

1. Record Nr.	UNINA9910619279703321
Titolo	Internet of things : IoT through a multi-disciplinary perspective : 5th IFIP International Cross-Domain Conference, IFIPIoT 2022, Amsterdam, The Netherlands, October 27-28, 2022, proceedings / / edited by Luis M. Camarinha-Matos, Luis Ribeiro, and Leon Strous
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2022] ©2022
ISBN	3-031-18872-1
Descrizione fisica	1 online resource (366 pages)
Collana	IFIP Advances in Information and Communication Technology ; ; v.665
Disciplina	004.678
Soggetti	Internet of things
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	<p>Intro -- Preface -- Organization -- Contents -- IoT for Smart Villages -- aGROdet: A Novel Framework for Plant Disease Detection and Leaf Damage Estimation -- 1 Introduction -- 1.1 Research Problem -- 1.2 Proposed Solution -- 2 Significance of aGROdet in a Smart Village Context -- 3 Related Works -- 3.1 Single Plant/Crop Diseases Detection -- 3.2 Multi Plants/Crops Diseases Detection -- 4 Proposed A-CPS -- 5 aGROdet: Proposed Method -- 5.1 Detection of Plant Disease -- 5.2 Estimation of Leaf Damage Severity -- 6 Performance Evaluation of aGROdet -- 6.1 Disease Detection -- 6.2 Leaf Damage Severity Estimation -- 6.3 Comparative Analysis -- 7 Conclusion and Future Work -- References -- PUFchain 3.0: Hardware-Assisted Distributed Ledger for Robust Authentication in the Internet of Medical Things -- 1 Introduction -- 2 Novel Contributions -- 3 Related Research Overview -- 4 Tangle DLT -- 4.1 IOTA Tangle -- 4.2 MAM Overview -- 5 PUFchain 3.0: A Hardware Assisted Robust Authentication Mechanism Using Tangle -- 5.1 PUF Overview -- 5.2 Working of Proposed PUFchain 3.0 -- 6 Implementation and Validation -- 7 Conclusions -- References -- On the Optimization of LoRaWAN Gateway Placement in Wide Area Monitoring Systems -- 1 Introduction -- 2 Related Work -- 3 Problem Statement -- 3.1 Definitions and Notation -- 3.2 LGP Problem Formulation -- 4 Analysis of Results -- 5</p>

Conclusions and Future Work -- References -- Agri-Aid: An Automated and Continuous Farmer Health Monitoring System Using IoMT -- 1
Introduction -- 2 Motivation Behind the Proposed Agri-Aid System -- 3
Related Prior Research -- 3.1 Major Issues with the Existing Solutions -- 4 Novel Contributions and Issues Addressed Through Agri-Aid -- 5
Various Parameters Considered for Farmer Health in Agri-Aid -- 5.1
Vital and Physiological Parameters -- 5.2 Weather and Geographical Parameters.
6 Architectural Flow and Feature Extraction for Farmer Health in Agri-Aid -- 6.1 Physiological and Vital Sensor Data Unit -- 6.2 Weather and Environmental Signal Data Unit -- 6.3 Geographical Signal Data -- 6.4 Parameter Analysis Unit -- 6.5 Farmer Health Analyses and Control Unit -- 7 Design Flow of the Proposed Agri-Aid for Farmer Health Analyses -- 8 Implementation and Validation for Farmer Health Analyses in Agri-Aid -- 8.1 Signal Data Acquisition -- 8.2 Machine Learning Model for Training and Testing in Agri-Aid System -- 9 Conclusions and Future Research -- 9.1 Conclusions -- 9.2 Future Research -- References -- A Smart Agriculture Framework to Automatically Track the Spread of Plant Diseases Using Mask Region-Based Convolutional Neural Network -- 1
Introduction -- 2 Prior Research Work -- 2.1 Classification Based Approaches -- 2.2 Region-of-Interests (ROI) Based Approaches -- 3
Proposed Method -- 3.1 Overview: Proposed Agriculture Cyber Physical System -- 3.2 Methodology for Disease Detection and Localization -- 3.3 Network Architecture for Disease Detection and Localization -- 4
Experimental Validation -- 4.1 Dataset -- 4.2 Image Annotation -- 4.3 Image Augmentation -- 4.4 Training -- 5 Performance Evaluation -- 5.1 Performance Metrics -- 5.2 Performance Analysis -- 6 Conclusion and Future Work -- References -- Security and Safety -- Sensor-Based PUF: A Lightweight Random Number Generator for Resource Constrained IoT Devices -- 1 Introduction -- 2 Our Contributions -- 3 Background Knowledge -- 4 Related Work -- 5 Randomness Extraction -- 6 Sensor-Based PUF Data Acquisition -- 7 Results and Discussion -- 8 Complexity -- 9 Pseudo-random Number Generator -- 10 Conclusion -- References -- A Logic Programming Approach to Incorporate Access Control in the Internet of Things -- 1 Introduction -- 2 Previous and Related Work -- 3 General Approach.
3.1 Access Control Strategy and Policies -- 3.2 Terminology and Working Example -- 3.3 ACoP Mechanism -- 4 A Prolog Implementation of ACoP -- 4.1 Implementing the Access Control Logic -- 4.2 Evaluation -- 5 Discussion -- 6 Conclusions -- A Example Support for Access Control Strategies -- References -- Comprehensive Open-Source SCA Course Modules for Hands-On IoT Security Education -- 1 Introduction -- 2 Background -- 2.1 Experiential Learning and Hardware Security -- 2.2 Side-Channel Analysis (SCA) Attacks -- 2.3 IoT Security -- 3 Description of Course Modules -- 3.1 Hardware and Software Setup -- 3.2 Password Checker Module -- 3.3 AES Module -- 3.4 RSA Module -- 4 Results -- 5 Conclusion -- References -- Improving Network Load Using a Cloud-Edge MAS-Based Architecture for Industrial Safety Applications -- 1 Introduction -- 2 Related Works -- 3 Architecture -- 4 Use Case -- 4.1 Demonstration Scenario -- 4.2 Interfaces and Description Files -- 4.3 Technical Execution Flow -- 5 Experiments and Results -- 5.1 Network Impact -- 5.2 Accuracy Analysis -- 6 Conclusion -- References -- An Ontology-Based Solution for Monitoring IoT Cybersecurity -- 1 Introduction -- 2 Related Works -- 3 DAEMON Ontology -- 4 Reference Architecture -- 5 BIECO Use Case: Multi-robot Navigation -- 5.1 Use Case Scenario: Multi-robot Navigation -- 5.2 Analysis Stage -- 6 Conclusion and Future Work -- References -- SWIoTA: Anomaly Detection for Distributed Ledger

Technology-Based Internet of Things (IOTA) Using Sliding Window (SW) Technique -- 1 Introduction and Background -- 2 Problem Statement and Rationale -- 2.1 Problem Statement -- 2.2 Rationale for DoS Threat Model -- 2.3 The SWIoTA Blockchain Security Contribution -- 3 Methodology -- 3.1 Error-Correcting Output-Code Multiclass Strategy -- 3.2 Classification Problem -- 3.3 The Sliding Window (SW) Concept. 3.4 Threat Index Computation Process -- 4 Experimentation and Results -- 4.1 Private Tangle Setup -- 4.2 Denial of Service Threat Model Implementation -- 4.3 Data Collection -- 4.4 Anomaly Detection Using Sliding Window Technique -- 4.5 Performance Validation Experiments -- 5 Future Work Recommendations -- 6 Conclusion -- References -- Smart Home -- A Framework for the Integration of IoT Components into the Household Digital Twins for Energy Communities -- 1 Introduction -- 2 Related Works -- 3 Theoretical Background -- 3.1 The Concept of Collaborative Virtual Power Plant Ecosystem (CVPP-E) -- 3.2 The Notion of Cognitive Household Digital Twin (CHDT) -- 3.3 Abstraction Levels of CHDTs in Line with Digital Twin Technology -- 4 Architectural Framework of a CHDT -- 4.1 Cognitive Block -- 4.2 Control Block -- 4.3 Influence Block -- 4.4 Decision Block -- 4.5 Addressing Ethical and Other Relevant Concerns -- 5 Scenario for Testing the Control Capabilities of CHDTs -- 6 Discussion of the Outcome of Preliminary Studies Conducted Using the Developed Prototype -- 6.1 Scenario 1: Modelling Delegated Autonomy -- 6.2 Scenario 2: Modelling Mutual Influence of CHDTs -- 7 Conclusion and Future Works -- References -- SHPIA: A Low-Cost Multi-purpose Smart Home Platform for Intelligent Applications -- 1 Introduction -- 1.1 Related Works -- 1.2 Paper Contribution -- 1.3 Paper Organization -- 2 Preliminaries -- 3 SHPIA Architecture -- 3.1 Agents -- 3.2 Environment Definition -- 3.3 Environment Configuration -- 4 SHPIA Evaluation -- 4.1 Data Aggregator Performance Evaluation -- 4.2 SHPIA Application Scenarios -- 5 Conclusions -- References -- A Visible Light Communication System to Support Indoor Guidance -- 1 Introduction -- 1.1 Background on Wireless Guidance Services -- 2 System Model -- 2.1 Communication System -- 2.2 Lighting Plan Layout and Building Model. 2.3 Architecture and Geolocation -- 3 Geotracking, Navigation and Route Control -- 3.1 Communication Protocol, Coding/Decoding Techniques and Error Control -- 3.2 Fine-Grained Indoor Localization and Navigation -- 3.3 Multi-person Cooperative Localization and Guidance Services -- 4 Conclusions -- References -- Development, Engineering, Machine Learning -- Semantic Inferences Towards Smart IoT-Based Systems Actuation Conflicts Management -- 1 Introduction -- 2 Related Works -- 3 A Lightweight Ontology for Identifying and Resolving Actuation Conflicts -- 3.1 Automatic Actuation Conflicts Identification -- 3.2 Semi-automatic Actuation Conflicts Resolution -- 4 Identifying and Resolving Actuation Conflicts with the Stanford Protégé Tool -- 5 Performance Analysis -- 6 Future Work -- 7 Conclusion -- References -- Trade-Off Analysis of Pruning Methods for Compact Neural Networks on Embedded Devices -- 1 Introduction -- 2 Related Work -- 3 Preliminaries -- 4 Methodology -- 4.1 Implementing Pruning Algorithms -- 4.2 Training and Pruning MobileNetV2 -- 4.3 Determining Model Accuracy -- 4.4 Exporting the Model -- 4.5 Energy Consumption Measurements -- 5 Experiments -- 6 Results -- 7 Discussion -- 8 Conclusion and Future Work -- References -- Low-Code Internet of Things Application Development for Edge Analytics -- 1 Introduction -- 2 Related Work -- 3 Overview of Tools and Technologies -- 3.1 Software Platforms -- 3.2 Hardware Platforms -- 4 Architectural View: The System of Systems -- 4.1 The

System Architecture -- 4.2 Integration of the Heterogeneous Subsystems: The Native SIBs -- 4.3 No-Code Reuse Through the Native SIB Palettes -- 5 Application Development: The Processes -- 5.1 Data Acquisition from IoT Devices -- 5.2 Analytics Dashboard in R -- 5.3 Analytics Dashboard in Python -- 6 Results and Discussion -- 7 Conclusion and Future Work -- References.
