

The Smart Grid (SG) provides the bi-directional flow of data to overcome problems like shortage of electricity, electricity billing, managing fault, home automation so on. For the transfer of data, the integration of Cognitive Radio (CR) in sensor networks makes efficient communication possible in real-time monitoring. SG uses different technologies like WiFi, ...

3. INTRODUCTION SMART GRID oA smart grid is an electricity network that can intelligently integrate the actions of all use connected to it - generators, consumers and those that do both in order to efficiently deliver sustainable economics and serve electricity supplies. oIt uses sensing embedded processing and digital communications to enable the electricity grid to ...

Smart grid refers to a sophisticated infrastructure that improvises the efficacy, safety and trustworthiness of an electric power grid. This is done alongside seamless integration of renewable and alternative energy sources by making use of sophisticated communication and automated control technologies. In recent times this WSNs technology has been recognized to ...

Keywords: Smart Grid (SG); wireless sensor networks (WSNs); public key infrastructure (PKI); clustering; certification authority (CA) 1. Introduction 1.1. Background In recent decades, the protection of the environment made governments throughout the world change the existing electrical grid to a smart electrical grid. The regeneration of a

The number of applications of smart grid over wireless sensor networks has been steadily increasing, such as wireless automatic meter reading (WAMR) and remote monitoring systems. However, since radio waves in wireless communication spread in the air, one common risk is that wireless channels are more insecure and susceptible to numerous ...

SGs are used for real-time collection and analysis of data about power transmission, distribution, and consumption. This is often possible through data transmission networks, which are mostly integrated into electrical networks to achieve better power management via online monitoring and diagnostics [18, 22].Recently, it is accepted that ...

Wireless sensor network (WSN) information network in Smart Grid is envisioned to handle diversified traffic such as real-time sensitive data and non-real-time traffic. Therefore, QoS routing protocol in smart grid network is essential. Ticket-based routing (TBR) protocol is a promising protocol because it can select routes based on several desired metrics, for example ...

The harris hawks optimized self-isolation (HHOSI) algorithm continuously monitors the smart grid relays, switches and circuit breakers through a wireless sensor network (WSN) to identify the ...

Recently, the operation of distribution systems does not depend on the state or utility based on centralized procedures, but rather the decentralization of the decisions of the distribution companies whose objectives are the efficiency of interconnectivity. Therefore, distribution companies are exposed to greater risks, and due to this, the need to make ...

Modeling and Simulation of a Wireless Sensor Network for Smart Grid Applications, 2018. Recently, the use of Wireless Sensor Networks (WSNs) with Advanced Metering Infrastructures (AMIs) has played a major role in various aspects of today's power distribution grid, especially at the end-user that will be an essential element of the next generation of electrical power grid ...

In particular, a WSN based smart grid comprises numerous small sensing nodes that can sense, read variables from their ambience, and wirelessly report the readings to each other. ... Yilmaz S Dener M (2024) Security with Wireless Sensor Networks in Smart Grids: A Review Symmetry 10.3390/sym16101295 16:10 (1295) Online publication date: 2-Oct-2024.

The EU's Connecting Europe Facility financing mechanism has announced new funding for the Gabreta smart grids project, located between Czechia and Germany. ... Smart Energy International is the leading authority on the smart meter, smart grid and smart energy markets, providing up-to-the-minute global news, incisive comment and professional ...

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 ...

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...

Adaptive Zigbee-Aquila communication protocol (AZACP) is used to find the shortest optimal path for transmitting the sensed data to base station with low cost and less time consumption and Enhanced Recurrent Equilibrium Neural Network (ERENN) is introduced to identify the fault in data transmission. : Wireless Sensor Network (WSNs) plays a vital role in smart grid (SG) ...

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