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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : JURNAL ILMIAH

Judul Karya Ilmiah (Artikel) : A Fuzzy Rule-based Fog-cloud Computing for Solar Panel Disturbance Investigation

Jumlah Penulis : 3 orang (Suryono Suryono, Ainie Khuriati, Teddy Mantoro)

Status Pengusul : Penulis pertama/penulis ke-... / penulis korespondensi **

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- c. Volume, Nomor, Bulan, Tahun : Vol. 6, Issue-1, Juni 2019
- d. Penerbit : Taylor & Francis
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- f. Alamat web jurnal : <https://www.cogentoa.com/article/10.1080/23311916.2019.1624287>
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Total = (100%)	38	38,5	38,25
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Semarang, 15 Januari 2020

Reviewer 1

Prof. Dr. Wahyu Setia Budi, M.S.
 NIP. 195806151985031002
 Bidang ilmu/Unit kerja : Fisika FSM UNDIP

Reviewer 2

Prof. Dr. Heri Sutanto, S.Si., M.Si.
 NIP. 197502151998021001
 Bidang ilmu/Unit kerja : Fisika FSM UNDIP

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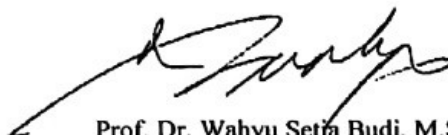
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- Kelengkapan unsur dan kualitas terbitan/jurnal cukup baik, gambar dan keterangan gambar jelas terbaca.

Semarang, 23 Agustus 2019

Reviewer 1



Prof. Dr. Wahyu Setia Budi, M.S.

NIP. 195806151985031002

Bidang ilmu/Unit kerja : Fisika FSM UNDIP

* dinilai oleh dua Reviewer secara terpisah

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d. Kelengkapan unsur dan kualitas penerbit (30%)	12			12
Total = (100%)	40			38,5
Nilai untuk Pengusul = (60% x 38,5) = 23,1				

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- d. Unsur terbitan lengkap, Jurnal Cogent Engineering termasuk jurnal bereputasi Scopus Q2, SJR = 0,27 dan juga terindek WOS dengan IF= 1,35, Topik dari artikel ini sesuai dengan bidang ilmu penulis.

Semarang, 2 Agustus 2019

Reviewer 2



Prof. Dr. Heri Sutanto, S.Si., M.Si.
NIP. 197502151998021001
Bidang ilmu/Unit kerja : Fisika FSM UNDIP

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Volume 6, Issue 1, 1 January 2019, Article number 1624287

A fuzzy rule-based fog-cloud computing for solar panel disturbance investigation (Article) Open Access

Suryono, S., Khuriati, A., Mantoro, T.

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^bFaculty of Engineering and Technology, Sampoerna University, Jakarta, 12930, Indonesia

Abstract

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The electrical energy produced by solar panel depends on the light intensity falling on the panel, but this process is prone to disturbances from external factors. Unfortunately, models of online solar panel disturbance diagnosis have not been widely developed. This research proposes a model of fog computing using fuzzy rule-based algorithm is capable of automatic monitoring and diagnosing factors affecting solar panel efficiency. Data from physical parameter of sensors are acquired by the System on Chip (SoC) Wi-Fi microcontroller and sent to the fog server via a Wi-Fi gateway. The fuzzy rule-based algorithm consists of investigation rules showing the relationships among efficiency, light intensity, output electrical power, temperature, and humidity. Output of fog network computing is sent to the cloud server and serves as information for users of this investigation system. The fog network system is able to improve cloud performance, in terms of the transmission time has increased performance from 246.1 to 27.9 ms. In general, this system is able to improve relative efficiency of solar panel by 2.1%, compared to solar panels not equipped with this instrument. In order to obtain accurate investigation results, detailed conditions of all possible events in the field are required. © 2019, © 2019 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

SciVal Topic Prominence

Topic: Photovoltaic cells | Fault detection | Photovoltaic power

Prominence percentile: 97.107

Author keywords

disturbance efficiency fuzzy rule-based solar panel wireless sensor system

Funding details

Funding sponsor	Funding number	Acronym
Universitas Diponegoro		UNDIP

Funding text

We would like to thank for Dean of Faculty of Science and Mathematics, Diponegoro University, Semarang, Indonesia, for the financial support with PNBPN Research Project 2017.

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Suryono, S., Suseno, J.E., Sulistiati, A.K.R. (2018) E3S Web of Conferences

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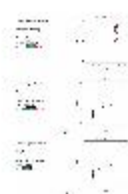
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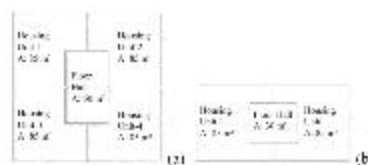
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In addition to pursuing and leading research, he has also been very active with knowledge transfer to industry, applying the results of his work to help multinational companies and SMEs to generate wealth and create and safeguard jobs. In 2003 he was awarded an OBE for his services to Engineering.

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Received: 06 August 2019
Accepted: 06 November 2019; First
Published: 12 November 2019

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ELECTRICAL & ELECTRONIC ENGINEERING | RESEARCH ARTICLE

Blue skies and red sunsets: Reliability of performance parameters of various p-n junction photovoltaic module technologies

Edson L. Meyer¹ and Ochuko K. Overen^{1*}

Abstract: This research presents, discusses and compares the reliability of the performance characteristics of six different p-n junction photovoltaic module technologies under varying operating conditions. The six module technologies are: CuInSe₂ (CIS), α -Si:H, α -Si:H/ α -SiGe:H/ α -SiGe:H (α -SiGe:H), edge-defined film-fed growth silicon (EFG-Si), multi-crystalline silicon (mc-Si) and single crystalline silicon (c-Si). A simple but accurate method is then used to determine the modules' qualities. The effect of temperature on module performance is then investigated and results compared. Here it was found that the lower quality thin-film technologies are not as temperature dependent as their crystalline counterparts. The influence of irradiance on module performance was also measured and compared for the different technologies. The α -Si:H technology was found to be at least 16% more efficient than the other module technologies at 169 W/m². Under actual outdoor operating conditions, however, the reliability of the STC measurements is no longer useful. CIS performs relatively better at high air-mass values, corresponding to times when the sun is lower in the sky, that is, red sunsets. Under these outdoor conditions, irradiance, temperature and spectral changes affect module performance and this research successfully motivates the importance of considering all



Edson L. Meyer

ABOUT THE AUTHORS

Edson L. Meyer obtained his PhD in Physics at the University of Port Elizabeth, South Africa in 2002 and has been actively involved in renewable energy research for 23 years. His current research deals with various aspects of solar PV and solar thermal, dye-sensitized and perovskite solar cells, with solar water heaters, grid-connected PV, bio-mass gasification and biogas digestion. He is currently the Executive Director of the Fort Hare Institute of Technology where he resides as a full professor with a C rating from the National Research Foundation.

Ochuko K. Overen joins the University of Fort Hare, Alice, South Africa in 2010 for his research career, where he went on to obtain his PhD in Physics. Dr Overen is a recipient of the National Research Foundation (NRF) of South Africa 2019 Innovation postdoctoral fellowship grant award. He is a professional member of the South African Institute of Physics (SAIP).

PUBLIC INTEREST STATEMENT

When the sun travels across the sky from sunrise, noon and to sunset, the content of the light is preferentially scattered by various gases and particles in the atmosphere. The result is blue skies since blue light (lower wavelength) is scattered more and red sunsets, the time of day when only longer wavelengths (red light) is reaching the observer. Just like the human eye, solar cells and module comprising materials of different energy bandgap respond differently to different times of day when the spectrum or content of light is different. This study shows that the spectral effect on the performance of PV modules cannot be ignored when comparing different technologies. In fact, some technologies like CuInSe₂ and c-Si technologies become more efficient toward sunset as compared to their performance around noon. The fundamental truth portrayed by this study is that STC measurement alone cannot reliably give a comparison of the performance of different module technologies.



Received: 23 August 2018
Accepted: 18 May 2019
First Published: 28 May 2019

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ELECTRICAL & ELECTRONIC ENGINEERING | RESEARCH ARTICLE

Implementation of new electricity regulatory norms for deviation settlement mechanism: A case study of India

Manju Gupta^{1*}, Sushma Gupta¹ and Tripta Thakur¹

Abstract: In this research paper, an innovative solution by proposing a novel mechanism for implementation of regulatory approach—based new deviation settlement scheme for frequency control is suggested. Power systems of many developing countries have to face sustained generation deficiency, large frequency fluctuations and are susceptible to even small disturbance. Operating such a system is a difficult task and innovative solutions are needed to solve this situation. To overcome this situation, India has adopted commercial mechanism known as Availability-based Tariff (ABT), which has a component linked with frequency. A commercial mechanism is a paradigm shift in the operational strategies from the conventional frequency control to new deviation control. This proposed scheme satisfies Central Electricity Regulatory Commission (CERC) criteria and inclusive future norms. The MATLAB used to enable to analyze proposed rules and the strength of the approach, is to segregate the conventional Automatic Generation Control (AGC) with new UI-based AGC. The enhancement of AGC algorithms is to meet increased demand by efficient implementation of algorithm for generators rescheduling, as per new CERC norms.

Subjects: Electrical & Electronic Engineering; Power Engineering; Engineering Economics



Manju Gupta

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Manju Gupta is pursuing PhD from Maulana Azad National Institute of Technology, Bhopal, M.P. India. She is a faculty member at Oriental Institute of Science and Technology, Bhopal (M.P.) since 2006. She has also served as faculty at Delhi College of Engineering, Indira Gandhi Institute of Technology, Delhi and Dronacharya College of Engineering Gurgaon (Haryana). Her research area includes demand side management, renewable energy and smart grid. She is a professional member of ISTE, IEEE, IETE, IEI (I), Chartered Engineer and ISGF

PUBLIC INTEREST STATEMENT

Energy plays a vital role in the development of human activities, and sustainable social and economic development depends on adequate energy generation capacity. The objective of the paper is to provide a vision to introduce spinning reserve in the Country, which is one of the important components for ensuring grid security, quality and reliability, by adequacy of supply and maintaining Load – Generation balance. It was envisaged by the Central Electricity Regulatory Commission (CERC) that each region should maintain primary and secondary reserves. All the generating units must plan Automatic Generation Control (AGC). A bad or no forecast of load/RE Generation or poor load management may lead to heavy deviation from the schedule and grid indiscipline, thereby exhausting all reserves in the system and making the system insecure. Effectiveness of AGC is one of the steps in that direction for the stable frequency operation and security of the grid.