Chapter

IoT-Based System Development for Online Power Quality Condition Monitoring of Transformer

May 2023
DOI: 10.1007/978-981-19-8338-2_38

A. Vijayalakshmi · R. Omana · S. Sanjiti · Show all 5 authors · Ebenezer Abishek

Abstract

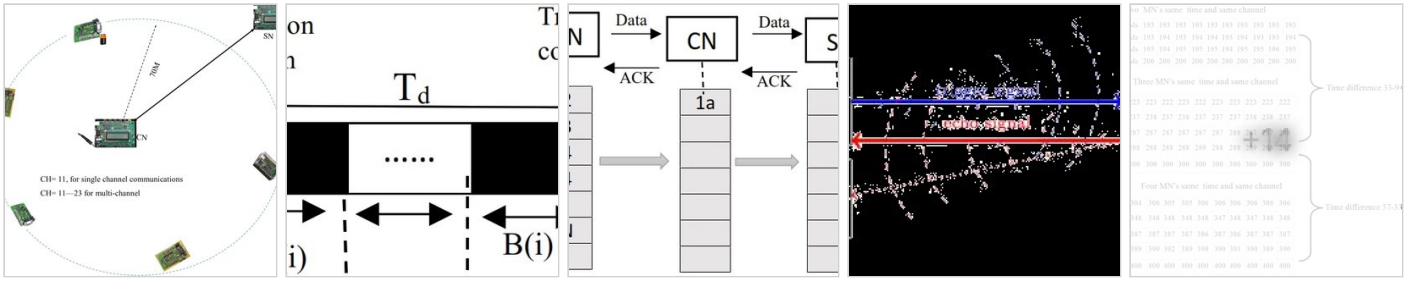
Nowadays, observing and governing the smart grid equipment are significant issues for the energy board, which needs human intervention, or through PLC and SCADA systems. Transformers are one of the smart grid equipments which is used for electricity distribution and transmission. It reduces the primary voltage for customer use. By introducing Internet of things (IoT), a desirable smooth observing and trustworthy guiding system is attained over the whole equipment. IoT network embedded with electronics, software, sensors, actuators, and network connectivity for identifying, collecting, and exchanging the data. This system uniquely identifies through its implanted figuring system and interoperates within the Internet frame. All monitoring parameters are handled, and if any problem occurs, the system sends alert messages through the registered IP address. This paper presents an Internet of things-based system development for condition checking of smart grid equipment which requires less time and the resources efficiency will be high. The parameters' values are sent to monitor through IP address, and if any problem occurs detect it immediately. An electronic engineer cannot continuously keep watching the transformer, so a prototype method has been developed and verified for computing the efficiency of smart grid system using Internet of things (IoT).KeywordsSensorTransformersCloudInternet of things

Public full-texts

To read the full-text of this research, you can request a copy directly from the authors.

Request full-text PDF

Similar research



A Smart IoT Based System for Monitoring and Controlling the Sub-Station Equipment

Article Full-text available

July 2019 · 12,732 Reads · 85 Citations

Internet of Things

Md. Sanwar Hossain · Mostafizur Rahman · Md.Tuhin Sarker · [...] · Abu Jahid

Remote monitoring and controlling of the sub-station equipment is an important issue for the power/energy management department which is normally done manually, or using an expensive PLC and SCADA system. With the emergence of the internet and computational era, a smart monitoring and reliabl...

Read more

View

Digital twin for oil pipeline risk estimation using prognostic and machine learning techniques

Article

August 2021 · 297 Reads · 89 Citations

Journal of Industrial Information Integration

E.B. Priyanka · Sathya Thangavel · Xiao-Zhi Gao · Sivakumar Nallappan Sellappan

Digital Twin technology is emerging as the digitization platform to enhance the industrial information processing and management in concern with virtual and physical entities. It paves the path for integrated industrial data analysis by combining IoT and Artificial Intelligence for better data interpretation. At prese...

Read more

View

Design of an IoT Based System for Monitoring and Controlling the Sub-Station Equipment

Chapter

May 2021 · 39 Reads · 2 Citations

Pranali Bodke · A. A. Kalage

In the era of modern digitalization world, it is a simple to monitor and control the substation equipment remotely using expensive PLC and SCADA system, but it is desirable to design a system which is cost-effective, smart and reliable. So that IoT is an effective solution as the real-time capability of IoT is...

Read more

View

IoT Based monitoring and control of fluid transportation using machine learning

Article

January 2021 · 129 Reads · 37 Citations

Computers & Electrical Engineering

Priyanka E. Bhaskaran · Maheswari Chenniappan · Sathya Thangavel · [...] · Sivakumar Nallappan Sellappan

It is important to concentrate on monitoring and control of the pipeline transportation system before the failure resulting in fatal accidents. To enhance the supervision performances, the SCADA (Supervisory Control and Data Acquisition) platform is incorporated with IoT by utilizing the NB-IOT module holding a...

Read more

View

Development of an IoT smart energy meter with power quality features for a smart grid architecture

Article

April 2024 · 11 Reads

Omar Munoz · Adolfo Ruelas · Pedro F. Rosales-Escobedo · [...] · Angel Rocha

View
