CURRICULUM VITAE

Dr. Izhal Abul Halin
Department of Electrical and Electronics Engineering, Universiti Putra Malaysia,
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Education

1. PhD(Electrical Engineering), 2006, Shizuoka University, Japan
2. MSc (Electrical & Electronic of Engineering), 2002, Universiti Putra Malaysia
3. BSc (EElectrical Engineering), 1999, University of Hartford, USA

Areas of Interest

1. Microelectronics Engineering
2. Circuits and Systems
3. Agriculture Electronics
4. IC Design
5. Renewable Energy

Professional Qualification/ Membership/ Affiliation

1. Member, Institute of Electronics, Information and Communication Engineers (IEICE)
2. Graduate Member, Board of Engineers Malaysia (BEM)

Appointments

Position	Duration
1. Senior Lecturer, Department of Electrical and Electronic Engineering, Faculty of Engineering, UPM	July 2011 to present
2. Tutor, Department of Electrical and Electronic Engineering, Faculty of Engineering, UPM	October 1999 to June 2003

Publications

Journals (30 recent journals)

1. Bilal I. Abdulrazzaq, **Izhal Abdul Halin**, Lee Lini, Roslina M. Sidek and Nurul Amziah Md. Yunus, "A Programmable CMOS Delay Line for Wide Dynamic Range Generation and Duty Cycle Adjustability", Pertanika Journals Science and Technology, Vol.25(S), pp.123-132, June 3,2017.

   [ISSN:0128-7680]

2. Ali Ghahraei, Nurul Amziah Md. Yunus, **Izhal Abdul Halin** and Nasri Sulaiman, "Fuzzy-Controlled Humidity Variation by Silica Gel and Nitrogen Gas in an Atmospheric Chamber", Pertanika Journals Science and Technology, Vol.25(2), pp.133-142, December 2,2016.

   [ISSN:0128-7680]

3. Nurul Amziah Md. Yunus, Mohd Nazim Mohtar, Khaldon Mohammed Almadhagi and **Izhal Abdul Halin**, "Dielectrophoresis and AC Electroosmosis Force on Fluid Motion in Microfluidic using Latex Particles", Pertanika Journals Science and Technology, Vol.25(1), pp.333-342, March 5, 2017.

   [ISSN:0128-7680]

4. Bilal I. Abdulrazzaq, Omar J. Ibrahim, Shoji Kawahito, Roslina M. Sidek, Suhaidi Shafie, Nurul Amziah Md. Yunus, Lini Lee and **Izhal Abdul Halin**, "Design of a Sub-Picosecond Jitter with Adjustable-Range CMOS Delay Locked-Loop for High-Speed and Low-Power Applications", Sensors, Sensors 2016, Vol.16(10), pp.1-15, September 28, 2016.

[ISSN:1424-8220, DOI:10.3390/s16101593]

5. Zaid Hadi, Nasri Sulaiman, **Izhal Abdul Halin**, Nurul Amziah Md Yunus and Hadi K. Mohammed, "Image Processing Techniques to Cope Color Deficiency in Detecting Pork Adulteration in Meatballs Visually", Research Journal of Applied Sciences, Engineering and Technology, Vol.13(5), pp.365-374, September 5, 2016.

[ISSN:2040-7459; e-ISSN: 2040-7467, DOI:10.19026/rjaset.13.2954]

6. Bilal I. Abdulrazzaq, **Izhal Abdul Halin**, Shoji Kawahito, Roslina M. Sidek, Suhaidi Shafie, Nurul Amziah Md. Yunus, "A Review on High-Resolution CMOS Delay Lines: Towards Sub-Picosecond Jitter Performance", SpringerPlus, Vol.5(434), pp.1-32, April 12, 2016.

[ISSN:2193-1801, DOI:10.1186/s40064-016-2090-z]

7. Nurul Amziah Md Yunus, Zurina Zainal Abidin and **Izhal Abdul Halin**, "Characterization of Microelectrode Array of Dielectrophoretic Microfluidic Device", Journal of Bioengineering & Biomedical Science, Vol.3(6), pp.1-8, May 31, 2016.

[ISSN:2155-9538, DOI:10.4172/2155-9538.1000190]

8. Min-Woong Seo, Keiichiro Kagawa, Keita Yasutomi, Yoshimasa Kawata, Nobukazu Teranishi, Zhuo Li, **Izhal Abdul Halin**, Shoji Kawahito, "A 10-ps Time-Resolution CMOS Image Sensor With Two-Tap True-CDS Lock-In Pixels for Fluorescene Lifetime Imaging", IEEE Journal of Solid-State Circuits, Vol.51(1),pp.141-154, Jan 2016.

[ISSN:0018-9200]

9. Lee X.Y., Sulaiman N., **Abdul Halin I.** and Yunus N.A., "Integrated Monitoring and Control System For Lab on a Chip", International Journal of Control Theory and Applications, Vol.9 (31), pp.45-52, January 1, 2016.

[ISSN:0974-5572]

10. Nurul Amziah Md Yunus, **Izhal Abdul Halin**, Nasri Sulaiman, Noor Faezah Ismail, Nik Hasniza Aman, "A Compilation of Nanotechnology in Thin Film Solar Cell Devices", World Academy of Science, Engineering and Technology, International Journal of Electrical, Computer, Energetic, Electronic and Communication Engineering, Vol.9(8), pp.817-821, July 2015.

[ISSN:307-6892, DOI:1999.5/10002063]

11. Davood Kalhor, Ishak Aris, Trifa Moaini, and **Izhal Abdul Halin**, "Human Action Recognition Using Time Delay Input Radial Basis Function Networks", International Journal of Simulation-Systems, Science and Technology, (Extended from ISM2014) Vol.15(3), pp.42-53, 2015.

[ISSN:1473-804x online, DOI:10.5013/IJSSST.a.15.03.07]

12. D. X. Lioe, Suhaidi Shafie, Harikrishnan Ramiah, Nasri Sulaiman, **I. A. Halin**, "Low Power Transmitter for Wireless Capsule Endoscope", Springer Series in Material Science, Springer Verlag, Vol.204, pp.111-122, 2014.

[ISSN:0933033X, DOI:10.1007/978-981-287-128-2_7]

13. S. Shafie, F.A.M. Fodzi, L.Q. Tung, D.X. Lioe, **I.A. Halin**, W.Z.W.H, H. Jaafar, "Development of CMOS Imager Block for Capsule Endoscope", Journal of Physics: Conference Series, Vol.495(1), pp.1-6, 2014.

[ISSN:1742-6588, DOI:10.1088/1742-6596/495/1/012005]

14. Nurul Amziah Md Yunus, Haslina Jaafar, **Izhal Abdul Halin** and Nicolas G. Green, "Microfluidic Systems For Dielectrophoretic Separation of Fluorescent Particles", ASM Science Journal, Vol.8(1), pp.29-35, June 2014.

[ISSN:1823-6782]

15. Nor Azura Zakaria, W.Z.W. Hassan, **I.A. Halin**, R.M. Sidek, Xiaoqing Wen, “Fault Detection With Optimum March Test Algorithm”, Journal of Theoretical and Applied Information Technology, Vol.47(1), pp.18-27, 2013.

[ISSN:1992-8645]

16. A.F.M. Amin, Ishak Aris, **Izhal Abdul Halin**, Raja Syamsul Azmir Raja Abdullah, Ratna Kalos Zakiah Sahbudin and Mohamad Khazani Abdullah, “Development of Vehicle Communication System Using FPGA", Australian Journal of Basic Applied Sciences, Vol.5(6), pp.1026-1038, June 2011.

[ISSN:1991-8178]

17. **Izhal Abdul Halin,** Amad ud Din, Ishak Aris, Maryam Mohd Isa Suhaidi Shafie and Shoji Kawahito, “Selection of Amplifier for Optimized Charge Transfer in Active Pixel CMOS Time Of Flight (TOF) Image Sensors”, IEICE Electronics Express, Vol. 8(22), pp.1913-1919, November 25, 2011.

[ISSN:1349-2543, DOI:10.1587/elex.8.1913]

18. **Izhal Abdul Halin**, Wan Zuha Wan Hasan and Suhaidi Shafie, “Soil Moisture Sensor and Read-out Circuit Topology for Large Array Deployment”, IEICE Electronics Express, Vol.6(17), pp.1234-1239, September 10, 2009.

[ISSN:1349-2543, DOI: 10.1587/elex.6.1234]

19. Suhaidi Shafie, Shoji Kawahito, **Izhal Abdul Halin**, Wan Zuha Wan Hasan, “Non-Linearity in Wide Dynamic Range CMOS Image Sensors Utilizing a Partial Charge Transfer Technique” Sensors 2009, Vol. 9(12), pp.9452-9467, November 26, 2009.

[ISSN:1424-8220, DOI:10.3390/s91209452]

20. M. I. Masnita, W. H. W. Zuha, R. M. Sidek, **A.H. Izhal**, “March-based SRAM diagnostic algorithm for distinguishing Stuck-At and transition faults”, IEICE Electronics Express, Vol.6(15), pp.1091-1097, August 10, 2009.

[ISSN:1349-2543, DOI: 10.1587/elex.6.1091]

21. Wan Zuha Wan Hasan, **Izhal Abd Halin**, Roslina Mohd Sidek and Masuri Othman, “An Efficient Fault Syndromes Simulator for SRAM Memories”, IEICE Trans. On Electron Devices, Vol.E92-C(11), pp.639-646, May 5, 2009.

[ISSN: 1745-1353]

22. Wan Zuha Wan Hasan, **Izhal Abd Halin**, Roslina Sidek and Masuri Othman, “A Fault Syndrome Simulator For Random Access Memories”, European Journal of Scientific Research, Vol.23(1), pp.13-24, 2008.

[ISSN:1450-216X; ESSN: 1450-202X]

23. S. Kawahito**, I. A. Halin**, T. Ushinaga, T. Sawada, M. Homma, Y. Maeda, “A CMOS time-of-flight range image sensor with gates-on-field-oxide structure", IEEE Sensors Journal, Vol.7(12), pp.1578-1586, December 2007.

[ISSN:1530-437X, DOI: 10.1109/JSEN.2007.907561]

24. **A. H. Izhal**, T. Ushinaga, T. Sawada, M. Homma, Y. Maeda, S. Kawahito, “Evaluation of CMOS Time-of-Flight Range Image Sensor with Gates-on-Field-Oxide Structure”, Technical Reports of the Graduate School of Electronic Science and Technology, Shizuoka University, Vol.27, pp.17-24, Shizuoka, Japan, 2006.

[ISSN: 0388-5070]

25. **A. H. Izhal** and S. Kawahito, “Design of a Charge Domain CMOS Time-of-Flight Range Image Sensor”, IEICE Trans. On Electron Devices, Vol.E87-C(11), pp. 1889-1896, Tokyo, November 2004.

[ISSN: 0916-8516]

Research Grants

No	Project Title	Amount (RM)	Year	Source of Fund
1.	Development of a Micro-Nozzle Clog Detection System Using Selectable Soil Moisture Sensor Modules for Industrial Sized Fertigation Farms	64,000	2009-2011	eScience Fund, MOA (Lead Researcher)
2.	Miniaturization of Driver Module of Electronic Control Unit (ECU) for Compressed Natural Gas Direct Injection (CNGDI) Vehicle	123,000	2007-2009	eScience Fund, MOSTI (Lead Researcher)
3.	3 Stage CMOS Digital Delay Line	15,000	2014-2017	GP-IPS, UPM (Lead Researcher)
4.	Agriculture Application of Capacitor Changes Driven by Water Tension	118,000	2011-2013	RUGS, UPM (Lead Researcher)
5.	A Novel Automatic Fault Testing and Diagnostic Algorithm for SRAM Memories	100,000	2007-2009	FRGS, UPM (Lead Researcher)
6.	Circuit Design Techniques for the Improvement of Biophotovoltaic Cell Efficiency	98,000	2017-2019	GP, UPM (Lead Researcher)
7.	Ultra-Low Power Capacitance-To-Digital Converter For Capacitive Type Pressure Sensor Array Under Diabetic-Foot	109,000	2015-2017	GP-I, UPM (Co-Researcher)

Awards/Recognition (Current)

Num	Name of awards	Title	Award Authority	Award Type	Year
1.	Champion	Analog Input-Output Path Circuits for Four Transistor Pixel in Standard 0.13µm CMOS Technology	IEEE Malaysia	International	2017
2.	Champion	Design of a Fast Inclined Rope Climbing Robot for MURoC 2011	Faculty of Engineering, UPM	Faculty	2011
3.	Patent Pending (PI2016702720)	An Apparatus for Tillage Depth Measurement	Malaysian Intellectual Property Organization	National	2016
4.	Copyright (PX210476951 MY)	A Fault Syndrome Simulator for Functional Faults of Static Random Access	Malaysian Intellectual Property Organization	National	2009

	Memories (SRAM)	

Professional Services/Consultation

No	Year	Title	Authority	Amount
1.	2016	5-Channel Current Input Data Logger Prototype Development	Dataran Berlian Sdn. Bhd	RM4,200
2.	2017	Development of RESMOS HV V2.0 for TNB Load Reading	Dataran Berlian Sdn. Bhd	RM40,000

Student Supervision

PhD (Main Supervisor)

No.	Name	Title	Status
1.	MOHD. SHAFI AL-AJMI	SOLAR-WIND HYBRID RENEWABLE ENERGY GENERATOR	Ongoing
2.	SHAEA OMASH ALAJMI	MIGRATION OF HARMONICS BETWEEN COMPONENTS IN RENEWABLE ENERGY POWER PLANTS	Ongoing
3.	BILAL ISAM ABDULRAZZAQ	DESIGN OF A WIDE-RANGE CMOS DIGITAL DELAY LINE WITH SUB-PICOSECOND JITTER FOR IMAGE SENSOR APPLICATIONS	Graduated

PhD (Co-Supervisor)

No.	Name	Title	Status
1.	WAQAR TARIQ	EVALUATION OF PROJECT TRACKING APPROACHES	Ongoing
2.	MOHD NAJIB AHMAD	DEVELOPMENT OF AN AUTOMATED COUNTER FOR BAGWORM CENSUS (GEOGRAPHICAL INFORMATION SYSTEM)	Ongoing
3.	HAIDER FAWZY MAHMOOD AL-SHAKARACHI	ENERGY HARVESTING FROM VIBRATION (AGRICULTURE ENGINEERING)	Ongoing
4.	SABER MOHAMMED ELNOUR FADUL	A DEVELOPMENT OF A NEW TYPE OF MOTOR CONTROL DRIVE FOR A HIGH TORQUE PERMANENT MAGNET LINEAR MOTOR FOR ELECTRIC AND HYBRID VEHICLES (CONTROL AND AUTOMATION ENGINEERING)	Graduated
5.	KHALDON MOHAMMED ALMADHAGI	STUDIES ON MICROFLUIDIC SYSTEMS (MICROELECTRONIC ENGINEERING)	Graduated

MS (Main Supervisor)

No.	Name	Title	Status
1.	NOR AZURA BT ZAKARIA	MARCH ALGORTIHM DETECTION AND EVALUATION	Graduated
2.	SOLMAZ RASTEGAR MOGHADDAM MANSOURI	DESIGN OF SEGMENTED 14-BIT LOW POWER CURRENT STEERING DIGITAL TO ANALOG CONVERTER	Graduated
3.	AMAD UD DIN	AMPLIFIER SELECTION FOR FULLY CMOS TOF RANGE IMAGING PIXELS	Graduated
4.	HUR ABD AL-REDA HASSAN	DESIGN OF A 1.8V SUCCESSIVE APPROXIMATION REGISTER ADC WITH LOW FLICKER NOISE	Graduated

MS (Co-Supervisor)

No.	Name	Title	Status
1.	YAHYA MUHAMMAD	DEVELOPMENT OF LANDSLIDE EARLY DETECTION AND WARNING SYSTEM USING WIRELESS SENSOR NETWORK (EMBEDDED COMPUTER SYSTEMS)	Ongoing
2.	ZAID HADI KHUDAIR	IMAGE PROCESSING ON INTEL EDISON MICROCONTROLLER FOR PORK DETECTION (MICROELECTRONIC ENGINEERING)	Graduated
3.	NOR AZURA BT ZAKARIA	MARCH ALGORITHM DETECTION AND EVALUATION (MICROELECTRONIC ENGINEERING)	Graduated
4.	MASNITA BINTI MAT ISA	MARCH-BASED DIAGNOSIS ALGORITHM FOR STATIC RANDOM-ACCESS MEMORY STUCK-AT FAULTS AND TRANSITION FAULTS (MICROELECTRONIC ENGINEERING)	Graduated
5.	DAVOOD KALHOR	VISION-BASED HUMAN ACTION RECOGNITION USING TIME DELAY INPUT RADIAL BASIS FUNCTION NETWORKS (MICROELECTRONIC ENGINEERING)	Graduated