Department of Electrical and Computer Engineering, College of Engineering and Information Technology, Ajman University, Ajman, United Arab Emirates.
Email :m.ishak@ajman.ac.ae
Field of specialization: Embedded System, Computer Architecture and Network, Control Communications, Artificial Intelligence and Internet of Things (IoT)

Associate Professor Dr. Mohamad Khairi Ishak

ACADEMIC AND PROFESSIONAL QUALIFICATIONS

2015 PhD in Embedded System
University of Bristol, United Kingdom

2008 MSc in Computer Engineering (Embedded System)
University of Essex, United Kingdom

2003 – 2007 Bachelor of Communication Engineering
Electrical and Computer Engineering Department
International Islamic University Malaysia

2001 – 2002 Pre-Engineering Matriculation Programme
Matriculation Centre of International Islamic University Malaysia

WORKING EXPERIENCE

2023 – Present: Associate Professor at Ajman University, UAE.

9 Jan 2023 –31 May 2023: **Ajman University, U.A.E** (Inbound Exchange Faculty)
Research/Teaching: VLSI System (ELE421) and Principles of Communication (ELE 302)

2015   – Present   :   **Universiti Sains Malaysia**, Nibong Tebal, Penang, Malaysia
Associate Professor,   Teaching experience:
- COMPUTER INTERFACING
- OPERATING SYSTEMS
- INTERNET OF THINGS (IoT) TECHNOLOGY EEE525
- DIGITAL LOGIC DESIGN
- COMPUTER HARDWARE DESIGN
- MICROPROCESSOR SYSTEMS
- DIGITAL INTEGRATED CIRCUITS
- MECHATRONIC LAB I and II
- EMBEDDED SYSTEM, EES 501
- COMPUTER NETWORKS, EEE449
- MECHATRONIC LABORATORY I,EEM242
- MECHANICAL ENGINEERING DESIGN, EEM353

- MANUFACTURING MANAGEMENT AND TECHNOLOGY, EEM354
- QUALITY TECHNIQUES, EEM421
- REAL TIME OPERATING SYSTEM (RTOS), ESE 502 (MSc Program)
- DISSERTATIONS (PROJECTS)

2012 – **Event Secretary** for FIRA RoboWorld Cup and Congress and TAROS Conference, Bristol, UK.

2008- 2009   **Assistant Manager** at **Telekom Malaysia, Jalan Raja Chulan, Kuala Lumpur.**
- Deal with subcontractors in charge of upgrading current telecommunication facilities
- Ensures that each project is running according to specified time
- Attend meetings with suppliers

SUPERVISION & POSTGRADUATE THESES

PhD   :
1. Xue Linbo, 2022, Adaptive Extraction Method Based on Time-Frequency Signal Analysis in Non- Stationary Signal Mechanical Fault Diagnosis Technology, (On-Going).
2. Lu Lixia, 2022, Research on Key Technologies of Intelligent System for Computer System,(On Going)
3. Mirza Nada Masood, 2021, Deep-Learning Approach for gait Analysis of Flat Foot in Kid, Main Supervisor (On Going).
4. Hassam Muazzam, 2019, PhD, Research-Full Time, Design of a robust control strategy for Interior Permanent Magnet Synchronous Motor based Hybrid and Electric Vehicles, Main   Supervisor (Graduated).
5. Zainatul Yushaniza Mohamed Yusoff, 2019, PhD, Research-Full Time, A robust scalable security broker framework to improve addressing and security scheme for Internet of Things (IoT) networks, Main Supervisor (On Going).
6. Omer Ali, 2018, PhD, Research-Full Time, Embedded Security for Internet of Things (IoT) Devices, Main Supervisor (Graduated).
7. Nor Hidayah Binti Saad, 2017, PhD, Research - Full Time , Identification System Of Schistosoma Parasite, Co-supervisor (Graduated)

Master :
1. Adnan Ali, 2022, An Efficient and Dynamic Merging Numerous Small Files Technique for Hadoop Distributed File System(On Going)
2. Sowinkumar Namel Nagarajan,2021, Developing an Intelligent Waste Sorting System with Robotic Arm using Raspberry Pi 3 (On Going).
3. Tan Wei Shan, 2022, Designing A Smart Home System With Face Recognition and Security Approach on Mqtt (Completed).
4. Denesh Kumar Paramasivam, 2021, Autonomous Plant Health Monitoring System (On Going).
5. Ching Chia Leong, 2017, Master, Embedded Ethernet and Controller Area Network (CAN) In Real-Time Communication Network. (Completed)
6. Loo Tung Lun, 2021, Master, A Simulated Firmware Study On X86, Arm, Risc-V Platform And Security Enhancement For Risc-V (Completed)
7. Nameer Falih Mhaidi, 2017, Master (Dissertation - Course Work), The Development of Embedded Ethernet System. (Completed)
8. Ng Wai Shyan, 2017, An automated Testing Approach for PXI Chasis Software Driver. Master, MSc (Completed)
9. Meenal A/P Pradeep Kumar,2017, Design and Implementation of I2C Bus Protocol on Xilinx FPGA and Simulation on Protocol Analysis. MSc (Completed)
10. Ooi Jun Hwan, 2016, Development of an Automated Compilation Test for Embedded System Testing. MSc. (Completed)
11. Yew Ho Hee , May 2018, Master, Research Mode, Real Time Operating System as a Generic OS approach for Embedded System, Main Supervisor (Completed)
12. Yeoh CF , July 2019, Master, Research Mixed-Mode, Implementation of Controller Area Network (CAN)

for real-time communication system, Main Supervisor (Completed)

13. Faizan Kaleem, April 2019, Master, Research Mixed-Mode, Development of Controller Area Network (CAN) Vehicle Communication Protocol for an Anti-Lock Braking System with Security In-Vehicle Networks, Main Supervisor (Completed)
14. Eizzat Ayman Bin Zaikuan, Master, Research Mode,2019. Flexible Zigbee Interface transform for Smart Appliances, Main Supervisor (On going)
15. Khor Wei Kok, September 2020, Master, Research Mixed-Mode, Enhancement on USB Features Coverage For System Level Emulation. (Completed)
16. Tan Szi Hui, September 2020, Master, Research Mixed-Mode, Spike Neuron Optimization Using Deep Q Network and Deep Q Learning with Normalized Advantage Function. (Completed)

Final Year Projects (FYP)   :
1. Lee Kong Lam, 2016, Design and implementation of an FPGA based for real-time system, BSc in Engineering (Mechatronics) , (completed)
2. Ho Kar Hwai, 2016, Development of Embedded Ethernet for Robotics, BSc in Engineering (Mechatronics) , (Completed)
3. Ain Izzati Binti Mubarak, 2016, Investigation of real-time communication protocol for embedded network control system, BSc in Engineering (Mechatronics) , (Completed)
4. Nurul Izzah bt Idzahar, 2016, Development of novel Ethernet in minimizing delay for real time communication system, BSc in Engineering (Mechatronics) , (Completed)
5. Jacky Yong Tung Kiet, 2016, Designing embedded network system for real-time communication system. BSc in Engineering (Mechatronics) , (Completed)
6. Ng Mun Kit, 2016, Robot Assisted Surgery based on IoT. BSc in Engineering (Mechatronics) , (Completed)
7. Ng Eng Kang, 2016, Development of Embedded Control Communication System. BSc in Engineering (Electronics) , (Completed)
8. Muhamaad Izzat Roslan, 2016, Development of Robotic Arm with Internet of Things (IoT). BSc in Engineering (Mechatronics) , (Completed)

RESEARCH PROJECT GRANTS

1. Principal Investigator (PI), Public-Private Research Network (PPRN), Ministry of Higher Education Malaysia- Smart Solid Waste Management System, RM48,000. 12 October 2020 – 31 April 2021.

2. Principal Investigator (PI), Mohamad Khairi Ishak, Noramalina Binti Abdullah, Norazrizal Aswad Bin Abdul Rahman, Norzalilah Binti Mohamad Nor, TAN CHEE YEOW , SYSTEM INTEGRATION (WD-USM), RM31,654.58, 30/11/2020-29/11/2023

3. Principal Investigator (PI), Short Term USM- Design and Implementation of an FPGA Based Control for Real-Time CommunicationNetwork System, RM41, 000. 1 December 2015 – 28 February 2018.

4. Principal Investigator (PI), **Mohamad Khairi Bin Ishak,** Afandi Ahmad , Farida Hazwani Mohd Ridzuan , Nor Ashidi Bin Mat Isa, Rosni Binti Abdullah @ Mustafa, Fundamental Research Grant Scheme (FRGS), Ministry of Higher Education Malaysia Formulation of lightweight composite security key algorithm for scalable security broker framework in Internet of Things(IoT) networks. , RM99,800.00, 01/11/2020-30/04/2024

5. Principal Investigator (PI), RU Grant USM- Development of a Secure Routing Protocol Providing End-To-End Data Encryption for Communication among Multi-Vendor IoT Devices, RM99,849.00. 1 May 2018 – 30 April 2021.

6. Co-Project, Development of New Nano-Particle Filled Soldering and Underfill Materials for Electronic Packaging Applications, RM46,200.00, 01 April 2018-31 March 2020.

7. Principal Investigator (PI), Robust scalable security broker framework security scheme for Internet of Things (IoT) networks,International Grant**,** ASEAN-India Research and Training Fellowship Scheme, November 2019- April 2020.

8.Co-Project, NAHRIM Environmental Sensor System (NUESS) Untuk Pemantauan Kualiti Air,INSTITUT PENYELIDIKAN AIR

KEBANGSAAN MALAYSIA (NAHRIM) , RM268,000.00, 01/05/2020-31/08/2021, (Active)

INDUSTRY COLLABORATIONS/CONSULTATIONS

International (Industry)

1.	Mohamad Khairi Bin Ishak, Introduction to PCB and PCBA (Professional Diploma in Debug Engineering), **Flextronics Batam, Indonesia.** 13/08/2018 - 14/08/2018, RM2,400.00 (International)

National (Industry)

1.	Mohamad Khairi Bin Ishak, Consultation Module, PCIEO: SURFACE MOUNT TECHNOLOGY (SMT) INDUSTRIAL ELECTRONIC EQUIPMENT TROUBLESHOOTING, POLITEKNIK METrO TASEK GELUGOR & **Flextronics,** 15/02/2022 - 18/03/2022, RM2,400.00 (National)
2.	Mohamad Khairi Bin Ishak, Consultation Module, PDIME: Product Design and Manufacturing, POLITEKNIK METrO TASEK GELUGOR & **Flextronics,** 13/04/2022 - 14/04/2022, RM2,400.00 (National)
3.	Mohamad Khairi Bin Ishak, Consultation Module, PDIIM: Introduction to Manufacturing Operation**, POLITEKNIK METrO TASEK GELUGOR & Flextronics,** 01/12/2021 - 02/12/2021, RM2,400.00 (National)
4.	Mohamad Khairi Bin Ishak, Consultation Module: PRODUCT DESIGN AND DEVELOPMENT, POLITEKNIK METrO TASEK GELUGOR & **Flextronics**, 23/06/2021 - 24/06/2021, RM2,400.00 (National)
5.	Mohamad Khairi Bin Ishak, Consultation Module: Product Design and Manufacturing, POLITEKNIK METrO TASEK GELUGOR & **Flextronics,** 25/08/2021 - 30/08/2021, RM2,400.00 (National)
6.	Mohamad Khairi Bin Ishak, Consultation Module, Professional Diploma in Manufacturing Engineering (PDIME003) : PRODUCT DESIGN AND DEVELOPMENT, POLITEKNIK METrO TASEK GELUGOR & **Flextronics,** 05/08/2021 - 06/08/2021, RM2,400.00 (National)
7.	Mohamad Khairi Bin Ishak, Consultation Module, Industrial Equipment Installation Surface-mount technology (SMT), POLITEKNIK METrO TASEK GELUGOR & Flextronics, 31/03/2021 - 31/03/2021, RM1,200.00 (National)
8.	Mohamad Khairi Bin Ishak, Consultation Module, Industrial Equipment Installation Surface-mount technology (SMT) Module 2, **Flextronic**s, 16/10/2019 - 17/10/2019, RM2,400.00 (National)
9.	Mohamad Khairi Bin Ishak, Consultation Module, PROFESSIONAL CERTIFICATE IN MANUFACTURING OPERATION (PCIMO), **Flextronics,** 27/10/2020 - 28/10/2020, RM2,400.00 (National)
10.	Mohamad Khairi Bin Ishak, Consultation Module, Product Design and Development (Manufacturing), **Flextronics,** 25/03/2019 - 26/03/2019, RM2,400.00 (National)
11.	Mohamad Khairi Bin Ishak, Consultation Module, PCB Design and Manufacturing Flow, **Flextronics**, 12/02/2019 - 13/02/2019, RM2,400.00 (National)
12.	Mohamad Khairi Bin Ishak, Consultation Module: DEVELOPMENT OF THE CONTROLLER AREA NETWORK (CAN) PROTOCOL BASED SAFETY SYSTEM IN VEHICLE, **Motorola,** 21/02/2018 - 30/10/2018, RM3,800.00 (University)
13.	Mohamad Khairi Bin Ishak, Consultation Module: Design and Implementation of I2C Protocol on Xilinx FPGA and simulation on Protocol Analysis**, Intel,** 13/03/2022 - 13/03/2023, RM6,500.00 (University)

COMMMUNITIES & PROFESSIONAL SERVICES

1.	Head of Sponsorship Committee, The 9th International Conference on Robotics, Vision, Signal Processing & Power Applications (ROVISP), 2021, Universiti Sains Malaysia.
2.	Internal Audit, Academic Advisor and Curriculum Review at Kolej Vokasional Balik Pulau, 12/07/2018-14/07/2021, Kolej Vokasional Balik Pulau, Penang, Malaysia.
3.	Judge, National Robotic Competition, 22/08/2017-22/08/2017, Politeknik Seberang Perai, Penang, Malaysia.
4.	Reviewer, International Conference on Electrical and Electronic Engineering, 14/08/2017-15/08/2017, UTHM
5.	TECHNICAL COMMITTEE, 1st International Undergraduate and Postgraduate Students Conference on Marine Science, Technology and Management, 11/12/2017-12/12/2017, Universiti Malaysia Terengganu
6.	Industry Panel Advisor, Industry Panel Advisor (Diploma Electronic Engineering) (Computer), 20/03/2018-18/03/2020, Politeknik Seberang Perai, Pualau Pinang

7. Judge, Asia Innovation Show 2018, 27/04/2018-29/04/2018, Jabatan Perdana Menteri, Malaysia (ICU).
8. External Audit, Diploma Teknologi Elektrik , Kolej Vokasional Balik Pulau, 27/05/2019-26/05/2020, Kolej Vokasional Balik Pulau, Penang Malaysia.
9. Judge, Innovation Competition STEM (RISS2019), 27/07/2019-27/07/2019, SMK Saujana Indah
10. Audit, External Audit for Computer Engineering, 08/10/2020-08/10/2020, Kolej Vokasional Balik Pulau.
11. Reviewer, IEEE Internet of Things Journal, IEEE Access, CSSE Journal.
12. Robust scalable security broker framework to improve addressing and security scheme for Internet of Things (IoT) networks, ASEAN- India Research Training Fellowship (AIRTF), Government of India Ministry of External Affairs Department of Science & Technology, Indian Institute of Technology, 2019 (International).
13. Keynote Speaker, Bringing Intelligence to IoT Devices and Edge gateway provisioning: Health-care domain scenario in a real-time analytics for simulated and virtually emulated devices., Online - Conference, Mir Chakar Khan Rind University of Technology DG Khan (MCKRUT), Pakistan, 1stInternational Conference on Science, Engineering and Technology 2021 (ICSET-2021) (International)

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1. Mohd Nazri Bin Mahmud, Mohamad Khairi Bin Ishak, Nor Asiah Binti Muhamad, Roslina Binti Hussin, SEEE ENGINEERING DESIGN RUBRIC:LOG BOOK VERSION 1, LY2018006557, 24/12/2018
2. Mohd Nazri Bin Mahmud, Mohamad Khairi Bin Ishak, Nor Asiah Binti Muhamad, Roslina Binti Hussin, SEEE ENGINEERING DESIGN RUBRIC:PEER REVIEW VERSION 1, LY2018006556, 24/12/2018
3. Mohd Nazri Bin Mahmud, Mohamad Khairi Bin Ishak, Nor Asiah Binti Muhamad, Roslina Binti Hussin, SEEE ENGINEERING DESIGN RUBRIC:GROUP DEMONSTRATION VERSION 1, LY2018006555, 24/12/2018
4. Mohd Nazri Bin Mahmud, Mohamad Khairi Bin Ishak, Nor Asiah Binti Muhamad, Roslina Binti Hussin, SEEE ENGINEERING DESIGN RUBRIC:ORAL INDIVIDUAL VERSION 1, LY2018006554, 24/12/2018
5. Mohd Nazri Bin Mahmud, Mohamad Khairi Bin Ishak, Nor Asiah Binti Muhamad, Roslina Binti Hussin, SEEE ENGINEERING DESIGN RUBRIC:PITCHING VERSION 1, LY2018006552, 24/12/2018
6. Mohd Nazri Bin Mahmud, Mohamad Khairi Bin Ishak, Nor Asiah Binti Muhamad, Roslina Binti Hussin, SEEE ENGINEERING DESIGN RUBRIC:MEETING MINUTES VERSION 1, LY2018006559, 24/12/2018
7. Mohd Nazri Bin Mahmud, Mohamad Khairi Bin Ishak, Nor Asiah Binti Muhamad, Roslina Binti Hussin, SEEE ENGINEERING DESIGN RUBRIC:PROPOSAL VERSION 1, LY2018006551, 24/12/2018
8. Mohd Nazri Bin Mahmud, Mohamad Khairi Bin Ishak, Nor Asiah Binti Muhamad, Roslina Binti Hussin, SEEE ENGINEERING DESIGN RUBRIC:FINAL REPORT VERSION 1, LY2018006553, 24/12/2018
9. Mohd Azam Bin Osman, Mohamad Khairi Bin Ishak, Muhammad Adli Fata, Next Generation Harmony Home Living: Mobile Apps Module, LY2021P04166, 12/10/2021
10. Mohd Azam Bin Osman, Mohamad Khairi Bin Ishak, Muhammad Adli Fata, Next Generation Harmony Home Living: Smart Camera Module , LY2021P04165, 12/10/2021
11. Dzati Athiar Bt Ramli, Mohamad Khairi Bin Ishak, Mohamad Nazir Bin Abdullah, INTERMEDIATE ELECTRONIC LABORATORY, LY2022P04381, 06/10/2022
12. Dzati Athiar Bt Ramli, Mohamad Khairi Bin Ishak, Mohamad Nazir Bin Abdullah, BASIC ELECTRONIC LABORATORY, LY2022P04380, 06/10/2022

PUBLICATIONS

2023

1. A. Ali, N. M. Mirza and **M. K. Ishak,** "Enhanced best fit algorithm for merging small files," Computer Systems Science and Engineering, vol. 46, no.1, pp. 913–928, 2023. **(Q1, IF : 4.397)**

2. S. Yonbawi, S. Alahmari, B. R. S. S. Raju, C. H. G. Rao, **M. K. Ishak** et al., "Modeling of sensor enabled irrigation management for intelligent agriculture using hybrid deep belief network," Computer Systems Science and Engineering, vol. 46, no.2, pp. 2319–2335, 2023.**(Q1, IF : 4.397)**

3. N. Sharmili, S. Yonbawi, S. Alahmari, E. Laxmi Lydia, **M. K. Ishak** et al., "Earthworm optimization with improved squeezenet enabled facial expression recognition model," Computer Systems Science and Engineering, vol. 46, no.2, pp. 2247–2262, 2023 .**(Q1, IF : 4.397)**

4. A. Francis Saviour Devaraj, T. Satyanarayana Murthy, F. Alenezi, E. Laxmi Lydia, M. A. Md Zawawi and **M.K. Ishak**, "Enhanced metaheuristics with trust aware route selection for wireless sensor networks," Computer Systems Science and Engineering, vol. 46, no.2, pp. 1431–1445, 2023. (**Q1, IF : 4.397**)

5. T. Satyanarayana Murthy, P. Udayakumar, F. Alenezi, E. Laxmi Lydia and M. K. Ishak, "Coot optimization with deep learning-based false data injection attack recognition," Computer Systems Science and Engineering, vol. 46, no.1, pp. 255–271, 2023. **(Q1, IF : 4.397)**

6. A. R. Wahab Sait and **M. K. Ishak**, "A novel handcrafted with deep features based brain tumor diagnosis model," Intelligent Automation & Soft Computing, vol. 35, no.2, pp. 2057–2070, 2023 **(Q2, IF: 3.401)**

2022

7. Lihua Lin, Abdallah Abdallah, **Mohamad Khairi Ishak**, Ziad M. Ali, Imran Khan, Khaled Rabie, Islam Safak Bayram, Xingwang Li, Dag Øivind Madsen, Ki-il Kim, 2022,"Hierarchical Optimization and Grid Scheduling Model for Energy Internet: A Genetic Algorithm-Based Layered Approach", Frontiers in Energy Research, 10:, **(Q3, Impact Factor : 3.858)**

8. A. R. W. Sait and **M. K. Ishak**, "Deep learning with natural language processing enabled sentimental analysis on sarcasm classification," Computer Systems Science and Engineering, vol. 44, no.3, pp. 2553–2567, 2023. **(Q1,IF: 4.397)**

9. A. Ali, N. M. Mirza and **M. Khairi Ishak**, "A New Merging Numerous Small Files Approach for Hadoop Distributed File System," 2022 19th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON), 2022.

10. D. Kumar, **M. K. Ishak** and M. I. F. Maruzuki, "EfficientNet based Convolutional Neural Network for Visual Plant Disease Detection," 2022 19th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON), 2022.

11. Ashit Kumar Dutta, R. Uma Mageswari,A. Gayathri, J. Mary Dallfin Bruxella, **Mohamad Khairi Ishak**, Samih M. Mostafa and Habib Hamam, Barnacles Mating Optimizer with Deep Transfer Learning Enabled Biomedical Malaria Parasite Detection and Classification, Computational Intelligence and its Applications in Biomedical Engineering, Volume 2022, 2022.

12. Omer Ali, **Mohamad Khairi Ishak**, Ashraf Bani Ahmed, Mohd Fadzli Mohd Salleh, Chia Ai Ooi, Muhammad Firdaus Akbar Jalaludin Khan, Imran Khan, On-line WSN SoC estimation using Gaussian Process Regression: An Adaptive Machine Learning Approach, Alexandria Engineering Journal, Volume 61, Issue 12,2022. **(Q1,IF:3.732)**

13. H. Muazzam, **M. K. Ishak,** A. Hanif and A. I. Bhatti, "Compensating Thermal Derated Torque of IPMSM Centric Electric Vehicles," in IEEE Access, vol. 10, pp. 24468-24480, 2022. **(Q2, IF: 3.367)**

14. Muazzam, H.; **Ishak, M.K**.; Hanif, A.; Uppal, A.A.; Bhatti, A.; Isa, N.A.M. Virtual Sensor Using a Super Twisting Algorithm Based Uniform Robust Exact Differentiator for Electric Vehicles. Energies 2022**. (Q3, IF: 3.004)**

15. Ali Omer, **Ishak Mohamad Khairi**, Ooi Chia Ai and Bhatti Muhammad Kamran Liaquat, Battery characterization for wireless sensor network applications to investigate the effect of load on surface temperatures, Royal. Soc. open science, 2022. **(Q2, IF:2.963)**

16. Zainatul Yushaniza Mohamed Yusoff, **Mohamad Khairi Ishak**, Lukman AB Rahim, A java servlet based transaction broker for internet of things edge device communications, Bulletin of Electrical Engineering and Informatics (BEEI),2022 (Scopus).

17. Ali, O.; **Ishak, M.K.;** Bhatti, M.K.L.; Khan, I.; Kim, K.-I. A Comprehensive Review of Internet of Things: Technology Stack, Middlewares, and Fog/Edge Computing Interface. Sensors, 2022 **(Q1, IF: 3.576).**

2021

18. Omer Ali and Mohamad Khairi Ishak, Energy efficient scheme for wireless sensor networks based on ContikiMAC protocol, Journal of Engineering Science and Technology (JESTEC), 2021. (Scopus)

19. Omer Ali, **Mohamad Khairi Ishak**, Muhammad Kamran Liaquat Bhatti, Adaptive clear channel assessment (A-CCA): Energy efficient method to improve wireless sensor networks (WSNs) operations, AEU - International Journal of Electronics and Communications, Volume 131,2021 (IF : 3.183)

20. O. Ali, M. K. Ishak and M. Kamran, "Early covid-19 symptoms identification using hybrid unsupervised machine learning techniques," Computers, Materials & Continua, vol. 69, no.1, pp. 747–766, 2021. (IF : 3.772)

21. Z.Y.M. Yusoff, **M.K. Ishak**, K.A. Alezabi "The Role of RFID in Green IoT: A Survey on Technologies, Challenges and a Way Forward", Advances in Science, Technology and Engineering Systems Journal, vol. 6, no. 1, pp. 17-35 2021.

2020

22. **Mohamad Khairi Ishak**, Ahmad Afif Ahmarofi Tan Szi Hui, Mohamed Fauzi Packeer Mohamed, Lokman Mohd Fadzil, Balancing Excitation and Inhibition of Spike Neuron Using Deep Q Network, Journal of Physics: Conference Series (JPCS),2020.

23. Ali, Omer and **Ishak, Mohamad Khairi** and Wuttisittikulkij, Lunchakorn and Maung, Tay Zar Bhone,'IoT Devices and Edge gateway provisioning, realtime analytics for simulated and virtually emulated devices', International Conference on Electronics, Information, and Communication (ICEIC),IEEE, Barcelona, Spain,2020.

2019

24. **Ishak, Mohamad Khairi** and Ali, Omer and Sirajuduin, Emma Ahmad and Qi, Lee Shea,' Vehicle Sensors Programming Based On Controller Area Network (CAN) Bus Using Canoe', 2019 16th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON),Thailand,1-4,,2019.

25. Ishak, Mohamad Khairi and Khan, Faizan Kaleem, ' Unique Message Authentication Security Approach based Controller Area Network (CAN) for Anti-lock Braking System (ABS) in Vehicle Network', Procedia Computer Science, Elsevier, p 93-100, 2019.

26. Leong, Ching Chia and **Ishak, Mohamad Khairi**, ' Performance evaluation of embedded ethernet and Controller Area Network (CAN) in real time control communication system', International Journal of Reconfigurable and Embedded Systems, 2019.

27. **Ishak, Mohamad Khairi** and Leong, Ching Chia and Sirajudin, Emma Ahmad, ' Embedded Ethernet and Controller Area Network (CAN) in Real Time Control Communication System', 10th International Conference on Robotics, Vision, Signal Processing and Power Applications,2019.

28. **Ishak, Mohamad Khairi** and Hwan, Ooi Jun and Jiashen, Teh and Isa, Nor Ashidi Mat,' Automated Compilation Test System for Embedded System', Makara Journal of Technology, 2019.

2018

29. J. Teh, C. M. Lai, N. A. Muhamad, Y. H. Cheng, M. A. A. M. Zainuri and **M. K. Ishak**,2018, "Prospects of Using The Dynamic Thermal Rating System for Reliable Electrical Networks: A Review," in IEEE Access. (IF: 3.244)

30. Nor Ashidi Bin Mat Isa, Mohammed Alswaitti, **Mohamad Khairi Bin Ishak**, 2018, Optimized gravitational-based data clustering algorithm, ELSEVIER Engineering Applications of Artificial Intelligence, 73:, 126-148 (Impact Factor : 2.894)

31. **Ishak, MK**, 2017, Design of Robotic Arm Controller based on Internet of Things (IoT), Journal of Telecommunication, Electronic and Computer Engineering (JTEC).

32. Sulehat, Naser & Ishak, Khairol & Taib, C.A. & Abrudan, D & Mat, R & **Ishak, M.K..** (2017). Semantic, technical, e government information systems interoperability and the moderating effect of IT capability among ministries inJordan. International Journal of Economic Research (IJER)

33. **Ishak, MK** and Roslan, M.I, 'Performance Evaluation of Backoff Algorithms in Embedded Ethernet System for Real-Time Communication', 10th Regional Conference on Electrical and Electronic Engineering (RCEEE) 2017,Surabaya, Indonesia, 2017.

34. **Ishak, MK** and Eng, M.K , "Design and Implementation of Robot Assisted Surgery based on Internet of Things (IoT)",RCCIE 2017 - AUN/SEED-Net Regional Conference on Computer and Information Engineering,Ho Chi Minh City, Vietnam,2017.

35. **Ishak, MK** and Roslan, M.I, "Kinematics Design of Robotic Arm Controller ","TSME-ICoME 2017 (Thai Society of Mechanical Engineers, International Conference of Mechanical Engineering,Bangkok, Thailand,2017.

36. **Ishak, MK** and Roslan, M.I, "Design of Robotic Arm Controller based on Internet of Things (IoT)", ,3rd International Conference on Electrical Systems, Technology and Information (ICESTI 2017),Bali, Indonesia, 2017.

37. **M. K. Ishak**, G. Herrmann and M. Pearson, "Performance evaluation using Markov model for a novel approach in Ethernet based embedded networked control communication," 2016 Annual IEEE Systems Conference (SysCon), Orlando, FL, 2016, pp. 1-7.

38. **Ishak, MK**, Ho, K.H, Lee, K.L, 'Real Time FPGA-Based Ethernet Control Communication for Robotic Arm,' 2016 the 3rd International Conference on Mechatronics and Mechanical Engineering, Tokyo, Japan.

39. **Ishak, MK**.; Dyson, M., "Human movement intentions based on EEG using brain computer interfaces," in Control, Electronics, Renewable Energy and Communications (ICCEREC), 2015 International Conference on , vol., no., pp.58-62, 27-29 Aug. 2015.

40. **Ishak,MK**, 'Classification of EEG Signal for Movement Intentions-based Brain Computer Interfaces', International Journal of Advances in Computer Science and Technology (IJACST), Vol.3 , No.11, Pages : 07-12 (2014)

41. **Ishak, MK,** Herrmann, G & Pearson, M. 'Reducing delay and jitter for real-time control communication in Ethernet', ICACT Transactions on the Advanced Communications Technology, Global IT Research Institute (GiRI), 2013.

42. Jalani,J & **Ishak,MK** 'NCTF Control for Friction Compensation of Underactuated Fingers' ACEEE International Journal on Control System and Instrumentation, Vol. 3, No. 1. (February 2012), pp. 36-40

43. **Ishak,MK** & Jalani,J, 'Realization of CANopen communication control for underactuated anthromorphic finger', International Journal of Mechanical Engineering (IJME), Vol. 1, No 1, 2012

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