Power Station Monitoring System Using Microcontroller

GIOVANNA BLAZE

A Monitoring System for Solid Wastes from Loviisa Power Station Springer Nature
This book aims to provide practical aspects of, and an introduction to, the applications of various technological advancement tools, such as AI, machine learning to design, big data, cloud computing, and IoT, to model, characterize, optimize, forecast, and do performance prediction of renewable energy exploitation. It further discusses new avenues for energy sources such as hydrogen energy generation and energy storage technologies including existing policies and case studies for a better understanding of renewable energy generation. Features: Covers technologies considered to explore, predict, and perform operation and maintenance of renewable energy sources. Aids in the design and use of renewable energy sources, including the application of artificial intelligence in a real-time environment. Includes IoT, cloud computing, big data, smart grid, and different optimization techniques for resource forecasting, installation, operation, and optimization of energy. Discusses the principle of integration/hybridization of renewable energy sources along with their optimization based on energy requirements. Reviews the concepts and challenges involved in the implementation of smart grids. This book is aimed at researchers and graduate students in renewable energy engineering, computer and mechanical engineering, novel technologies, and intelligent systems.
Condition Monitoring of Power Station Rotating Equipments by Ferrographic Method and Its Integration with Conventional Monitoring System John Wiley & Sons
This PhD sought to determine the mechanisms for the reactor explosions by mapping, collecting and analysing samples from across the area of Japan that received radioactive fallout from the explosions. In doing this, the author conducted significant fieldwork in the restricted-access fallout zone using ground and novel UAV-based mapping of radiation to identify hot-spot areas for sample collecting but also using these tools to verify the efficacy of the clean-up operations ongoing in the prefecture. Such fieldwork was both technically pioneering for its use of UAVs (drones) but also selfless in terms of bravely entering a nuclear danger area to collect samples for the greater benefit of the scientific community.
Inventory of Energy Research and Development, 1973-1975 Elsevier
"Electrostatic Precipitation" includes selected papers presented at the 11th International Conference on Electrostatic Precipitation. It presents the newest developments in electrostatic precipitation, flue gas desulphurization (FGD), selective catalytic reduction (SCR), and non-thermal plasma techniques for multi-pollutants emission control. Almost all outstanding scientists and engineers world-wide in the field will report their on-going researches. The book will be a useful reference for scientists and engineers to keep abreast of the latest developments in environmental science and engineering.
Advances in Natural Computation, Fuzzy Systems and Knowledge Discovery Advances in Natural Computation, Fuzzy Systems and Knowledge Discovery
This volume contains two additional features which enhance the value of Modern Power Station Practice as a whole: a cumulative subject index and a

detailed list of tables of contents for the entire work. The cumulative index provides access to the vast body of information presented in the set, and also indicates at a glance the breadth and depth of the treatment through the use of inclusive page ranges for major topics. In order to allow the reader the greatest flexibility in using the index there are many cross-references. The entries themselves are qualified by up to two descriptive subheadings to allow the most detailed coverage possible of the subject matter. The reproduction of the tables of contents for each volume also provides an overview of the organisation of the individual volumes.

The 2011 Fukushima Daiichi Nuclear Power Plant Accident Springer

Uses real world case studies to present the key technologies of design and application of the synchronous generator excitation system This book systematically introduces the important technologies of design and application of the synchronous generator excitation system, including the three-phase bridge rectifier circuit, diode rectifier for separate excitation, brushless excitation system and the static self-stimulation excitation system. It fuses discussions on specific topics and basic theories, providing a detailed description of the theories essential for synchronous generators in the analysis of excitation systems. Design and Application of Modern Synchronous Generator Excitation Systems provides a cutting-edge examination of excitation system, addressing conventional hydro-turbines, pumped storage units, steam turbines, and nuclear power units. It looks at the features and performance of the excitation system of the 700MW hydro-turbine deployed at the Three Gorges Hydropower Plant spanning the Yangtze River in China, as well as the working principle and start-up procedure of the static frequency converter (SFC) of pumped storage units. It also expounds on the composition of the excitation transformer, power rectifier, de-excitation equipment, and automatic excitation regulator—in addition to the performance features of the excitation system of conventional 600/1000MW turbines and the excitation system of the 1000MW nuclear power unit. Presents cutting-edge technologies of the excitation system from a unique engineering perspective Offers broad appeal to power system engineers who require a better understanding of excitation systems Addresses hydro-turbines, pumped storage units, steam turbines, and nuclear power units Provides an interdisciplinary examination of a range of applications Written by a senior expert in the area of excitation systems Written by an author with over 50 years' experience, Design and Application of Modern Synchronous Generator Excitation Systems is an excellent text that offers an interdisciplinary exposition for professionals, researchers, and academics alike.

2019 Innovations in Power and Advanced Computing Technologies (i-PACT) Springer

Session 2 includes 110 papers selected from 2011 3rd International Asia Conference on Informatics in Control, Automation and Robotics (CAR 2011), held on December 24-25, 2011, Shenzhen, China. As we all know, the ever growing technology in robotics and automation will help build a better human society. This session will provide a unique opportunity for the academic and industrial communities to address new challenges, share solutions, and discuss research directions for the future. Robotics research emphasizes intelligence and adaptability to cope with unstructured environments. Automation research emphasizes efficiency, productivity, quality, and reliability, focusing on systems that operate autonomously. The main focus of this session is on the autonomous acquisition of semantic information in intelligent robots and systems, as well as the use of semantic knowledge to guide further acquisition of information.

Solar Energy Update Springer Nature

Intelligent Knowledge Based Systems in Electrical Power Engineering details how intelligent applications can be used in the power industry. The book gives a general and historical overview of intelligent knowledge based systems (IKBS) and artificial intelligence (AI) and a broad analysis of the application of these techniques in the electrical power industry. It includes chapters on forecasting and planning in power systems, design of electrical plant and systems, IKBS in condition monitoring, alarm processing, event and fault diagnosis and an analysis of future trends in IKBS for power engineering. No previous knowledge of IKBS is assumed, but an appreciation of electrical transmission and distribution systems would be useful.

Calibration in Air Monitoring MDPI

An analysis of power systems, control hardware, modelling and simulation, instrumentation, and computers and distributed systems. The stability of plants and their interaction in a multi-machine system is also discussed, as well as an analysis of the values of LOFT ATWS EVENT for PWR and the new algorithm of on-line ELD for thermal power plants.

Armes anciennes... Moquettes de voiliers... Objets d'art des époques précolombiennes et héllenistiques... Meubles anciens des XVIII.e et XIX.e s... Springer Nature

Advances in Natural Computation, Fuzzy Systems and Knowledge DiscoverySpringer Nature

Towards Modern Collaborative Knowledge Sharing Systems Elsevier

This symposium brings together the research from different disciplines of process control, and discusses the problems encountered in the application of automation systems. The papers in this volume analyze the results of theoretical research and how far applications have been developed, new design methodologies and technologies, to give a comprehensive overview of the state of the art of this fast-developing science.

Scientific and Technical Aerospace Reports Earthscan

First Published in 1999. Routledge is an imprint of Taylor & Francis, an informa company.

Intelligent knowledge based systems in electrical power engineering Springer Nature

This book illustrates operation and maintenance practices/guidelines for economic generation and managing health of a thermal power generator beyond its regulatory life. The book provides knowledge for professionals managing power station operations, through its unique approach to chemical analysis of water, steam, oil etc. to identify malfunctioning/defects in equipment/systems much before the physical manifestation of the problem. The book also contains a detailed procedure for conducting performance evaluation tests on different equipment, and for analyzing test results for predicting maintenance requirements, which has lent a new dimension to power systems operation and maintenance practices. A number of real life case studies also enrich the book. This book will prove particularly useful to power systems operations professionals in the developing economies, and also to researchers and students involved in studying power systems operations and control.

Acid Precipitation Springer

Photovoltaics, among the different renewable energy sources (RES), has become more popular. In recent years, however, many research topics have arisen as a result of the problems that are constantly faced in smart-grid and microgrid operations, such as forecasting of the output of power plant production, storage sizing, modeling, and control optimization of photovoltaic systems. Computational intelligence algorithms (evolutionary optimization, neural networks, fuzzy logic, etc.) have become more and more popular as alternative approaches to conventional techniques for solving problems such as modeling, identification, optimization, availability prediction, forecasting, sizing, and control of stand-alone, grid-connected, and hybrid photovoltaic systems. This Special Issue will investigate the most recent developments and research on solar power systems. This Special Issue “Computational Intelligence in Photovoltaic Systems” is highly recommended for readers with an interest in the various aspects of solar power systems, and includes 10 original research papers covering relevant progress in the following (non-exhaustive) fields: Forecasting techniques (deterministic, stochastic, etc.); DC/AC converter control and maximum power point tracking techniques; Sizing and optimization of photovoltaic system components; Photovoltaics modeling and parameter estimation; Maintenance and reliability modeling; Decision processes for grid operators.

Electronics and Signal Processing CRC Press

The development of new technologies still accelerates. As a result the requirement of easy access to high quality information is essential in modern scientific society. We believe that new cloud-based online system will replace the old system of books and magazines in the future. This is mainly because contemporary system of journal and conference publications appears to be outdated, especially in such domains as computer science, because process of publishing of an article takes too much time. In this book a new approach of sharing knowledge is proposed. The main idea behind this new approach is to take advantage of collaboration techniques used in industry to share the knowledge and build teams which work on the same subject at different locations. This will allow to accelerate the exchange of information between scientists and allow to build global teams of researchers who deal with the same scientific subjects. Furthermore, an easy access to structured knowledge will facilitate cross domain cooperation. This book describes the concept of a cross-domain platform which can be used for scientific cooperation. It also familiarizes readers with new concepts and technologies which are used in the platform and introduces the first projects which are developed using this technology. It is expected to be of special interest to researchers and professionals in computer science and mechanics.

Electrostatic Precipitation Frontiers Media SA

This book presents the proceedings of the 11th Scientific Conference “Intelligent systems for industrial automation,” WCIS-2020, held in Tashkent, Uzbekistan, on November 26–28, 2020. It includes contributions from diverse areas of intelligent industrial systems design as hybrid control systems, intelligent information systems, decision making under imperfect information and others. The topics of the papers include intelligent control systems, pattern recognition, Industry 4.0, information security, neural computing, fuzzy and evolutionary computation, decision making and support systems, modeling of chemical technological processes and others.

Geothermal Energy Update Springer Science & Business Media

This book discusses the recent advances in natural computation, fuzzy systems and knowledge discovery. Presenting selected, peer-reviewed papers from the 15th International Conference on Natural Computation, Fuzzy Systems and Knowledge Discovery (ICNC-FSKD 2019), held in Kunming, China, from 20 to 22 July 2019, it is a useful resource for researchers, including professors and graduate students, as well as R&D staff in industry.

Soft Computing in Condition Monitoring and Diagnostics of Electrical and Mechanical Systems Springer Nature

This book gathers a selection of peer-reviewed papers presented at the 4th Big Data Analytics for Cyber-Physical System in Smart City (BDCPS 2022) conference, held in Bangkok, Thailand, on December 16–17. The contributions, prepared by an international team of scientists and engineers, cover the latest advances and challenges made in the field of big data analytics methods and approaches for the data-driven co-design of communication, computing, and control for smart cities. Given its scope, it offers a valuable resource for all researchers and professionals interested in big data, smart cities, and cyber-physical systems.

Radioactive Waste Processing and Disposal Springer

A remote monitoring system, designed to monitor spent fuel transfers from wet to dry storage, was installed at the Embalse Nuclear Power Station at Embalse, Argentina. The system consists of 6 gamma and one neutron radiation sensors. Five gamma sensors utilize RF transmission to communicate with Echelon nodes connected to a Local Operating Network (LON). One gamma and one neutron sensor are hardwired to the LON network. Each sensor Echelon node is bound to a single Datalogger that stores data until it receives an acquisition command to download to the Data Acquisition Software (DASW) database. The data from the Datalogger are transferred and stored in the Data Acquisition Software database, which resides on the IAEA MOS-MUX server. At a pre-determined interval, data from the DASW database are converted into Excel files and transferred to the IAEA database every 24 hours. At an predetermined interval all data are transferred to the distribution server located at the ARN laboratory at Ezeiza, Argentina. Remote access to data from the distribution server will be made from IAEA headquarters, Vienna, Austria, from ABACC in Rio de Janeiro, Brazil, from the IAEA field office in Buenos Aires, from ARN, and from Sandia National Laboratories, Albuquerque, New Mexico.

Boiling Nuclear Superheater (BONUS) Power Station: Reference design ASTM International

This book addresses a range of complex issues associated with condition monitoring (CM), fault diagnosis and detection (FDD) in smart buildings, wide area monitoring (WAM), wind energy conversion systems (WECSs), photovoltaic (PV) systems, structures, electrical systems, mechanical systems, smart grids, etc. The book’s goal is to develop and combine all advanced nonintrusive CMFD approaches on a common platform. To do so, it explores the main components of various systems used for CMFD purposes. The content is divided into three main parts, the first of which provides a brief introduction, before focusing on the state of the art and major research gaps in the area of CMFD. The second part covers the step-by-step implementation of novel soft computing applications in CMFD for electrical and mechanical systems. In the third and final part, the simulation codes for each chapter are included in an extensive appendix to support newcomers to the field.

Microcomputer Application in Process Control https://www.chinesestandard.net

This book is a collection of proceedings of the International Conference on Mechatronics and Intelligent Robotics (ICMIR2018), held in Kunming, China during May 19–20, 2018. It consists of 155 papers, which have been categorized into 6 different sections: Intelligent Systems, Robotics, Intelligent Sensors & Actuators, Mechatronics, Computational Vision and Machine Learning, and Soft Computing. The volume covers the latest ideas and

innovations both from the industrial and academic worlds, as well as shares the best practices in the fields of mechanical engineering, mechatronics, automatic control, IOT and its applications in industry, electrical engineering, finite element analysis and computational engineering. The volume covers key research outputs, which delivers a wealth of new ideas and food for thought to the readers.