

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

Judul Jurnal Ilmiah (Artikel) : As-RaD System as a Design Model of the Network Automation Configuration System Based on the REST-API and Django Framework

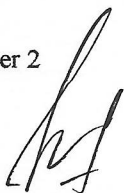
Jumlah Penulis : 4 orang (**Adian Fatchur Rochim**, Abda Rafi, Adnan Fauzi, Kurniawan Teguh Martono)
 Status Pengusul : penulis ke-1
 Identitas Jurnal Ilmiah : a. Nama Jurnal : Kinetik : Game Technology, Information System, Computer Network, Computing, Electronics, and Control
 b. Nomor ISSN : eISSN : 2503-2267 | pISSN : 2503-2259
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 g. Terindex : SINTA 2, Scholar Metrics, Google Scholar

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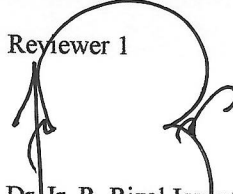
Reviewer 2



Dr. Iwan Setiawan, S.T., M.T.
 NIP. 197309262000121001
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Semarang, 10 Januari 2021

Reviewer 1



Dr. Ir. R. Rizal Isnanto, S.T., M.M., M.T., IPM
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 Unit : Dept. Teknik Komputer FT UNDIP

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1. Kesesuaian dan kelengkapan unsur isi jurnal:

Jurnal KINETIK memiliki kelengkapan yang cukup. Makalah yang dipublikan di jurnal ini sesuai dengan cakupan topik dari Jurnal KINETIK

2. Ruang lingkup dan kedalaman pembahasan:

Topik dari makalah adalah "As-RaD System as a Design Model of the Network Automation Configuration System Based on the REST-API and Django Framework". Pembahasan sudah dilakukan secara mendalam, dilengkapi dengan flowchart, gambar, grafik, tabel, dan tampilan dashboard aplikasi yang dikembangkan.

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

Sistem As-RaD yang digunakan sebagai objek penelitian yang digunakan sebagai model perancangan untuk sistem konfigurasi automasi jaringan berbasis REST-API dan kerangka kerja Django sudah mencukupi untuk digunakan dalam pengambilan kesimpulan penelitian. Kesimpulan yang diambil sudah sesuai dengan metodologi yang dipakai.

4. Kelengkapan unsur dan kualitas terbitan:

Terbitan dari Jurnal KINETIK sudah cukup lengkap dalam aspek pemenuhan persyaratan sebagai jurnal ilmiah nasional terakreditasi SINTA 2, serta kualitas terbitan online maupun cetaknya sudah cukup bagus.

Semarang, 10 Januari 2021
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c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)		7,50		7,30
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)		7,50		7,20
Total = (100%)		25,00		23,85
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Catatan Penilaian artikel oleh Reviewer :

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Jurnal cukup bereputasi. Reviewer terdiri dari pakar di bidangnya. Penulisan sesuai dengan petunjuk dari jurnal terdiri dari abstrak, pendahuluan, metode, hasil dan pengujian serta kesimpulan. Tulisan merupakan hasil riset/percobaan, dan komparasi telah dilakukan dengan metode-metode yang sudah dikenal.

2. Ruang lingkup dan kedalaman pembahasan:

Substansi makalah sesuai ruang lingkup jurnal. Kedalaman materi telah cukup signifikan dengan menggunakan perangkat lunak yang terbaru dukungan dari vendor perangkat jaringan Cisco. Analisis komparasi dengan metode lain telah cukup detail.

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

Dukungan literatur cukup mutakhir sesuai dengan tren teknologi jaringan saat ini yang mengarah pada Software Defined Network / otomasi jaringan. Metodologi sedang. Kajian dilakukan dengan literatur 50% rujukan digunakan dalam studi baik pada proses development maupun review.

4. Kelengkapan unsur dan kualitas terbitan:

Kualitas jurnal cukup baik pada tingkat Sinta 2.

Semarang, 10 Januari 2021
 Reviewer 2

Dr. Iwan Setiawan, S.T., M.T.
 NIP. 197309262000121001
 Unit : Dept. Teknik Elektro FT UNDIP

As-RaD System as a Design Model of the Network Automation Configuration System Based on the REST-API and Django Framework

AF Rochim, A Rafi, A Fauzi... - Kinetik: Game Technology ..., 2020 - kinetik.umm.ac.id

The use of information technology these days are very high. From business through education activities tend to use this technology most of the time. Information technology uses computer networks for integration and management data. To avoid business problems, the number of network devices installed requires a manageable network configuration for easier maintenance. Traditionally, each of network devices has to be manually configured by network administrators. This process takes time and inefficient. Network automation methods ...



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NIP 197306101997031004



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PERINGKAT AKREDITASI JURNAL ILMIAH PERIODE II TAHUN 2019

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2	1	Adabiyat: Jurnal Bahasa dan Sastra	25492047	Fakultas Adab dan Ilmu Budaya UIN Sunan Kalijaga	Reakreditasi tetap di peringkat 2 mulai volume 2,nomor 1, tahun 2018
	2	Akrual: Jurnal Akuntansi	25026380	Universitas Negeri Surabaya	Reakreditasi naik peringkat dari peringkat 3 ke 2 Mulai Volume 9, Nomor 2 Tahun 2018
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	6	Amerta Nutrition	25801163	Universitas Airlangga	Usulan baru mulai volume 1, nomor 1, tahun 2017
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49	Kinetik : Game Technology, Information System, Computer Network, Computing, Electronics, and Control	25032267	Universitas Muhammadiyah Malang	Reakreditasi naik peringkat dari 3 ke 2, mulai dari volume 4, nomor 1, tahun 2019
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4	Journal DaFIna - Journal Deutsch als Fremdsprache in Indonesien	25481681	Jurusan Sastra Jerman Universitas Negeri Malang	Usulan baru mulai volume 1, nomor 1, tahun 2017
5	The Management Journal of Binaniaga	2580149X	Centre for Research and Commubity Services STIE Binaniaga	Usulan baru mulai volume 2, nomor 1, tahun 2017
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**Game Technology, Information System,
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KINETIK Vol. 05 No. 04 November 2020

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Malang, 65144

Editorial Introduction

Assalamu'alaikum Wr. Wb.

Alhamdulillah thanks to Allah Subhanahu Wa Ta'ala, because of His mercy, KINETIK journal, Volume 5, Issue 4 2020 is officially published. We would like to deliver our gratefulness and highest appreciation to peer reviewers, editor, writers, and all people that have helped and cooperated to make KINETIK journal published. We hope that KINETIK journal could be beneficial and contributive to the knowledge development for all of us. Finally, in order to improve the quality of its contents and layout, we invite you to kindly share your suggestion via email to our editorial team for the following edition improvement.

Wassalamu'alaikum Wr. Wb.

Editor

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ANP and ELECTRE Methods for Determine New Student Admissions

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A Fuzzy Logic-Based Automation toward Intelligent Air Conditioning Systems

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As-RaD System as a Design Model of the Network Automation Configuration System Based on the REST API and Django Framework

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Abstract

Information technology is very high because of COVID-19 pandemic. Organizations from business through education tend to use this technology most of the time. Information technology uses computer networks for integration and management data. A manageable network configuration for networked devices will be easier to maintain and reduce communication problems. Traditionally, network administrators must configure each network device manually. This process takes time and inefficient. Automated network configuration can overcome the repetitive process, but it is relatively slow. In this research, we propose an alternative model of a network automation system. The model system was implemented with a controller application that used REST API (Representational State Transfer Application Programming Interface) architecture and built by the Django framework with Python programming language to increase the performance of network automation. The design model, called the As-RaD System, uses a web-based application for maintenance and automates networking tasks with easy GUI. The network devices used in this research include the Cisco CSR1000V because it supports REST API communication to manage its network configuration and could be placed on the server either. The As-RaD System provides 75% faster performance than Paramiko and 92% than Network Automation and Programmability Abstraction Layer with Multivendor.

1. Introduction

In this era, computer networks have become dynamic and complex [1]. The availability and reliability of network devices then become a challenge for computer network providers. To configure network devices, network engineers use a well-known tool as a secured shell (SSH). However, manual configuration is time-consuming because repetitive tasks, i.e., login and logout, entry user, and passwords, are done for every device.

Network automation with an application programming interface (API) can reduce the time and repetition of network maintenance [2]. The tasks include monitoring the network to prevent vulnerability [3]. The automation network can modify static and dynamic routing; it can also be used to configure users [4]. Therefore, we can say that network automation uses programming logic to manage network devices so that network administrators can configure network devices automatically [5].

Network automation (NA) uses the Python programming language [6]. Paramiko and NAPAL implement the NA concept that was coded by the Python language. Paramiko is a Python implementation library of SSH protocol and could provide NA [7]. The Network Automation and Programmability Abstraction Layer with Multivendor (NAPALM) support is a Python library that implements a set of functions to interact with different router vendor devices using a unified API [6]. The REST API (Representational State Transfer Application Programming Interface) recently became popular in network protocol design [8]. REST in the development of computer networks is an architecture that allows applications to send configurations to other applications, which in this case, are virtual computer network devices [9]. A Python script is still needed to enable NA; thus, to improve network administration, it is necessary to develop web-based applications that have a display or GUI and can be accessed centrally [10].

Rheza et al., in 2014, explained how an application could be designed using the Python programming language to automate network device administration such as routing and backup restore device configuration. This approach could reduce the complicated and repetitive tasks of a network administrator [11]. Zhou et al., in 2014, explained various issues regarding the RESTful protocol for computer network design needed with programming approaches and how the HTTP protocol can be used to control a computer network device with the advantages of RESTful [8]. Mihaila, in 2017, made comparative automation comparisons using several methods between the NAPALM, Netmiko, and Paramiko methods [12]. He demonstrated each method of configuring network devices. However, a comparison of the time to implement each method into a framework is unclear.



ANP and ELECTRE methods for determine new student admissions

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Abstract

Higher Education is a level of education after High School which selects new students based on achievement, report cards, and tests. Admission selection was based on report cards. Number of indicators and who register make it difficult for determine which students are accepted in education. Multi Criteria Group Decision Making (MCGDM) is a way to determine the best alternative from many alternative choices based on predetermined criteria. In this study, MCGDM used is Analytic Network Process (ANP) and Elimination and Choice Expression Reality (ELECTRE). ANP model is a development of AHP and requires linkages between criteria using a network. ELECTRE is method based concept of ranking through pairwise comparisons between alternatives on the appropriate criteria. Contribution is integration ANP and ELECTRE methods based on group, by determining decisions based on consistency ratio. The results of testing level consistency ratio, group-based ANP-ELECTRE can be applied to assessment selection at Electrical Engineering with highest accuracy of 86.36%.

1. Introduction

Higher education is a continuation of high school, which is organized to prepare students to become societies with academic and professional abilities in order to apply, develop and create science, technology and arts (Law 2 1989, (16) 1). There are many admissions paths for new students in tertiary institutions, namely raport path, test track and independent path. The raport path is a form of selection for new student admissions to enter higher education which is carried out through the school report card scores. The large number of prospective new student applicants who enter college using report cards, so a decision support system is needed to determine the selection of new student admissions. The Existence complex assessment criteria, alternative choices of majors and several assessors in decision makers so that Multiple Criteria Decision Making (MCDM) method is needed [1][2]. Multi Criteria Decision Making (MCDM) is a way to determine the best alternative from many alternative choices based on predetermined criteria. The criteria used in research can be in the form of measures, rules or standards in determining the best decision. There are several MCDM methods, namely Elimination and Choice of Expressing Reality (ELECTRE), Simple Additive Weighting (SAW), Product Weighted (WP), Ideal Solution Similarity Order Preference Technique (TOPSIS), and Analytical Hierarchy Process (AHP), DEMATEL [3]. The research problem is that there are several assessors (decision-making groups) in determining the weight of new student admission criteria so that consistent assessments are needed to produce optimal decisions. The method used in this research is integration of ANP and ELECTRE methods. ANP is used to determine weighting of the criteria for new student admission, while ELECTRE is used to determine alternative student rankings in chosen major.

ANP is a method that is easily applied to various qualitative studies, such as decision making, forecasting, evaluation, mapping, strategizing, resource allocation and so on [4]. The advantages of ANP include more objective comparisons, more accurate predictive ability, and more stable results [4][5]. ANP is more general than AHP used in multi-criteria decision analysis [5]. ANP uses a network approach without having to define levels like the hierarchy used in AHP [6]. ELECTRE is a multi-criteria decision-making method based on the concept of outranking using paired comparisons of alternatives based on each appropriate criterion. The ELECTRE method is used in conditions where a suitable alternative can be produced [7][8][9]. Previous research on admission selection for new students used the SAW method [10][11], TPA selection using the ANP method [4], the ELECTRE method for report cards and scholarships [12], and priority selection of prospective debtors [13][14]. Some of the methods used previously have not used group decisions, have not considered the consistency of the ratio in determining the optimal decision, in determining the weighting of the criteria have not dynamically and using a hybrid weighting method. Based on previous research regarding the admission of new students with FAHP and COPRAS [15][16], it is explained that considering the value of



A fuzzy logic-based automation toward intelligent air conditioning systems

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Abstract

Most of the energy used in residential buildings originates from air conditioners. Meanwhile, air conditioner manufacturers are addressing this issue by the production of efficient air conditioners. However, the convertible frequency air conditioners are expensive, up to 60% higher than the fixed frequency control air conditioners. Besides the human behavior in determining the temperature, setpoint plays an important role regardless of the air conditioners technology used. This study incorporated intelligence in setting up the temperature by means of specially designed remote control. The Tsukamoto fuzzy reasoning was utilized as a decision making system with two inputs, namely the outdoor temperature and the number of occupants. The device used DHT22 as the temperature sensor and HC-SR04 to detect incoming and outgoing occupants. Furthermore, the fuzzy inference system generated infrared signal associated with the temperature setpoint. This signal was received by the air conditioner receiver to adjust the temperature setpoint accordingly. The result of this study showed that the fuzzy inference system determines the temperature setpoint appropriately under variations of surrounding temperature and the number of occupants. The proposed approach yielded a satisfactory perception of thermal comfort and also a promising approach to energy conservation.

1. Introduction

The need for heating, ventilation, and air conditioning (HVAC) systems have now become very important as the demand for thermal comfort rises. The rapid escalation of energy consumption of HVAC systems draws concerns since it is now the major energy usage in office, residential, and non-residential buildings for many countries. HVAC systems account for almost 50% of the energy utilized in buildings, and about 20% of total energy usage in developed countries [1]. The demand for energy for buildings worldwide is at 40% and will shortly reach 60% according to the statistics [2], of which 48% of the comfort parameters were thermal or HVAC [3].

Previous studies have been attempted to address thermal energy management in residential buildings. A simulation was built which represents a smart home containing the air conditioner and a sensor network, in which a gateway node connected both sides [4]. Another smart home for a temperature system was established using Android applications together with microcontrollers [5]. Decision support and energy management systems were employed in existing houses to reduce energy consumptions. The control logic was comprised of six available logics, namely: comfort, economy, emergency, energy, power, and thermal storage. However, the rational utilization of electric appliances still manually relied on inhabitant [6]. A cyber-physical system of home temperature control was built to actuate air conditioner and/or openings by means of a Proportional-Integral-Derivative (PID) controller and the so-called hybrid controller [7]. A Matlab/Simulink based simulation verified the effectiveness of the proposed method to reach the desired temperatures. The use of smart sensors was also introduced. Smartphones, temperature sensors, bracelet-like device, and human motion sensors were integrated to establish intelligent air-conditioning systems [8]. The wearable devices were used to determine the sleeping state of the occupants which then could reduce the energy consumptions.

Several studies have also incorporated intelligent controls to HVAC systems. A hybrid of neural network and fuzzy system were used to regulate blower, air conditioner, and recirculation gates to provide comfortable temperature with less energy [9]. The adaptive properties were obtained via a hybrid learning method based on the gradient descent and least square error estimate. Fuzzy logic systems have also been occupied as intelligent controllers by controlling the compressor duty cycle [10]. In [11], five fuzzy inputs were selected to determine four fuzzy output variables. Fuzzy rule base was constructed using Fuzzy Logic Toolbox in Matlab. However, there was a lack of experiments to verify the simulations. The use of fuzzy sets was also shown in [12] to predict retail prices as well as outdoor temperatures to set the next 24-hour indoor temperatures. Nevertheless, the forecasting stages were prone to uncertainties. Besides, the next 24-hour indoor temperatures were set in a fixed manner, making it not adaptable to sudden changes, e.g. the number of occupants. Another approach to forecasting the power consumption of air conditioners was shown in [13] which employed a neural network combined with an autoregressive model.

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