International Journal of Electrical and Computer Engineering (IJECE)
Vol. 8, No. 4, August 2018, pp. 1939~1946
ISSN: 2088-8708, DOI: 10.11591/ijece.v8i4.7290

Fuzzy Gain Scheduling PID Control for Position of The AR.Drone

Agung Prayitno[1], Veronica Indrawati[2], Ivan Immanuel Trusulaw[3]
Department of Electrical Engineering, University of Surabaya (UBAYA), Indonesia

Article Info

Article history:
Received May 31, 2017
Revised Oct 24, 2017
Accepted Mar 14, 2018

Keyword:
AR.Drone
Fuzzy gain scheduling
PID control
Position control
Takagi-sugeno-kang fuzzy

ABSTRACT

This paper describes the design and implementation of fuzzy gain scheduling PID control for position of the AR.Drone. This control scheme uses 3 PID controllers as the main controller of the AR.Drone, in this case to control pitch, roll and throttle. The process of tuning parameters for each PID is done automatically by scheduling determined by Takagi-Sugeno-Kang (TSK) fuzzy logic model. This paper uses five function sets of PID parameters that will be evaluated by fuzzy logic in order to tune PID controllers. Error position (x,y,z), as inputs of controller, enters the PID Signal block yielding the ouputs in term of error, integral error and differential error. These signal become the inputs of the fuzzy scheduler to yield outputs pitch, roll and throttle to the AR.drone. The control scheme is implemented on the AR.Drone to make it fly to forming a square in the room. The experimental results show that the control scheme can follow the desired points, and process scheduling PID parameters can be shown.

Corresponding Author:
Agung Prayitno,
Department of Electrical Engineering,
University of Surabaya (UBAYA),
TB.2 Building, Raya Kalirungkut 60293 Surabaya, East Java, Indonesia.
Email: prayitno_agung@staff.ubaya.ac.id

1. INTRODUCTION

The use of quadrotor to assist human activities has become more diverse. The examples are the use of quadrotor for news coverage activities, assisting agriculture, disaster evacuation, product promotion and entertainment. Research using the quadrotor is also increasingly masive in various universities in the world both in terms of hardware and software. Many quadrotor platforms for research purposes are sold on the market with a range of low to expensive prices with specific technical specifications.

This research uses the AR.Drone 2.0 Elite Edition which is a product of Parrot. The AR.Drone is relatively inexpensive and is equipped with onboard electronics that have a motherboard, a processor, a Wi-Fi chip, 3 axis gyroscope, 3 axis accelerometer, a sonar altimeter, and a front camera and bottom. It is also equipped with a real-time operating system that can perform multiple tasks simultaneously, such as communication with a PC via Wi-Fi, video data sampling, sensor acquisition, image processing, state estimation and closed loop control. With this communication, it is possible to transmit control commands and request navigation data of drones in the form of actual roll value, sideward speed, actual pitch value, forward speed, actual yaw rate value, yaw value, vertical rate value and altitude value [1]. Maneuver of the AR.Drone can be controlled with 4 pieces of control command that pitch, roll, yaw and throttle that has values between -1 and 1 as shown in Table 1.

Until now, many studies have been using the AR.Drone as a platform. Mogenson [2] designed the AR.Drone LabVIEW toolkits that facilitate lecturers and researchers to control the AR.Drone using their controller design. There are 4 pieces of soft Virtual Instrument (VI), namely Main VI, Video VI, NavData VI and State VI. Main VI transmits control commands and keeps the communication channel running. Video VI is used to read UDP that contain video frame packets sent from the AR.Drone, turn it into an image or pixel

clusters. NavData VI sends UDP packets to the Navdata output who ordered AR.Drone to send sensor's data to IP address of the computer.

Table 1. Control Command of AR.Drone

Input	Positive values	Negative values
Pitch	Backward	Forward
Roll	Right	Left
Yaw	Rotate CW	Rotate CCW
Throttle	Up	Down

State VI is used to estimate x, y, z position of the Navdata. Some researchers noted having designed PID and Fuzzy controller on the AR.Drone. Prayitno, *et al.* in [3] designed 2 fuzzy controllers to control the x and y position using pitch and yaw. Indrawati, *et al.* in [4] and [5] is designed and implemented three pieces of fuzzy logic control to control the position of x, y, z using of pitch, roll and vertical rate of the AR.Drone. They compared various schemes of fuzzy control to position control. Prayitno, *et al.* in [6] is designed conventional PID control and compared with fuzzy control scheme designed by Indrawati in [5]. Tang in [7] designed a PID controller for waypoint navigation applications and trajectory tracking and vision-based controller for a variety of formation flying. Abbas, *et al.* in [8] is designed controls for tracking formation quadrotor where the PID controller is implemented in quadrotor leader and directed Lyapunov controller is implemented on the followers. The artificial fish swarm algorithm is used for dynamics optimization of the parameters controllers. Seidabad, *et al.* in [9] modelled the motion of all quadrotor with Simulink. They are using two types of controllers, which are PID controller and combination of fuzzy-PID controller. The simulation results showed that the hybrid fuzzy-PID controller is more suitable when there has a turbulence. Gautam, *et al.* in [10] designed a self-tuning PID controller using EKF algorithm that is implemented on quadrotor for attitude and position control of the quadrotor. Ammozgar, *et al.* in [11] implemented Fuzzy PID Gain-Scheduled to cope with the possible failure of the actuator quadrotor. The two actuator failure schemes are designed, which are the failure of all actuators and single actuator. Prayitno, *et al.* in [12] implemented other control scheme, H-Infinity, to control pitch and roll of the AR.Drone. Hazzabi, *et al.* in [13] implemented adaptive FLC-PI, where PI controller parameters are adjusted by fuzzy gain scheduling, to control an induction motor. Syed, *et al.* in [14] applied fuzzy gain scheduling PI control based on the system's operating conditions for controlling engine power and speed of a power-split HEV in the applied automotive field.

Our paper describes the design and implementation the fuzzy gain scheduling PID control for position of the AR.Drone based on operating conditions. This research is motivated by the fact that in non-linear system, a single set of PID gain will only be suitable for a given operating point. When the aircraft, in this case the AR.Drone, fly on a different operating point, it would require a different PID gain. In order to make the drone fly to multiple operating points, multiple sets of PID gain is required. The scheduling mechanism is needed in order to determine the PID gain which is appropriate for the current operating point. Once the new operating point is detected, the PID gains can be changed to the appropriate values. The gain scheduler consists of multiple sets of PID gain and the logic for detecting the operating point and choosing the corresponding value of PID Gain. The purpose of this research is to experiment the implementation of fuzzy gain scheduling PID control for position control of AR.Drone in the laboratory. In this research, as the gain scheduler, Takagi-Sugeno-Kang (TSK) fuzzy logic is used. The suitable PID gain function for some operating point is determined by experimentally to get the expected transient response. Five functions of PID gain represent five operating point are used in this research. This research shows that the gain scheduling pid control is successfully applied to AR.Drone position control.

2. RESEARCH METHOD

2.1. Basic Setup of AR.Drone

This research uses LabVIEW software by modifying the program created by [2]. This program uses communication and basic control for AR.Drone by utilizing 2 main *Virtual Instrument (VI)* that is *AR Drone Poly Main Fly* and *AR Drone Read Nav Data*. *AR Drone Poly Main Fly* to send flying commands while *AR Drone Read Nav Data* to receive navigation data of the AR.Drone. In *AR Drone Poly Main Fly* there are 4 states, namely SETUP, ATREF, ATPCMD, and WATCHDOG.

a. State SETUP is used to send the first set of data needed before AR.Drone starts flying. The data contained the desired AR.Drone flying specification consisting of *Drone Command Port, Drone IP Address, Home Command Port, Max Altitude (m), Max Pitch and Roll Angle (deg), Max Vertical*

Speed (m/s), Max Yaw Speed (deg/s), Flight Mode, Mounted Hull, and Video Camera. The data transmission ends with an AT*FTRIM command which is useful for determining the reference slope of the ground. AR.Drone will only be ready to fly when placed on a horizontal plane.

b. State ATREF sends commands related to the flying conditions of AR.Drone, such as Fly, Land and Emergency Land. The command that is sent has the format *AT*REF = [Sequence], [Argument] <CR>*. The sequence is the sequence number of the command, AR.Drone simply executes a command that has a sequence number larger than the previous sequence number so AR.Drone does not re-do the previous command. The program used in this study uses sequence numbers up to 100 and will be reset to 1 when it reaches 100. The argument is a 32-bit integer with each bit having its own function. Bits 0 through 7 are not used and have a value of 0. Bit 8 is used to set the emergency land mode by giving a value of 1. When bit 8 is 0 then AR.Drone is in normal mode and ready to accept the command. Emergency land mode is a condition where AR.Drone will turn off the entire motor without regard to the given command. Bit 9 is used to set the fly or land mode of AR.Drone. When bit 9 is set 1 then AR.Drone is ordered to fly and vice versa when set 0 then AR.Drone will make a landing. Bits 10 through 31 are not used and have a fixed value of "000000001010101010".

c. State ATPCMD is useful for sending commands for AR.Drone to move or maneuver with pitch, roll, yaw and throttle. The format of the command is AT * PCMD = [Sequence], [Flag], [Roll], [Pitch], [Throttle], [Yaw] <CR>. The sequence is the sequence number of the command, AR.Drone simply executes a command that has a sequence number larger than the previous sequence number so AR.Drone does not re-do the previous command. The program used in this study uses sequence numbers up to 100 and will be reset to 1 when it reaches 100. Bit 0 is used to select pitch, roll, and yaw commands sent to AR.Drone or just hover in place. Changing the bit value to 0 means AR.Drone is in hover mode, and changing its value to 1 means AR.Drone can perform translational and rotational movements in the fields of X and Y. Bit 1 is used to instruct AR.Drone to process roll, pitch, yaw, and throttle arguments filled with the desired values for AR.Drone maneuvers. The minimum value for each argument is -1, with a maximum value of 1. These values need to be converted first into hexadecimal numbers and converted back to 32-bit decimal numbers.

d. State WATCHDOG is a state assigned to send commands of AT*COMWDG. The command does not require any arguments, as it only serves to keep the connection between the computer and AR.Drone. AT * COMWDG commands must be sent at least every 300 ms (0.3 seconds). If AR.Drone does not receive the command within a period of more than 300 ms, then the commands entered into AR.Drone will be ignored because AR.Drone assumes that the connection between AR.Drone and the controller is being disconnected. The program created for this study of WATCHDOG states is sent every 150 ms, assuming that if the sending command is interrupted and AT*COMWDG is not received by AR.Drone then sending commands at subsequent intervals (300 ms) may prevent disruption of connections between computers and AR.Drone .

2.2. The Fuzzy Gain Scheduling PID Control

The fuzzy gain scheduling PID control system scheme is implemented on the A R Drone is shown in Figure 1. The movement of drone to the position x, y and z are controlled by 3 controllers; each controls the pitch, roll and vertical rate. The PID controllers are used as the main controller. While fuzzy is used as the scheduler of the gain parameters of PID corresponding to earn operating point of drones, evaluated on the error position. Each fuzzy gain scheduling PID block has the same scheme. Figure 2 shows the Fuzzy gain scheduling PID for x position. For y position and z position have identical scheme. This block consists of PID signals and Fuzzy scheduler. For the PID control, the general equation of the controller is used as shown (1):

$$O(t) = K_P e(t) + K_I \int e(t)dt + K_D \frac{de(t)}{dt} \quad (1)$$

where:
K_P: Proportional Constant
K_I: Integral Constant
K_D: Derivative Constant
Takagi-Sugeno-Kang (TSK) model is used as a fuzzy scheduler. The rules of TSK model are shown in (2).

$$R_i: If\ x_i\ is\ A_i\ then\ f_i(x), i = 1,2,\dots,n \quad (2)$$

where $f_i(x)$ are functions.

In the fuzzy scheduler, error position, (e_x, e_y, e_z), are used as the inputs which will be fuzzified into 5 memberships function; NB:Negative Big (-1 ≤ e ≤ -0.5), NS:Negative Small (-0.5 ≤ e ≤ 0), Z:Zero (-0.5≥e≤0.5), PS:Positive Small (0 ≤ e ≤ 0.5) and PB:Positive Big (0.5 ≤ e ≤ 1). Rules evaluation are defined by using (2), where $f_i(x)$ are PID equation in (1) based on defined operating points. The operating points are represented in five membership functions above. This research using five same rules for x, y and z position control as follows:

$$R_1: If\ e(t) is\ NB\ then\ O_1 = 1.6e(t) + 0.005 \int e(t)dt + 0.25\frac{de(t)}{dt} \quad (4)$$

$$R_2: If\ e(t) is\ NS\ then\ O_2 = 0.5e(t) + 0.007 \int e(t)\,dt + 1\frac{de(t)}{dt} \quad (5)$$

$$R_3: If\ e(t) is\ Z\ then\ O_3 = 0e(t) + 0 \int e(t)dt + 0\frac{de(t)}{dt} \quad (6)$$

$$R_4: If\ e(t) is\ PS\ then\ O_4 = 0.5e(t) + 0.007 \int e(t)\,dt + 1\frac{de(t)}{dt} \quad (7)$$

$$R_5: If\ e(t) is\ PS\ then\ O_5 = 1.6e(t) + 0.005 \int e(t)dt + 0.25\frac{de(t)}{dt} \quad (8)$$

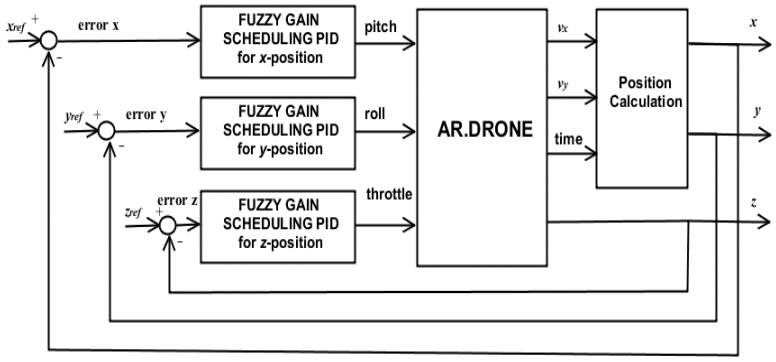


Figure 1. Block Diagram Fuzzy Gain Scheduling PID Controlled System

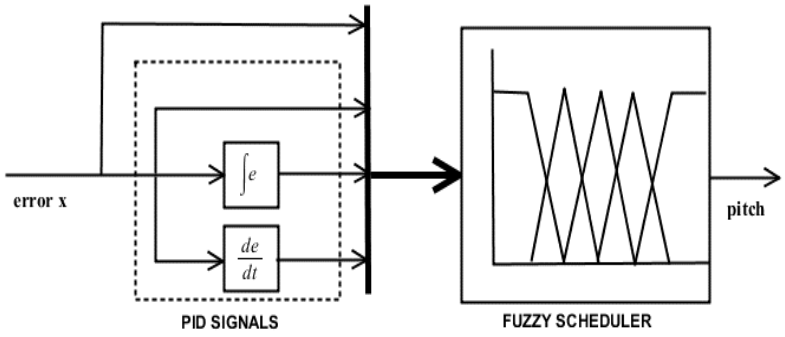


Figure 2. Fuzzy Gain Scheduling PID Scheme for x-position

Each rule represents one operating point which is expressed in one set PID parameter, (K_P, K_I, K_D), forming a PID equation. These parameters produce an expected transient response which corresponds to each operating point. The PID parameters is tuned experimentally by flying the AR.Drone to x position, then analyzing the transient response. PID parameter tuning procedure for x position can be written as follows, which is also the procedure for tuning y and z position. But in this research we used the same parameters for y and z.

1. PC at the ground station has prepared a program with PID controlled system and data acquisition
2. Setpoint position selected is ±1 meter and ±0.5 meter in accordance to the defined operating points.
3. AR.Drone is flown autonomously by using P-controller setpoint 1 meter from coordinate (0,0,1) to (1,0,1) with a particular K_P. The data of drone is stored and the transient response is analyzed, in this case the rise time and the overshoot. It repeats 5 times. Perform this step using several K_P and select K_P that provide the expected transient response.
4. AR.Drone is flown autonomously using PI-controller with K_P values obtained in step 3 and a particular K_I from coordinate (0, 0,1) to (1,0,1). The data of drone is stored and the transient response is analyzed, in this case the rise time and the overshoot. It repeats 5 times. Perform this step using several K_I and select K_I that provide the expected transient response.
5. AR.Drone is flown autonomously using PID-controller with K_P and K_I values obtained in step 3,4 and a particular K_D from coordinate (0, 0, 1) to (1, 0, 1). The data of drone is stored and the transient response is analyzed, in this case the rise time and the overshoot. It repeats 5 times. Perform this step using several K_D and select K_D that provide the expected transient response
6. Perform step 3,4 and 5 with setpoint position of 0.5 meter.
7. For -1 meter position use the result from step 5, whereas for -0.5 meter position use the result of step 6. It has been confirmed by a number of attempts which resulted in relatively similar response.
8. On 0 meter position K_P, K_I and K_D is 0 (zero)
9. Tabulate the value of K_P, K_I and K_D for each position representing the membership function

The result of PID parameters gained by experimentally at each operating point can be tabulated in Table 2.

Table 2. The PID Parameters

Gain	Operating Points [m]	PID Gain			Pitch	Roll	Throttle	Corresponds to	
		K_P	K_I	K_D				μ	Rules
I	-1	1.6	0.005	0.25	Backward	Left	Down	NB	R_1
II	-0.5	0.5	0.007	1	Backward	Left	Down	NS	R_2
III	0	0	0	0	Hover	Hover	Hover	Z	R_3
IV	0.5	0.5	0.007	1	Forward	Right	Up	PS	R_4
V	1	1.6	0.005	0.25	Forward	Right	Up	PB	R_5

For n rules the function can be combined to get a function, as an output of the controller, as follows

$$R(x) = \frac{A_1(x) f_1(x) + A_2(x) f_2(x) + \cdots + A_n(x) f_n(x)}{A_1(x) + A_2(x) + \cdots + A_n(x)} \quad (3)$$

3. RESULTS AND ANALYSIS

Fuzzy gain scheduling PID algorithm has been designed to be implemented on the AR.Drone 2.0 Elite Edition and tested indoor. The testing room size 6m x 6m x 4m with a floor made of striped line for the drone use its bottom camera to estimate x and y position in flight. While the z position using ultrasonic sensors provided onboard the drone. To test the fuzzy gain scheduling PID algorithm, AR.Drone was flown point to point toward the x-axis from the initial coordinates [0,0,1] to the coordinates [1,0,1]. The same test is also done using PID controller algorithm.The response of AR.Drone will be compared with the test results using PID controller. The results of both are compared and shown in Figure 3. From the test results seen that AR.Drone with PID controller tend to experience overshoot approximately 20%. While AR.Drone with fuzzy gain scheduling PID gives better response with overshoot approximately 10% and settling time about 15 seconds. The next test, AR.Drone will be flown to several positions that form a grid on the coordinates x, y, z. The testing procedure is performed as follows:

a. Enter the reference position that will be addressed by the drones on the front panel of the software that has been made. In this test, a reference that will be addressed is (1.5,0,1.5) then to (1.5,1.5,1.5), and to (0,1.5,1), finally back to the initial position (0,0,1).
b. AR.Drone is flown manually to hover at position (0,0,1).

c. Switch ON auto, the AR.Drone will be autonomously flying toward predetermined reference. Change of set point is done if the position of the drone has been entered in error tolerances specified in the program,
d. Test is performed 5 times.

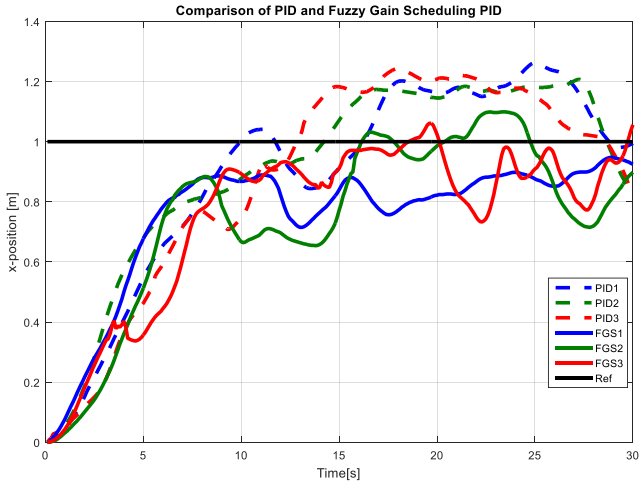


Figure 3. Comparison between PID response and Fuzzy Gain Scheduling PID response

The test result is shown in Figure 4. The picture on the left is the system response in 3 dimensions while the right image is the position response of each coordinate x, y, and z. The depiction of 3D showed that the AR.Drone can go to any desired reference point but it has a relatively large error in the position z. There are 2 of 5 times where the experiment yields a relatively good transient response. Experiments 1 and 3 were late when switching to get to the point (1.5, 1.5, 1.5). In general, each point can be achieved within a rise time of 10 seconds as seen in the left image.

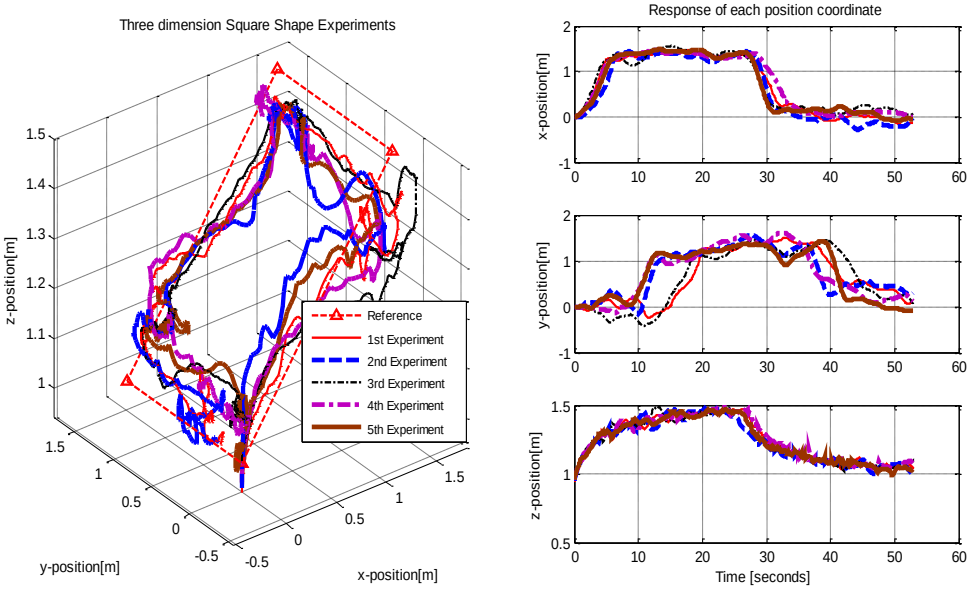


Figure 4. Square shape experiments

The gain scheduling process during the test is shown in Figure 5. It was taken from of one of the experiments above. It is seen that the journey starts from the initial X position error is 1.5 m so PID control

used Gain V, while the Y error is zero so the PID control used Gain III and errors Z 0.5 m, PID control used Gain IV. Along with drone journey towards a point of reference, the gain that works is the contribution of the two gain from appropriate membership function. Control signals, in this case, pitch, roll and throttle produced by fuzzy gain scheduling PID control is shown in Figure 6. In these control signals, there are restrictions on the control signal value ± 0.15 to avoid a collision with the wall due to the cramped indoor space.

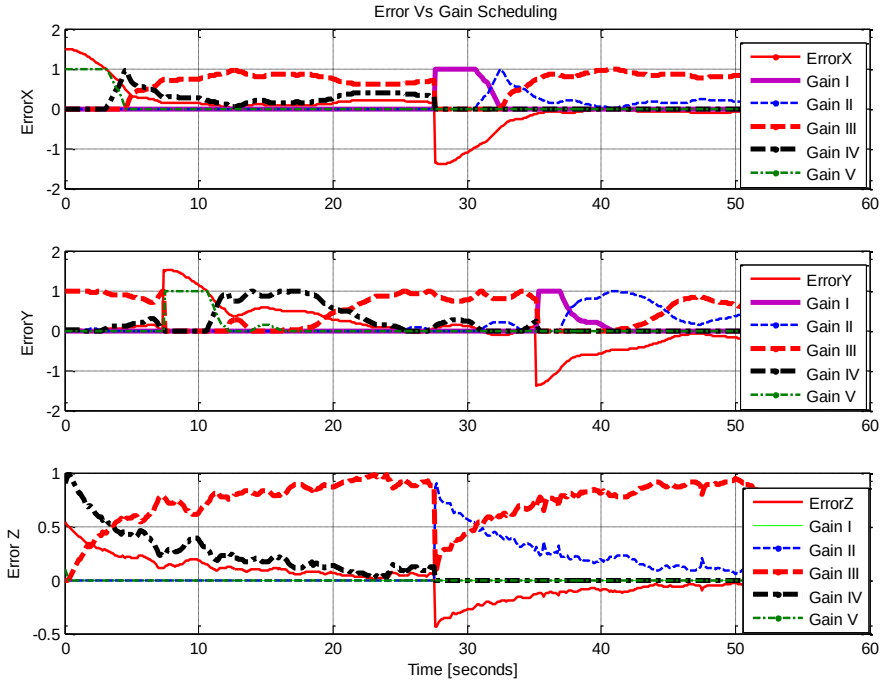


Figure 5. Gain Scheduling Process

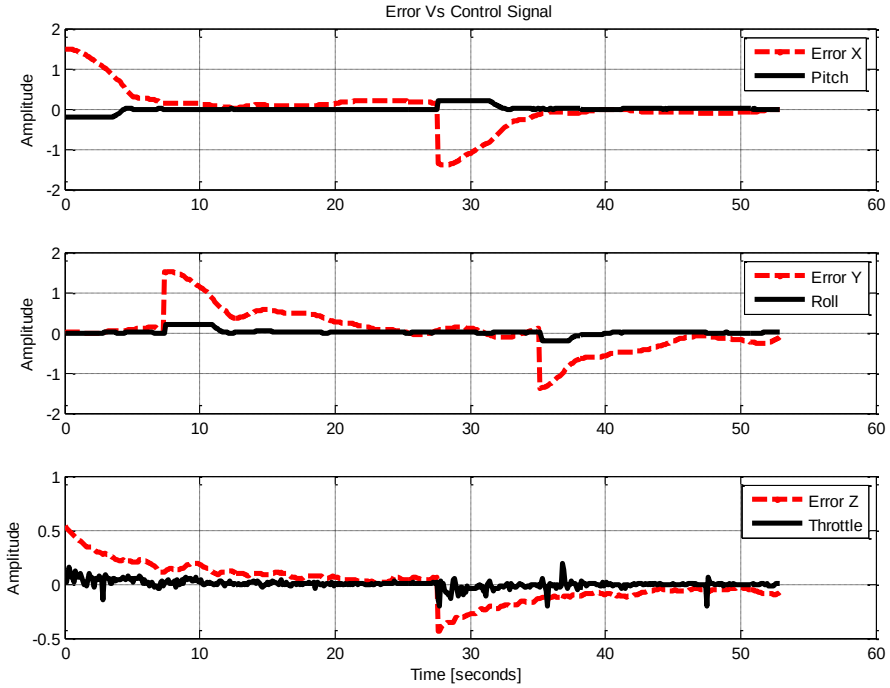


Figure 6. Control signal pitch, roll and throttle

4. CONCLUSION

This paper has implemented fuzzy gain scheduling PID control for position control of AR.Drone. The result of the test, which is to fly to the coordinates (x, y, z) indicates that the PID gain switching process run in accordance with a predetermined operating point. AR.Drone can follow the references given well, but with a small error.

REFERENCES

[1] P.J. Bristeau, *et al.*," The Navigation and Control Technology Inside the AR.Drone Micro UAV," *18th IFAC World Congress*, 2011.

[2] M. Mogenson,"The AR.Drone LabVIEW Toolkit: A Software Framework for the Control of Low Cost Quadrotor Aerial Robots," *Master of Science Thesis, Mechanical Engineering*, TUFTS University, 2012

[3] A. Prayitno, V. Indrawati and G.Utomo,"Trajectory Tracking of AR.Drone Quadrotor Using Fuzzy Logic Controller," *Journal Telkomnika*, vol.12 no.4, pp.819-828, Dec. 2014.

[4] V. Indrawati, A. Prayitno and T.A. Kusuma, "Waypoint Navigation of AR.Drone Quadrotor Using Fuzzy Logic Controller," *Journal Telkomnika*,vol 13 no.3, pp.930-939, Sep. 2015.

[5] V. Indrawati, *et al.*," Comparison of Two Fuzzy Logic Controller Schemes for Position Control of AR.Drone,"*7th International Conference on Information Technology and Electrical Engineering (ICITEE)*, 2015.

[6] A. Prayitno, *et al.*,"Comparison of PID and Fuzzy Controller for Position Control of AR.Drone," *IOP Conf. Series: Material Science and Engineering*, vol.190, 2017.

[7] S.Y. Tang," Vision-Based Control for Autonomous Quadrotor." *Final Report :Undergraduated Senior Thesis, Department of Mechanical and Aerospace Engineering*, Princeton University, 2013.

[8] R. Abbas and Q. Wu," Improved Leader Follower Formation Control for Multiple Quadrotors Based AFSA," *Journal Telkomnika*, vol.13 no.1, pp.85-92, Mar. 2015.

[9] E.A. Seidabad, S.Vandaki and A.V. Kamyad," Designing Fuzzy PID Controller for Quadrotor*," International Journal of Advanced Research in Computer Science & Technology (IJARCST)*, vol.2 no. 4, pp.221-227, 2014.

[10] D. Gautam and C. Ha," Control of a Quadrotor Using a Smart Self-Tuning Fuzzy PID Controller," *International Journal of AdVanced Robotic Systems*, vol.10, pp.1-9, 2013

[11] M.H. Amoozgar, *et al.*," Fault-Tolerant Fuzzy Gain-Scheduled PID for a Quadrotor Helicopter Testbed in the Presence of Actuator Faults," *IFAC Conference on Advances in PID Control*, 2012.

[12] A. Prayitno, V. Indrawati and C. Arron," H-Infinity Control for Pitch-Roll AR.Drone," *Journal Telkomnika*, vo.14 no.3, pp.963-973, 2016.

[13] A. Hazzabi, A. Laoufi, I.K. Bousserhane and M. Rahli," Real Time Implementation of Fuzzy Gain Scheduling of PI Controller for Induction Machine Control," *International Journal of Applied Engineering Research.*, vol.1 no.1, pp.51-60, 2006.

[14] F.U. Syed, *et al.*," Fuzzy Gain-Scheduling Proportional-Integral Control for Improving Engine Power and Speed Behavior in a Hybrid Electric Vehicle," *IEEE Transactions on Vehicular Technology*, vol.58, 2009.

http://ijece.iaescore.com | ISSN 2088-8708, e-ISSN 2722-2578
International Journal of Electrical and Computer Engineering (IJECE)
SJR SCImago Journal & Country Rank
Scopus
Q2 Computer Science (miscellaneous)
SJR 2020 0.277
SNIP 2020 0.833
CiteScore 2020 2.7
Intelektual Pustaka Media Utama

http://ijece.iaescore.com | ISSN 2088-8708, e-ISSN 2722-2578

International Journal of Electrical and Computer Engineering (IJECE)

SJR SCImago Journal & Country Rank | Scopus | Q2 Computer Science (miscellaneous) | SJR 2020 0.277 | SNIP 2020 0.833 | CiteScore 2020 2.7

Intelektual Pustaka Media Utama

International Journal of Electrical and Computer Engineering (IJECE)

International Journal of Electrical and Computer Engineering (IJECE), ISSN 2088-8708, e-ISSN 2722-2578 is an official publication of the Institute of Advanced Engineering and Science (IAES). The IJECE is an international open access refereed journal that has been published online since 2011. The IJECE is open to submission from scholars and experts in the wide areas of electrical, electronics, instrumentation, control, telecommunication and computer engineering from the global world, and publishes reviews, original research articles, and short communications. This journal is indexed and abstracted by **SCOPUS** (Elsevier), **SCImago Journal Rank (SJR)**, and in Top Databases and Universities. Now, this journal has **SNIP: 0.833**; **SJR: 0.277**; **CiteScore: 2.7**; and is **Q2** in both of the **Electrical & Electronics Engineering**, and **Computer Science**). Our aim is to provide an international forum for scientists and engineers to share research and ideas, and to promote the crucial field of electrical & power engineering, circuits & electronics, power electronics & drives, automation, instrumentation & control engineering, digital Signal, image & video processing, telecommunication system & technology, computer science & information technology, internet of things, big data & cloud computing, and artificial intelligence & soft computing.

Editorial Team

Editor-in-Chief

Prof. nzw. dr hab. inz. Lech M. Grzesiak, Warsaw University of Technology, Poland

Associate Editors

Prof. Dr. Abdullah M. Iliyasu, Tokyo Institute of Technology, Japan and Prince Sattam Bin Abdulaziz University, Saudi Arabia
Prof. Dr. Addisson Salazar, Universidad Politécnica de Valencia, Spain
Prof. Dr. Ahmed Attiya, Electronics Research Institute of Cairo, Egypt
Prof. Dr. Angela Amphawan, Sunway University, Malaysia
Prof. Dr. Aniello Castiglione, University of Naples Parthenope, Italy
Prof. Dr. Fateh Krim, Université Ferhat Abbas Sétif 1, Algeria
Prof. Dr. Faycal Djeffal, University of Batna 2, Algeria
Prof. Dr. Felix Albu, Universitatea Valahia din Targoviste, Romania
Prof. Dr. Geetam Singh Tomar, University of Kent, United Kingdom
Prof. Dr. Jia-Chin Lin, National Central University, Taiwan
Prof. Dr. José Alfredo Ferreira Costa, Universidade Federal do Rio Grande do Norte, Brazil
Prof. Dr. Krzysztof Szczypiorski, Warsaw University of Technology, Poland
Prof. Dr. Mihaela M. Albu, Politehnica University of Bucharest, Romania
Prof. Dr. Nidhal Bouaynaya, Rowan University, Glassboro, United States
Prof. Dr. Nik Rumzi Nik Idris, Universiti Teknologi Malaysia, Malaysia
Prof. Dr. Sayed M. El-Rabaie, Minufiya University, Egypt
Prof. ing. Salvatore Favuzza, Ph.D., University of Palermo, Italy
Prof. Ezra Morris Gnanamuthu, Universiti Tunku Abdul Rahman, Malaysia
Prof. Domenico Ciuonzo, University of Naples Federico II, Italy
Prof. Hamidah Ibrahim, Universiti Putra Malaysia, Malaysia
Prof. Paolo Visconti, Universita del Salento, Italy
Prof. Peng Zhang, Stony Brook University, United States
Prof. Ranathunga Arachchilage Ruwan Chandra Gopura, University of Moratuwa, Sri Lanka
Assoc. Prof. Dr. Ashkan Sami, Shiraz University, Iran, Islamic Republic of
Assoc. Prof. Dr. Chatchawal Wongchoosuk, Kasetsart University, Thailand
Assoc. Prof. Dr. Chau Yuen, Singapore University of Technology and Design, Singapore
Assoc. Prof. Dr. Giovanni Pau, Kore University of Enna, Italy
Assoc. Prof. Dr. Jaime Lloret Mauri, Universitat Politecnica de Valencia, Spain
Assoc. Prof. Dr. Jinsong Wu, Universidad de Chile, Chile
Assoc. Prof. Dr. Ke-Lin Du, Concordia University, Canada
Assoc. Prof. Dr. Larbi Boubchir, University of Paris 8, France
Assoc. Prof. Dr. Ming-Fong Tsai, National United University, Taiwan
Assoc. Prof. Ts. Dr. Mohd Ashraf Ahmad, Universiti Malaysia Pahang, Malaysia
Prof. Dr. Naci Genc, Yalova University, Turkey
Assoc. Prof. Dr. Sunday Olatunji, Imam Abdulrahman Bin Faisal University, Saudi Arabia
Assoc. Prof. Dr. Winai Jaikla, King Mongkut's Institute of Technology Ladkrabang, Thailand
Assoc. Prof. Dr. Wudhichai Assawinchaichote, King Mongkut's University of Technology Thonburi, Thailand
Assoc. Prof. Dr. Y. V. Pavan Kumar, VIT-AP University, Amaravati, India
Asst. Prof. Dr. Luca Cassano, Politecnico di Milano, Italy
Dr. Brij Bhooshan Gupta, National Institute of Technology Kurukshetra, India
Dr. Candid Reig, University of Valencia, Spain
Dr. Chin Hsia, National Central University, Taiwan, Province of China
Dr. Chrysovalantou Ziogou, Chemical Process and Energy Resources Institute (CPERI), Greece
Dr. Diego Bellan, Politecnico di Milano, Italy
Dr. George Suciu, Faculty of Electronics, Telecommunications and Information Technology, University Politehnica of Bucharest, Romania
Dr. Harikumar Rajaguru, Bannari Amman Institute of Technology, India
Dr. Haruna Chiroma, Federal College of Education Technical, Nigeria
Dr. Imran Shafique Ansari, Texas A&M University, Qatar
Dr. Khairulmizam Samsudin, Universiti Putra Malaysia, Malaysia
Dr. Jyoteesh Malhotra, IKG Punjab Technical University, India
Dr. Makram Abdulmuttaleb Fakhry, University of Technology, Baghdad, Iraq
Dr. Mohamed Djendi, Université Saad Dahlab de Blida, Algeria
Dr. Mohammed Hossny, Institute for Intelligent Systems Research and Innovation, Australia
Dr. Nicola Ivan Giannoccaro, University of Salento, Italy
Dr. Pascal Lorenz, University of Haute Alsace, France
Dr. Payam Teimourzadeh Baboli, OFFIS - Institute for Information Technology, Germany
Dr. Po-Chun Huang, Yuan Ze University, Taiwan, Province of China
Dr. Samir Ladaci, National Polytechnic School of Constantine, Algeria
Dr. Santhanakrishnan Anand, New York Institute of Technology, United States
Dr. Sorin Ioan Deaconu, Politechnica University Timisoara, Romania
Dr. Tossapon Boongoen, Mae Fah Luang University, Thailand
Dr. Vicente Garcia Diaz, University of Oviedo, Spain
Dr. Youssef Errami, Chouaib Doukkali University, Morocco
Dr. Zheng Xu, IBM Corporation, United States

Editorial Board Members

Prof. Dr. Abdel Ghani Aissaoui, University of Bechar, Algeria
Prof. Dr. Abdelhamid Benaini, Normandy University, France
Prof. Dr. Ahmad Saudi Samosir, Universitas Lampung, Indonesia
Prof. Chia-Hung Wang, Fujian University of Technology, China
Prof. Dr. Jun Ma, Lanzhou University of Technology, China
Prof. Dr. Kewen Zhao, Qiongzhou University, China
Prof. Dr. Panagiotis Varzakas, University of Thessaly, Greece
Prof. Dr. Valeri M. Mladenov, Technical University of Sofia, Bulgaria
Prof.univ.dr.ing. Radu A. Vasiu, Politehnica University of Timisoara, Romania
Prof. Dr. Raj Senani, Netaji Subhas University of Technology, India
Prof. Dr. Zoran Bojkovic, University of Belgrade, Serbia
Assoc. Prof. Farrokh Attarzadeh, Ph.D., University of Houston, United States
Assoc. Prof. Dr. Kottakkaran Sooppy Nisar, Prince Sattam bin Abdulaziz University, Saudi Arabia
Assoc. Prof. Dr. Lisandro Lovisolo, Universidade do Estado do Rio de Janeiro, Brazil
Assoc. Prof. Dr. Mochammad Facta, Universitas Diponogoro (UNDIP), Indonesia
Assoc. Prof. Dr. Mohammed Issam Younis, University of Baghdad, Iraq
Assoc. Prof. Dr. Nabil Neggaz, Université des Sciences et de la Technologie d'Oran Mohamed Boudiaf, Algeria
Dr. Achinta Baidya, Mizoram University, India
Dr. Ali Hakam, General Electric, United Arab Emirates
Dr. Alivelu Manga Parimi, Birla Institute of Technology and Science (BITS), Pilani, India
Dr. Amit Prakash Singh, Guru Gobind Singh Indraprastha University, India
Dr. Arafat Al-Dweik, Khalifa University, United Arab Emirates
Dr. Athanasios Salamanis, Information Technologies Institute, Greece
Dr. Badrul Hisham Ahmad, Universiti Teknikal Malaysia Melaka, Malaysia

International Journal of Electrical and Computer Engineering (IJECE)
p-ISSN 2088-8708, e-ISSN 2722-2578

Vol 8, No 4

August 2018

DOI: http://doi.org/10.11591/ijece.v8i4

Table of Contents

International Journal of Electrical and Computer Engineering (IJECE)
p-ISSN 2088-8708, e-ISSN 2722-2578

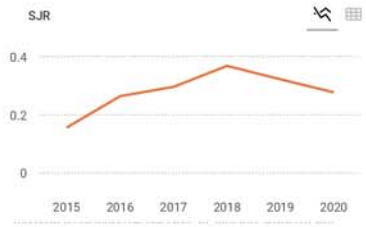
International Journal of Electrical and Computer Engineering

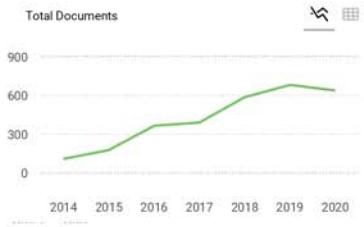
COUNTRY	SUBJECT AREA AND CATEGORY	PUBLISHER	H-INDEX
Indonesia Universities and research institutions in Indonesia	Computer Science Computer Science (miscellaneous) Engineering Electrical and Electronic Engineering	Institute of Advanced Engineering and Science (IAES)	22

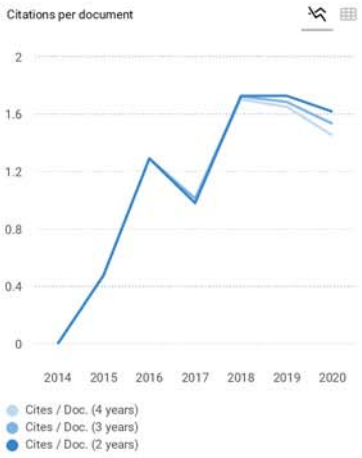
PUBLICATION TYPE	ISSN	COVERAGE	INFORMATION
Journals	20888708	2014-2020	Homepage How to publish in this journal ijece@iaesjournal.com

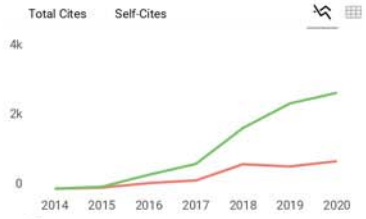
SCOPE

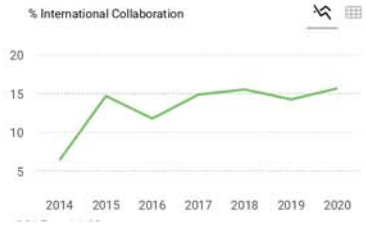
International Journal of Electrical and Computer Engineering (IJECE) is the official publication of the Institute of Advanced Engineering and Science (IAES). The journal is open to submission from scholars and experts in the wide areas of electrical, electronics, instrumentation, control, telecommunication and computer engineering from the global world. The journal publishes original papers in the field of electrical, computer and informatics engineering which covers, but not limited to, the following scope: -Electronics: Electronic Materials, Microelectronic System, Design and Implementation of Application Specific Integrated Circuits (ASIC), VLSI Design, System-on-a-Chip (SoC) and Electronic Instrumentation Using CAD Tools, digital signal & data Processing, , Biomedical Transducers and instrumentation, Medical Imaging Equipment and Techniques, Biomedical Imaging and Image Processing, Biomechanics and Rehabilitation Engineering, Biomaterials and Drug Delivery Systems; -Electrical: Electrical Engineering Materials, Electric Power Generation, Transmission and Distribution, Power Electronics, Power Quality, Power Economic, FACTS, Renewable Energy, Electric Traction, Electromagnetic Compatibility, High Voltage Insulation Technologies, High Voltage Apparatuses, Lightning Detection and Protection, Power System Analysis, SCADA, Electrical Measurements; -Telecommunication: Modulation and Signal Processing for Telecommunication, Information Theory and Coding, Antenna and Wave Propagation, Wireless and Mobile Communications, Radio Communication, Communication Electronics and Microwave, Radar Imaging, Distributed Platform, Communication Network and Systems, Telematics Services and Security Network; -Control[...] -Computer and Informatics[...]

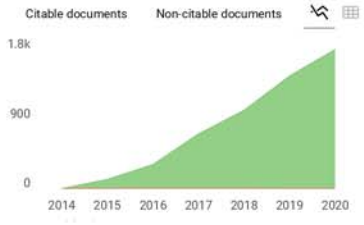


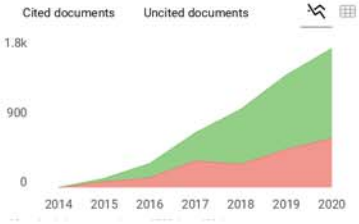












← Show this widget in your own website

Just copy the code below and paste within your html code:

<a href="https://www.scim

SCImago Graphica

Explore, visually communicate and make sense of data with our **new free tool**.

Get it

Metrics based on Scopus® data as of April 2021

A **AAN** 3 months ago

Is the journal currently indexed in Scopus? From the Scopus website, I found the coverage from 2014 to 2022. What does it indicate? Is the journal going to lose indexing from 2022 January or something else? Please let me know.

reply

D **Doaa Abdelfattah** 6 months ago

HELLO
The Journal sent me the acceptance of my paper and they asked me to send them the proof of payment to publish it.
I sent them the payment receipt of the publication fees from 2 months ago.
How long does it take to publish my paper?
pleas help me

Paper ID: 24901

Authors: Doaa Abdelfattah, Hesham A.Hassan and Fatma A.Omara

reply

SCImago Team

Melanie Ortiz 6 months ago

Dear Doaa,
Thank you for contacting us.
Unfortunately, we cannot help you with your request, we suggest you contact the journal's editorial staff , so they could inform you more deeply.
Best Regards, SCImago Team

Dear T. Sutikno and IJCEC Editorial Office,

I submitted my paper(under id=24838) to this journal before more than 3 months and there is no reply to any email I sent to your journal.
I need to check my paper status (accepted or rejected) since I'm a postgraduate student and I restricted with a limited time.
the other question is this journal still Scopus since there is no update in the cite score since 2019.
Best Regards
Thank you

reply

SCImago Team

Melanie Ortiz 10 months ago

Dear Mag,
Thank you for contacting us.
We are sorry to tell you that SCImago Journal & Country Rank is not a journal. SJR is a portal with scientometric indicators of journals indexed in Elsevier/Scopus. To see the current journal's index status, please consult Scopus database.
Unfortunately, we cannot help you with your request concerning your paper, we suggest you visit contact the journal's editorial staff , so they could inform you more deeply.
Best Regards, SCImago Team

G **Ghufarn essam drewll** 11 months ago

Hello. Does this journal accept research papers type review

reply

SCImago Team

Melanie Ortiz 11 months ago

Dear Ghufarn,
Thank you for contacting us.
Unfortunately, we cannot help you with your request, we suggest you visit the journal's homepage or contact the journal's editorial staff , so they could inform you more deeply.
Best Regards, SCImago Team

Z **Zinara** 11 months ago

Hello, I submitted my paper to this journal in 2020 but status still the same "Active (has manuscript)". What should I do? Should I wait? My paper submission is #1570682879

reply

SCImago Team

Melanie Ortiz 11 months ago

Dear Zinara,
thank you for contacting us.
We are sorry to tell you that SCImago Journal & Country Rank is not a journal. SJR is a portal with scientometric indicators of journals indexed in Elsevier/Scopus.
Unfortunately, we cannot help you with your request, we suggest you contact the journal's editorial staff , so they could inform you more deeply.
Best Regards, SCImago Team

M **Mag** 11 months ago

Dear Sir / Madam on this journal editor
I sent my paper before more than 2 months, I don't receive any acceptance or rejection decision about my paper
How long does the review process take?

reply

SCImago Team

Melanie Ortiz 11 months ago

Dear Mag,
thank you for contacting us.
We are sorry to tell you that SCImago Journal & Country Rank is not a journal. SJR is a portal with scientometric indicators of journals indexed in Elsevier/Scopus.
Unfortunately, we cannot help you with your request, we suggest you contact the journal's

H **Huda Khazie** 1 year ago

Dear Sir / Madam on this journal editor

I tried to publish my Paper in your journal when I registered and do anything the system give me an error
when I tried to upload the paper so please help me.

reply

SCImago Team

Melanie Ortiz 1 year ago

Dear Huda,
thank you for contacting us.
We are sorry to tell you that SCImago Journal & Country Rank is not a journal. SJR is a portal with scientometric indicators of journals indexed in Elsevier/Scopus.
Unfortunately, we cannot help you with your request, we suggest you contact the journal's editorial staff , so they could inform you more deeply.
Best Regards, SCImago Team

S **Sourav Sinha** 1 year ago

I am Sourav Sinha, author of paper id #22165, titled "Antenna Design

reply

SCImago Team

Melanie Ortiz 1 year ago

Dear Sourav, thanks for your participation! Best Regards, SCImago Team

S **suhad** 1 year ago

please is this journal indexed in scopus for the year 2021?

reply

SCImago Team

Melanie Ortiz 1 year ago

Dear Suhad,
Thank you very much for your comment.
All the metadata have been provided by Scopus /Elsevier in their last update sent to SCImago, including the Coverage's period data. The SJR for 2019 was released on 11 June 2020. We suggest you consult the Scopus database directly to see the current index status as SJR is a static image of Scopus, which is changing every day.
For further information, please contact Scopus support: https://service.elsevier.com/app/answers/detail/a_id/14883/kw/scimago/supporthub/scopus/
Best Regards, SCImago Team

L **lenovo uae** 1 year ago

I appreciate the efforts you people put in to share blogs on such kind of topics, it was indeed helpful. Keep Posting!

reply

SCImago Team

Melanie Ortiz 1 year ago

Dear Sir/Madam, thanks for your participation! Best Regards, SCImago Team

E **El Ayachi** 1 year ago

Hi,
Many days ago, I submitted a paper to the journal (IJECE) using the EDAS platform.
However, till now, the paper status is the same: pending (no manuscript).
What does is it mean this state?
Do you think the paper will be soon considered, or the submission is missing something?
I can see and download the pdf manuscript-file that I have uploaded ...

reply

Rajendra Kumar 10 months ago

Hi El Ayachi ,

Have u got solution to it , I am facing same problem.

Pls suggest .

Thanks

SCImago Team

Melanie Ortiz 1 year ago

Dear El Ayachi,
thank you for contacting us.
Unfortunately, we cannot help you with your request, we suggest you contact the journal's editorial staff , so they could inform you more deeply.
Best Regards, SCImago Team

A **Ahmad Al-Jarrah** 1 year ago

What is/are the used media for publish this journal, is it published in print and electronic media? or just electronic?
On your web site, there is only one ISSN, where on the journal web site, there are two ISSN.

Thanks

reply

SCImago Team

Melanie Ortiz 1 year ago

Dear Ahmad,

Thank you for contacting us.
SJR is a portal with scientometric indicators of journals indexed in Scopus. All the metadata (Title, ISSN, Publisher, Category, etc.) have been provided by Scopus /Elsevier.
We suggest you contact Scopus support regarding this matter here:

https://service.elsevier.com/app/answers/detail/a_id/14883/kw/scimago/supporthub/scopus/
Best Regards,
SCImago Team

R **Rusul Altaie** 2 years ago

Dear sir

The Journal sent me the acceptance of my paper and they asked me to send them the FEES to publish it.
I sent them fees through their own Email but they did not respond to me.
My question how much time that paper may be published.

Paper ID: 22348

Authors:Rusul Altaie

Title: Restoration of Blurred Noisy Images Based on Guided Filtering and Inverse Filter.
Section: Digital Signal, Image and Viedo processing.

reply

SCImago Team

Melanie Ortiz 2 years ago

Dear Rusul,
thank you for contacting us. Please see comments below.
Best Regards, SCImago Team

N **Nikhath Tabassum** 2 years ago

in the journal website is only for new submission.

Best Regards

reply

M **Murugiah** 1 year ago

I'm also facing the same issue, Have you found a way to submit your revised paper on the same paper ID number through EDAS online system?

A **Arnold Ojugo** 2 years ago

From the manuscript tracking system, you can submit your articles for consideration. Afterwards, you can log-unto the platform (MTS) from time to time to track the stage and processing of your manuscript. When reviews have been made, and you have revised your manuscript as detailed in the review...you can go to the same place, you will see three tabs (Summary Review Editing)
1. Kindly select the Review tab
2. You will see the Editor Decision Tab
3. Browse and select the revised paper
4. Upload

I hope this helps. Cheers

SCImago Team

Melanie Ortiz 2 years ago

Dear Nikhath,
thank you for contacting us.
Unfortunately, we cannot help you with your request, we suggest you visit the journal's homepage or contact the journal's editorial staff , so they could inform you more deeply.
Best Regards, SCImago Team

R **Rusul** 2 years ago

Hi

Do you have a Western Union method to pay for acceptable research fees?

reply

SCImago Team

Melanie Ortiz 2 years ago

Dear Rusul, thank you very much for your comment. Unfortunately, we cannot help you with your request, we suggest you contact the journal's editorial staff so they could inform you more deeply. Best Regards, SCImago Team

L **Latha** 2 years ago

Dear T. Sutikno and IJCEC Editorial Office,

One month onwards, I didn't find any updates in your journal for accepted papers after EDAS login provided but not working properly when I tried to Register.

reply

SCImago Team

Melanie Ortiz 2 years ago

Dear Latha,
thank you for contacting us.
Unfortunately, we cannot help you with your request, we suggest you contact the journal's editorial staff , so they could inform you more deeply.
Best Regards, SCImago Team

R **Rusul** 2 years ago

R **Rusul H. Al-taie** 2 years ago

Dear Sir

Is it possible to add an author to the research before it is published?
What are the fees for 11 pages of the article? How are the fees sent?

Thank you

Best Regards,

reply

SCImago Team

Melanie Ortiz 2 years ago

Dear Rusul,
thank you for contacting us.
Unfortunately, we cannot help you with your request, we suggest you visit the journal's homepage or contact the journal's editorial staff , so they could inform you more deeply.
Best Regards, SCImago Team

R **Riddhi** 2 years ago

Hi,
I have the following questions if you could answer them point wise.

1) The official website shows that registrations are closed, but the EDAS website is allowing me to create a new account and register? Could you kindly explain this discrepancy?

2) I wish to publish an original research on neural networks and computer vision in IJECE. The track of 'soft computing' that is mentioned on the EDAS website after logging in uses a term called 'review manuscript due'. Could you explain what this term means?

3) Once the paper is submitted, what is generally the review period to get notified for acceptance or rejection?

(I have already asked these questions on email around a week back, but didn't get any response. I was hoping to hear back here.)

Thank you.
Awaiting your response at the earliest.

Riddhi.

reply

SCImago Team

Melanie Ortiz 2 years ago

Dear Riddhi, thank you very much for your comment. Unfortunately, we cannot help you with your request, we suggest you contact the journal's editorial staff so they could inform you more deeply. Best Regards, SCImago Team

P **Peera** 2 years ago

All jornal of IAES are slow and they never respon to email

reply

A **Ahmed Adeeb Jalal** 2 years ago

They did not respond to email, because they are mostly busy. But, The response will be within about two months to accept or reject.
I have already published two papers with them, and they look very cooperative in that picture. So, those efforts determine the credibility of the Organization and of the values it enshrines.

I **IAES Editorial Office** 2 years ago

International Journal of Electrical and Computer Engineering 0.322 Q2 19 629 1331 15003 2075.
Your calculation for citation number from the published articles in 2016-2018 of the IJECE in 2019 is 2075 is not true, it is should 2227 (not 2075). You can check on scopus dot com

SCImago Team

Melanie Ortiz 2 years ago

Dear Editorial Team,

Thank you for contacting us.

As you probably already know, SCImago calculates the scientometric indicators based on the data sent by Scopus. Keep in mind that these data are a static image of Scopus database and that this one increases it's documents daily. The SJR indicator is calculated equally with a recursive algorithm that takes into account the data sent by Scopus.
The SJR indicator is performed on the calculation of citations received by journals over a period of 3 years, giving greater weight to citations from highly prestigious journals (those with high citation rates and low self-citation) using the Google PageRank algorithm.

For further information related to the data sent by Scopus, we suggest you contact Scopus Support directly here:
https://service.elsevier.com/app/answers/detail/a_id/14883/kw/scimago/supporthub/scopus/

Best Regards, SCImago Team

H **halima** 2 years ago

please is this journal indexed in scopus for the year 2020?

reply

I **IJECE Editorial Office** 2 years ago

Yes, IJECE is indexed by Scopus in 2020. You can check on scopus dot com

SCImago Team

Melanie Ortiz 2 years ago

Dear Halima, thank you very much for your comment, unfortunately we cannot help you with your request. We suggest you consult the Scopus database directly. Keep in mind that the SJR is a static image (the update is made one time per year, next one throughout June 2020) of a database (Scopus) which is changing every day.
Best Regards, SCImago Team

W **wahab** 2 years ago

Dear sir
I would like to ask about the fees of publishing and the time elapsed for accepting and publishing,my paper that may be send talk about deep learning

Thanks in advance

reply

D **Dr Ali** 2 years ago

USD 290 for 8 pages and eacg =h extra page USD 45

SCImago Team

Melanie Ortiz 2 years ago

Dear Wahab,
thank you for contacting us.
We are sorry to tell you that SCImago Journal & Country Rank is not a journal. SJR is a portal with scientometric indicators of journals indexed in Elsevier/Scopus.
Unfortunately, we cannot help you with your request, we suggest you to visit the journal's homepage or contact the journal's editorial staff , so they could inform you more deeply.
Best Regards, SCImago Team

A **Atheel** 2 years ago

I submit my paper in this journal from a lot of 3 months ago and there is no any reply from the journal. My question is this journal still Scopus since there is no update in the cite score since 2018.

reply

I **IJECE Editorial Office** 2 years ago

Paper ID: 21045, Entitled: Fuzzy Sliding Mode Controller with Fuzzy Estimator for Full Vehicle Active Suspension System Optimized by ABC Algorithm
Authors: Atheel K. Abdul Zahra, Turki Y. Abdalla

A Decision has been make since 2 Feb 2020, but no response from authors side

Yes, Scopus still uses CiteScore 2018 that it was announced on June 2019. CiteScore 2020 should be announced as soon in this month (June 2020)

SCImago Team

Melanie Ortiz 2 years ago

Dear Atheel, thank you very much for your comment.

Unfortunately we cannot help you with your request. We suggest you to consult the Scopus database directly. Keep in mind that the SJR is a static image (the update is made one time per year, in June 2020) of a database (Scopus) which is changing every day. Best Rregards, SCImago Team

A **Ali** 2 years ago

this journal is not ISI indexed. how did you validate this journal?
my article is accepted in this journal and they asked me for publication fee. and that fee is not a few. is costs near $500 for me. and is too much. Is it worth publishing in this journal?

reply

T **T. Sutikno** 2 years ago

Publication is not USD500 (but USD295).
http://ijece.iaescore.com/index.php/IJECE/about/submissions#authorFees

I think that it is black campaign.

Or you use third party service?
Who did ask you to pay USD500?

Is your paper too long (more than 8 pages), and it covers extra fee for 4-5 pages?

S **Sanjoy Kumar Debnath** 2 years ago

This only for scopus

SCImago Team

Melanie Ortiz 2 years ago

Dear Ali, SCImago Journal and Country Rank uses Scopus data, our impact indicator is the SJR. Check our web to locate the journal. We suggest you to consult the Journal Citation Report for other indicators (like Impact Factor) with a Web of Science data source. We also suggest you to consult the Scopus database directly. Remember that the SJR is a static image of a database (Scopus) which is changing every day. Best regards, SCImago Team

F **FZ** 2 years ago

Hi,
Please Inform me about the Impact Factor of the journal??

reply

SCImago Team

Melanie Ortiz 2 years ago

Dear user, SCImago Journal and Country Rank uses Scopus data, our impact indicator is the SJR. Check our web to locate the journal. We suggest you to consult the Journal Citation Report for other indicators (like Impact Factor) with a Web of Science data source. Best Regards, SCImago Team

M **Mokhtar** 2 years ago

?

thank you very much...

reply

I **IJECE Editorial Office** 2 years ago

Please take a look at scopus dot com directly, that Elsevier still use CiteScore 2018, SNIP 2018, and SJR 2018. Please take a look at: https://www.scopus.com/sourceid/21100373959. For your information, CiteScore 2018, SNIP 2018 and SJR 2018 use announced in June 2019. We should wait a moment for CiteScore 2019, SNIP 2019, and SJR 2019 will appear in scopus dot com in this month (June 2020)

SCImago Team

Melanie Ortiz 2 years ago

Dear Mokhtar, SCImago Journal and Country Rank uses Scopus data, our impact indicator is the SJR. Check our web to locate the journal. We suggest you to consult the Journal Citation Report for other indicators (like Impact Factor) with a Web of Science data source. Best Regards, SCImago Team

D **Dr_basem** 2 years ago

I want to publish my paper in this journal ,What is the review time and article publication fees and publication time.Kindly let me know

reply

I **IJECE Editorial Office** 2 years ago

Please take a look at: http://ijece.iaescore.com/index.php/IJECE/about
Example:
Peer Review Process (http://ijece.iaescore.com/index.php/IJECE/about/editorialPolicies#peerReviewProcess)
This journal operates a conventional single-blind reviewing policy in which the reviewer's name is always concealed from the submitting author. Authors should present their papers honestly without fabrication, falsification, plagiarism or inappropriate data manipulation. Submitted papers are evaluated by anonymous referees for contribution, originality, relevance, and presentation. Papers will be sent for anonymous review by at least two reviewers who will either be members of the Editorial Board or others of similar standing in the field. In order to shorten the review process and respond quickly to authors, the Editors may triage a submission and come to a decision without sending the paper for external review. The Editor shall inform you of the results of the review as soon as possible, hopefully in 8-12 weeks. The Editors' decision is final and no correspondence can be entered into concerning manuscripts considered unsuitable for publication in this journal. All correspondence, including notification of the Editors' decision and requests for revisions, will be sent by email.

SCImago Team

Melanie Ortiz 2 years ago

Dear user,
thank you for contacting us.
Sorry to tell you that SCImago Journal & Country Rank is not a journal. SJR is a portal with scientometric indicators of journals indexed in Elsevier/Scopus.
Unfortunately, we cannot help you with your request, we suggest you to visit the journal's homepage or contact the journal's editorial staff , so they could inform you more deeply.
Best Regards, SCImago Team

M **Madhu** 3 years ago

Hello sir,
I want to publish my paper in this journal ,What is the review time and article publication fees and publication time.Kindly let me know

reply

N **navya krishna** 3 years ago

What is the acceptance rate of this journal?

reply

R **Radhwan Hussein Abdulzhraa Al-Sagheer** 3 years ago

HELLO
The Journal sent me the acceptance of my my paper and they asked me to send them the FEES to publish it.
I sent them fees and sent them notice through the system of the Journal and through their own e miles but they did not respond to me.
pleas help me

Paper ID: 12914

Authors:Radhwan Hussein AL-Sagheer

Title:Impact Of Crack Length Into Pipe Conveying Fluid Utilizing FFT Computer Algorithm

Section:Telecommunication_and_Information_Technology

reply

T **T. Sutikno** 2 years ago

I just read your comment in 1 year ago.

Your paper was published in this journal. Please take a look at: http://ijece.iaescore.com /index.php/IJECE/article/view/12914

Radhwan Hussein AL-Sagheer, you should give positive comment by reply your previous post, not only give negative comment. We have more thank 3000 submitted papers, so we must manage this journal carefully

I **IJECE Editorial Office** 2 years ago

Paper ID: 12914, Entitled: Impact of Crack Length into Pipe Conveying Fluid Utilizing Fast Fourier transform Computer Algorithm was published on August 2019 (http://ijece.iaescore.com/index.php/IJECE/article/view/12914)

N **Nada** 2 years ago

How much yoy paid?

SCImago Team

Melanie Ortiz 2 years ago

Dear user,
thank you for contacting us.
Sorry to tell you that SCImago Journal & Country Rank is not a journal. SJR is a portal with scientometric indicators of journals indexed in Elsevier/Scopus. Unfortunately, we cannot help you with your request, we suggest you to visit the journal's homepage. You can see the updated journal's information just above .
Best Regards, SCImago Team

A **aditi** 3 years ago

are u able to publish now..

N **navya krishna** 3 years ago

Radhwan Hussein, how much time had it took for getting acceptance?Thanks in advance

K **Khairun Saddami** 3 years ago

Radhwan Hussein AL-Sagheer, you have to be patient till next issue is published. Sometimes it need some times to published.

A **Ammar Issa** 3 years ago

Dear Elena, do you know what happen for the website of the journal. I can not access to the website of the journal.

reply

SCImago Team

Elena Corera 3 years ago

Please, contact International Journal of Electrical and Computer Engineering, you are contacting Scimago Journal and Country Rank.
Best,
SCImago Team

S **Su** 3 years ago

Hello, i submitted this journal on 18th March, 2018. I cound not log in my registered account. I tried to contact the publisher so many times. I did not get any response. Please help me. My paper id is #9048

reply

SCImago Team

Elena Corera 3 years ago

Dear Su,

we are so sorry, but we cannot help you with your request. We are an institution absolutely different from the journals, so we cannot provide you any information different from what you can find in their websites.
I hope someone could help you with your questions.

Best regards,
SCImago Team

A **Ahmad** 3 years ago

How long it will take the published paper in this journal to appear in scopus database?
Thanks

reply

SCImago Team

Elena Corera 3 years ago

Dear Ahmad,

thank you very much for your comment, unfortunately we cannot help you with your request. We suggest you contact Scopus https://service.elsevier.com/app/answers/detail/a_id/14883/kw/scimago/supporthub/scopus/

Best Regards,
SCImago Team

C **cherki zeynab** 3 years ago

Participation and publication in this newspaper

reply

D **Dr Bashar M. Nema** 4 years ago

Dear Sir
My question how much time that paper may be accepted
Sincerely

reply

Z **zainab zainab mohammed** 3 years ago

hi, p;ease I need help please , this journal accepted my paper and I the editor of this journal send me email tell me problem for my submit incomplete please how solve my problem

SCImago Team

Elena Corera 4 years ago

Dear Dr. Bashar, we suggest you locate the author's instructions on the journal's website.
Best Regards, SCImago Team

Linda 4 years ago

How can i join for reviewing my paper?

reply

SCImago Team

Elena Corera 4 years ago

Dear Linda, we suggest you contact the journal directly. Best Regards, SCImago Team

Leave a comment

Name

Email
(will not be published)

I'm not a robot

reCAPTCHA
Privacy - Terms

Submit

The users of Scimago Journal & Country Rank have the possibility to dialogue through comments linked to a specific journal. The purpose is to have a forum in which general doubts about the processes of publication in the journal, experiences and other issues derived from the publication of papers are resolved. For topics on particular articles, maintain the dialogue through the usual channels with your editor.

Source details

International Journal of Electrical and Computer Engineering

Scopus coverage years: from 2014 to Present

Publisher: Institute of Advanced Engineering and Science (IAES)

E-ISSN: 2088-8708

Subject area: Computer Science: General Computer Science | Engineering: Electrical and Electronic Engineering

Source type: Journal

CiteScore 2020
2.7

SJR 2020
0.277

SNIP 2020
0.833

View all documents > | Set document alert | Save to source list | Source Homepage

CiteScore | CiteScore rank & trend | Scopus content coverage

Improved CiteScore methodology

CiteScore 2020 counts the citations received in 2017-2020 to articles, reviews, conference papers, book chapters and data papers published in 2017-2020, and divides this by the number of publications published in 2017-2020. Learn more >

CiteScore 2020

$$2.7 = \frac{6{,}292 \text{ Citations } 2017 - 2020}{2{,}325 \text{ Documents } 2017 - 2020}$$

Calculated on 05 May, 2021

CiteScoreTracker 2021

$$3.1 = \frac{8{,}036 \text{ Citations to date}}{2{,}559 \text{ Documents to date}}$$

Last updated on 06 March, 2022 • Updated monthly

CiteScore rank 2020

Category	Rank	Percentile
Computer Science General Computer Science	#84/226	63rd
Engineering Electrical and Electronic Engineering	#330/693	52nd

View CiteScore methodology > | CiteScore FAQ > | Add CiteScore to your site

About Scopus

What is Scopus
Content coverage
Scopus blog
Scopus API
Privacy matters

Language

日本語に切り替える
切换到简体中文
切換到繁體中文
Русский язык

Customer Service

Help
Tutorials
Contact us