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Ciarcia's Circuit Cellar Internet of Things in Automotive Industries and Road Safety RM-8E Multiple Modem System Technical Manual Arduino-Based Embedded Systems Arduino and Scilab based Projects Understanding Telephone Electronics Getting Started for Internet of Things with Launch Pad and ESP8266 Arduino meets MATLAB: Interfacing, Programs and Simulink Combined Operation and Maintenance Instructions: Chapters 1 through 6 Combined Operation and Maintenance Instructions Proceeding of International Conference on Intelligent Communication, Control and Devices Auto-answer Circuit Design for an Anderson Jacobson AD 342 Modem Cookbook For Mobile Robotic Platform Control LTE Cellular Narrowband Internet of Things (NB-IoT) Guided Missile Air Defense System AN/TSQ-73 Proceedings of the Second International Conference on Computer and Communication Technologies IoT based Projects Hack Attacks Revealed Mixed-signal and DSP Design Techniques Baseband Modem Design and Architecture to Support Multiple Wireless Applications Information Systems Design and Intelligent Applications The Best of Ciarcia's Circuit Cellar

Technical Manual Journal of the Institution of Electronics and Telecommunication Engineers The Harvest Reaped Internet of Things (IoT) Enabled Automation in Agriculture Proceedings of the Future Technologies Conference (FTC) 2020, Volume 3 Serial Communication Protocols and Standards Internet of Things for Agriculture 4.0 Intelligent Computer Communication Telecommunication Circuit Design Broadband Local Loops for High-speed Internet Access Direct Support and General Support Maintenance Manual for Control, Remote Switchboard C-10333/TTC-39 (V). Automatic Telephone Central Office Circuit Switch AN/TTC-39 Data Base Conference Proceedings Electronics Data Communications for Microcomputers Intelligent Communication, Control and Devices Digital Signal Processing Applications with the TMS320 Family

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Born to poor immigrant parents in 1921, author Dr. Sam Gendler grew into a bright, highly-motivated teenager whose potential was recognized by his teachers. They urged him to seek admission into the top schools, and he succeeded, becoming an engineer and founding an electronics company. Despite his success, Gendler was forced to change career paths at age fifty. In The Harvest Reaped, Gendler shares his life story, telling how he entered the medical field later in life. Battling tough odds, he gained entrance into a Colombian medical school, earning high scores. He later transferred to a California medical school, graduated, and built a thriving medical practice, which included serving as an associate clinical professor in family medicine. In this memoir, Gendler narrates how, with determination, he navigated a sea of change and his novel life journey led to a successful second career in medicine. He tells how careful planning, diligent studying, and working hard can lead to many successes. The Harvest Reap shares the story of a life well-lived, where at age ninety-three Gendler still attends to his patients. This book provides basic knowledge of the programming and interfacing of devices with IoT modem and programming. The aim is to explain the basic steps to understand the IoT and its application

in agriculture field. It will serve be a reference book for postgraduate and undergraduate Engineering students. Students from Electronics, Electrical, Mechatronics, Robotics, Mechanical, Computer science can use the book for their projects and research. This book is based entirely on the practical experience of the authors while undergoing projects with the students and industries. Print and electronic editions not for sale in South Asia (India, Sri Lanka, Nepal, Bangladesh, Pakistan, Afghanistan and Bhutan). Controlling Robots using Blynk, Virtuino, Cayenne, Thingspeak, Firebase DESCRIPTION This book provides a platform to the readers, where they can understand the applications of 'Internet of Things' to control the robotic platform. It covers the basic knowledge of the mobile apps with their designing steps and programming. The objective of the book is to discuss various applications of robotic platform where 'Internet of things' can play an important role. This book comprises of total seventeen chapters for designing different independent prototypes for the various control methods. It covers introduction to IoT and basic components to design a robotic platform. The system demonstration is done with the help of Ti Launch Pad and other interfacing devices. The control of robot with different mobile apps like Blynk, Virtuino, Cayenne, Thingspeak, Firebase are included for vast coverage of scope. It would be beneficial for the people who want to get started with hardware based robotic prototypes with IoT. This book is entirely based on the practical experience of the authors while undergoing projects with the students and industries. KEY FEATURES The

book provides gradual pace of basics to advanced interfacing and programming with Ti launch pad for IoT applications. It provides a unique style for IoT applications with program codes. It discusses various applications where the Internet of Things plays an important role, and considers a number of different independent prototypes for various mobile robotics platform control methods. The control of robot with different mobile apps like Blynk, Virtuino, Cayenne, Thingspeak, Firebase are included for vast coverage of scope. Step by step programming, to get started with Ti launch Pad Case studies to provide solution to real time problems The case studies and programming in book are tested on real hardware during handling the industrial and student projects. WHAT WILL YOU LEARN Interfacing of Ti launch Pad and NodeMCU with Input/Output Devices Serial Communication between Ti Launch Pad and NodeMCU Robot Control Using the Blynk, Virtuino App Environment Monitoring Robot with BLYNK App Sensory Data Acquisition Robot Using a ThingSpeak Server Robot Control with Cayenne App, Local Server and NodeMCU, Firebase Server WHO THIS BOOK IS FOR Students pursuing BE/BSc/ME/MSc/BTech/MTech in Computer Science, Electronics, Electrical. Table of Contents 1. Introduction 2. Components of a Robotic Platform 3. Interfacing of Ti launch Pad with Input/Output Devices 4. Interfacing of NodeMCU with Input/Output Devices 5. Serial Communication between Ti Launch Pad and NodeMCU 6. Robot Control Using the Blynk App 7. Robot Control Using the Virtuino App 8. Environment Monitoring Robot with BLYNK App 9. Sensory Data

Acquisition Robot Using a ThingSpeak Server 10. Robot Control with Cayenne App 11. Robot Control with Local Server and NodeMCU 12. Robot Control with a Firebase Server 13. XBee and Wi-Fi Modem Based Robot Control 14. Fire Fighting Robot 15. The Internet of Things Robotic Arm 16. The Smart Orchard with a Robotic Arm Sprinkler 17. Smart Farming with the IoT The book is about all aspects of computing, communication, general sciences and educational research covered at the Second International Conference on Computer & Communication Technologies held during 24-26 July 2015 at Hyderabad. It hosted by CMR Technical Campus in association with Division – V (Education & Research) CSI, India. After a rigorous review only quality papers are selected and included in this book. The entire book is divided into three volumes. Three volumes cover a variety of topics which include medical imaging, networks, data mining, intelligent computing, software design, image processing, mobile computing, digital signals and speech processing, video surveillance and processing, web mining, wireless sensor networks, circuit analysis, fuzzy systems, antenna and communication systems, biomedical signal processing and applications, cloud computing, embedded systems applications and cyber security and digital forensic. The readers of these volumes will be highly benefited from the technical contents of the topics. Here's an authoritative, cutting-edge resource that gives you a thorough understanding of CDMA transmission and detection. It offers practical guidance in designing interference-reducing multi-user receivers for mobile radio systems and multi-user adaptive modems for accessing satellite

earth stations. The book provides in-depth descriptions of CDMA principles, and of linear and non-linear multi-user detection, and covers the fine details of the realization of a linear multi-user receiver. Extensively supported with over 565 equations and more than 95 illustrations, the book enables you to devise accurate system models of both a cellular TD-CDMA radio interface and an asynchronous satellite radio interface. It allows you to choose among different architectural solutions for both linear multi-user receivers to be operated in TD-CDMA radio systems and adaptive linear CDMA receivers in satellite asynchronous CDMA systems. This new book provides an insightful look at the varied and exciting uses and applications of Wi-Fi and the Internet of Things in agriculture. With internet-enabled communications becoming more widely available, farms and agricultural establishments can take advantage of these new technologies for a wide range of farm operations, such as crop management, farm vehicle tracking, livestock monitoring, storage monitoring, and more. The collected data from these devices can be stored in the cloud system or server and accessed by the farmers via the internet or mobile phones. This book shows the many benefits to farmers from applying IoT, including better utilizing information for monitoring crops, optimizing water use, planning effective fertilization strategies, and saving time and reducing the operation expenses. Topics include using IoT for vertical farming, IoT-based smart irrigation system, landslide susceptibility assessment, automated aeroponics systems, crop survival analysis, and more.

The volume also considers the challenges of IoT in agriculture, such as the requirements of applications of wireless sensor networks, the threat of attacks and the detection of vulnerabilities in wireless sensor networks, and more. Internet of Things for Agriculture 4.0: Impact and Challenges provides a better understanding of the time- and resourcing-saving benefits of wireless sensors and remote monitoring devices in agriculture. The volume will be useful for those involved in agricultural operations as well as scientists and researchers, and faculty and students in agriculture and computer and information science engineering. NB-IoT is the Internet of Things (IoT) technology used for cellular communication. NB-IoT devices deliver much better capability and performance, such as: increased area coverage of up to one kilometer; a massive number of devices—up to 200,000—per a single base-station area; longer battery lifetime of ten years; and better indoor and outdoor coverage for areas with weak signal, such as underground garages. The cellular NB-IoT technology is a challenging technology to use and understand. With more than 30 projects presented in this book, covering many use cases and scenarios, this book provides hands-on and practical experience of how to use the cellular NB-IoT for smart applications using ArduinoTM, Amazon Cloud, Google Maps, and charts. The book starts by explaining AT commands used to configure the NB-IoT modem; data serialization and deserialization; how to set up the cloud for connecting NB-IoT devices; setting up rules, policy, security certificates, and a NoSQL database on the cloud; how to store and read data in the cloud; how to

use Google Maps to visualize NB-IoT device geo-location; and how to use charts to visualize sensor datasets. Projects for Arduino are presented in four parts. The first part explains how to connect the device to the mobile operator and cellular network; perform communication using different network protocols, such as TCP, HTTP, SSL, or MQTT; how to use GPS for geo-location applications; and how to upgrade NB-IoT modem firmware over the air. The second part explains the microcontroller unit and how to build and run projects, such as a 7-segment display or a real-time clock. The third part explains how NB-IoT can be used with sensor devices, such as ultrasonic and environmental sensors. Finally, the fourth part explains how NB-IoT can be used to control actuators, such as stepper motors and relays. This book is a unique resource for understanding practical uses of the NB-IoT technology and serves as a handbook for technical and non-technical readers who are looking for practicing and exercising the cellular NB-IoT technology. The book can be used by engineers, students, researchers, system integrators, mobile operators' technical staff, and electronics enthusiasts. To download the software which can be used with the book, go to: https://github.com/5ghub/NB-IoT About the Author: Hossam Fattah is a technology expert in 4G/5G wireless systems and networking. He received his Ph.D. in Electrical and Computer Engineering from University of British Columbia, Vancouver, Canada in 2003. He received his Master of Applied Science in Electrical and Computer Engineering from University of Victoria, Victoria, Canada in 2000. He completed his B.Sc. degree in Computers and Systems Engineering from

Al-Azhar University, Cairo, Egypt in 1995. Between 2003 and 2011, he was in academia and industry, including Texas A&M University. Between 2011 and 2013, he was with Spirent Communications, NJ, USA. Since 2013, he has been with Microsoft, USA. He is also an affiliate associate professor at University of Washington, Tacoma, WA, USA, teaching graduate courses on IoT and distributed systems and collaborating on 5G research and innovations. He has had many patents and technical publications in conferences and journals. He is a registered professional Engineer with the Association of Professional Engineers, British Columbia, Canada. He is the author of the recent book 5G LTE Narrowband Internet of Things (NB-IoT). His research interest is in wireless communications and radio networks and protocols, cellular quality of service, radio resource management, traffic and packet scheduling, network analytics, and mobility. The reader is provided with information on how to choose between the techniques and how to design a system that takes advantage of the best features of each of them. Imminently practical in approach, the book covers sampled data systems, choosing A-to-D and D-to-A converters for DSP applications, fast Fourier transforms, digital filters, selecting DSP hardware, interfacing to DSP chips, and hardware design techniques. It contains a number of application designs with thorough explanations. Heavily illustrated, the book contains all the design reference information that engineers need when developing mixed and digital signal processing systems. *Brought to you from the experts at Analog Devices, Inc. *A

must for any electrical, electronics or mechanical engineer's reference shelf *Design-oriented, practical volume Data communication standards are comprised of two components: The “protocol” and “Signal/data/port specifications for the devices involved”. The protocol describes the format of the message and the meaning of each part of the message. To connect any device to the bus, an external device must be used as an interface which will put the message in a form which fulfills all the electrical specifications of the port. These specifications are called the “Standard”. The most famous such serial communication standard is the RS-232. In IT technology, Communication can be serial or parallel. Serial communication is used for transmitting data over long distances. It is much cheaper to run the single core cable needed for serial communication over a long distance than the multicore cables that would be needed for parallel communication. It is the same in wireless communication: Serial communication needs one channel while parallel needs multichannel. Serial Communication can also be classified in many other ways, for example synchronous and asynchronous; it can also be classified as simplex, duplex and half duplex. Because of the wide spread of serial communication from home automation to sensor and controller networks, there is a need for a very large number of serial communication standards and protocols. These have been developed over recent decades and range from the simple to the highly complicated. This large number of protocols was necessary to

guarantee the optimum performance for the targeted applications. It is important for communication engineers to have enough knowledge to match the right protocol and standard with the right application. The main aim of this book is to provide the reader with that knowledge The book also provides the reader with detailed information about:- Serial Communication- Universal Asynchronous Receiver Transmitter (UART)- Universal Synchronous/Asynchronous Receiver Transmitter (USART - Serial Peripheral Interface (SPI) - eSPI- Universal Serial Bus (USB)- Wi-Fi- WiMax- Insteon The details of each technology including specification, operation, security related matters, and many other topics are covered. The book allocates three chapters to the main communication standards. These chapters cover everything related to the most famous standard RS-232 and all its variants. Other protocols such as: I2C, CAN, ZigBee, Z-Wave, Bluetooth, and others, are the subject of the authors separate book "Microcontroller and Smart Home Networks". Throughout its history, Understanding Telephone Electronics has been, by far, one of the most popular books on telecommunication electronics in the trade, electronic distribution, and educational markets because of its very simple, direct approach to the technology. In keeping with the distinguished tradition of its predecessors, Understanding Telephone Electronics, Fourth Edition covers conventional telephone fundamentals, including both analog and modern digital communication techniques, and provides basic information on the

functions of each telephone system component, how electronic circuits generate dial tones, and how the latest digital transmission techniques work. This new edition of Stephen Bigelow's well-known, widely used text on telephone electronics offers comprehensive coverage of the latest developments in fiber optic technology, the convergence of telecommunications , cable-TV and Internet services, and CTI (computer telephony integration). The authors have made extensive revisions in these and other essential areas, such as business systems, voice mail, phone networking, enhanced services, satellite communications, wireless paging systems, digital communications, and much more to ensure that topics covered are current with the most recent advances in technology. The original Understanding Telephone Electronics has been a "gold standard" reference and training staple for years. Likewise, Understanding Telephone Electronics, Fourth Edition will serve as an essential and invaluable resource for technicians, engineers, students at major universities and corporations, and anyone with an enthusiasm for telecommunication electronics.

Provides comprehensive coverage of telephone system functions and the role of the Internet in telephony Updates encompass the trends and advances of the booming telecommunications field, with new chapters on fiber optic technology and the Internet June issues, 1941-44 and Nov. issue, 1945, include a buyers' guide section. Arduino and Scilab based Projects provides information ranging from the basics to advanced knowledge of Arduino and its interfacing with input/output devices (display devices, actuators, sensors), communication

modules (RF modem, Zigbee) and Scilab. It also provides embedded system based on Arduino with simulation, programming and interfacing with Scilab, Arduino interfacing with Scilab with and without Arduino 1.1 packages. Chapters are arranged in an easy-to-understand sequence that enhances the learning experience for readers. Descriptions of real time project prototypes with programming and simulation of Arduino and Scilab. Create your own IoT projects DESCRIPTIONÊÊ The book has been written in such a way that the concepts are explained in detail. It is entirely based on the practical experience of the authors while undergoing projects with students and industries, giving adequate emphasis on circuits and code examples. To make the topics more comprehensive, circuit diagrams, photographs and code samples are furnished extensively throughout the book. The book is conceptualized and written in such a way that the beginner readers will find it very easy to understand and implement the circuits and programs. The objective of this book is to discuss the various projects based on the Internet of Things (IoT). KEY FEATURESÊÊ Comprehensive coverage of various aspects of IoT concepts Covers various Arduino boards and shields Simple language, crystal clear approach and straight forward comprehensible presentation Adopting user-friendly style for the explanation of circuits and examplesÊ Includes basics of Raspberry Pi and related projects WHAT WILL YOU LEARNÊÊ Internet of Things, IoT-Based Smart Camera, IoT-Based Dust SamplerÊ Learn to create ESP8266-Based Wireless Web Server and Air Pollution Meter Using Raspberry Pi, Smart Garage Door,

Baggage Tracker, Smart Trash Collector, Car parking system, Home Automation Windows 10 on Raspberry and know to create Wireless Video Surveillance Robot Using Raspberry PiÊ WHO THIS BOOK IS FORÊÊ Students pursuing BE/BSc/ME/MSc/BTech/MTech in Computer Science, Electronics, Electrical. TABLE OF CONTENTS 1. ESP8266-Based Wireless Web Server 2. Air Pollution Meter Using Raspberry Pi 3. Smart Garage Door 4. Baggage Tracker 5. Smart Trash Collector 6. Car parking system 7. Home Automation 8. Environmental Parameter Monitoring 9. Intelligent System for the Blind 10. Sign to Speech Using the IoTs 11. Windows 10 on Raspberry 12. Wireless Video Surveillance Robot Using Raspberry PiÊ 13. IoT-Based Smart Camera 14. IoT-Based Dust Sampler and Air Quality Monitoring System Arduino is an open-source electronics platform based on easy-to-use hardware and software while LabVIEW is a graphical programming telling how to connect functions and work with a variety of datatypes when constructing applications.This book will help beginners to get started with Arduino-based embedded systems including essential know-how of the programming and interfacing of the devices. Book includes programming and simulation of Arduino-based projects and interfacing with LabVIEW, based on practical case studies. The book comprises of total twenty five chapters with description, working model of LabVIEW and programming with Arduino IDE. This book provides a single platform for beginners in systems engineering to start Arduino interface projects with MATLAB®. It covers the basics of the programming with Arduino and

Arduino interfacing with MATLAB® (with and without the use or I/O packages) in 3 sections, respectively. Key features: - introduces readers to Arduino IDE, Proteus simulation modeling, Arduino interfaces with display devices, sensor interfaces (both digital and analog), actuators, MATLAB® GUIs, digital read/write systems with I/O interfaces and automation systems. -organized layout for a reader friendly experience -provides detailed circuit diagrams - provides relevant simulation modeling instructions This is an ideal book for engineering students and system designers for learning the basic programming and simulation of Arduino and MATLAB® based real time project prototypes. Discusses Uses for the Microcomputer, Including Projects & Methods for Interfacing the Personal Computer with Its Environment This book provides the state-of-the-art intelligent methods and techniques for solving real-world problems along with a vision of the future research. The fifth 2020 Future Technologies Conference was organized virtually and received a total of 590 submissions from academic pioneering researchers, scientists, industrial engineers, and students from all over the world. The submitted papers covered a wide range of important topics including but not limited to computing, electronics, artificial intelligence, robotics, security and communications and their applications to the real world. After a double-blind peer review process, 210 submissions (including 6 poster papers) have been selected to be included in these proceedings. One of the meaningful and valuable dimensions of this conference is the way it brings together a large group of technology

geniuses in one venue to not only present breakthrough research in future technologies, but also to promote discussions and debate of relevant issues, challenges, opportunities and research findings. The authors hope that readers find the book interesting, exciting and inspiring. The second international conference on INformation Systems Design and Intelligent Applications (INDIA – 2015) held in Kalyani, India during January 8-9, 2015. The book covers all aspects of information system design, computer science and technology, general sciences, and educational research. Upon a double blind review process, a number of high quality papers are selected and collected in the book, which is composed of two different volumes, and covers a variety of topics, including natural language processing, artificial intelligence, security and privacy, communications, wireless and sensor networks, microelectronics, circuit and systems, machine learning, soft computing, mobile computing and applications, cloud computing, software engineering, graphics and image processing, rural engineering, e-commerce, e-governance, business computing, molecular computing, nano-computing, chemical computing, intelligent computing for GIS and remote sensing, bio-informatics and bio-computing. These fields are not only limited to computer researchers but also include mathematics, chemistry, biology, bio-chemistry, engineering, statistics, and all others in which computer techniques may assist. Getting Started for Internet of Things with Launch Pad and ESP8266 provides a platform to get started with the Ti launch pad and IoT

modules for Internet of Things applications. The book provides the basic knowledge of Ti launch Pad and ESP8266 based customized modules with their interfacing, along with the programming.The book discusses the application of Internet of Things in different areas. Several examples for rapid prototyping are included, this to make the readers understand the concept of IoT.The book comprises of twenty-seven chapters, which are divided into four sections and which focus on the design of various independent prototypes. Section-A gives a brief introduction to Ti launch pad (MSP430) and Internet of Things platforms like GPRS, NodeMCU and NuttyFi (ESP8266 customized board), and it shows steps to program these boards. Examples on how to interface these boards with display units, analog sensors, digital sensors and actuators are also included, this to make reader comfortable with the platforms. Section-B discusses the communication modes to relay the data like serial out, PWM and I2C. Section-C explores the IoT data loggers and shows certain steps to design and interact with the servers. Section-D includes few IoT based case studies in various fields. This book is based on the practical experience of the authors while undergoing projects with students and partners from various industries. Demonstrates Setting up Communications Between Different Systems The aim of this book is to provide a platform to readers through which they can access the applications of 'Internet of Things' in the Automotive field. Internet of Things in Automotive Industries and Road Safety provides the basic knowledge of the modules with interfacing, along with the programming. Several examples for rapid

prototyping are included, this to make the readers understand about the concept of IoT. The book comprises of ten chapters for designing different independent prototypes for the automotive applications, and it would be beneficial for the people who want to get started with hardware based project prototypes. The text is based on the practical experience of the authors built up whilst undergoing projects with students and industry. Technical topics discussed in the book include:Role of IoT in automotive industriesArduino and its interfacing with I/O devicesTi Launch Pad and its interfacing with I/O devicesNodeMCU and its interfacing with I/O devicesSerial Communication with Arduino and NodeMCU The book presents high-quality research papers presented at the first international conference, ICICCD 2016, organised by the Department of Electronics, Instrumentation and Control Engineering of University of Petroleum and Energy Studies, Dehradun on 2nd and 3rd April, 2016. The book is broadly divided into three sections: Intelligent Communication, Intelligent Control and Intelligent Devices. The areas covered under these sections are wireless communication and radio technologies, optical communication, communication hardware evolution, machine-to-machine communication networks, routing techniques, network analytics, network applications and services, satellite and space communications, technologies for e-communication, wireless Ad-Hoc and sensor networks, communications and information security, signal processing for communications, communication software, microwave informatics, robotics and automation, optimization

techniques and algorithms, intelligent transport, mechatronics system, guidance and navigation, algorithms, linear/non-linear control, home automation, sensors, smart cities, control systems, high performance computing, cognition control, adaptive control, distributed control, prediction models, hybrid control system, control applications, power system, manufacturing, agriculture cyber physical system, network control system, genetic control based, wearable devices, nano devices, MEMS, bio-inspired computing, embedded and real-time software, VLSI and embedded systems, FPGA, digital system and logic design, image and video processing, machine vision, medical imaging, and reconfigurable computing systems. The #1 menace for computer systems worldwide, network hacking can result in mysterious server crashes, data loss, and other problems that are not only costly to fix but difficult to recognize. Author John Chirillo knows how these can be prevented, and in this book he brings to the table the perspective of someone who has been invited to break into the networks of many Fortune 1000 companies in order to evaluate their security policies and conduct security audits. He gets inside every detail of the hacker's world, including how hackers exploit security holes in private and public networks and how network hacking tools work. As a huge value-add, the author is including the first release of a powerful software hack attack tool that can be configured to meet individual customer needs. The author gives a clear analysis, in mathematical terms where necessary, of basic electronic devices and circuit components which make up telecommunications systems.

Discussions generally begin with elementary systems which serve to best illustrate the principles of operation and proceed to more sophisticated and practical examples. The chapters are organized around the three major telecommunications networks of radio, television and telephone. The book focuses on the integration of intelligent communication systems, control systems, and devices related to all aspects of engineering and sciences. It contains high-quality research papers presented at the 2nd international conference, ICICCD 2017, organized by the Department of Electronics, Instrumentation and Control Engineering of University of Petroleum and Energy Studies, Dehradun on 15 and 16 April, 2017. The volume broadly covers recent advances of intelligent communication, intelligent control and intelligent devices. The work presented in this book is original research work, findings and practical development experiences of researchers, academicians, scientists and industrial practitioners.