

1. Record Nr.	UNINA9910646196503321
Autore	Mahmood Rashid
Titolo	Ambient Intelligence and Internet of Things : Convergent Technologies
Pubbl/distr/stampa	Newark : , : John Wiley & Sons, Incorporated, , 2022 ©2023
ISBN	9781119821830 9781119821236
Descrizione fisica	1 online resource (421 pages)
Altri autori (Persone)	RajaRohit KaurHarpreet KumarSandeep NagwanshiKapil Kumar
Soggetti	Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Title Page -- Copyright Page -- Contents -- Preface -- Chapter 1 Ambient Intelligence and Internet of Things: An Overview -- 1.1 Introduction -- 1.2 Ambient Intelligent System -- 1.3 Characteristics of Aml Systems -- 1.4 Driving Force for Ambient Computing -- 1.5 Ambient Intelligence Contributing Technologies -- 1.6 Architecture Overview -- 1.7 The Internet of Things -- 1.8 IoT as the New Revolution -- 1.9 IoT Challenges -- 1.10 Role of Artificial Intelligence in the Internet of Things (IoT) -- 1.11 IoT in Various Domains -- 1.12 Healthcare -- 1.13 Home Automation -- 1.14 Smart City -- 1.15 Security -- 1.16 Industry -- 1.17 Education -- 1.18 Agriculture -- 1.19 Tourism -- 1.20 Environment Monitoring -- 1.21 Manufacturing and Retail -- 1.22 Logistics -- 1.23 Conclusion -- References -- Chapter 2 An Overview of Internet of Things Related Protocols, Technologies, Challenges and Application -- 2.1 Introduction -- 2.1.1 History of IoT -- 2.1.2 Definition of IoT -- 2.1.3 Characteristics of IoT -- 2.2 Messaging Protocols -- 2.2.1 Constrained Application Protocol -- 2.2.2 Message Queue Telemetry Transport -- 2.2.3 Extensible Messaging and Presence Protocol -- 2.2.4 Advance Message Queuing Protocol (AMQP) -- 2.3 Enabling Technologies --

2.3.1 Wireless Sensor Network -- 2.3.2 Cloud Computing -- 2.3.3 Big Data Analytics -- 2.3.4 Embedded System -- 2.4 IoT Architecture -- 2.5 Applications Area -- 2.6 Challenges and Security Issues -- 2.7 Conclusion -- References -- Chapter 3 Ambient Intelligence Health Services Using IoT -- 3.1 Introduction -- 3.2 Background of AML -- 3.2.1 What is AML? -- 3.3 Aml Future -- 3.4 Applications of Ambient Intelligence -- 3.4.1 Transforming Hospitals and Enhancing Patient Care With the Help of Ambient Intelligence -- 3.4.2 With Technology, Life After the COVID-19 Pandemic -- 3.5 COVID-19 -- 3.5.1 Prevention. 3.5.2 Symptoms -- 3.6 Coronavirus Worldwide -- 3.7 Proposed Framework for COVID-19 -- 3.8 Hardware and Software -- 3.8.1 Hardware -- 3.8.2 Heartbeat Sensor -- 3.8.3 Principle -- 3.8.4 Working -- 3.8.5 Temperature Sensor -- 3.8.6 Principle -- 3.8.7 Working -- 3.8.8 BP Sensor -- 3.8.9 Principle -- 3.8.10 Working -- 3.9 Mini Breadboard -- 3.10 Node MCU -- 3.11 Advantages -- 3.12 Conclusion -- References -- Chapter 4 Security in Ambient Intelligence and Internet of Things -- 4.1 Introduction -- 4.2 Research Areas -- 4.3 Security Threats and Requirements -- 4.3.1 Ad Hoc Network Security Threats and Requirements -- 4.3.1.1 Availability -- 4.3.1.2 Confidentiality -- 4.3.1.3 Integrity -- 4.3.1.4 Key Management and Authorization -- 4.3.2 Security Threats and Requirements Due to Sensing Capability in the Network -- 4.3.2.1 Availability -- 4.3.2.2 Confidentiality -- 4.3.2.3 Integrity -- 4.3.2.4 Key Distribution and Management -- 4.3.2.5 Resilience to Node Capture -- 4.3.3 Security Threats and Requirements in Aml and IoT Based on Sensor Network -- 4.3.3.1 Availability -- 4.3.3.2 Confidentiality -- 4.3.3.3 Confidentiality of Location -- 4.3.3.4 Integrity -- 4.3.3.5 Nonrepudiation -- 4.3.3.6 Fabrication -- 4.3.3.7 Intrusion Detection -- 4.3.3.8 Confidentiality -- 4.3.3.9 Trust Management -- 4.4 Security Threats in Existing Routing Protocols that are Designed With No Focus on Security in Aml and IoT Based on Sensor Networks -- 4.4.1 Infrastructureless -- 4.4.1.1 Dissemination-Based Routing -- 4.4.1.2 Context-Based Routing -- 4.4.2 Infrastructure-Based -- 4.4.2.1 Network with Fixed Infrastructure -- 4.4.2.2 New Routing Strategy for Wireless Sensor Networks to Ensure Source Location Privacy -- 4.5 Protocols Designed for Security Keeping Focus on Security at Design Time for Aml and IoT Based on Sensor Network -- 4.5.1 Secure Routing Algorithms. 4.5.1.1 Identity-Based Encryption (I.B.E.) Scheme -- 4.5.1.2 Policy-Based Cryptography and Public Encryption with Keyword Search -- 4.5.1.3 Secure Content-Based Routing -- 4.5.1.4 Secure Content-Based Routing Using Local Key Management Scheme -- 4.5.1.5 Trust Framework Using Mobile Traces -- 4.5.1.6 Policy-Based Authority Evaluation Scheme -- 4.5.1.7 Optimized Millionaire's Problem -- 4.5.1.8 Security in Military Operations -- 4.5.1.9 A Security Framework Application Based on Wireless Sensor Networks -- 4.5.1.10 Trust Evaluation Using Multifactor Method -- 4.5.1.11 Prevention of Spoofing Attacks -- 4.5.1.12 QoS Routing Protocol -- 4.5.1.13 Network Security Virtualization -- 4.5.2 Comparison of Routing Algorithms and Impact on Security -- 4.5.3 Inducing Intelligence in IoT Networks Using Artificial Intelligence -- 4.5.3.1 Fuzzy Logic-1 -- 4.5.3.2 Fuzzy Logic-2 -- 4.6 Introducing Hybrid Model in Military Application for Enhanced Security -- 4.6.1 Overall System Architecture -- 4.6.2 Best Candidate Selection -- 4.6.3 Simulation Results in Omnet++ -- 4.6 Conclusion -- References -- Chapter 5 Futuristic AI Convergence of Megatrends: IoT and Cloud Computing -- 5.1 Introduction -- 5.1.1 Our Contribution -- 5.2 Methodology -- 5.2.1 Statistical Information -- 5.3 Artificial Intelligence of Things -- 5.3.1 Application Areas of IoT Technologies

-- 5.3.1.1 Energy Management -- 5.3.1.2 5G/Wireless Systems --  
5.3.1.3 Risk Assessment -- 5.3.1.4 Smart City -- 5.3.1.5 Health  
Sectors -- 5.4 AI Transforming Cloud Computing -- 5.4.1 Application  
Areas of Cloud Computing -- 5.4.2 Energy/Resource Management --  
5.4.3 Edge Computing -- 5.4.4 Distributed Edge Computing and Edge-  
of-Things (EoT) -- 5.4.5 Fog Computing in Cloud Computing -- 5.4.6  
Soft Computing and Others -- 5.5 Conclusion -- References.  
Chapter 6 Analysis of Internet of Things Acceptance Dimensions in  
Hospitals -- 6.1 Introduction -- 6.2 Literature Review -- 6.2.1  
Overview of Internet of Things -- 6.2.2 Internet of Things in Healthcare  
-- 6.2.3 Research Hypothesis -- 6.2.3.1 Technological Context (TC) --  
6.2.3.2 Organizational Context (OC) -- 6.2.3.3 Environmental Concerns  
(EC) -- 6.3 Research Methodology -- 6.3.1 Demographics of the  
Respondents -- 6.4 Data Analysis -- 6.4.1 Reliability and Validity --  
6.4.1.1 Cronbach's Alpha -- 6.4.1.2 Composite Reliability -- 6.4.2  
Exploratory Factor Analysis (EFA) -- 6.4.3 Confirmatory Factor Analysis  
Results -- 6.4.3.1 Divergent or Discriminant Validity -- 6.4.4 Structural  
Equation Modeling -- 6.5 Discussion -- 6.5.1 Technological Context --  
6.5.2 Organizational Context -- 6.5.3 Environmental Context -- 6.6  
Conclusion -- References -- Chapter 7 Role of IoT in Sustainable  
Healthcare Systems -- 7.1 Introduction -- 7.2 Basic Structure of IoT  
Implementation in the Healthcare Field -- 7.3 Different Technologies of  
IoT for the Healthcare Systems -- 7.3.1 On the Basis of the Node  
Identification -- 7.3.2 On the Basis of the Communication Method --  
7.3.3 Depending on the Location of the Object -- 7.4 Applications and  
Examples of IoT in the Healthcare Systems -- 7.4.1 IoT-Based  
Healthcare System to Encounter COVID-19 Pandemic Situations --  
7.4.2 Wearable Devices -- 7.4.3 IoT-Enabled Patient Monitoring  
Devices From Remote Locations -- 7.4.3.1 Pulse Rate Sensor -- 7.4.3.2  
Respiratory Rate Sensors -- 7.4.3.3 Body Temperature Sensors --  
7.4.3.4 Blood Pressure Sensing -- 7.4.3.5 Pulse Oximetry Sensors --  
7.5 Companies Associated With IoT and Healthcare Sector Worldwide --  
7.6 Conclusion and Future Enhancement in the Healthcare System With  
IoT -- References -- Chapter 8 Fog Computing Paradigm for Internet of  
Things Applications -- 8.1 Introduction.  
8.2 Challenges -- 8.3 Fog Computing: The Emerging Era of Computing  
Paradigm -- 8.3.1 Definition of Fog Computing -- 8.3.2 Fog  
Computing Characteristic -- 8.3.3 Comparison Between Cloud and Fog  
Computing Paradigm -- 8.3.4 When to Use Fog Computing -- 8.3.5  
Fog Computing Architecture for Internet of Things -- 8.3.6 Fog  
Assistance to Address the New IoT Challenges -- 8.3.7 Devices Play a  
Role of Fog Computing Node -- 8.4 Related Work -- 8.5 Fog  
Computing Challenges -- 8.6 Fog Supported IoT Applications -- 8.7  
Summary and Conclusion -- References -- Chapter 9 Application of  
Internet of Things in Marketing Management -- 9.1 Introduction -- 9.2  
Literature Review -- 9.2.1 Customer Relationship Management -- 9.2.2  
Product Life Cycle (PLC) -- 9.2.3 Business Process Management (BPM)  
-- 9.2.4 Ambient Intelligence (Aml) -- 9.2.5 IoT and CRM Integration  
-- 9.2.6 IoT and BPM Integration -- 9.2.7 IoT and Product Life Cycle --  
9.2.8 IoT in MMgnt -- 9.2.9 Impacts of Aml on Marketing Paradigms --  
9.3 Research Methodology -- 9.4 Discussion -- 9.4.1 Research  
Proposition 1 -- 9.4.2 Research Proposition 2 -- 9.4.3 Research  
Proposition 3 -- 9.4.4 Research Proposition 4 -- 9.4.5 Research  
Proposition 5 -- 9.5 Results -- 9.4 Conclusions -- References --  
Chapter 10 Healthcare Internet of Things: A New Revolution -- 10.1  
Introduction -- 10.2 Healthcare IoT Architecture (IoT) -- 10.3  
Healthcare IoT Technologies -- 10.3.1 Technology for Identification --  
10.3.2 Location Technology -- 10.3.2.1 Mobile-Based IoT -- 10.3.2.2

Wearable Devices -- 10.3.2.3 Ambient-Assisted Living (AAL) -- 10.3.3  
Communicative Systems -- 10.3.3.1 Radiofrequency Identification --  
10.3.3.2 Bluetooth -- 10.3.3.3 Zigbee -- 10.3.3.4 Near Field  
Communication -- 10.3.3.5 Wireless Fidelity (Wi-Fi) -- 10.3.3.6  
Satellite Communication -- 10.4 Community-Based Healthcare Services  
-- 10.5 Cognitive Computation.  
10.6 Adverse Drug Reaction.

---