Ihab Adly, *PhD*

Sheraton Heliopolis, Cairo, Egypt
+20 (0122) 214-2169
ihab.adly@gmail.com

RESEARCH/CONSULTING EXPERIENCE (*h*-index 4)

Actively involved in digital design and system on chip consulting for two decades, participated in the conception, development and evaluation of several research projects. Participated in all aspects of project development including brainstorming, proposal writing, prototyping, intellectual property, reporting and testability. Supervised more than 3 PhD and 16 MSc. students, with more than 30 international publications.

Google Scholar profile at: https://scholar.google.com.eg/citations?user=8Zq0QUoAAAAJ

Scopus profile at: https://www.scopus.com/authid/detail.uri?authorId=8507404400

ResearchGate profile at: https://ww.researchgate.net/profile/Ihab_Adly

IEEE profile at: https://ieeexplore.ieee.org/author/38368342200

Jan. 2017 – Present — **Research Associate, *The American University in Cairo,*** *Egypt*, member of the SEAD research group: www.researchgate.net/lab/SEAD-Group-HH-Amer

Sept. 2016 – Present — **Member of the Center for Emerging Learning Technologies, *The British University in Egypt.***
www.celt-bue.com

Research Projects

Feb. 2019 – Present — **Member in the EU project: "Wireless Aquaponic Farming in Remote Areas: A smart adaptive socio-economic solution (WAFRA)",** funded by the Science and Technology Development Fund (STDF) under the ERANETMED programme. Partners: Egypt, Germany, Italy, Spain, Tunisia. **Project budget: 612,458 EUR.**
http://www.lequia.udg.edu/dissemination/news/item/2658-wafra.html

Nov. 2017 – Nov. 2019 — **Co-investigator, project: "Microbial electron transfer: Research and innovation for social welfare",** funded by the British Council Newton Fund - Institutional Links Grant Programme on the British side, and Science and Technology Development Fund (STDF) from the Egyptian side. (STDF Project ID# 27662). UK Partner: Westminster University. **Project budget: 1,698,878 EGP.**
https://www.westminster.ac.uk/applied-biotechnology-research-group/funded-research/metris-project

Sept. 2017 – Jan. 2020 — **Co-investigator, project: "Enhancement of Photovoltaic and Wind Turbine Performance for High Temperature and Low Wind Speed Environments", *Center of Emerging Learning Technologies, British University. UK Partner: Loughborough University.* Project budget: 1,180,725 EGP.**

Leading the development team, consisting of 6 engineers and two SW developers, at the BUE to build an IoT platform for remote experimentation. One group of engineers and a developer built a solution based on NI CompactRio and CompactDAQ components integrated and linked to MySQL database with GUI developed on LabView. The second group of engineers worked on the development of an IoT solution based on Embedded Linux HW connected to MySQL database and controlled through a web application developed in JavaScript using ExpressJS, NodeJS, and AngularJS frameworks. The project was sponsored through the UK Newton-Musharfa fund programme, STDF Project ID# 26134, accessible on: www.celt-bue.com

Jan. 2015 – Present — **Design Advisor, Integrated Circuits Lab, *Ain Shams University University,*** *Cairo, Egypt.*

Working in the development of wireless sensor nodes for deployment in different applications, based on ZigBee, WiFi, Ethernet technologies. Main target applications include Nuclear facilities safety, agriculture and aquaponics. Recent work focuses on the development of a IIoT based sensor node for water quality monitoring and actuation for use in aquaponics, accessible on: www.sensifish.com

Oct. 2011 – Feb. 2015 — **Member of the *British University team in the project: "*e-Laboratories for Physics and Engineering Education." Project budget: 788,814 EUR.**

Working in the development of remotely accessed hardware and software experiments for remote education purposes. Sponsored through the European Union Tempus programme (514102-TEMPUS-1-2011-1-SE-TEMPUS-JPCR (2011-2527/001-001)). EU Partners: UK, Belgium, Greece. Egyptian Partners: ASU, NU, Aswan University, EELU, MCIT. www.elab.edu.eg

June 2010 – Feb. 2013

Research Assistant, project: "Industrial Wireless Sensor Networks for Oil and Gas Applications (InWiSeNet)," *French University, Egypt.* Project budget: 1,565,000 EGP

Working as a researcher in the field of wireless sensor networks deployment in harsh environments, and especially in oil and gas refineries. A prototype for a complete industrial wireless sensor node has been developed to sense several operating parameters in these environments. Sponsored through National Telecommunication Regulatory Authority (NTRA) in Egypt.

June 2010 – June 2012

Research Assistant, project: "Wireless Sensors for a Condition Monitoring System of Wind Turbines (Wise_Wind)", *Mansoura University, Egypt.* Project budget: 501,400 EGP

Working within a research group aiming to develop a wireless sensor network for wind farm monitoring. The research aims to improve efficiency of wind energy collection by deployment and adoption of WSN technologies in wind farms. Designing a complete wireless sensor node to perform different sensing and acquisition tasks such as, wind speed/direction, temperature, pressure, and vibration based on MEMs accelerometers. Sponsored through the Information Technology Industry Development Agency (ITIDA) in Egypt (ID# 1534).

Industrial Projects: Consultant at Goodix: Oct. 2019 - Present

July 2020 - Present

FPGA Prototyping of NFC universal chip 2nd gen., *Goodix Egypt.*

Leading an FPGA team of 6 engineers to prototype an NFC chip on FPGA, supporting RW, CE and P2P for technologies A, B, F, V according to ISO and NFC forum standards. A complete SoC solution has been started based on M0+ core from ARM with embedded NIOS processor side to side with Tensilica DSP processor Fusion F1. Several IPS (from ARM, Synopsys, Cadence) are currently under integration to control the NFC Analog Front End. The three processors system are expected to be implemented on Intel FPGA, Arria 10 family.

Oct. 2019 - July 2020

FPGA Prototyping of NFC universal chip 1st *gen., Goodix Egypt.*

Leading an FPGA team of 4 engineers to prototype an NFC chip on FPGA, supporting RW, CE and P2P for technologies A, B, F, V according to ISO and NFC forum standards. A complete SoC solution has been developed based on M0+ core from ARM with embedded NIOS processor, a firmware developed on C to operate the two processors. Several (from ARM, Synopsys) have been used and integrated to control the NFC Analog Front End. The two processors system were implemented on Intel FPGA, Cyclone V family. The whole FPGA testbed has been tested with MP500 from Micropros.

Industrial Projects: Executive Director of Tegrom: Mar. 2006 - June 2019

Jan. 2015 – June. 2019

Secure VPN, *Encryption Unit, National Security Council.*

Leading a team of 5 engineers to design and build a secure VPN for communication over the Internet. A complete SoC solution has been developed with embedded NIOS processor, a firmware developed on C to operate the processor. Several IPs have used and integrated to control the Ethernet interface for 1 Gb operation. The secure algorithm has been developed entirely using VHDL/Verilog and simulated using ModelSim, integrated with the processor system and implemented on Altera FPGA, Cyclone IV family. Current status, in production, with more than 40 units deployed successfully.

May 2014 – Apr. 2016

Principal Investigator (PI), Smart Wireless LED Driver for Public Lighting, *collaboration between Tegrom and Ain Shams University.* Project budget: 93,980 EUR.

Leading the development teams from Ain Shams and Tegrom, with total 8 engineers and 2 SW/Database developers, to build a smart wireless LED driver for public lighting based on IEEE802.15.4 network standard. The LED driver has been built around the Linear Technology LT3795 LED driver, integrated with ATMEL ZigBee controller configured through ZigBee Cluster Library (ZCL). On the server side, a web-based application has been developed based on PHP and MySQL database. One desktop application has been developed based on JavaFX is a software platform to configure the sensor and driver prior to deployment.

The smart driver aims to increase in energy efficiency in public lighting application through the integration of sensors that optimize energy use for operation and maintenance. The project is sponsored through the EU RDI programme and was implemented in collaboration with Ain Shams University in Egypt, ICL (RDI2/S2/118).

Mar 2008 – June 2010

Future Soldier instruments controller, *Technical Research Center, Egypt.* Total Budget 1,050,000 EGP

Designed and supervised the prototype development of a Future Soldier instruments controller, the controller purpose is to synchronize the operation of imagers and displays, thermal and CCD, to enhance the soldier combat capabilities. Leading a team of 12 engineers and 4 technicians to integrate and test the system components from different manufacturers, Flir, TDS Reacon, Vectronix, and Cisco. The controller was also used to wirelessly communicate audio/video signals to other members in group via IEEE 802.11 links, an

analog video multiplexer was configured and integrated with ARM based processors to handle the video stream. A ruggedized prototype has been developed and experimentally passed harsh environment tests according to MIL-STD-810.

Jan. 2009 – June 2010 **Secure HF Communication Equipment, *Technical Research Center, Egypt.* Total Budget 900,000 EGP**

Leading a team of 8 engineers, 2 developers and 2 technicians to design a solution to secure voice and transmission over military grade HF modems using a specially developed encryption algorithm. The voice is digitized and compressed using AMBE2000 coder prior to encryption and then using digital modulators, it is transmitted through the same bandwidth available for voice transmission in HF modems. The design has been simulated using ModeSim and implemented on FPGA from Altera, Cyclone Family. The design has been described in VHDL/Verilog and utilizing different IP cores. A ruggedized prototype has been developed and experimentally passed harsh environment tests according to MIL-STD-810.

Mar. 2006 – Dec. 2008 **Integrated Voice/Data/FAX Encryptor, *Technical Research Center, Egypt.* Total Budget 400,000 EGP**

Leading a team of 4 engineers to design a secure equipment to handle voice, data, and FAX transmission over telephone lines using a specially developed encryption algorithm. The voice is digitized and compressed prior to encryption and then transmitted through data link established over telephone lines. The design conforms to V.34 standard for data transmission over telephone lines. FAX capability has been also integrated to complete the whole functionality of the system. A complete prototype has been developed, implemented on Altera FPGA, and tested in field experiments. Small production quantities have been produced and deployed.

Industrial Projects: Senior Design Engineer, Falcon for Engineering Services: Jan. 2001 - Mar. 2006

Mar. 2005 – Mar. 2006 **FAX Encryption System, *Technical Research Center, Egypt.* Total Budget 300,000 EGP**

Designed a system to secure FAX transmission over telephone lines using an optimized version of the AES encryption algorithm. A special device was designed to handle the FAX transmission from one point, encrypt the information, and then resend the FAX over telephone lines. The device is transparent during the dialing process, and initial phases of link establishment. The design conforms to Group III, T.4, T.30 FAX standards. A complete prototype has been developed, implemented on Altera FPGA, and tested in field experiments.

June 2003 – Aug. 2004 **Secure TCP Card, *Technical Research Center, Egypt.***

The project goal is to build hardware to perform the AES encryption algorithm. A complete prototype has been developed based on Xilinx FPGA card with PCI bus interface, secured data where then transferred over TCP/IP links, and decrypted on the other side. Participated in all aspects of prototype development.

Mar 2001 – May. 2003 **Scientific Calculator Chip, *Egyptian Company for Industry Support, Egypt.***

Designed a simple and scientific calculator to carry out the advanced arithmetic operations, the design was based on 8051 IP core, RAM, ROM and peripherals were all built on one chip. FPGA prototype was completed and successfully tested. Another prototype was developed and fabricated at AMI on 0.7 um technology with complete design flow on Cadence tools.

Industrial Projects: Digital Design Engineer, Arab Organization for Industrialization, Electronics Factory
Sep. 1998 - Jan. 2001

Worked within a small team of 8 engineers within the Electronics Engineering Department. Undertook design and development of USB controller device conforming to the USB 1.1 standards. Working extensively on RTL coding and testbenches. Performed full analogue/digital circuit design, schematic capture, and created PCB layouts. Implemented and tested the design on Xilinx FPGA. Understood IP development requirements and generated / agreed tests / electrical / functionality specifications with customers.

TEACHING & ACADEMIC EXPERIENCE

EXTENSIVE TEACHING EXPERIENCE IN ACADEMIC AND LAY ENVIRONMENTS

Teaching and grading of the Digital Design, Digital Electronics, Computer Architecture, Embedded Systems and Microprocessor Design courses for undergraduate and graduate engineering students. Supervising students' graduation projects in WSN, implementation of machine learning on FPGAs, fault tolerance systems, embedded systems, IoT and IIoT applications.

Oct. 2019 – Present **Assistant Professor, *The British University*, *Cairo, Egypt*.**

Department of Electrical Engineering, EE and CE programmes.

Sept. 2016 – Sept. 2019 **Adjunct Faculty, *The British University*, *Cairo, Egypt*.**

Department of Electrical Engineering, EE and CE programmes.

Sept. 2018 – Jan. 2019 **Adjunct Faculty, *Zewail City for Science and Technology***, *Cairo, Egypt*.
Computer Information Engineering and Nano Technology programmes.

Feb. 2017 – June 2017 **Adjunct Faculty, *Arab Academy for Science and Technology***, *Cairo, Egypt*.
Department of Computer Engineering.

Sept. 2015 – Dec. 2015 **Adjunct Faculty, *The American University in Cairo***, *Egypt*.
School of Electronics and Communications Engineering.

Sept. 2012 – June 2014 **Lecturer, *British University***, *Cairo, Egypt*.
Department of Electrical Engineering, EE programme.

Jan. 2011 – Dec. 2012 **Adjunct Faculty, *French University*, *Cairo, Egypt*.**
TIC department, Technology of Informatics and Communications, Engineering.

ACADEMIC RECORD

RIGOROUS ACADEMIC EDUCATION IN ELECTRONICS AND COMMUNICATIONS

Sept. 2005 – Jan. 2011 **Ph.D., Electronics and Communications, *Ain Shams University – Faculty of Engineering***, *Cairo, Egypt.*
The thesis focuses on the development of a methodology to facilitate the process of configuring sensor nodes in their final destinations. The proposed approach eliminates the unpractical need to collect sensor nodes from their spread locations and connect them through cables for configuration or firmware update.

- Thesis: "Design and Implementation of Wireless Configuration of Programmable Circuits." Supervisors: Prof. Hani Fikry Ragai, Prof. Adel El-Hennawy, Prof. Khaled Ali Shehata.
- Experience with Wireless Sensor Networks (WSN), Configurable Devices, PSoC Programming.

Sept. 2002 – May 2005 **M.Sc., Electronics and Communications, *Ain Shams University – Faculty of Engineering***, *Cairo, Egypt.*
The thesis focuses on the development of a digital controller and DC to DC charge pump to drive RF MEMS switch from a single 5V source supply, as MEMS switches require different higher voltages for every stage of operation. The design is intended to be used on one chip solution for RF MEMS switches developed by IMEC. The design was implemented using I2T AMIS 0.7 um technology.

- Thesis: "Design and Implementation of On-Chip High Voltage Generator Circuit for Use in RF MEMS Switches." Supervisors: Prof. Hani Fikry Ragai, Prof. Hani Amin Ghali, Prof. Robert Mertens.
- Experience with Charge Pumps, RF MEMS Switches, and Mixed Signal Design.

Sept. 1991 – June 1996 **B.Sc., Electronics and Communications, *Ain Shams University – Faculty of Engineering***, *Cairo, Egypt.*

PROFESSIONAL COURSES

PROFESSIONAL TRAINING IN CMOS, MIXED-SIGNAL, VLSI DESIGN AND OTHERS

July 2015 **Berlin Training School in Lighting Design: best practices (LiDe3),** *Berlin, Germany.*

Dec. 2006 **Virtuoso Analog Modeling & AMS Designer, *Cadence Design Systems,*** *Cairo, Egypt.*

Oct. 2002 **Design for Testability & Advanced Layout Course, *Mentor Graphics,*** *Cairo, Egypt.*

Sept. 2000 **IP Creation Guidelines, *Mentor Graphics,*** *UK.*

Aug. 1999 **Advanced Digital Design, *Mentor Graphics,*** *Cairo, Egypt.*

Oct. 1997 **VLSI Design Course, *Information Technology Institute,*** *Cairo, Egypt.*

ENGINEERING TOOLS, LANGUAGES, AND OTHER SKILLS

- Tools: Cadence (Spectre, Virtuoso, Dracula & Assura DRC/LVS) & Mentor Graphics (Design Architect, ModelSim, IC Station, Eldo), Intel FPGA, Altera (Quartus), Xilinx (ISE, Vivado), OrCad (PSpice, Schematics and PCB), PSoC Designer and Matlab
- Standards: V.34, T.4, T.30, USB 1.1, AES, IEEE 802.11, IEEE 802.15.4, NFC Forum, ISO 14443

- Languages: VHDL, C, Perl, Verilog, TCL, Python

MEMBERSHIPS & AFFILIATIONS

- Member of the Institute of Electrical and Electronics Engineers (IEEE); IEEE Circuits and Systems Society, IEEE Communications Society, IEEE Computer Society.

- Member of the Egyptian Information, Telecommunications, Electronics, and Software Alliance (EITESAL), member of the Electronics Division.

RESEARCH AREAS OF INTEREST

FPGA design, Wireless Sensor Networks, Internet of Things (IoT), Industrial Internet of Things (IIoT), Remote Sensing and Actuation, industrial automation, SoC design.

PATENT

Multifunktionale Bildlaufleiste (MFR) für Web Browser

Multi-Function Ruler for Web Browser

Tatjana Bulava and Ihab Guindy, registration number: DE102015013816A1, published on 23rd February 2017

PUBLICATIONS (Journals are shown shaded)

[1] HA Ghali, NY Ammar, I Adly, "An Interactive Mobile Hub for Teaching Electromagnetics Courses [Education Corner]", IEEE Antennas and Propagation Magazine 62 (4), 117-127, 2020

[2] SK Elsokkary, GI Alkady, I Adly, HH Amer, RM Daoud, H ElSayed, et al., " Reliable FPGA-based Architectures for Quadcopters in Search and Rescue Missions", 2020 9th Mediterranean Conference on Embedded Computing (MECO), 1-5, 2020

[3] B Shokry, DG Mahmoud, HH Amer, M Shatta, GI Alkady, RM Daoud, I Adly, et al., "Work-in-Progress: Triple Event Upset Tolerant Area-Efficient FPGA-Based System for Space Applications And Nuclear Plants", 2020 16th IEEE International Conference on Factory Communication Systems, 2020

[4] MG Labib, DG Mahmoud, GI Alkady, I Adly, HH Amer, RM Daoud, et al., "Heterogeneous Redundancy for PCB Track Failures: An Automotive Example", 2019 14th International Conference on Computer Engineering and Systems, 2019

[5] H Eassa, I Adly, HH Issa, " RISC-V based implementation of Programmable Logic Controller on FPGA for Industry 4.0", 2019 31st International Conference on Microelectronics (ICM), 98-102, 2019

[6] M Rumman, DG Mahmoud, I Adly, HH Amer, GI Alkady, H ElSayed, "Reliable On-Chip Memory for FPGA-Based Systems", 2019 31st International Conference on Microelectronics (ICM), 36-39, 2019

[7] GI Alkady, RM Daoud, HH Amer, HH Halawa, K Alshureify, I Adly, et al., "FPGA-based Ethernet Switch for NCS with Partial Fault Tolerance", 2019 31st International Conference on Microelectronics (ICM), 32-35, 2019

[8] GI Alkady, DG Mahmoud, RM Daoud, HH Amer, MN Shaker, HM ElSayed, et al., "Reliable FPGA-Based Network Architecture for Smart Cities", 2019 31st International Conference on Microelectronics (ICM), 334-337, 2019

[9] M Hanna, HT Abdelhamid, KN Sorour, I ElAraby, S Mahfouz, YS Okasha, et al., "Smart FPGA-based System for Enhancing Educational Programs", 2019 Novel Intelligent and Leading Emerging Sciences Conference (NILES) 1, 2019

[10] M Odema, I Adly, H Ghali, A El-Baz, A Abdelkader, "Remotely Accessible Wind-Tunnel Measurement Platform for Academic Purposes", 2019 IEEE Conference on Power Electronics and Renewable Energy (CPERE), 38-42, 2019

[11] DG Mahmoud, OA Elkhouly, M Azzazy, GI Alkady, I Adly, RM Daoud, et al., " Intelligent Battery-Aware Energy Management System for Electric Vehicles", 2019 24th IEEE International Conference on Emerging Technologies and Factory, 2019

[12] H Ahmed, GI Alkady, HH Halawa, RM Daoud, HH Amer, I Adly, TK Refaat, et al., "Reliable FPGA-based Camera Sensor for NCS", 2019 11th International Conference on Electronics, Computers and Artificial, 2019

[13] M. N. Shaker, A. Hussien, G. I. Alkady, H. H. Amer and I. Adly, "Mitigating the Effect of Multiple Event Upsets in FPGA-Based Automotive Applications," 2019 8th Mediterranean Conference on Embedded Computing (MECO), Budva, Montenegro, 2019, pp. 1-4. doi: 10.1109/MECO.2019.8760189

[14] F. A. Abouelghit, H. ElSayed, G. I. Alkady, H. H. Amer and I. Adly, "FPGA-Based Fault-Tolerant Quadcopter with Fuzzy Obstacle Avoidance," 2019 8th Mediterranean Conference on Embedded Computing (MECO), Budva, Montenegro, 2019, pp. 1-4. doi: 10.1109/MECO.2019.8760049

[15] Rana Elmaraashly, Gehad Alkady, Ramez Daoud, Hassan Halawa, Hassanein Amer, Ihab Adly and Tarek Refaat, "On the Reliability and Flexibility of FPGAs for Fault Tolerance in Sectored Networked Control Systems," 2019 8th Mediterranean Conference on Embedded Computing (MECO), Budva, Montenegro, 2019, pp. 1-4. doi: 10.1109/MECO.2019.8760287

[16] M. Odema, I. Adly and H. A. Ghali, "LabVIEW-Based Interactive Remote Experimentation Implementation using NI myRIO," 2019 International Conference on Innovative Trends in Computer Engineering (ITCE), Aswan, Egypt, 2019, pp. 214-218. doi: 10.1109/ITCE.2019.8646602

[17] Gehad I Alkady, Ramez M Daoud, Hassanein H Amer, Malak Y ElSalamouny, Ihab Adly, "Failures in Fault-Tolerant FPGA-based Controllers–A Case study," *International Journal of Microprocessors and Microsystems*, Elsevier, 2018. doi: 10.1016/j.micpro.2018.11.003

[18] Dina Mahmoud, Gehad Alkady, Hassanein Amer, Ramez Daoud, Ihab Adly, Youssef Essam, Hassan Ismail and Kirollos Sorour, "Fault Secure FPGA-Based TMR Voter," *2018 7th Mediterranean Conference on Embedded Computing (MECO)*, Budva, 2018. doi: 10.1109/MECO.2018.8406016

[19] Gehad Alkady, Hassanein Amer, Ramez Daoud, Tarek Refaat, Hany Elsayed and Ihab Adly, "An Adaptive Multi-Factor Fault-Tolerance Selection Scheme for FPGAs in Space Applications," 2018 7th Mediterranean Conference on Embedded Computing (MECO), Budva, 2018. doi: 10.1109/MECO.2018.8406019

[20] G. I. Alkady, I. Adly, H. H. Amer and T. K. Refaat, "Mitigation of Soft and Hard Errors in FPGA-Based Pacemakers," 2018 13th International Conference on Computer Engineering and Systems (ICCES), Cairo, Egypt, 2018, pp. 284-289. doi: 10.1109/ICCES.2018.8639480

[21] Mohanad Odema, Ihab Adly, Ahmed El-Baz, Hani Amin, "A RESTful Architecture for Portable Remote Online Experimentation Services," Proceedings of the 7th International Conference on Software and Information Engineering, Cairo, 2018, pp. 102-105. doi: 10.1145/3220267.3220280

[22] Ihab Adly, Mohamed Fadel, Ahmed El-Baz, Hani Amin, "Interactive Mobile Learning Platform at the British University in Egypt," Proceedings of the 7th International Conference on Software and Information Engineering, Cairo, 2018, pp. 97-101. doi: 10.1145/3220267.3220279

[23] M. Elaakhdar, I. Adly and H. Ragai, "High Performance Time-Continuous Differential Sense Amplifier in Time Domain Sensing with 28 nm Technology for Automotive Applications," 2018 International Conference on Computing, Electronics & Communications Engineering (iCCECE), Southend, United Kingdom, 2018, pp. 262-265. doi: 10.1109/iCCECOME.2018.8659089

[24] G. I. Alkady, R. M. Daoud, H. H. Amer, I. Adly, H. H. Halawa and M. B. Abdelhalim, "Highly reliable controller implementation using a network-based fully reconfigurable FPGA for industrial applications," 2017 22nd IEEE International Conference on Emerging Technologies and Factory Automation (ETFA), Limassol, 2017, pp. 1-5. doi: 10.1109/ETFA.2017.8247755

[25] H. F. Ragai, I. Adly, H. E. M. Sayour and S. Wilson, "Remote control and monitoring of fish farms using wireless sensor networks," 2017 12th International Conference on Computer Engineering and Systems (ICCES), Cairo, 2017, pp. 107-111. doi: 10.1109/ICCES.2017.8275287

[26] B. Samy and I. Adly, "Wireless street lighting system using ZigBee cluster library," 2017 Japan-Africa Conference on Electronics, Communications and Computers (JAC-ECC), Alexandria, 2017, pp. 132-135. doi: 10.1109/JEC-ECC.2017.8305795

[27] M. Y. ElSalamouny, Gehad I. Alkady, Ihab Adly, Ramez M. Daoud, Hassanein H. Amer, Hany ElSayed, Dina G. Mahmoud, Hassan A. Ismail, and Hassan H. Halawa, "Highly available FPGA-based smart band for WBAN," 2017 12th International Conference on Computer Engineering and Systems (ICCES), Cairo, 2017, pp. 25-30. doi: 10.1109/ICCES.2017.8275271

[28] Mohanad Odema, Ihab Adly, Ayman Wahba and Hani Ragai, "Smart Aquaponics System for Industrial Internet of Things (IIoT)," *Proceedings of the 3rd International conference on Advanced Intelligent systems and Informatics (AISI 2017)*, Egypt, 2017. doi: 10.1007/978-3-319-64861-3_79

[29] G. I. Alkady, R. M. Daoud, H. H. Amer, M. Y. ElSalamouny and I. Adly, “Fault-Tolerant FPGA-based controllers in factory automation,” *2017 6th Mediterranean Conference on Embedded Computing (MECO)*, Bar, 2017, pp. 1-4. doi: 10.1109/MECO.2017.7977160

[30] Rana N. Badran, Ihab Adly, and Hani Ghali, "Self-Sufficient Wind Turbine Condition Monitoring System," *Journal of Clean Energy Technologies* vol. 6, no. 2, pp. 112-116, 2018. doi: 10.18178/JOCET.2018.6.2.444

[31] H. O. Ahmed, M. M. Elkhatib, I. Adly, and H. F. Ragai, “Design and Implementation of Fuzzy Event-detection Algorithm for Border Monitoring on FPGA,” *International Journal of Fuzzy Systems*, 2016, vol. 18, pp. 1054-1064. doi: 10.1007/s40815-015-0079-3

[32] H. O. Ahmed, M. M. Elkhatib, I. Adly, and H. F. Ragai, “Intelligent Fuzzy Event Detection for Border Monitoring in Noisy Environment,” t*he 9th International Conference on Electrical Engineering ICEENG-9, Cairo, Egypt, May 27-29*, 2014.

[33] R. I. Gomaa, I. A. Shohdy, K. A. Sharshar, A. S. Al-Kabbani and H. F. Ragai, "Real-Time Radiological Monitoring of Nuclear Facilities Using ZigBee Technology," in *IEEE Sensors Journal*, vol. 14, no. 11, pp. 4007-4013, Nov. 2014. doi: 10.1109/JSEN.2014.2357803

[34] R. Gomaa, I. Adly, K. Sharshar, A. Safwat and H. Ragai, "Radiation Tolerance Assessment of Commercial ZigBee Wireless Modules," *2014 IEEE Radiation Effects Data Workshop (REDW)*, Paris, 2014, pp. 1-5. doi: 10.1109/REDW.2014.7004584

[35] Ihab Adly, “Wireless sensor networks for wind turbine farms monitoring,” *ResearchFocus Magazine at the British University in Egypt*, vol. 1, pp. 31-33, 2014.

[36] R. Gomaa, I. Adly, K. Sharshar, A. Safwat and H. Ragai, “ZigBee wireless sensor network for radiation monitoring at nuclear facilities,” *6th Joint IFIP Wireless and Mobile Networking Conference (WMNC)*, Dubai, 2013, pp. 1-4. doi: 10.1109/WMNC.2013.6548954

[37] Ihab Adly, Hossam E. M. Sayour, Nahla M. Badawy and Hani Ragai, "Evaluation of Real-Time Water Quality Monitoring system in Nile Tilapia-Lettuce Aquaponic based on wireless Sensor Network," *the 6th.Global Fisheries and Aquaculture Research Conference*, Hurghada, 2013.

[38] O. Hassan, I. Adly and K. A. Shehata, “Vehicle localization system based on IR-UWB for V2I applications,” *2013 8th International Conference on Computer Engineering & Systems (ICCES)*, Cairo, 2013, pp. 133-137. doi: 10.1109/ICCES.2013.6707188

[39] R. Agieb, I. Adly and R. Ragai, “Two nodes UWB low power asset localization in WSN,” *2013 International Conference on Computer Applications Technology (ICCAT)*, Sousse, 2013, pp. 1-4. doi: 10.1109/ICCAT.2013.6522059

[40] F. S. Ayad, I. Adly, Y. El-Qattan and H. A. Ghali, “Web application for remote experimentation,” *2012 International Conference on Computer Systems and Industrial Informatics*, Sharjah, 2012, pp. 1-5. doi: 10.1109/ICCSII.2012.6454594

[41] I. Adly, H. F. Ragai, A. E. Elhennawy and K. A. Shehata, “Adaptive packet sizing for OTAP of PSoC based interface board in WSN,” *2010 International Conference on Microelectronics*, Cairo, 2010, pp. 148-151. doi: 10.1109/ICM.2010.5696101

[42] I. Adly, H. F. Ragai, A. El-Hennawy and K. A. Shehata, “Over-The-Air Programming of PSoC sensor interface in wireless sensor networks,” *Melecon 2010 - 2010 15th IEEE Mediterranean Electrotechnical Conference*, Valletta, 2010, pp. 997-1002. doi: 10.1109/MELCON.2010.5475910

[43] I. Adly, H. Ragai, A. Al-Henawy, and K. Shehata, “Wireless configuration controller design for FPGAs in software defined radios,” *The Online Journal on Electronics and Electrical Engineering (OJEEE)*, vol. 2, pp. 293-297, 2010.

[44] M. Y. Ghannam, I. Adly, H. A. C. Tilmans, W. De Raedt and R. P. Mertens, “CMOS-integrated digitally controlled DC-DC voltage converter with voltage and time configurations for on-chip high voltage MEMS switch actuation,” *Proceedings. The 16th International Conference on Microelectronics, 2004. ICM 2004.*, 2004, pp. 97-100. doi: 10.1109/ICM.2004.1434216

