Iot Solutions In Microsoft S Azure Iot Suite

This book provides readers with a 360-degree perspective on the Internet of Things (IoT) design and M2M communication process. It is intended to be used as a design guide for the development of IoT solutions, covering architecture, design, and development methods. This book examines applications such as industry automation for Industry 4.0, Internet of Medical Things (IoMT), and Internet of Services (IoS) as it is unfolding. Discussions on engineering fundamentals are limited to what is required for the realization of IoT solutions. Internet of Things and M2M Communication Technologies: Architecture and Practical Design Approach to IoT in Industry 4.0 is written by an industry veteran with more than 30 years of hands-on experience. It is an invaluable guide for electrical, electronic, computer science, and information science engineers who aspire to be IoT designers and an authoritative reference for practicing designers working on IoT device development. Provides complete design approach to develop IoT solutions; Includes reference designs and guidance on relevant standards compliance; Addresses design for manufacturability and business models.

Design, build, and justify an optimal Microsoft IoT footprint to meet your project needs. This book describes common Internet of Things components and architecture and then focuses on Microsoft’s Azure components relevant in deploying these solutions. Microsoft-specific topics addressed include: deploying edge devices and pushing intelligence to the edge; connecting IoT devices to Azure and landing data there, applying Azure Machine Learning, analytics, and Cognitive Services; roles for Microsoft solution accelerators and managed solutions; and integration of the Azure footprint with legacy infrastructure. The book concludes with a discussion of best practices in defining and developing solutions and creating a plan for success. What You Will Learn Design the right IoT architecture to deliver solutions for a variety of project needs Connect IoT devices to Azure for data collection and delivery of services Use Azure Machine Learning and Cognitive Services to deliver intelligence in cloud-based solutions and at the edge Understand the benefits and tradeoffs of Microsoft's solution accelerators and managed solutions Investigate new use cases that are described and apply best practices in deployment strategies Integrate cutting-edge Azure deployments with existing legacy data sources Who This Book Is For Developers and architects new to IoT projects or new to Microsoft Azure IoT components as well as readers interested in best practices used in architecting IoT solutions that utilize the Azure platform

Quickly learn to program for microcontrollers and IoT devices without a lot of study and expense. MicroPython and controllers that support it eliminate the need for programming in a C-like language, making the creation of IoT applications and devices easier and more accessible than ever. MicroPython for the Internet of Things is ideal for readers new to electronics and the world of IoT. Specific examples are provided covering a range of supported devices, sensors, and MicroPython boards such as Pycom’s WiPy modules and MicroPython’s pyboard. Never has programming for microcontrollers been easier. The book takes a practical and hands-on approach without a lot of detours into the depths of theory. The book: Shows a faster and easier way to program microcontrollers and IoT devices Teaches MicroPython, a variant of one of the most widely used scripting languages Is friendly and accessible to those new to electronics, with fun example projects What You'll Learn Program in MicroPython Understand sensors and basic electronics Develop your own IoT projects Build applications for popular boards such as WiPy and pyboard Load MicroPython on the ESP8266 and similar boards Interface with hardware breakout boards Connect hardware to software through MicroPython Explore the easy-to-use Adafruit IO connecting your microcontroller to the cloud Who This Book Is For Anyone interested in building IoT solutions without the heavy burden of programming in C++ or C. The book also appeals to those wanting an easier way to work with hardware than is provided by the Arduino and the Raspberry Pi platforms.

Collect and analyze sensor and usage data from Internet of Things applications with Microsoft Azure IoT Suite. Internet connectivity to everyday devices such as light bulbs, thermostats, and even voice-command devices such as Google Home and Amazon.com's Alexa is exploding. These connected devices and their respective applications generate large amounts of data that can be mined to enhance user-friendliness and make predictions about what a user might be likely to do next. Microsoft's Azure IoT Suite is a cloud-based platform that is ideal for collecting data from connected devices. You'll learn in this book about data acquisition and analysis, including real-time analysis. Real-world examples are provided to teach you to detect anomalous patterns in your data that might lead to business advantage. We live in a time when the amount of data being generated and stored is growing at an exponential rate. Understanding and getting real-time insight into these data is critical to business. IoT Solutions in Microsoft's Azure IoT Suite walks you through a complete, end-to-end journey of how to collect and store data from Internet-connected devices. You'll learn to analyze the data and to apply your results to solving real-world problems. Your customers will benefit from the increasingly capable and reliable applications that you'll be able to deploy to them. You and your business will benefit from the gains in insight and knowledge that can be applied to delight your customers and increase the value from their business. What You'll Learn Go through data generation, collection, and storage from sensors and devices, both relational and non-relational Understand, from end to end, Microsoft’s analytic services and where they fit into the analytical ecosystem Look at the Internet of your things and find ways to discover and draw on the insights your data can provide Understand Microsoft's IoT technologies and services, and stitch them together for business insight and advantage Who This Book Is For Developers and architects who plan on delivering IoT solutions, data scientists who want to understand how to get better insights into their data, and anyone needing or wanting to do real-time analysis of data from the Internet of Things

Over 50 recipes to drive IoT innovation with Microsoft Azure About This Book Build secure and scalable IoT solutions with Azure IoT platform Learn techniques to build end to end IoT solutions leveraging the Azure IoT platform Filled with practical recipes to help you increase connectivity and automation across IoT devices Who This Book Is For If you are an application developer and want to build robust and secure IoT solution for your organization using Azure IoT, then this book is for you. What You Will Learn Build IoT Solutions using Azure IoT & Services Learn device configuration and communication protocols Understand IoT Suite and Pre-configured solutions Manage Secure Device communications Understand Device management, alerts Introduction with IoT Analytics, reference IoT Architectures Reference Architectures from Industry Pre-Configured IoT Suite solutions In Detail Microsoft's end-to-end IoT platform is the most complete IoT offering, empowering enterprises to build and realize value from IoT solutions efficiently. It is important to develop robust and reliable solutions for your organization to leverage IoT services. This book focuses on how to start building custom solutions using the IoT hub or the preconfigured solution of Azure IoT suite. As a developer, you will be taught how to connect multiple devices to the Azure IoT hub, develop, manage the IoT hub service and integrate the hub with cloud. We will be covering REST APIs along with HTTP, MQTT and AMQP protocols. It also helps you learn Pre-Configured IoT Suite solution. Moving ahead we will be covering topics like:-Process device-to-cloud messages and cloud-to-

device messages using .Net-Direct methods and device management-Query Language, Azure IoT SDK for .Net-Creating and managing, Securing IoT hub, IoT Suite and many more. We will be using windows 10 IoT core, Visual Studio, universal Windows platform. At the end, we will take you through IoT analytics and provide a demo of connecting real device with Azure IoT. Style and approach A set of exciting recipes of using Microsoft Azure IoT more effectively.

Discover how the Internet of Things will change the information and communication technology industry in the next decade The Intelligent Internet of Things explores a unique type of Internet of Things (IoT) architecture, for example, the Web of Things (WoT) with its open character that breaks the barriers among various IoT vertical applications. The authors—noted experts on the topic—examine and compare key technologies from physical to platform level, especially the Narrow Band Internet of Things (NB-IoT) technology. They discuss applications with different data transmission requirements that are typical to IoT. The text also describes the requirements of WoT applications on 5G and includes detailed information on WoT technologies. The Intelligent Internet of Things examines three typical WoT applications: the monitoring application of south-to-north water diversion projects; smart driving applications; and network optimization applications. In addition, the text explores testing and authentication of IoT key technologies, with the required equipment, platform, and outdoor environment development. This important book: Provides information on what IoT/WoT is, when to use it, how to provide IoT services with certain technologies, and more Discusses restful architecture, main protocols (ZigBee, 6lowpan, CoAP, HTML5) Explores key technologies on different layers (sensing, gathering, application) Examines how IoT will change the information and communication technology industry Written for professionals working in IoT development, management and big data analytics, Intelligent Internet of Things offers an overview of IoT architecture, key technology, current applications and future development of the technology.

We are living in the middle of a Fourth Industrial Revolution, with new technology leading to dramatic shifts in everything from manufacturing to supply chain logistics. In a lively, developing field of academic, procurement is often neglected. Despite this, procurement plays a vital role, connecting the organization with its ecosystem. At a time of change and economic crisis, a new business model is called for, which this book aims to define. Based on the applications of Industry 4.0 concepts to procurement, this book describes Procurement 4.0 as a method and a set of tools, helping businesses to improve the value of their products, reduce waste, become more flexible, and address the business needs of the future. It will appeal to academics in the area, as well as practitioners.

This book focuses on the Internet of Everything and related fields. The Internet of Everything adds connectivity and intelligence to just about every device, giving it special functions. The book provides a common platform for integrating information from heterogeneous sources. However, this can be quite reductive, as the Internet of Everything provides links not only among things, but also data, people, and business processes. The evolution of current sensor and device networks, with strong interactions between people and social environments, will have a dramatic impact on everything from city planning, first responders, the military and health. Such a shared ecosystem will allow for the interaction between data, sensor inputs and heterogeneous systems. Semantics is a fundamental component of this since semantic technologies are able to provide the necessary bridge between different data representations, and to solve terminology incongruence. Integrating data from distributed devices, sensor networks, social networks and biomedical instruments requires, first of all, the systematization of the current state of the art in such fields. Then, it is necessary to identify a common action thread to actually merge and homogenize standards and techniques applied in such a heterogeneous field. The exact requirements of an Internet of Everything environment need to be precisely identified and formally expressed, and finally, the role of modern computing paradigms, such as Cloud and Fog Computing, needs to be assessed with respect to the requirements expressed by an Internet of Everything ecosystem.

This book highlights the recent research on hybrid intelligent systems and their various practical applications. It presents 58 selected papers from the 20th International Conference on Hybrid Intelligent Systems (HIS 2020) and 20 papers from the 12th World Congress on Nature and Biologically Inspired Computing (NaBIC 2020), which was held online, from December 14 to 16, 2020. A premier conference in the field of artificial intelligence, HIS - NaBIC 2020 brought together researchers, engineers and practitioners whose work involves intelligent systems, network security and their applications in industry. Including contributions by authors from 25 countries, the book offers a valuable reference guide for all researchers, students and practitioners in the fields of science and engineering.

This book constitutes the thoroughly refereed post-conference proceedings of the second International Workshop on Interoperability and Open-Source Solutions for the Internet of Things, InterOSS-IoT 2016, held in Stuttgart, Germany, November 7, 2016. The 11 revised full papers presented were carefully reviewed and selected from 17 submissions during two rounds of reviewing. They are organized in topical sections on semantic interoperability, interoperabile architectures and platforms, business models and security, platform performance and applications.

This book constitutes the refereed proceedings of the 4th International Symposium on Ubiquitous Networking, UNet 2018, held in Hammamet, Morocco, in May 2018. The 35 full papers presented together with 5 short papers in this volume were carefully reviewed and selected from 87 submissions. The focus of UNet is on technical challenges and solutions related to such a widespread adoption of networking technologies, including broadband multimedia, machine-to-machine applications, Internet of things, security and privacy, data engineering, sensor networks and RFID technologies.

Take a deep dive into the concepts of machine learning as they apply to contemporary business and management. You will learn how machine learning techniques are used to solve fundamental and complex problems in society and industry. Machine Learning for Decision Makers serves as an excellent resource for establishing the relationship of machine learning with IoT, big data, and cognitive and cloud computing to give you an overview of how these modern areas of computing relate to each other. This book introduces a collection of the most important concepts of machine learning and sets them in context with other vital technologies that decision makers need to know about. These concepts span the process from envisioning the problem to applying machine-learning techniques to your particular situation. This discussion also provides an insight to help deploy the results to improve decision-making. The book uses case studies and jargon busting to help you grasp the theory of machine learning quickly. You'll soon gain the big picture of machine learning and how it fits with other cutting-edge IT services. This knowledge will give you confidence in your decisions for the future of your business. What You Will Learn Discover the machine learning, big data, and cloud and cognitive computing technology stack Gain insights into machine learning concepts and practices Understand business and enterprise decision-making using machine learning Absorb machine-learning best practices Who This Book Is For Managers tasked with making key decisions who want to learn how and when machine learning and related technologies can help them.

From transportation to healthcare, IoT has been heavily implemented into practically every professional industry, making these systems highly susceptible to security breaches. Because IoT connects not just devices but also people and other entities, every component of an IoT system remains vulnerable to attacks from hackers and other unauthorized units. This clearly portrays the importance of security and privacy in IoT, which should be strong enough to keep the entire platform and stakeholders secure and smooth enough to not disrupt the lucid flow of

communication among IoT entities. Applied Approach to Privacy and Security for the Internet of Things is a collection of innovative research on the methods and applied aspects of security in IoT-based systems by discussing core concepts and studying real-life scenarios. While highlighting topics including malware propagation, smart home vulnerabilities, and bio-sensor safety, this book is ideally designed for security analysts, software security engineers, researchers, computer engineers, data scientists, security professionals, practitioners, academicians, and students seeking current research on the various aspects of privacy and security within IoT.

Build your own digital twin in no time! Key Features Build and design simple to complex dDigital Ttwins solutions Create end-to-end solutions with Azure Digital Twins Integrate the Azure Digital Twins service with other Azure services to provide even richer solutions Book Description In today's world, clients are using more and more IoT sensors to monitor their business processes and assets. Think about collecting information like pressure from an engine to the temperature and light switch being turned on or off in a room. The data collected can be used to create smart solutions for predicting future trends, creating simulations, and drawing insights using visualization. This makes it beneficial for organizations to make digital twins, which are digital replicas of the real environment, to support these smart solutions. This book will help you understand the concept of a digital twin and how this can be implemented using an Azure service called Azure Digital Twins. Starting with the requirements and installation of the Azure Digital Twins service, the book will explain the definition language used for modeling digital twins. From there, you'll go through each step of building digital twins using Azure Digital Twins and learn about the different SDKs and APIs and how to use them with several Azure services. Finally, you'll understand how digital twins can be used in practice with the help of several real-world scenarios. By the end of this digital twin book, you'll be confident in building and designing digital twins and integrating them with various Azure services. What you will learn Understand the concept and architecture of Azure Digital Twins Get to grips with installing and configuring the service and required tools Understand the Digital Twin Definition Language (DTDL) and digital twin models Explore the APIs and SDKs available to access the Azure Digital Twins services Monitor, troubleshoot, and secure Digital Twins Discover how to build, design, and integrate applications with various Azure services Explore real-life scenarios of the applicability of Azure Digital Twins Who This Book Is For This book is for Azure developers, Azure architects, and anyone who wants to learn more about how to implement IoT solutions using Azure Digital Twins and additional Azure services. Prior experience using the Azure Portal and a clear understanding of building applications using .NET would be helpful. Table of Contents About Digital Twins Requirements and installation Digital Twin Definition Model Understanding Models Model Elements Creating Relationships between Azure Digital Twin Models Query Digital Twins Building Models Using Ontologies APIs and SDKs Building a Digital Twin Pipeline Updating the Model Data Egress Setting Up Azure Maps Monitor and Troubleshoot Security and Continuity Smart Building Insights of a Facility Simulation

In this book, several advanced topics in the area of Power Management Analog and Mixed-Signal Circuits and Systems have been addressed. The fundamental aspects of these topics are discussed, and state-of-the-art developments are presented. The book covers subject areas like bio-sensors co-integration with nanotechnology, and for these CMOS circuits one popular application could be personalized medicine. Having seen the power assets for such technologies, and knowing what challenges these present for the circuits and systems designer, remote powering and sensors solutions are reviewed in the second chapter. The third chapter contains an industrial contribution on remote powering, presenting energy harvesting from the RF field to power a target wireless sensor network consumption. Having touched the idea of the low current consumption, µA or Nano-Amp range and their transient behaviours are also described. Digital and large-scale integrated circuits - seen from an academic point of view – is included in chapter five, and this same topic from an industrial point of view is given in the chapter thereafter. An additional topic on the hall sensor, applied in an automotive case study, is then also presented. Approaching the duty-cycling of active mode, oscillator for timers and system-level power management including the cloud are covered in the last chapters. Power Management for Internet of Everything targets post-graduate students and those persons active in industry, whom understand and can connect system design with system on chip (SoC) and mixed-signal design as broader set of circuits and systems. The topic of Internet of Things (IoT), ranging from data converters for sensor interfaces to radios and software application, is also addressed from the viewpoint of power and energy management. The contents ensures a good balance between academia and industry, combined with a judicious selection of distinguished international authors.

Internet of Things: Principles and Paradigms captures the state-of-the-art research in Internet of Things, its applications, architectures, and technologies. The book identifies potential future directions and technologies that facilitate insight into numerous scientific, business, and consumer applications. The Internet of Things (IoT) paradigm promises to make any electronic devices part of the Internet environment. This new paradigm opens the doors to new innovations and interactions between people and things that will enhance the quality of life and utilization of scarce resources. To help realize the full potential of IoT, the book addresses its numerous challenges and develops the conceptual and technological solutions for tackling them. These challenges include the development of scalable architecture, moving from closed systems to open systems, designing interaction protocols, autonomic management, and the privacy and ethical issues around data sensing, storage, and processing. Addresses the main concepts and features of the IoT paradigm Describes different architectures for managing IoT platforms Provides insight on trust, security, and privacy in IoT environments Describes data management techniques applied to the IoT environment Examines the key enablers and solutions to enable practical IoT systems Looks at the key developments that support next generation IoT platforms Includes input from expert contributors from both academia and industry on building and deploying IoT platforms and applications

This book highlights original research and recent advances in various fields related to smart cities and their applications. It gathers papers presented at the Fourth International Conference on Smart City Applications (SCA19), held on October 2–4, 2019, in Casablanca, Morocco. Bringing together contributions by prominent researchers from around the globe, the book offers an invaluable instructional and research tool for courses on computer science, electrical engineering, and urban sciences. It is also an excellent reference guide for professionals, researchers, and academics in the field of smart cities. This book covers topics including: • Smart Citizenship • Smart Education • Digital Business and Smart Governance • Smart Health Care • New Generation of Networks and Systems for Smart Cities • Smart Grids and Electrical Engineering • Smart Mobility • Smart Security • Sustainable Building • Sustainable Environment

Introduction to Internet of Things: Basic Concept, challenges, security issues, applications and architecture will provide strong back ground knowledge about IoT and its application. The literature regarding IoT has been reviewed thoroughly and the concepts are presented. This book is about IoT and applications. Its objective is to present as clearlyand completely as possible, the nature and characteristics of IoT devices. The book will help beginners and graduate students to gain theimportant concepts and ideas about IoT.

Develop and manage effective real-time streaming solutions by leveraging the power of Microsoft Azure About This Book Analyze your data from various sources using Microsoft Azure Stream Analytics Develop, manage and automate your stream analytics solution with Microsoft Azure A practical guide to real-time event processing and performing analytics on the cloud Who This Book Is For If you are looking for a resource that teaches you how to process continuous streams of data in real-time, this book is what you need. A basic understanding of the concepts in analytics is all you need to get started with this book What You Will Learn Perform real-time event processing with Azure Stream Analysis Incorporate the features of Big Data Lambda architecture pattern in real-time data processing Design a streaming pipeline for storage and batch analysis Implement data transformation and computation activities over stream of events Automate your streaming pipeline using Powershell and the .NET SDK Integrate your streaming pipeline with popular Machine Learning and Predictive Analytics modelling algorithms Monitor and troubleshoot your Azure Streaming jobs effectively In Detail Microsoft Azure is a very popular cloud computing service

used by many organizations around the world. Its latest analytics offering, Stream Analytics, allows you to process and get actionable insights from different kinds of data in real-time. This book is your guide to understanding the basics of how Azure Stream Analytics works, and building your own analytics solution using its capabilities. You will start with understanding what Stream Analytics is, and why it is a popular choice for getting real-time insights from data. Then, you will be introduced to Azure Stream Analytics, and see how you can use the tools and functions in Azure to develop your own Streaming Analytics. Over the course of the book, you will be given comparative analytic guidance on using Azure Streaming with other Microsoft Data Platform resources such as Big Data Lambda Architecture integration for real time data analysis and differences of scenarios for architecture designing with Azure HDInsight Hadoop clusters with Storm or Stream Analytics. The book also shows you how you can manage, monitor, and scale your solution for optimal performance. By the end of this book, you will be well-versed in using Azure Stream Analytics to develop an efficient analytics solution that can work with any type of data. Style and approach A comprehensive guidance on developing real-time event processing with Azure Stream Analysis

This exciting book explores the past, present and future of IoT, presenting the most prominent technologies that comprise IoT applications, including cloud computing, edge computing, embedded computing, Big Data, Artificial Intelligence (AI), blockchain and cybersecurity. A comprehensive description of the full range of the building blocks that comprise emerging IoT systems and applications is provided, while illustrating the evolution of IoT systems from the legacy small scale sensor systems and wireless sensor networks, to today’s large scale IoT deployments that comprise millions of connected devices in the cloud and smart objects with (semi)autonomous behavior. It also provides an outlook for the future evolution of IoT systems, based on their blending with AI and the use of emerging technologies like blockchain for massively decentralized applications. The full spectrum of technologies that are closely associated with the term IoT since its introduction are explored. The book also highlights the main challenges that are associated with the development and deployment of IoT applications at scale, including network connectivity, security, and interoperability challenges. First tech sensors, wireless sensor networks and radio-frequency identification (RFID) tags are covered. Machine learning, big data and security issues are also explored.

IoT Solutions in Microsoft's Azure IoT SuiteData Acquisition and Analysis in the Real WorldApress

This book provides a comprehensive guide to Industry 4.0 applications, not only introducing implementation aspects but also proposing a conceptual framework with respect to the design principles. In addition, it discusses the effects of Industry 4.0, which are reflected in new business models and workforce transformation. The book then examines the key technological advances that form the pillars of Industry 4.0 and explores their potential technical and economic benefits using examples of real-world applications. The changing dynamics of global production, such as more complex and automated processes, high-level competitiveness and emerging technologies, have paved the way for a new generation of goods, products and services. Moreover, manufacturers are increasingly realizing the value of the data that their processes and products generate. Such trends are transforming manufacturing industry to the next generation, namely Industry 4.0, which is based on the integration of information and communication technologies and industrial technology.The book provides a conceptual framework and roadmap for decision-makers for this transformation

This volume gathers selected, peer-reviewed original contributions presented at the International Conference on Computational Vision and Bio-inspired Computing (ICCVBIC) conference which was held in Coimbatore, India, on November 29-30, 2018. The works included here offer a rich and diverse sampling of recent developments in the fields of Computational Vision, Fuzzy, Image Processing and Bio-inspired Computing. The topics covered include computer vision; cryptography and digital privacy; machine learning and artificial neural networks; genetic algorithms and computational intelligence; the Internet of Things; and biometric systems, to name but a few. The applications discussed range from security, healthcare and epidemic control to urban computing, agriculture and robotics. In this book, researchers, graduate students and professionals will find innovative solutions to real-world problems in industry and society as a whole, together with inspirations for further research.

Create applications using Industry 4.0. Discover how artificial intelligence (AI) and machine learning (ML) capabilities can be enhanced using the Internet of things (IoT) and secured using Blockchain, so your latest app can be not just smarter but also more connected and more secure than ever before. This book covers the latest easy-to-use APIs and services from Microsoft, including Azure IoT, Cognitive Services APIs, Blockchain as a Service (BaaS), and Machine Learning Studio. As you work through the book, you’ll get hands-on experience building an example solution that uses all of these technologies—an IoT suite for a smart healthcare facility. Hosted on Azure and networked using Azure IoT, the solution includes centralized patient monitoring, using Cognitive Services APIs for face detection, recognition, and tracking. Blockchain is used to create trust-based security and inventory management. Machine learning is used to create predictive solutions to proactively improve quality of life. By the end of the book, you’ll be confident creating richer and smarter applications using these technologies. What You’ll Learn Know the technologies underpinning Industry 4.0 and AI 2.0 Develop real-time solutions using IoT in Azure Bring the smart capabilities of AI 2.0 into your application using a simple API call Host and manage your solution on Azure Understand Blockchain as a Service Capture and analyze data on the fly Make predictions using existing data Who This Book Is For Novice and intermediate .NET developers and architects who want to learn what it takes to create a modern or next-generation application

Bell Canada and the City of Hamilton are pleased to announce they will be moving forward together with a Bell investment of approximately $400 million to expand broadband Internet access in urban and rural areas of Hamilton, the largest digital infrastructure investment in the City's history. Over the next five years, Bell and a Bell-funded team of City of Hamilton staff will bring direct fibre network connections to more than 200,000 homes and business locations throughout the City with zero cost to taxpayers. The network will provide consumers with access to data speeds up to 1.5 gigabits per second, the fastest home Internet speeds in Canada. Working in partnership with the Hamilton Chamber of Commerce's Digital Infrastructure Task Force, gaps in digital infrastructure across the community were identified. Subsequently, the City worked to increase investment in digital infrastructure to address the gaps. As part of the plan to enhance Hamilton's standing as a Digital City, Mayor Eisenberger requested that broadband speeds be enhanced for all of urban Hamilton, business parks and major commercial areas, and rural areas in the community. In addition to premium network support for the City's business community, the Bell project includes the expansion of high-speed Bell Wireless Home Internet service to 8,000 homes in rural Hamilton. This innovative 5G capable technology delivered over Bell's advanced LTE wireless network provides broadband residential Internet access for small towns, farming communities and other less populated locations. Bell will work in close cooperation with the City and local contractors, including Aecon, Telecon and Sentrex, to employ innovative techniques to minimize disruption to residents and businesses throughout the project. The majority of the network build will consist of new fibre installed underground, with additional fibre located on Bell, Hydro One and Alectra Utilities poles.

As innovators continue to explore and create new developments within the fields of artificial intelligence and computer science, subfields such as machine learning and the internet of things (IoT) have emerged. Now, the internet of everything (IoE), foreseen as a cohesive and intelligent connection of people, processes, data, and things, is theorized to make internet connections more valuable by converting information into wise actions that create unprecedented capabilities, richer experiences, and economic opportunities to all players in the market. Harnessing the Internet of Everything (IoE) for Accelerated Innovation Opportunities discusses the theoretical, design, evaluation, implementation, and use of innovative technologies within the fields of IoE, machine learning, and IoT. Featuring research on topics such as low-power electronics, mobile technology, and artificial intelligence, this book is ideally designed for computer engineers, software developers, investigators, advanced-level students, professors, and professionals seeking coverage on the various contemporary theories, technologies, and tools in IoE engineering.

Do you recognize Microsoft Azure IoT solutions achievements? What are the revised rough estimates of the financial savings/opportunity for Microsoft Azure IoT solutions improvements? How do you manage Microsoft Azure IoT solutions Knowledge Management (KM)? What role does communication play in the success or failure of a Microsoft Azure IoT solutions project? What are the current costs of the Microsoft Azure IoT solutions process? Defining, designing, creating, and implementing a process to solve a challenge or meet an objective is the most valuable role... In EVERY group, company, organization and department. Unless you are talking a one-time, single-use project, there should be a process. Whether that process is managed and implemented by humans, AI, or a combination of the two, it needs to be designed by someone with a complex enough perspective to ask the right questions. Someone capable of asking the right questions and step back and say, 'What are we really trying to accomplish here? And is there a different way to look at it?' This Self-Assessment empowers people to do just that - whether their title is entrepreneur, manager, consultant, (Vice-)President, CxO etc... - they are the people who rule the future. They are the person who asks the right questions to make Microsoft Azure IoT Solutions investments work better. This Microsoft Azure IoT Solutions All-Inclusive Self-Assessment enables You to be that person. All the tools you need to an in-depth Microsoft Azure IoT Solutions Self-Assessment. Featuring 945 new and updated case-based questions, organized into seven core areas of process design, this Self-Assessment will help you identify areas in which Microsoft Azure IoT Solutions improvements can be made. In using the questions you will be better able to: - diagnose Microsoft Azure IoT Solutions projects, initiatives, organizations, businesses and processes using accepted diagnostic standards and practices - implement evidence-based best practice strategies aligned with overall goals - integrate recent advances in Microsoft Azure IoT Solutions and process design strategies into practice according to best practice guidelines Using a Self-Assessment tool known as the Microsoft Azure IoT Solutions Scorecard, you will develop a clear picture of which Microsoft Azure IoT Solutions areas need attention. Your purchase includes access details to the Microsoft Azure IoT Solutions self-assessment dashboard download which gives you your dynamically prioritized projects-ready tool and shows your organization exactly what to do next. You will receive the following contents with New and Updated specific criteria: - The latest quick edition of the book in PDF - The latest complete edition of the book in PDF, which criteria correspond to the criteria in... - The Self-Assessment Excel Dashboard - Example pre-filled Self-Assessment Excel Dashboard to get familiar with results generation - In-depth and specific Microsoft Azure IoT Solutions Checklists - Project management checklists and templates to assist with implementation INCLUDES LIFETIME SELF ASSESSMENT UPDATES Every self assessment comes with Lifetime Updates and Lifetime Free Updated Books. Lifetime Updates is an industry-first feature which allows you to receive verified self assessment updates, ensuring you always have the most accurate information at your fingertips.

Build a strong and efficient IoT solution at industrial and enterprise level by mastering industrial IoT using Microsoft Azure. This book focuses on the development of the industrial Internet of Things (IIoT) paradigm, discussing various architectures, as well as providing nine case studies employing IoT in common industrial domains including medical, supply chain, finance, and smart homes. The book starts by giving you an overview of the basic concepts of IoT, after which you will go through the various offerings of the Microsoft Azure IoT platform and its services. Next, you will get hands-on experience of IoT applications in various industries to give you a better picture of industrial solutions and how you should take your industry forward. As you progress through the chapters, you will learn real-time applications in IoT in agriculture, supply chain, financial services, retail, and transportation. Towards the end, you will gain knowledge to identify and analyze IoT security and privacy risks along with a detailed sample project. The book fills an important gap in the learning of IoT and its practical use case in your industry. Therefore, this is a practical guide that helps you discover the technologies and use cases for IIoT. By the end of this book, you will be able to build industrial IoT solution in Microsoft Azure with sensors, stream analytics, and serverless technologies. What You Will Learn Provision, configure, and connect devices with Microsoft Azure IoT hub Stream analytics using structural data and non-structural data such as images Use stream analytics, serverless technology, and IoT SaaS offerings Work with common sensors and IoT devices Who This Book Is For IoT architects, developers, and stakeholders working with the industrial Internet of Things.

This document brings together a set of latest data points and publicly available information relevant for Technology Industry. We are very excited to share this content and believe that readers will benefit from this periodic publication immensely.

This book constitutes the refereed proceedings of the 13th European Conference on Software Architecture, ECSA 2019, held in Paris, France, in September 2019. In the Research Track, 11 full papers presented together with 4 short papers were carefully reviewed and selected from 63 submissions. They are organized in topical sections as follows: Services and Micro-services, Software Architecture in Development Process, Adaptation and Design Space Exploration, and Quality Attributes. In the Industrial Track, 6 submissions were received and 3 were accepted to form part of these proceedings.

More than 80 recipes to help you leverage the various extensibility features available for Microsoft Dynamics and solve problems easily About This Book Customize, configure, and extend the vanilla features of Dynamics 365 to deliver bespoke CRM solutions fit for any organization Implement business logic using point-and-click configuration, plugins, and client-side scripts with MS Dynamics 365 Built a DevOps pipeline as well as Integrate Dynamics 365 with Azure and other platforms Who This Book Is For This book is for developers, administrators, consultants, and power users who want to learn about best practices when extending Dynamics 365 for enterprises. You are expected to have a basic understand of the Dynamics CRM/365 platform. What You Will Learn Customize, configure, and extend Microsoft Dynamics 365 Create business process automation Develop client-side extensions to add features to the Dynamics 365 user interface Set up a security model to securely manage data with Dynamics 365 Develop and deploy clean code plugins to implement a wide range of custom behaviors Use third-party applications, tools, and patterns to integrate Dynamics 365 with other platforms Integrate with Azure, Java, SSIS, PowerBI, and Octopus Deploy Build an end-to-end DevOps pipeline for Dynamics 365 In Detail Microsoft Dynamics 365 is a powerful tool. It has many unique features that empower organisations to bridge common business challenges and technology pitfalls that would usually hinder the adoption of a CRM solution. This book sets out to enable you to harness the power of Dynamics 365 and cater to your unique circumstances. We start this book with a no-code configuration chapter and explain the schema, fields, and forms modeling techniques. We then move on to server-side and client-side custom code extensions. Next, you will see how best to integrate Dynamics 365 in a DevOps pipeline to package and deploy your extensions to the various SDLC environments. This book also covers modern libraries and integration patterns that can be used with Dynamics 365 (Angular, 3 tiers, and many others). Finally, we end by highlighting some of the powerful extensions available. Throughout we explain a range of design patterns and techniques that can be used to enhance your code quality; the aim is that you will learn to write enterprise-scale quality code. Style and approach This book takes a recipe-based approach, delivering practical examples and use cases so that you can identify the best possible approach to extend your Dynamics 365 deployment and tackle your specific business problems.

Manage and control Internet-connected devices from Windows and Raspberry Pi. Master the Windows IoT Core application programming interface and feature set to develop Internet of Things applications on the Raspberry Pi using your Windows and .NET programming skills. Windows 10 for the Internet of Things presents a set of example projects covering a wide range of techniques designed specifically to jump start your own Internet of Things creativity. You'll learn everything you need to know about Windows IoT Core in order to develop Windows and IoT applications that run on the Pi. Microsoft’s release of Windows IoT Core is groundbreaking in how it makes the Raspberry Pi and Internet of Things programming accessible to Windows developers. Now it’s possible to develop for the Raspberry Pi using native Windows and all the related programming skills that Windows programmers have learned from developing desktop and mobile applications. Windows 10 becomes a gateway by which many can experience hardware and Internet of Things development who may never have had the

opportunity otherwise. However, even savvy Windows programmers require help to get started with hardware development. This book, Windows 10 for the Internet of Things, provides just the help you need to get started in putting your Windows skills to use in a burgeoning new world of development for small devices that are ubiquitously connected to the Internet. What You Will Learn Learn Windows 10 on the Raspberry Pi Read sensor data and control actuators Connect to and transmit data into the cloud Remotely control your devices from any web browser Develop IOT applications under Windows using C# and Python Store your IOT data in a database for later analysis Who This Book Is For Developers and enthusiasts wanting to take their skills in Windows development and jump on board one of the largest and fastest growing trends to hit the technology world in years – that of connecting everyday devices to the Internet. This book shows how to develop for Microsoft's operating-system for devices, Windows 10 IoT Core. Readers learn to develop in C# and Python using Visual Studio, for deployment on devices such as the Raspberry Pi and the Ardunio.

This book features high-quality papers presented at the International Conference on Computational Intelligence and Communication Technology (CICT 2019) organized by ABES Engineering College, Ghaziabad, India, and held from February 22 to 23, 2019. It includes the latest advances and research findings in fields of computational science and communication such as communication & networking, web & informatics, hardware and software designs, distributed & parallel processing, advanced software engineering, advanced database management systems and bioinformatics. As such, it is of interest to research scholars, students, and engineers around the globe.

The internet of things (IoT) has emerged to address the need for connectivity and seamless integration with other devices as well as big data platforms for analytics. However, there are challenges that IoT-based applications face including design and implementation issues; connectivity problems; data gathering, storing, and analyzing in cloud-based environments; and IoT security and privacy issues. Emerging Trends in IoT and Integration with Data Science, Cloud Computing, and Big Data Analytics is a critical reference source that provides theoretical frameworks and research findings on IoT and big data integration. Highlighting topics that include wearable sensors, machine learning, machine intelligence, and mobile computing, this book serves professionals who want to improve their understanding of the strategic role of trust at different levels of the information and knowledge society. It is therefore of most value to data scientists, computer scientists, data analysts, IT specialists, academicians, professionals, researchers, and students working in the field of information and knowledge management in various disciplines that include but are not limited to information and communication sciences, administrative sciences and management, education, sociology, computer science, etc. Moreover, the book provides insights and supports executives concerned with the management of expertise, knowledge, information, and organizational development in different types of work communities and environments.

This double volume set (LNAI 10863-10864) constitutes the refereed proceedings of the 25th International Workshop, EG-ICE 2018, held in Lausanne, Switzerland, in June 2018. The 58 papers presented in this volume were carefully reviewed and selected from 108 submissions. The papers are organized in topical sections on Advanced Computing in Engineering, Computer Supported Construction Management, Life-Cycle Design Support, Monitoring and Control Algorithms in Engineering, and BIM and Engineering Ontologies.

This book relates research being implemented in three main research areas: secure connectivity and intelligent systems, real-time analytics and manufacturing knowledge and virtual manufacturing. Manufacturing SMEs and MNCs want to see how Industry 4.0 is implemented. On the other hand, groundbreaking research on this topic is constantly growing. For the aforesaid reason, the Singapore Agency for Science, Technology and Research (A*STAR), has created the model factory initiative. In the model factory, manufacturers, technology providers and the broader industry can (i) learn how I4.0 technologies are implemented on real-world manufacturing use-cases, (ii) test process improvements enabled by such technologies at the model factory facility, without disrupting their own operations, (iii) co-develop technology solutions and (iv) support the adoption of solutions at their everyday industrial operation. The book constitutes a clear base ground not only for inspiration of researchers, but also for companies who will want to adopt smart manufacturing approaches coming from Industry 4.0 in their pathway to digitization.

The book is compilation of technical papers presented at International Research Symposium on Computing and Network Sustainability (IRSCNS 2016) held in Goa, India on 1st and 2nd July 2016. The areas covered in the book are sustainable computing and security, sustainable systems and technologies, sustainable methodologies and applications, sustainable networks applications and solutions, user-centered services and systems and mobile data management. The novel and recent technologies presented in the book are going to be helpful for researchers and industries in their advanced works.

"Many of us go about our daily lives completely-some might say blissfully-unaware that we are surrounded by a cornucopia of devices that are running on various connected platforms and recording our physical presence, voices, heartbeats, and preferences. Have a look around you. Beyond your computer, tablet, or smartphone, how many 'things' that you see are connected to the Internet, either directly or indirectly? Are you wearing a Fitbit or an Apple Watch or using Airpods? Is there an Echo or Google Home in range? What about a connected fridge or smart laundry appliance? How far is the nearest Wi-Fi connected doorbell, light bulb, printer, or diaper? What about your heating and air conditioning and security systems? Now, do you know what data each of these devices is busily recording - or how that data is used or protected? What about the device itself - do you trust it to function consistently and safely? Does it matter? There is a great deal of buzz surrounding the Internet of Things (IoT), which is the notion, simply put, that nearly everything in our physical world - from gym shorts to streetlights to baby monitors, elevators, and even our own bodies - will be connected in our digital world. The Internet of Everything (IoE) (a term that Cisco helped to pioneer) takes this notion a step further by referring to not only the physical infrastructure of smart devices and services but also their impacts on people, businesses, and society.In the end, this book-indeed, dare we say no stand-alone volume-can do justice to the myriad opportunities and risks replete in the Internet of Things. But, our hope is that, by the end, you will feel like we at least did justice to unpacking some of the most important issues and concepts in this new frontier of technology and governance. There are no panaceas or magic bullets, and necessary policy or technological changes will not happen overnight; even the "Blockchain of Things" has its limits, as we will see. Dealing with formidable challenges, such as the pace of technological change or the realization of social and political rights online and offline, takes sustained effort. But, as Rev. Dr. Martin Luther King Jr. said in reference to the U.S. civil rights movement, "If you can't fly, then run. If you can't run, then walk. If you can't walk, then crawl, but by all means, keep moving." In that spirit, let's get started!"--

Society is now completely driven by data with many industries relying on data to conduct business or basic functions within the organization. With the efficiencies that big data bring to all institutions, data is continuously being collected and analyzed. However, data sets may be too complex for traditional data-processing, and therefore, different strategies must evolve to solve the issue. The field of big data works as a valuable tool for many different industries. The Research Anthology on Big Data Analytics, Architectures, and Applications is a complete reference source on big data analytics that offers the latest, innovative architectures and frameworks and explores a variety of applications within various industries. Offering an international perspective, the applications discussed within this anthology feature global representation. Covering topics such as advertising curricula, driven supply chain, and smart cities, this research anthology is ideal for data scientists, data analysts, computer engineers, software engineers, technologists, government officials, managers, CEOs, professors, graduate students, researchers, and academicians.