devices and appropriateness for the respective applications It also explores the ethical privacy and cybersecurity aspects inherent in networked and mobile technologies It offers expert perspectives on various approaches to the implementation and integration of these devices and applications across all areas of healthcare The book is designed with a multidisciplinary audience in mind from software developers and biomedical engineers who are designing these devices to clinical professionals working with patients and engineers on device testing human factors design and user engagement compliance Presents an overview of important aspects of digital health from patient privacy and data security to the development and implementation of networks systems and devices Provides a toolbox for stakeholders involved in the decision making regarding the design development and implementation of mHealth solutions Offers case studies key references and insights from a wide range of global experts

Wearable Technologies and Wireless Body Sensor Networks for Healthcare Fernando José Velez,Fardin Derogarian Miyandoab,2019-07-03 Continuous advances in wearables sensors and smart Wireless Body Area Network technologies have precipitated the development of new applications for on in and body to body wearable communications for healthcare and sport monitoring Progress in this cross disciplinary field is further influenced by developments in radio communication protocols synchronization aspects energy harvesting and storage solutions and efficient processing techniques for smart antennas

Environmental, Chemical and Medical Sensors Shantanu Bhattacharya,Avinash Kumar Agarwal,Nripen Chanda,Ashok Pandey,Ashis Kumar Sen,2017-12-22 This book covers the fundamentals of sensor technologies as well as the recent research for the development of environmental chemical and medical sensor technologies Chapters include current research on microflow cytometry microfluidic devices colorimetric sensors and the development of low cost optical densitometric sensors and paper based analytical devices for environmental and biomedical applications Special focus has been given to nanotechnology and nanostructures their fabrication uses and utility in different fields of research such as for the design of tools for medical diagnostics therapeutics as well as for

detection and estimation of pollutant levels in water and air quality monitoring This book is intended as a resource for researchers working in the field of sensor development across the world **Smart Sensor Networks Using AI for Industry 4.0** Soumya Ranjan Nayak,Biswa Mohan Sahoo,Muthukumaran Malarvel,Jibitesh Mishra,2021-10-10 Smart Sensor Networks WSNs using AI have left a mark on the lives of all by aiding in various sectors such as manufacturing education healthcare and monitoring of the environment and industries This book covers recent AI applications and explores aspects of modern sensor technologies and the systems needed to operate them The book reviews the fundamental concepts of gathering processing and analyzing different AI based models and methods It covers recent WSN techniques for the purpose of effective network management on par with the standards laid out by international organizations in related fields and focuses on both core concepts along with major applicational areas The book will be used by technical developers academicians data sciences industrial professionals researchers and students interested in the latest innovations on problem oriented processing techniques in sensor networks using IoT and evolutionary computer applications for Industry 4 0 **Delivering Superior Health and Wellness Management with IoT and Analytics** Nilmini Wickramasinghe,Freimut Bodendorf,2019-11-27 This in depth book addresses a key void in the literature surrounding the Internet of Things IoT and health By systematically evaluating the benefits of mobile wireless and sensor based IoT technologies when used in health and wellness contexts the book sheds light on the next frontier for healthcare delivery These technologies generate data with significant potential to enable superior care delivery self empowerment and wellness management Collecting valuable insights and recommendations in one accessible volume chapter authors identify key areas in health and wellness where IoT can be used highlighting the benefits barriers and facilitators of these technologies as well as suggesting areas for improvement in current policy and regulations Four overarching themes provide a suitable setting to examine the critical insights presented in the 31 chapters Mobile and sensor based solutions Opportunities to incorporate critical aspects of analytics to provide superior insights and thus support better decision making Critical issues around aspects of IoT in healthcare contexts Applications of portals in healthcare contexts A comprehensive overview that introduces the critical issues regarding the role of IoT technologies for health Delivering Superior Health and Wellness Management with IoT and Analytics paves the way for scholars practitioners students and other stakeholders to understand how to substantially improve health and wellness management on a global scale **Internet of Things and Sensor Network for COVID-19** Siba Kumar Udgata,2021 This book examines various models solutions in areas such as individuals home work and society where IoT and AI are being utilized to mitigate the Covid 19 pandemic The world is battling with the novel coronavirus and government authorities scientists medical practitioners and medical services are striving hard to help people to face the challenges During this crisis numerous innovative ideas and solutions have been proposed for using the Internet of things IoT sensor networks and artificial intelligence AI to monitor the wellbeing of individuals Nations are using all available assets to

help develop cutting edge innovations to relieve the impacts of Covid 19 and profile individuals in danger The advances in IoT frameworks and sensor technologies together with AI are invaluable in the context of this pandemic and nations and various entities around the globe are discovering innovative solutions to maintain businesses and help people live alongside Covid 19 This book presents the advances in sensor technologies IoT frameworks and explores how these technologies are being used to deal with the issues arising from Covid 19 including work in progress and potential applications

Intelligent Data Sensing and Processing for Health and Well-being Applications Miguel Antonio Wister

Ovando,Pablo Pancardo Garcia,Francisco Diego Acosta Escalante,Jose Adan Hernandez Nolasco,2018-07-26 Intelligent Data Sensing and Processing for Health and Well being Applications uniquely combines full exploration of the latest technologies for sensor collected intelligence with detailed coverage of real case applications for healthcare and well being at home and in the workplace Forward thinking in its approach the book presents concepts and technologies needed for the implementation of today s mobile pervasive and ubiquitous systems and for tomorrow s IoT and cyber physical systems Users will find a detailed overview of the fundamental concepts of gathering processing and analyzing data from devices disseminated in the environment as well as the latest proposals for collecting processing and abstraction of data sets In addition the book addresses algorithms methods and technologies for diagnosis and informed decision making for healthcare and well being Topics include emotional interface with ambient intelligence and emerging applications in detection and diagnosis of neurological diseases Finally the book explores the trends and challenges in an array of areas such as applications for intelligent monitoring in the workplace for well being acquiring data traffic in cities to improve the assistance of first aiders and applications for supporting the elderly at home Examines the latest applications and future directions for mobile data sensing in an array of health and well being scenarios Combines leading computing paradigms and technologies development applications empirical studies and future trends in the multidisciplinary field of smart sensors smart sensor networks data analysis and machine intelligence methods Features an analysis of security privacy and ethical issues in smart sensor health and well being applications Equips readers interested in interdisciplinary projects in ubiquitous computing or pervasive computing and ambient intelligence with the latest trends and developments

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