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A number of surveys have been published to address SG challenges from different perspectives. In [108], the focus is on utilizing SG technologies in green information and communication technologies (ICTs).Another survey in [109] discusses the SG technology and its potentials. In addition, that study presents wireless communications for HANs and NANs ...

Wireless sensor networks (WSNs) will play a key role in the extension of the smart grid towards residential premises, and enable various demand and energy management applications.

This paper is expected to serve as a comprehensive assessment and analysis of communication standards, cyber security issues and solutions for WSN based smart grid infrastructure. The existing power grid is going through a massive transformation. Smart grid technology is a radical approach for improvisation in prevailing power grid. Integration of ...

With the development of Internet of Things (IoT) and Wireless Sensor Networking (WSN) technologies, Smart Grid (SG) concept is becoming more attractive, whereby it refers to upgrading conventional power-grid infrastructure in order to offer automated control over the resources and emerging technologies in smart and sustainable cities.

This paper provides a comprehensive survey on related literature, discusses the still-open research issues, and identifies the most common validation platforms for experimenting WSN communications in smart grid. Smart grids, the next generation of electric grids, require the deployment of sophisticated monitoring and control systems to enhance their operational ...

4 E. Kabalci and Y. Kabalci Keywords Smart grid architecture ·Smart metering ·Phasor measurement unit Advanced metering infrastructure ·Demand response Demand-side management ·Wireless sensor networks Power line communication ·Smart grid communication networks 1.1 Introduction The conventional power grid has been degraded since its first ...

Integration of wireless sensor network (WSN) in smart grid (SG) facilitates power distribution. The transfer of data in the sensor nodes (SN) is affected by malicious nodes in WSN at the same time, which leads to a black hole (BH) attack in the system. The BH attacks...

At present the low cost, low power and collaborative feature of Wireless Sensor Network (WSN) is becoming a popular communication technology in smart grid including power generation, transmission and distribution. Among these, the health monitoring of wind power generation system has emerged as one of the many possible applications of WSNs. However ...

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A novel bio-inspired self-optimized butterfly mating optimization-based data gathering routing scheme called Self- Optimized Intelligent routing protocol (SIRP) for WSNs-based SG applications is proposed. Recently, the advences of Industry 4.0 have paved the way for a systematical deployment of the smart grid (SG) to manage continuously growing ...

The Kinshasa control centre now has direct access to Inga II"s substation. According to KfW, faults are detected and corrected early, thereby stabilising the entire power grid and minimising energy losses. The challenge ...

Emperor penguin optimised self-healing (EPOSH) strategy for sensor network based smart grid system is proposed and resultant performances are compared with existing works such as AEC, GHS, GA-TBR and IGRC. Nowadays, smart grid technologies make use of wireless sensor network (WSN) in electric power generation, transmission and distribution systems.

Modern life aims at making the world less vulnerable to risk, shortening our workload, saving time, assuring security, and overall making our life more comfortable. These goals may be achieved through the implementation of smart environments that are formed with different sensors employed in the collection of various environmental data. The collaboration of ...

The proposed genetic algorithm (GA-TBR) is implemented at the source sensor node to collect the state information inside the WSN environment of Smart Grid and hence optimize the selection of routes to ensure the required QoS. Wireless sensor network (WSN) information network in Smart Grid is envisioned to handle diversified traffic such as real-time ...

For robust monitoring, control and proper energy management of renewable energy sources (RES), wireless sensing networks (WSNs) are proved to be a vital solution. Since the power system is stepping towards the smart grid system and the use of WSNs provides numerous advantages in terms of economical, reliable and safer transmission of controlling ...

To help tackle the challenge of electrification, Altech, the DR Congo"s market leader in the distribution of world-class clean energy products and services, are deepening their last-mile distribution efforts to provide clean, ...

An architecture for monitoring power in smart grid applications using wireless sensor network (WSN) technology, designed and developed to calculate the power for any kind of loads and a novel Power theft detection algorithm is proposed and simulated. Smart grid technology is one of the recent developments in the area of electric power systems that aid the ...

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