

# SHUZA BINZAID

## CONTACT

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## PROFESSIONAL PREPARATION

Prairie View A&M University Prairie View, Texas	Electrical Engineering	BS, 1992
Prairie View A&M University Prairie View, Texas	Electrical Engineering	MS, 1997
Prairie View A&M University Prairie View, Texas	Electrical Engineering	Ph.D., 2009

## APPOINTMENTS

09/2018-present	Research Associate Professor, Department of Electrical and Computer Engineering, Prairie View A&M University, Texas.
01/2011-08/2018	Research Associate Faculty, Assistant Professor, and Adjunct Faculty-III, Department of Electrical and Computer Engineering, The University of Texas at San Antonio.
01/2010-12/2010	Assistant professor, Department of Electrical and Communication Engineering, University of Information Technology and Sciences, Baridhara Main Campus, Dhaka, Bangladesh.
01/2007-12/2009	Adjunct Faculty, Department of Electrical Engineering, St. Mary's University, Texas.
06/2003-09/2004	Senior Test Engineer, Server CPU Products of Sun Microsystems, Texas Instruments, Stafford, Texas.
07/2000-05/2003	Senior Product Engineer, Wireless Products Division, Motorola Semiconductor Corp., Austin, Texas.
01/1997-06/2003	Senior Product Engineer, Imaging and Storage Products Division, Motorola Semiconductor Corp., Austin, Texas.

## PRODUCTS MOST CLOSELY RELATED

**Products summary:** *70+ articles published, 4 TV news, > 10 online News and Newspapers, and 14 Technology Patent IPs.*

### Innovations and Patent IPs:

1. **Binzaid, S.**, "Technologies for Multifunction Sensor Devices and Microcontroller-Based Interface Module". Utility (Non-provisional) **Patent # 17/510,814.**
2. **Binzaid S.**, et al., "Energy Generating Multilayer Composite Materials Pad Application on Pavement for Transports," USPTO **Provisional Patent # 63/343,734.**
3. **Binzaid S.**, et al., "Dual-Stage Charge Collection and Energy Storage Electronic Module for Alternative Energy Application," USPTO **Provisional Patent # 63/343,731.**
4. **Binzaid, S.**, "System for Amplifying Solar Heat for Concentrated Solar-Thermal Power Systems", Utility (Non-provisional) **Patent # 17/029,881.**
5. **Binzaid, S.**, et al., "CMOS Process-Dependent Near-Threshold Voltage Regulation". Utility (Non-provisional) **Patent # 15/817,716.**
6. **Binzaid, S.**, et al., "Energy Efficient Smart Monitoring System for Air Filters", Utility (Non-provisional) **Patent # 15/817,269.**

7. **Binzaid, S.**, et al., "NVB Trickle-Charger System with Built-in Auto-Dummy-Load Using Micro-Power Pyroelectricity at Sub-V<sub>th</sub> of Si-MOS IC". Utility (Non-provisional) **Patent # 15/506,742**.
8. **Binzaid, S.**, et al., "Pyroelectric Emulator for Testing, Characterization, and Development of Devices". Utility (Non-provisional) **Patent # 14/687,888**.
9. **Binzaid, S.**, et al., "Pocket Electronic Pyroelectric Reference Module for Micro-Power Harvesting and Sensor Applications", Utility (Non-provisional) **Patent # 14/687,884**.

## **SIGNIFICANT PUBLISHED PRODUCTS**

1. I. Chowdhury and **S. Binzaid**, "AgriTronX – A Solar Powered Off-grid Automated Cultivation Systems Applicable also in Piper Betel (Paan) Growth" IEEE/OSA/IAPR International Conference on Informatics, Electronics & Vision, 2012.
2. **S. Binzaid** and I. Chowdhury, "Soil Erosion Prevention by Sustainable Phytoremediation Process Using Solar Irrigation and Fertilization System," International Journal of Scientific and Research Publications, Vol. 4, Issue 4, pp. 1 – 13, April 2014.
3. **S. Binzaid** and A. Herlekar, "Near-Threshold-Voltage (NTV) Regulation for System-on- Chip (SoC)", International Journal of Engineering Research and General Science. December 2015. ISSN 2277- 4297.
4. S. Babulal, **S. Binzaid**, R. Guo, R., and A. Bhalla, "Microcontroller Based Application of Bio-Sensing the Critical Parameters of the Human Lung", Journal of Integrated Ferroelectrics, Taylor and Francis, 174, pp. 195-202, 2016.
5. Md. Rokonzaman, M. K. Mishu, N. Amin, M. Nadarajah, R. B. Roy, K. S. Rahman, A. M. Buhari, **S. Binzaid**, M. Shakeri and J. Pasupuleti, "Self-Sustained Autonomous Wireless Sensor Network with Integrated Solar Photovoltaic System for Internet of Smart Home-Building (IoSHB) Applications", Journal of Micromachines, MDPI, June 2021.
6. N. Shamim, **S. Binzaid**, J. F. Gabitto, and J. O. Attia, "A Combined Chemical-Electrochemical Process to Capture CO<sub>2</sub> and Produce Hydrogen and Electricity", Journal of Energies, MDPI, September 2021.
7. K.M. Kabir, **S. Binzaid**, and J.O. Attia, "Analysis of Lithium-Ion Battery Storage System for Sustainable Energy Generating Pad Applications," IEEE Sustainability and Resilience Conference: Design Innovation (SRC), November 2022.
8. K.M. Kabir, **S. Binzaid**, Portable Solar-Powered Smart System for Reverse Osmosis Process of Drinkable Rainwater, IEEE Global Energy Conference, October 2022.
9. K.M. Kabir, **S. Binzaid**, and J.O. Attia "Design and Implementation of a Sustainable Energy Generating Pad for Lightweight Transportation," IEEE Global Energy Conference, October 2022.
10. K.M. Kabir, **S. Binzaid**, and J.O. Attia, "An Experimental Model and Test of a Novel Sustainable Energy Pad for Bike Lane Applications," ASEE Gulf Southwest Annual Conference, <https://peer.asee.org/3916>, March 2022.

## **RELEVANT ACTIVITIES**

1. **Panelist of the NSF Smart and Connected Communities, 2021 and 2022** for Principal Investigators Meeting, October 2022.
2. **Presenter of the World Cities Summit** and Workshop of Collaborating USA with ASEAN Smart Cities in Singapore, September 2022.
3. **Presenter of the Data Blitz at PVAMU**, presented in the renewable energy technology discussion on issues and solutions, 2020.

## RELEVANT PROJECTS

1. **NSF EAGER** awarded \$300K for developing Energy Generating Pad for Bike Lane applications in Kuala Lumpur, Malaysia, received in 2020.
2. **RAPID Award 2022**, a fund of \$10K was received to develop Solar PV energy based low-power application for innovating a water purification system in 10 weeks during summer 2022.
3. **NSF MRI**, Major Research Instrumentation project was awarded \$365K for setting up a hybrid renewable energy system for remote location in PVAMU's goat farm, 2021.

## SYNERGISTIC ACTIVITIES

### 1. *Professional Leaderships:*

**Project Lead of (i) Entrepreneurial Lead NSF I-Corps (2016), (ii) CPS-UTSA Electronics Hi-SEC module team in 2015, (iii) Electronic EVI design team TxDOT-UTSA in 2013, (iv) Engineering team iDEN (Motorola) phone production-line in 2002; (v) Planner of ElectroFest Event, Science and Technology Fair and Conference at UITS in 2010-2013; (vi) Member of Review Board, IEEE for various Asian conferences in China, Japan and Malaysia regions from 2009 to 2012; (vii) Trainer, Research Skill Developments, offered on Microcontroller-based systems for technical understanding and programming, UTSA from 2015 to 2017, (viii) ) Member of Organizing Committee of ASEE GSW Conference, 2022, (ix) Technical Lead for ECE, PVAMU, and Co-PI of NextGen Center of Energy, 2023.**

### 2. **Organizational Leaderships:**

**Founding Member** of the San Antonio Bangladeshi American Society (SABAS), in 2011.

**Board of Directors** of SABAS, San Antonio, Texas from 2012 to 2013.

**Founding Member and CTO** of Oxion Inc., San Jose, CA, USA (I-Corps program EL into business start-up in 2018, ended in 2021).

## PROFESSIONAL RECOGNITIONS, HONORS AND AWARDS

**Fellow** of the Pavan Educational Trust, India, Fellowship # FLSSL/2013/76 in 2013.

**EL, NSF I-Corps Program, certificate of completion** awarded in 2017.

**NSF award, NSF Site Fund of "Proof of Concept"** in 2016.

**Honored Scientist** of Special Seminar, Speaker at Bangladesh Agriculture University, 2016.

**Recognition for completion** of the NSF I-Corps program in 2017.

**Recognition of Texas State Senator** at the 5th Annual UTSA innovation awards in 2017.

**Recognition of US Congressman** for accomplishment in teaching and research in 2017.

**Awarded for Excellence in Innovation, Commercialization and Entrepreneurship at PVAMU, 2022.**