

What is the role of data communication and networking in smart grid?

Advanced data communication and networking techniques will play a key role in the successful development of the emerging smart grid system. The communication network in the smart grid must be able to support all aspects of generation, transmission, distribution, as well as the requirements of users and utility service providers.

Are cellular M2M communications suitable for smart grid applications?

The authors argue that the cellular M2M communications technologies are suitable for smart grid applications such as wide-area situational awareness, interconnection of distributed energy resources, and distribution automation in the transmission and distribution networks.

How many gridshares are installed in the Rukubji micro-hydro mini-grid?

In the summer of 2011, GridShares were installed in every household and business connected to the Rukubji micro-hydro mini-grid, which serves approximately 90 households with a 40 kW nominal capacity micro-hydro system. The installation was accompanied by an extensive education program.

How many smart grid field trials are there?

There have been several smart grid field trials in the last few years. In Chapter 20, Hu and Qian provide an overview of several smart grid field trials which are divided into three categories: smart power grids, smart electricity systems, and smart customers.

6 Machine-to-machine communications in smart grid; 7 Bad-data detection in smart grid: a distributed approach; 8 Distributed state estimation: a learning-based framework; Part III Smart grid and wide-area networks; Part IV Sensor and actuator networks for smart grid; Part V Security in smart grid communications and networking; Part VI Field ...

The advent and development of the smart grid concept to operate the electric power grids and microgrids have introduced a number of opportunities for improving efficiencies and overall performance.

Part V Security in smart grid communications and networking; Part VI Field trials and deployments; Index; Get access. Share. Cite. Summary. Introduction. The existing electrical grid needs to be smarter in order to provide an economical, reliable, and sustainable supply of electricity [1]. Although the current electrical grid has served well in ...

Smart Grid Communications and Networking - May 2012. Introduction. There is a growing communication and computation infrastructure in support of the transfer of electrical energy in both the high-voltage (HV) transmission network and the medium and low-voltage (MV/LV) distribution side.

sensing, communication, and networking technologies for the smart grid, a detailed exposition on the issues such as distributed energy resource (DER) management, demand-side management (DSM), architecture and protocol for power management in the smart grid are out of the scope of this article. 2. APPLICATIONS OF DATA SENSING IN THE SMART GRID

Part V Security in smart grid communications and networking; Part VI Field trials and deployments; Index; Get access. Share. Cite. Summary. Introduction. This chapter reviews the emerging paradigm of machine-to-machine (M2M) communications in the context of smart grids. Commencing here with an introduction to the topic at hand, we then ...

2.1.1. Smart Grid Domains. SGs are complex systems, interfacing the power grid with communication technologies by deploying a large number of interconnected components for measuring, controlling, and monitoring.

Nevertheless the main challenge of SGs is the necessity for real-time tracing of all installed components within the grid via high speed, encyclopaedic and co-operative modern communication systems to facilitate full observability and controllability of various grid components (Yang, 2019) contrast, Internet of things (IoT) is a network of physical devices that are ...

The smart grid will transform the way power is delivered, consumed and accounted for. Adding intelligence through the newly networked grid will increase reliability and power quality, improve responsiveness, increase efficiency and provide a platform for new applications. This one-stop reference covers the state-of-the-art theory, key strategies, ...

Introduction. The electrical grid is a critical infrastructure that could have a major impact on human lives, economics, and politics [1]. Hence, any instabilities related to the structural and operational characteristics of the existing power grid, equipment failures, blackouts, poor communication, and lack of effective monitoring of the infrastructure, create additional challenges to the ...

Grid operations in smart grid have proven to be more efficient and more secure because of the communication infrastructures and modern control. Smart Grid Communication Infrastructures examines and summarizes the recent advances in smart grid communications, big data analytics and network security. The authors - noted experts in the field ...

3. INTRODUCTION o Many countries and electricity markets are looking at Smart Grid as advanced solutions in delivering mix of enhanced values ranging from higher security, reliability and power quality, lower cost of delivery, demand optimization and energy efficiency. o Its advanced capabilities - demand optimization, delivery efficiency and renewable ...

Smart Grid Communications and Networking - May 2012. To save this book to your Kindle, first ensure coreplatform@cambridge is added to your Approved Personal Document E-mail List under your Personal Document Settings on the Manage Your Content and Devices page of your Amazon account.

The necessity to promote smart grid (SG) has been recognized with a strong consensus. The SG integrates electrical grids and communication infrastructures and forms an intelligent electricity network working with all connected components to deliver sustainable electricity supplies. Many advanced communication technologies have been identified for SG ...

Smart Grid Communications and Networking - May 2012. Introduction. By connecting the various entities in the grid and enabling a two-way flow of information related to the production and distribution of energy, communication networks, and more specifically wireless networks, are poised to play a significant role in the modernization of the electric grid.

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