

The overview of IoT technique, smart grid systems as well as their integrations and standardization are presented in Section 1. The current implementations and architectures of IoT-assisted smart grid systems are covered in Sections 2 Overview of IoT and SG systems, 3 Current applications of IoT-assisted smart grid systems; respectively.

A comprehensive review on IoT-based infrastructure for smart grid applications. Rohan Pal, Rohan Pal. Automotive Department, Vellore Institute of Technology, Vellore, Tamil Nadu, India ... the development of smart grid infrastructure is one of the solutions to address the above issue. This article discusses different methods and mechanisms ...

The state of the power system has changed over the last decades. Recently, the power system has faced several challenges and issues. On the one side, demands for electrical energy are increasing day-by-day, with power losses, grid failure, and lack of smart technology; on the other side, security threats are also increasing. The current power grid ...

The above challenges indicate the perception of smart grid (SG). The smart grid design is economic, competent, intelligent and secured grid was needed to manage the above-mentioned issues. Self ...

This article also presents a comprehensive overview of existing studies on IoT applications to the smart grid system. Based on recent surveys and literature, we observe that the security ...

IoT in smart grid infrastructure, prototypes of IoT-enabled smart grid systems, covered all IoT and non-IoT communication technologies, and provided a detailed discussion on Sustainability 2023 ...

The Internet of Things (IoT) is a rapidly emerging field of technologies that delivers numerous cutting-edge solutions in various domains including the critical infrastructures. Thanks to the IoT, the conventional power system network can be transformed into an effective and smarter energy grid. In this article, we review the architecture and functionalities of IoT ...

These are only some of the applications of IoT in creating smart cities. There are many more options that can be explored to make cities a better option for more than 70% of the world's population in the future. Many of these applications are already used in the big metropolitan cities around the world, however, there are many barriers to ...

A summary of the important applications of IoT in smart grid domains is shown in Table 26.3. Table 26.3 IoT uses in smart grid domains. Full size table. 4.1 IoT System Architecture. An IoT system comprises five major

systems: devices-sensors or actuators, embedded platform, communication technology, gateway devices, and storage system. ...

The prevailing development in energy grids and emersion of new energy players along with the advent of the Internet of Things (IoT) lead available energy systems (e.g., smart electricity grid) toward "energy internet" concept. The expansion of an electrical power grid, because of its unique features, has caused this system to be converted to the central core of the energy ecosystem ...

So, based on the importance of IoT in power system, different researchers have paid special attention to this concept in recent years. For instance, in Ref. [7], a review about IoT applications in smart grid (SG) was proposed Ref. [8], low-cost smart meters for the applications of IoT in SGs were discussed Ref. [9], improving the security of SGs using ...

The key features of IoT technology are depicted in Figure 2, showing its potential to provide an excellent solution to recent issues of transitioning a traditional electrical grid into a modernized smart grid. The adoption of IoT technology is growing in popularity for current smart grid applications in residential and commercial structures.

The use cases of IoT applications in smart grid system are discussed below:. Real-Time Monitoring and Control: IoT-Enabled Sensors: Enhancing grid visibility and control by deploying a network of IoT sensors throughout the grid infrastructure. These sensors collect real-time data on parameters such as voltage, current, power quality, and environmental conditions.

In the context of the smart grid, IoT has concrete applications for monitoring electricity generation, gauging intelligent power consumption, managing energy efficiency, and much more. Below, we break down some of the key benefits ...

Internet of Things (IoT) is a connection of people and things at any time, in any place, with anyone and anything, using any network and any service. Thus, IoT is a huge dynamic global network infrastructure of Internet-enabled entities with web services. One of the most important applications of IoT is the Smart Grid (SG).

Outcome of this paper place aims to understand some of these IoT technologies and how it can be adopted as technology into the Sub-Sharan African region with a focus on Botswana to make a smart city. The outcome of this article attempts to highlight key ...

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