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Listed in Stanford University's Coveted Global List of Top 2% Scientists (Source: Press Release Public Relation Office, Jamia Millia Islamia, 2022 and 2021). Also published in some leading news channels/print media.

Topical Editor: IEEE Sensors Journal (SCI, Q2)

Associate Editor: IEEE Trans. Instrum and Measurement (SCI, Q1)

Associate Editor, Int. J. Smart Sensing and Intelligent Systems

Carrier Objective

A successful academic person in an Institution in which I can contribute to improve the quality of Indian value-added education, research and teaching profiles in a sustainable manner with my creativity, innovation and expertise in the field of Engineering to address various societal and industrial challenges.

Synopsis

Since my joining the Electrical Engineering Department, Jamia Millia Islamia, a Central University (NIRF Rank 3, NAAC Grade:A++) in 1998, I have devoted myself for excellence in teaching, research, scholarship and service. With the help of my scholarly innovative and high-quality research, I establish myself nationally and intentionally. All my degrees are from government educational institutions and all my research works are also based in India only. I am one of the most efficient and diligent mid carrier researchers in the field of Sensors and Instrumentation as can be seen from my publication records. I have a strong track records in the field of capacitive sensors, conductive sensors, surface acoustics wave sensors for different transduction applications including moisture in ppm, relative humidity in %RH, pressure measurement, temperature measurement, liquid level, hydration monitoring on concrete structure, automatic dispensing of microdroplet, metal particles detection in lubricating oil, dissolved gas analysis and, moisture in transformer oil, and in SF6 gas, moisture measurement in food grains, beverage quality, toxic gas, organic vapours etc. I also have track records on developing efficient interfacing circuits for perfect and imperfect capacitive sensors. Because of my contribution in the field of Sensors and Instrumentation, I become one of the Topical Editors (TE) of the IEEE Sensors Journal and IEEE Transactions on Instrumentation and Measurement. My contribution for the IEEE sensors Journal is very much acknowledged as I received best performing AE award from the IEEE Sensors Council in 2017 and 2018, an outstanding award from IEEE Intrum and Meas. society. The excellence of my research has been demonstrated by my development of innovative different types capacitive sensors for industrial applications, received of several research grants, authorship of more than 180 high quality publication including eleven scholarly book chapters, four edited books, one guest editor of special issue of a journal, filing four patents, one patent (granted), ninety high rank journal papers, invitation to seminar lectures by reputed Universities and Institutions and establishment of National and International Research Collaborations. Most of my journal papers are published in top quality Journals like IEEE, IET, Elsevier, AIP, Springers, Taylor and Francis, American Scientific Publishers. Research in all articles is carried out under my meticulous supervision and in India only.

At Jamia Millia Islamia, I have demonstrated my excellence in teaching, new course development, student supervision, leadership in teaching, and research in teaching and learning. I have taken initiative to train students and teaching staff in the emerging fields with the help of Sponsored GIAN course, a Government of India initiative to establish International academic networking with foreign researcher of international repute. One course is organized in the department titled “Smart Sensors and Internet of Things” with foreign speaker from Macquarie University, Australia and the other one titled “Cyber Secure Control and Sensing Technology for Smart Grids”, with Foreign Speaker from the Engineering, University of Technology, Sydney, Australia. Is organized in May 2022. I have participated several training and faculty development programs which help me greatly to improve teaching and research skill. I have imparted training to the L&T graduate trainee employee.

Qualifications

1. August 2007, Doctor of Philosophy in Engineering (Ph.D)
Jadavpur University, Jadavpur, Kolkata, India (All India NIRF Rank 4).
2. September 1997, Master of Science in Control and Instrumentation
Aligarh Muslim University (AMU), Aligarh, India (All India NIRF Rank 18)
3. 1994, Bachelor of Science in Electrical Engineering,
Aligarh Muslim University (AMU), Aligarh, India

Professional Experiences

September 2012 to till date	Full Professor Department of Electrical Engineering, Jamia Millia Islamia (Central University),
September 2006 to August 2012	Associate Professor Department of Electrical Engineering, Jamia Millia Islamia (Central University).
November 1997 to September 2006	Assistant Professor Department of Electrical Engineering, Jamia Millia Islamia (Central University)
June 1995 to Dec 1996	Scientific Officer, CSIR Research Project, Deptt. of Electronics Engg., A.M.U Aligarh, India

Teaching

I have developed the following two courses for M Tech Control and Instrumentation stream at Jamia Millia Islamia, Central University: (i) EEM 203, Transducer Technology (ii) EEM 403, Digital Instrumentation. I have developed two special courses under Global Initiative of Academic Networking, Govt of India (GIAN scheme), one is “Smart Sensors and Internet of Things (IoT)” and the other one is on “Cyber Secure Control and Sensing Technology for future Smart Grids”. I also developed Lab Manuals for electrical Measurement Lab and Digital Electronics Lab for undergraduate Students. I taught five courses for under graduate electrical engineering students: (i) Element of Electrical Engineering (ii) Circuit Analysis (iii) Electrical measurement (iv) Digital electronics (v) Analog electronics. I have also taught three courses for M Tech students (i) Industrial Instrumentation (ii) Transducer Technology (EEM203) and (iii) Digital Instrumentation (EEM 403). My passion, enthusiasm and commitment to teaching are equal to my commitment to research because I believe that both teaching and learning are integral parts of my career profile. Seventeen students have been awarded PhD degree, one has submitted and six students are pursuing (two PMRF fellows, one CSIR fellow). During the last fifteen years, I have had the opportunity to teach students in different engineering colleges, deliver special lectures on faculty development programs, special lecture for seminars, workshop, and conferences and provides industrial training to the corporates

staff. These lectures help me to further improve my teaching philosophy and teaching approach. I believe that teaching should not be static but be dynamic and should continually be evolved and improving process is never perfected. I have used reflective practice to significantly improve student experience, learning and engagement in Engineering Courses.

• My teaching philosophy is to involve students and keep them busy in deep learning by designing topics of the courses with industrial requirements. I continuously update the methods of course delivery, assessment and students' feedback to improve my teaching. I include the latest research and technologies into my teaching and project topics. I remain up to date with the latest development by attending workshops, conferences and faculty development programs. My leadership capability in teaching and research is demonstrated by securing sponsored projects from Ministry of Human Resource Development (MHRD) and many other funding agencies. My teaching achievements have been demonstrated by student feedback, performances in the exam and overall student satisfaction. I have received appreciation letter from the IEEE Sensors Council for publishing paper. I have received carrier best award from the honorable vice chancellor for featuring in Stanford University's Coveted Global List of Top 2% Scientists.

Research Fields and Current Interests

- Capacitive Sensors, Impedance Sensors, Surface Acoustic wave Sensors, Fractional order constant phase sensors, sensors array, eddy current sensors
 - Interfacing circuits for the sensors, signal conditioning circuits (analog/digital)
 - Measurements of physical and chemical parameters
 - Health monitoring for smart grids (Gas Insulated Switch Gear and Protection (GIS), Transformer)
 - Automatic Dispensing System,
 - Structural health monitoring, Food quality, Smart Agriculture
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Major Completed Sponsored Research Projects

1. Pore morphology studies of porous silicon to measure content in dry gas in ppmV to ppb V", *Department of Science & Technology, Govt. of India, New Delhi, SR/S2/CMP-73/2007*, dated 14/05/2008, amount : 40 lakh, period: 2008-2011
2. "Sol-Gel Ceramic Thin film for Sensing Applications", *Department of Atomic Energy (DAE)(BRNS), Government of India, 2011/34/1/BRNS/143* Dated: 21/04/2011, amount: 33.66 lakh, period: 2011-2014 (completed on 30/6/2014).
3. "Development of ceramic thin film sensor using Sol-Gel method", *Department of Science & Technology, Govt. of India, New Delhi, SR/S2/CMP-0011/2011*, Dated 01/05/2012, amount: 21 lakh, period: 2011-2015.
4. "Fabrication and investigation of electrical characteristics of sol-gel thin film metal oxide surface acoustic wave humidity sensor", *Defence Research and Development Organization, DRDO Bhawan, Rajaji Marg, New Delhi-110011*, Amount: 28.64 lakh, period: August 2017-July 2020.

Collaborative research Project:

1. IEC 61850 Compliant SF6 Monitoring System for Gas Insulated Switchgear.
Central Power Research Institute, CPRI Bangaluro, India, Amount:48 lakh, Veer Sai University, Burla, Odisha, and JMI, New Delhi- 27 September 2018 to 31st March 2021.

Teaching grant under GIAN scheme

1. "Smart Sensors and Internet of Things (IOTs)", MHRD GIAN COURSE GIAN-*Ministry of Human Resource and Development (MHRD), (IIT/GIAN/S-15/115* dated 23/11/2015),

- amount:9 lakh, period, 21 March 2016-31 March 2016. Foreign Speaker: Prof S C Mukhopadhyaya, University of Massey, New Zealand
2. *Cyber Security Control and Sensing Technology for Future Smart Grids*, MED, GIAN COURSE GIAN-Ministry of Education (MHRD), (194028D01, dated June 2020), amount:7 lakh, period, 23rd May 2022 to 27th May 2022.
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Ph.D. Students Supervision (Degree Awarded)

1. Durga Nand Mahaseth, Design and development of surface acoustic wave (SAW) physical sensors with necessary signal conditioning, 2022 (submitted)
2. Arshi Salamar (Visvesvaraya fellow), Development of sensing devices for analysing the quality of beverages, graduated in 2022 (awarded).
3. Kaji Javed Akram (Principal Supervisor) Development of Impedance Sensors for Health Assessment of Concrete Structures, graduated in 2020.
4. Shailash Kumar (Principal Supervisor), Design Of Humidity Sensor For Condition Monitoring Of Power Transformer, graduated in 2020
5. Zubair Hasan Zargar(Principal Supervisor), Design and fabrication of thin film impedance sensor using Thompson –Lampard Theorem, graduated in 2019.
6. Danish Equbal(Co-Supervisor),Develop soft computing techniques for identification of power transformer faults using Dissolved Gas Analysis (DGA), graduated in 2019
7. Mohd Zia Ur Rehman(Principal Supervisor), Study of constant phase element for sensor development, Graduated in 2019.
8. Anwar-Ulla-Khan(Principal Supervisor), Development and analysis of microcontroller-based signal conditioning circuit for thin film humidity sensor, Graduated in 2017
9. Rahat Mahboob(Principal Supervisor), Development of integrated sensor for wireless humidity detection, Graduated in 2017
10. Firoz Alam Khan (Principal supervision), Measuring the moisture content of transformer oil using thin film capacitive sensor, Graduated in 2016
11. Neeraj Khera (Co- Supervisor), Development Of Real Time Condition Monitoring And Maintenance System, Graduated in 2016
12. Upendra Mittal(Principal Supervisor), Design and Development of Surface Acoustic Wave Based Chemical Vapor Sensor, Graduated in 2016
13. Amit Gangopadhyay(Principal Supervisor), Design and Development of Capacitive Vapor Sensor with Necessary Signal Conditioning, Graduated in 2016
14. Lokesh Kumar(Principal Supervisor), Nanostructure active moisture sensor fabricated by thin film technology, Graduated in 2015
15. Shahir Hussain(Co-Supervisor), Purification of carbon nanotubes and its characterization for gas sensing application, Graduated in 2014
16. P. Mufti Zia(Co-Supervisor), Porous Silicon based sensor for sensing chemical vapours, Graduated in 2011
17. Miss Saakshi Dhanekar(Co-Supervisor), Raman and Photoluminescence Investigation of Nanostructure Porous Silicon for Sensing vapors, Graduated in 2010.

Ph.D. Students Supervision (Registered)

1. Ariz Shakeel, Development of Electronic System for Smart Grids Health Monitoring Application (2021) (PMRF research fellow)
2. Rubina Khan, Electronics System using Smart Capacitive Sensors for Electrical Apparatus Condition Monitoring, PMRF Research fellow (2021) (PMRF research fellow)
3. Shamim Alam, Design and Fabrication of Humidity Sensors with Electronic Interfacing Circuits in 2018.
4. Geetika Ashwani, Development of capacitive sensor for moisture measurement in agricultural products and its pore morphology studies in 2018.

5. Uzma salmaz, Development of precise and accurate measurement system for analyzing the quality of beverages in 2018.
6. Uroosa Gazi, Development of Smart Sensors for Structural Health MONitoring

M. Tech Thesis Guided

1. **Preeti Mishra**, Condition Monitoring of the Breather of a Transformer Using Smart Photodiodes Array, graduated in 2021
2. **Meghna Srivastava**, Design and Fabrication of Impedance Sensor for Moisture Measurement in Grains, graduated in 2021
3. Muneeb Ul Yousuf, Design And Fabrication Of Cross-Capacitive Humidity Sensor With Polymer Film, graduated in 2021.
4. Mohd Idress Wani, Design and development of capacitive sensors for ethanol sensing and their interface electronics, graduated in 2020.
5. Zeeshan Bashir Mir, Interfacing circuit for the capacitive sensor with linear response, graduated in 2020.
6. **Uroosa Gazi**, Development of impedance sensor for strength measurement of concrete, graduated in 2020.
7. Tabish Majid, Design and fabrication of the capacitive sensor for non-invasive hydration monitoring of cement paste graduated in 2019.
8. Mujeeb Yousuf, Development of cross-capacitive sensor to detect metal particles in lubricating oil, graduated 2019.
9. Om Prakash Maurya, Design and fabrication of the capacitive sensors for the detection of moisture content of seeds and grain, graduated in 2019
10. Zeba Tahseen, development of capacitive sensor for moisture measurement in transformer oil, graduated in 2018.
11. Uzma Salmaz, Development of metal oxide thin film fractional order sensor for measuring the quality of important drinks, graduated in 2017.
12. Gaurav Prit, Capacitive method of pressure measurement using shielded capacitance, graduated in 2017.
13. Babita Lohani, Studying the electrical properties of the adulterated liquid drink using fractional order sensor, graduated in 2016.
14. Sandeep Kumar, Cross-conductive technique to analyse the quality of water and milk, graduated in 2016.
15. Shibli Shakil, Constant phase impedance sensor for water quality monitoring, graduated in 2015
16. Zainab Tak, Modeling of humidity sensor using ANN technique and drift estimation, graduated in 2015.
17. Mohd Shahid Malik, Development of interface electronic circuit for lossy capacitive sensor, graduated in 2014.
18. Zubair Hasan Zargar, Fabrication of humidity sensor using thin film technology, graduated in 2014.
19. Amra Wahab, A relaxation oscillator-based transformer ratio arm bridge circuit for digital interfacing of capacitive sensor, graduated in 2013.
20. Md Shahid, Development of inductive sensor for measuring the moisture, graduated in 2012.
21. Geetika Ashwani, Modeling of a capacitive humidity sensor using ANN technique, graduated in 2012.
22. Shailesh Kumar Singh, Development of signal conditioning circuit for capacitive sensor, graduated in 2012.
23. Ashish Kumar Srivastava, Application of neuro-fuzzy based approach to short term load forecasting, graduated in 2008
24. Abhay Kumar Pandey, Formation of nanostructure of porous silicon by electrochemical etching., graduated in 2008.

25. Kishan Kumar, Effect of offset voltage of op-amp in thermoresistive sensor and its compensation, graduated in 2008
26. Shamshad, An active bridge circuit to measure the incremental resistance change of a remotely located resistive sensor, graduated in 2007.
27. Pradipta Kumar Dutta, A multi parametric pattern recognition analysis for a porous silicon based electronic olfaction system, graduated in 2006.

No. of PhD/Master Thesis evaluated: Foreign : 03 Ph.D., 01 Master
National : 11 Ph.D, 04 Master

Award, fellowship, & honours:

1. Received carrier best award from University for featuring in Stanford University's Coveted Global List of Top 2% Scientists (Source: Press Release Public Relation Office, Jamia Millia Islamia, 30th October 2022.
2. My name is featured in Stanford University's Coveted Global List of Top 2% Scientists (Source: Press Release Public Relation Office, Jamia Millia Islamia, 5th November 2021. Also published in some leading news channels/print media.
3. Appointed as a Topical Editor of IEEE Sensors Journal in 2021, a prestigious SCI journal published by IEEE society.
4. Awarded as an outstanding Associate Editor of IEE Trans. Instrum and Measurement 2020, a number 1 Q1 journal in Instrumentation and Measurement subject published by IEEE Instrum and meas. society.
5. Best Performing Associate Editor (AE) of IEEE Sensors Journal in 2018.
6. Best Performing Associate Editor of IEEE Sensors Journal in 2017.
7. Appointed AE of IEEE Sensors Journal in 2015
8. Appointed AE of the IEEE Trans. on Instrumentation and Measurement in 2019.
9. Visiting NBA Expert, UPSC board member
10. Tarikul Islam, S. C. Mukhopadhyay, N. K. Suryadevara, Smart Sensors and Internet of Things: A Postgraduate Paper IEEE Sensors Journal, VoL. 17, No. 3, February 1, 2017, 577-588. This paper is one of the 25 most downloaded manuscripts of IEEE Sensors journal from 2017 to 2018.
11. S Kumar, L Kumar, T. Islam, K K Raina, Electrical Circuit Model of an Aged Ceramic Humidity Sensor, judged, best conference paper of ICN:3I-2017, 6-8 December 2017 at IIT Roorkee.
12. Invitation Received to Edit a Book on "Wearable Sensors: Applications, Design and Implementation", Institute of Physics Publishing, 2017.
13. Invited to edit a special issue on "Innovative Technologies and Services for Smart Cities", Journal Electronics (ISSN 2079-9292), MDPI, Switzerland
14. QIP, AICTE Fellowship for Ph.D from 2003 to 2006
15. INSA Visiting Fellowship for short-term research work (2009) at Sensor and Actuator Section, Central Glass and Ceramic Research Institute (C.G.C.R.I.), Jadavpur, Kolkata.

Selected Publications

More than 180 articles are published including ten scholarly edited book chapters, three scholarly edited books, one edited special issue of journal, eighty eight referred journal articles, more than seventy-five high quality conference papers, four patents filed. Since 2016, my papers are attracted more than 1300 citations with H index 24 (Google scholar). Most of my papers show increasing trends of citations.

Research articles are listed below.

Patent Awarded:

1. Tarikul Islam, Upendra Mittal, A T Nimal, M.U Sharma, “Metal oxide Thin Film Based SAW Humidity Sensor”, Indian Patent Application No 1100/DEL/2015, date: April 20, 2015. Patent Document No. 410320
2. Tarikul Islam, Zubair Hasan Zargar, “A Novel Capacitive Sensor for Non Contact Micro Droplet Detection”, Indian No. 429762, Application No. 201711024806, 13/07/2017

Patents filed:

3. Tarikul Islam, Shailesh Kumar Singh, “Condition monitoring of transformer breather using smart photodiodes array”, Indian patent no. 202311002231”, date: January 11, 2023.
4. Tarikul Islam, Upendra Mittal, Metal Oxide SAW sensor for ppm moisture sensing, 202111001109, date 18/3/2021
5. Gyan Ranjan Biswal, Tarikul Islam, Soumya Das, Kaji Javed Akram, .202111011524 A, Publication Date : 16/04/2021

Scholarly Book Chapters:

1. Tarikul Islam, Kaji Javed Akram, Printable flexible sensors for hydration monitoring and moisture measurement in concrete structures, *Editor: Tarikul Islam*, Subhas Chandra Mukhopadhyay, Bobby George, Systems for Printed Flexible Sensors Design and implementation, IOP Publishing, Bristol, UK, 2022 (DOI 10.1088/978-0-7503-3935-3).
2. Zubair Hassan Zarhar and **Tarikul Islam**, Printable and flexible sensor for droplet detection, Chapter 18, Edited Book Title: Printed and Flexible Sensor Technology Fabrication and applications (Editors: Subhas Chandra Mukhopadhyay and Anindya Nag), Institute of Physics (IOP), Publishing, Bristol, UK, 2021
3. Md Rahat Mahboob, Shakeb A Khan and **Tarikul Islam**, Humidity detection in low ppm using printable flexible sensors, Chapter 17, Edited Book Title: Printed and Flexible Sensor Technology Fabrication and applications (Editors: Subhas Chandra Mukhopadhyay and Anindya Nag), Institute of Physics (IOP), Publishing, Bristol, UK, 2021.
4. Anwar Ulla Khan, and **Tarikul Islam**, Recent Development of Interfacing Circuits for the Capacitive Sensor, Encyclopedia of Sensors and Biosensors, Reference Module in Biomedical Sciences, Elsevier 2021, <https://doi.org/10.1016/B978-0-12-822548-6.00084-4>
5. **Tarikul Islam**, Design and Fabrication of Fringing Field Interdigital Sensors for Physical Parameters Measurement, Book Title-Interdigital Sensors Progress over the Last Two Decade, Smart Sensors, Measurement and Instrumentation (*Editor: Subhas Chandra Mukhopadhyay, Bobby George, Joyanta Kumar Roy, Tarikul Islam*), Springer Switzerland (Chapter # 4), pp. 71-90, 2021.
6. Anwarullah Khan, L Kumar, **Tarikul Islam**, Mohammad E Khan, Fabrication of Nanostructured Metal Oxide Thin Film Capacitive Humidity Sensor, Chapter 10, Edited Book Metal and Metal Oxides for Energy and Electronics, Environmental Chemistry for a Sustainable World 55, Springer Nature Switzerland AG, 2021
7. **Tarikul Islam**, Assistive Sensing Technology for the Elderly Health Care, Elsevier, Guest editor S C Mukhopadhyay, N Suryadevara (published)
8. H.Saha, S.Dey, C.Pramanik, J. Das, **Tarikul Islam**, “Porous Silicon Based Sensors Amenable to Smart Sensing”, *Encyclopaedia of Sensors* (*Editor: raig A. Grimes, Elizabeth C. Dickey, and Michael V. Pishko*), USA. ISBN: 1-58883-056-X, American Scientific Publishers (ASP) (2006) [http:// www.aspbs.com/eos](http://www.aspbs.com/eos) (Chapter # 11), pp. 330-343, 2006. This

is the first encyclopaedia on the topic “sensors” published. This book was forwarded by Professor Rudolph A. Marcus, Nobel Prize Laureate.

9. **Tarikul Islam**, Upendra Mittal, A.T. Nimal, M.U. Sharma, “High Frequency Surface Acoustic Wave (SAW) Device for Toxic Vapor Detection: Prospects and Challenges”, *Sensing Technology: Current Status and Future Trends II*, ISBN: 978-3-319-02314-4 (Editor: A. Mason, S. C. Mukhopadhyay, K. P. Jayasundera, N. Bhattacharyya), Springer Switzerland (Chapter # 11), pp. 217-242.2014.
10. **Tarikul Islam**, “Advanced Interfacing Techniques for the Capacitive Sensor”, *Sensors, Measurement and Instrumentation*, ISBN 978-3-319-55369-6 (Editors: Prof. B. George, Prof. J. Kumar Roy, Prof. J. Kumar, Prof. S. C. Mukhopadhyay), Springer, Switzerland, pp. 73-109, 2016.
11. Tarikul Islam and S C Mukhopadhyay, “Wearable sensors for physiological parameters measurement: physics, characteristics, design and applications”, *Wearable sensors: applications, design and implementation*, ISBN 978-0-7503-1503-6 (Editors: Prof S.C. Mukhopadhyay, Prof. Tarikul Islam), Institute of Physics (IOP), Publishing, Bristol, UK, pp. 1-31, 2017

Scholarly Edited Book:

1. Systems for Printed Flexible Sensors, by Islam, Tarikul; Mukhopadhyay, Subhas Chandra; George, Bobby. ISBN: 978- (DOI 10.1088/978-0-7503-3935-3).
2. *Editor: Subhas Chandra Mukhopadhyay, Bobby George, Joyanta Kumar Roy, **Tarikul Islam***, *Interdigital Sensors Progress over the Last Two Decade*, Smart Sensors, Measurement and Instrumentation, Springer Switzerland, 2021.
3. Wearable Sensors; Applications, design and implementation, by Mukhopadhyay, Subhas Chandra and Islam, Tarikul . ISBN: 978-0-7503-1505-0. IOP ebooks. Bristol, UK: IOP Publishing, 2017.
4. **Tarikul Islam** and S C Mukhopadhyay, Innovative Technologies and Services for Smart Cities, MDPI St. Alban-Anlage 66 4052 Basel, Switzerland, ISBN 978-3-03921-181-4 (Pbk) [https://www.mdpi.com/journal/electronics/ special issues/smart cities](https://www.mdpi.com/journal/electronics/special%20issues/smart%20cities)).

(C) Editor Special Issue:

1. Innovative Technologies and Services for Smart Cities, Journal Electronics (ISSN 2079-9292) (Impact factor 2.110), Publishers: MDPI, Switzerland

Referred Journals Articles:

Year 2023:

1. M. K. Ikram, S. M. Amrr, M. S. J. Asghar, T. Islam and A. Iqbal, "Voltage Independent Reactive Current Based Sensor for Static VAR Control Applications," in *IEEE Sensors Journal*, vol. 23, no. 9, pp. 10023-10031, 1 May1, 2023, doi: 10.1109/JSEN.2023.3258696.
2. Hussain, S., Ali, S.A., Islam, T. *et al.* Design and detection method of a four electrodes cross-conductive sensor for fluid conductivity measurement. *Appl. Phys. A* 129, 314 (2023). <https://doi.org/10.1007/s00339-023-06577-2>.
3. S. A. Ali, M. R. Mahboob and T. Islam, "An Intelligent Food Salt Tester Using Cross-Conductive Sensor," in *IEEE Open Journal of Instrumentation and Measurement*, vol. 2, pp. 1-8, 2023, Art no. 2500208, doi: 10.1109/OJIM.2023.3280502.

Year 2022:

4. G. Singh, S. Sohail, U. Mangalanathan, U. Gandhi and T. Islam, "A Novel Dual-Slope Resistance to Digital Converter With Lead Resistance Compensation," in *IEEE Transactions on Instrumentation and Measurement*, vol. 72, pp. 1-10, 2023, Art no. 2001410, doi: 10.1109/TIM.2023.3238021.
5. K. J. Akram, A. Ahmed, B. George and T. Islam, "Evaluation of a Cross-Conductance Sensor for Cement Paste Hydration Monitoring and Setting Time Measurement," in *IEEE Sensors Journal*, vol. 23, no. 2, pp. 1584-1591, 15 Jan.15, 2023, doi: 10.1109/JSEN.2022.3225241.
6. Khan, Anwar Ulla, Mohammad Ehtisham Khan, Mashhood Hasan, Waleed Zakri, Waleed Alhazmi, and Tarikul Islam. "An Efficient Wireless Sensor Network Based on the ESP-MESH Protocol for Indoor and Outdoor Air Quality Monitoring." *Sustainability* 14, no. 24 (2022): 16630.
7. T. Islam, A. Salamat, S. K. Singh and M. Rehman, "A Direct AC Cross Conductive Sensor for Milk Quality Measurement," in *IEEE Transactions on Instrumentation and Measurement*, vol. 71, pp. 1-8, 2022, Art no. 1500208, doi: 10.1109/TIM.2022.3147313.

Year 2021

8. Islam, Tarikul, Om Prakash Maurya, and Anwar Ulla Khan. "Design and fabrication of fringing field capacitive sensor for non-contact liquid level measurement." *IEEE Sensors Journal* 21, no. 21 (2021): 24812-24819.
9. A Novel Application of the Cross-Capacitive Sensor in Real-time Condition Monitoring of Transformer Oil
10. Malik, Shahid, Kaushal Kishore, Laxmeesha Somappa, Sandip Lashkare, Tarikul Islam, S. A. Akbar, and Maryam Shojaei Baghini. "A dual-slope-based capacitance-to-time signal conditioning circuit for leaky capacitive sensors." *IEEE Transactions on Instrumentation and Measurement* 70 (2021): 1-8.
11. Salmaz, Uzma, M. A. H. Ahsan, and Tarikul Islam. "High-precision capacitive sensors for intravenous fluid monitoring in hospitals." *IEEE Transactions on Instrumentation and Measurement* 70 (2021): 1-9.
12. Rahman, Obaidur, Tarikul Islam, Aqueel Ahmad, Shaheen Parveen, Neeraj Khara, and Shakeb A. Khan. "Cross Capacitance Sensor for Insulation Oil Testing." *IEEE Sensors Journal* 21, no. 18 (2021): 20980-20989.
13. Malik, Shahid, Laxmeesha Somappa, Meraj Ahmad, Tarikul Islam, and Maryam Shojaei Baghini. "An accurate digital converter for lossy capacitive sensors." *Sensors and Actuators A: Physical* 331 (2021): 112958.
14. Alam, Shamim, Shakeb A. Khan, Upendra Mittal, and Tarikul Islam. "Determination of the relative humidity at the parts-per-million (ppm) level in gases by a nanoporous alumina thin-film on a surface acoustic wave (SAW) resonator." *Instrumentation Science & Technology* 50, no. 2 (2022): 118-131.
15. Kumar, Shailesh, Kuldeep Kumar Raina, and Tarikul Islam. "Anodic aluminium oxide based humidity sensor for online moisture monitoring of power transformer." *Sensors and actuators B: Chemical* 329 (2021): 128908.
16. Rahman, Mohammad Zia Ur, Omar M. Aldossary, and Tarikul Islam. "A constant phase impedance sensor for measuring conducting liquid level." *ISA transactions* 115 (2021): 250-258.
17. Alam, Shamim, Upendra Mittal, and Tarikul Islam. "The oxide film-coated surface acoustic wave resonators for the measurement of relative humidity." *IEEE Transactions on Instrumentation and Measurement* 70 (2021): 1-9.
18. Zargar, Zubair Hassan, Kazi Javed Akram, Gyan Ranjan Biswal, and Tarikul Islam. "A linear capacitive sensor for ppm moisture measurement in SF₆ gas-insulated switchgear." *IEEE transactions on instrumentation and measurement* 70 (2020): 1-8.

Year 2020:

19. M. R. Mahboob, A. U. Khan, L. Kumar and T. Islam, "Investigation of Chip Temperature on Response Characteristics of the Humidity Sensor From ppm to %RH," in *IEEE Transactions on Device and Materials Reliability*, vol. 20, no. 3, pp. 576-583, Sept. 2020, doi: 10.1109/TDMR.2020.3011736.
20. S. Malik, M. Ahmad, L. Somappa, T. Islam and M. S. Baghini, "AN-Z2V: Autonulling-Based Multimode Signal Conditioning Circuit for R-C Sensors," in *IEEE Transactions on Instrumentation and Measurement*, vol. 69, no. 11, pp. 8763-8772, Nov. 2020, doi: 10.1109/TIM.2020.2994476.
21. Tarkul Islam, Zeba Tehseen, Lokesh Kumar, A Highly Sensitive Thin Film Capacitive Sensor for online Moisture Measurement in Transformer Oil, *IET Science Measurement and Technology*, 14 , Issue: 4 , pp. 416 - 422 , May 2020, 10.1049/iet-smt.2019.0319 , Print ISSN 1751-8822
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36. **T Islam**, Mohd Shahid, L Kumar, S A Khan, A Sol-Gel Thin Film Integrated Inductive and Capacitive LC Sensor for Wirelessly Measuring Relative Humidity, Proceedings of 9th nanomechanical sensing workshop NMC 2012, IIT Bombay, Mumbai, 6-8 June 2012.
37. **T. Islam**, S.A. Khan, Faruque, Farheen, L. Kumar, A linear resistance to frequency converter for relaxation oscillator based active bridge circuit, **2nd International conference on advanced Nanomaterials and Nanotechnology at IIT Guwahati (ICANN-2011)**. December 8-10, 2011.
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40. **T. Islam**, A. Srivastava, Role of Wind Direction and Weather Event on Short Term Load Forecasting, **International Conference on Control, Communication and Power Engineering 2010 (CCPE 2010) (ACEEE)**, July 28-29, 2010, Chennai, India.
41. **T. Islam**, S. Hussain, A. Gangopadhyay, Harsh, S. S. Islam, Impedance spectroscopy of the porous silicon in low moisture content dry gas, **7th International Conference on Porous Semiconductors-Science and Technology (PSST10)**, 14-19 March, Valencia, Spain.
42. S. Dhanekar, P. Mishra, S.S. Islam, **T. Islam**, Harsh, Optical Detection of organic vapours by photoelectrochemically etched porous silicon based sensors, **7th International Conference on Porous Semiconductors-Science and Technology (PSST10)**, 14-19 March, Valencia, Spain.
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44. Selective Organic Vapour Sensing by Porous Silicon: Significance of Morphology, Saakshi Dhanekar, P.M.Z. Hasan, S. S. Islam, **T. Islam**, Harsh, Int. workshop on **Semicond. Phys. & Devices- 2009**, Delhi.
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50. S.M. Hossain, J. Das, **T. Islam**, H. Saha, Vapor detection using porous silicon sensor array, **11th International Meetings on chemical sensors (IMCS11)**, July 16-19 (2006) University of Brescia, Brescia, Itali
51. **T. Islam**, H. Saha, Modeling and simulation of a porous silicon capacitive humidity sensor using ANN technique for smart sensor application, International Conference on **Smart Materials and Structures (ISSS-05)** July 28-30 (2005) IISc. Bangalore, India.
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53. **T. Islam**, H. Saha, A precision digital ppm level gas moisture detector with porous sensor, **International Conference ISAMAP2K4**, December 6-8 (2004) Material Science Department, IIT Kharagpur, India.
54. C. Pramanik, **T. Islam**, H. Saha, Temperature estimation and compensation due to self-heating in a silicon based MEMS pressure sensor, **International Conference on Communications, Devices and Intelligent System (CODIS-2004)**, January 8-10 (2004) Park Hotel, Kolkata, India.
55. J. Das, **T. Islam**, S.M. Hossain. H. Saha, Porous silicon based vapor sensor array with neural network, **International Workshop on Physics of Semiconductor Devices (IWPSD-2003)** December, 16-20 (2003), IIT Chennai, India.
56. **T. Islam**, Moinuddin, Active bridge technique for measuring low capacitance over wide frequency range, First International Conference on **Mechatronics – ICOM-01**, February 12-13 (2001), Kuala Lumpur, Malaysia.

National Conference/symposium/workshop:

1. **T. Islam**, G Ashwani, L Kumar, Porous alumina based thin film capacitive humidity sensor and its modelling, National symposium on materials and processing-2012, MAP-2012, BARC Mumbai, 400094, October- 2012.
2. **T. Islam**, S. Kumar, L Kumar, Anand, Automatic control of firing angle of line converter using sol-gel thin film capacitive humidity sensor, National symposium on materials and processing-2012, MAP-2012, BARC Mumbai, 400094, October- 2012.
3. L Kumar, **T. Islam**, S.S. Islam, K Sengupta, A portable hygrometer for measuring medium range humidity using thin film of Aluminium oxide, C.G.C.R.I, Kolkata, March 2011.
4. Debdulal Saha, **T. Islam**, L. Kumar, S.S. Islam, K. Sengupta, Nonlinearity Compensation of Porous Alumina based trace moisture sensor with Labview Virtual Instruments blocks, NSPTS-16, Lucknow University, 11-13 February 2011.
5. S. Dhanekar, **T. Islam**, S.S. Islam, and Harsh, An effective way of reducing aging effects in porous silicon sensors, National conference on Sensors and Actuators: Science to Technology, C.G.C.R.I, Kolkata, March 2011.
6. Lokesh Kumar, **T. Islam**, K.K Saini, Mohan Pal, Humidity sensitive properties of nanostructured Nb doped TiO₂ thin films, 7th National Symposium and Conference on Solid State Chemistry and Allied Areas (ISCAS-2011), JAMIA MILLIA ISLAMIA on 24-25 November 2011.
7. L. Kumar, **T. Islam**, Fabrication of Highly Sensitive Porous Ceramic Relative Humidity Sensor by Sol-Gel Method, Solid State Chemistry and Allied Areas (ISCAS-2011), JAMIA MILLIA ISLAMIA on 24-25 November 2011.
8. L. Kumar, **T. Islam**, G. Aswani, S. S. Islam, K. Sengupta, Fabrication of Capacitive Humidity Sensor using Nano-structured Titanium Oxide, NATIONAL CONFERENCE On Power, Instrumentation, Energy and Control (Icon-2011), AMU, Aligarh, 12-13 February, 2011.
9. Shahir Hussain, **T. Islam**, S.S. Islam, Harsh, Comparative studies of pristine and functionalized carbon nanotubes, Lucknow University, 2009, India.
10. S. Dhanekar, P. M. Z. Hasan, Hussain Sahir, **T. Islam**, S.S. Islam, T. Islam and Harsh, Organic Vapour Sensing by Porous Silicon: Investigations of Morphological Dependence, National Conference on Nanomaterials Synthesis & Applications 6-7th Feb, 2009, Dav College Jalandhar, Punjab.
11. Vinita Kumari, S.S. Islam, **T. Islam**, and Harsh, Improvement of PL Stability of Nanoporous Silicon by Surface Treatment, National Conference on nanomaterials Synthesis & Applications 6-7th Feb, 2009, Dav College Jalandhar, Punjab.
12. **T. Islam**, H. Saha, ANN based pattern recognition for porous silicon (PS) based sensor array for alcohol sensing, National conference on sensors and actuators: emerging technological challenges, 21-22 December (2006), Central Glass and Ceramic Research Institute, Jadavpur, Kolkata (India).

13. **T. Islam**, P.K.Dutta, J. Das, H. Saha, Signal conditioning of porous silicon based organic vapor sensor array, 11th National Seminar on Physics and Technology of Sensors (NSPTS-11), February 27-1 March. (2006) Pune, India.
14. **T. Islam**, H. Saha, Nonlinearity compensation of a nanostructured porous silicon based humidity sensor using ANN technique, 11th National Seminar on Physics and Technology of Sensors (NSPTS-11), February 27-1 March. (2006) Pune, India.
15. M. Rehman, **T. Islam**, A self balancing technique for the measurement of small capacitances, National Symposium & Exposition on Modern Instrumentation-Challenges & Visions (MICV-98), 27-28 February (1999).
16. Rehman, M. & Islam, T., "Study of the effect of adulteration on the permittivity of Mustard Oil", Proc. Of National Seminar on Recent Trends in the Design of electronic and Other Engineering Systems held on 29-30th Nov. 1997 at Aligarh, pp. 250-255.
17. Rehman, M. T. Islam et.al. "Capacitive Technique for the Detection and Determination of Quality and Quantity of Edible Oils in Seeds and Oil Cakes", Proc. of Techshop-96, Industry & Research Meet on Technology Commercialization, held at Bhubaneshwar dated 19-20 Sep. 1996, pp. 143-147

Professional services

Senior member of IEEE, member IEEE Sensors Council, Life member, IETE, India, IST, IACPR, regular reviewer of more than fifteen journals and conferences including IEEE, IET, Springer, Elsevier, sponsored research proposals, Technical program member IEEE TIM, ICST, Track Chairs of some International Conferences. I also serve as member, BOS, project evaluation, Technical Track Chair, International/national conferences, Public information officer, Union Public Service Commission (UPSC), National Board of Accreditation of Technical Institute.

Invited Talk

1. *Cyber Security Control and Sensing Technology for Future Smart Grids*, MED, GIAN COURSE GIAN-Ministry of Education (MHRD), (194028D01, dated June 2020), 23rd May 2022 to 27th May 2022
2. Short Term Course through Google Meet titled: "Diagnostic Study of Transformer" for faculty members from engineering colleges and polytechnics at remote locations, 07 to 11 March, 2022, Electrical Engineering Department of NITTTR Chandigarh
3. Micro-sensors and Interfacing Circuits, 18-22 July, 2022, NIT Rourkella
4. Expert Talk in Electrical & Electronics Engineering Department at ABESEC, Ghaziabad, 17th Nov. 2022 at 12:15 PM, Electrical & Electronics Engineering Department at ABESEC, Ghaziabad
5. Invitation as a Resource Person (through ON-LINE mode) in ATAL sponsored FDP on "Current Avenues in Communication Engineering and VLSI Design, 14th Feb 2023.
6. **Wireless Moisture Measurement System for Condition Monitoring of Electrical Apparatus**, Int Second International Conference on "Recent Advances in Modeling and Simulation Techniques in Engineering and Science (RAMSTES 2022)" on 9th to 11th Nov. 2022
7. Punjab Agriculture University

8. MUJ, Int Conferemce
9. The Sensors for Health Monitoring of Electrical Apparatus in Smart Grids, 5th Int. Conference on Emerging Technologies: Micro to Nano (ETMN-2021), 8-9 October 2021, Manipal University Jaipur, Jointly organized by Manipal University Jaipur, India and University of Quebec, Outaouais, Canada.
10. Challenges in handling sponsored research project in constrained environment without compromising ethics, AICTE Sponsored 6 days Short Term Training Program on Engineering Ethics (EE-2020), 10 am to 12 PM, 22nd November 2020, The Department of Electrical & Electronics Engineering Veer Surendra Sai University of Technology, Burla, Sambalpur-768018, Odisha,.
11. Advances in Capacitive Sensors for Condition Monitoring Applications, 10.00 a.m.to 11.30 a.m, TEQIP-III Sponsored One week (04th to 08th September, 2020) Webinar on Recent Research Trends in Control, Instrumentation & Allied Engineering: A Multidisciplinary Approach (RRTCIA)-2020, NIT Silchar, Assam.
12. A Digital Hygrometer for PPM Level Moisture Measurement for Commercial Application, 4th Int. Conf. on Emerging Technologies: Micro to Nano (ETMN-2019), 16-17 Dec. 2019, SP Pune University, Pune.
13. Capacitive sensors for metal particles detection in lubricating oil of electric vehicle, A two-day Conf. on Flexible Electronics for Electric Drives, March 5-6, 2020, Manipal University, Jaipur.
14. Flexible Electronics Devices with Interfacing Circuits for Sensing Applications, Workshop, One Day Workshop on Flexible Electronics Technology (WFET-2019) 25th March, 2019 CSIR-CEERI, Pilani-333 031, Rajasthan, India.
15. Sensing Devices on Flexible Plastic Substrate with Interfacing Circuits, Guest Lecture, 13th May 2019, Electronics Engg Department, NIT Silchar.
16. Porous Si Amenable for Smart Sensing: A useful imperfection for sensing applications, Expert lecture, one day workshop, 9 to 10 AM, 05.10.2018, ABES Engineering College, Gaziabad.
17. Capacitive sensors for physical parameters measurement with suitable interfacing circuits, QIP faculty development program on Intelligent Control and Sensing of Smart Grid and Smart Cities (ICSSGSC) 30.04.2018 to 05.05.2018, Veer Sai University, Burla.
18. E-Nose for Toxic Vapour Detection, FDP program 21-25 May, 2018, Department of Electronics and & Communication Engg, IIMT College of Engineering, Greater Noida.
19. Capacitive sensors for physical parameters measurement and interface electronic circuits, Expert Lecture, 14/9/2017, Time: 3 – 5 pm, Delhi Technical University
20. Sensors for analyzing the quality of water and milk, 19/1/2017 at 2.30 PM to 4 PM, Sharda University
21. Sensing devices for analyzing milk and blood samples with necessary signal conditioning, Faculty development program, 7/2/ 2017, Time: 10:00AM to 2:00PM IIMT College of Engineering, Greater Noida.
22. Fractional order sensors for analyzing the quality of milk and water, 6th International Science Congress, 23-25 December 2016, The PGIMER, Dr RML Hospital, New Delhi
23. Surface acoustic wave sensors, Innovative and Advance Practices in Power System & Control Engineering Sponsored by Dr. A.P.J Abdul Kalam Technical Univ., U.P, Lucknow, ITS Engineering College, Greater Noida, UP
24. Basic Measurement Parameters and Sensors, Guest Lecture, September 2016, ABES Engineering college, Gaziabad
25. Transducers for Industrial Application, Faculty Development Program, Topic “Mechantronics & Robotics in Manufacturing Industries” 27th Feb 2015 to 12 March 2015, Mechanical Engg. Department, J.M.I. New Delhi
26. Resistive Sensors and Detection Electronics Circuits, Thapar University, Patiala, 2014, Electrical Engineering Department
27. Detection Electronics for Chemical Sensors: Issues and Challenges, Two days workshop, 11-12th February, 2014, Gargi College, Delhi University

28. Thin Film Sensors for Measuring Environmental Parameters, A Three Day Workshop on Real Time Applications of Sensor and Instrumentation using Lab-view and DAQ cards 20-22 Jan 2014, ABES Engineering college, Gaziabad
29. Virtual instrumentation and sensor, Guest lecture 6/9/2013, ITS Engineering College, Greater Noida, UP
30. Sol-Gel Thin Film Capacitive Sensor for Contactless Humidity Measurement, Materials Research Society of India, (Mumbai-Chapter) In association with Bhabha Atomic Research Centre, Mumbai National Symposium on Materials & Processing-2012 (MAP-2012)
31. Virtual instrumentation and sensor, A Two-Day Workshop on Lab VIEW, MATLAB and Their Applications, 25-26 March, 2011, Dayal Bagh Institute, Agra

Additional Information

Short-Term Training Programme Attended

1. DST Sponsored National Workshop on “**Critical Issues in Sensor Development- Materials to Packaging & Instrumentation**”, Organizer by Department of Electronics & Telecommunication Engineering, Science University, Shibpur, Central Glass and Ceramic Research Institute, Kolkata, and Jadavpur University, Kolkata, 3-10 January 2007.
2. DST Sponsored National Workshop on “**Updates of Sensors and Instruments, Fabrication and Packaging of Sensor**”, Center for Sensor Studies and Department of Electronics Science, University of Pune, 25-26th February 2006.
3. UGC Sponsored Refresher Course on “**Nanotechnology in Electronics**”, UGC-Academic Staff College, Jadavpur University, 5-25th February, 2004.
4. DST Sponsored National Workshop on “**Sensor Instrumentations**”, Materials Science Centre, IIT Kharagpur and Central Glass and Ceramic Research Institute, Kolkata, 3-15 November 2003.
5. Short-Term Training Programme on “**Matlab and Soft Computing Techniques in Electrical Engineering**”, Electrical Engineering Department, Jamia Millia Islamia, 17-31 December, 2004.
6. CIMPA-UNESCO-INDIA School on “**Soft Computing Approach to Pattern Recognition and Image Processing**”, Indian Statistical Institute, Kolkata, 2-13 December 2002.
7. Workshop on “**Development of Quality of Question Paper**”, Academic Staff College, Jamia Millia Islamia, 9-12 March 2002.
8. AICTE Sponsored Course on “**Business Intelligence for Decision Making: Neural Network, AHP & Fuzzy Logic**”, IIT Kanpur, 21-25 may 2001.

1. Doctoral Thesis:

Title: *Development of porous silicon based humidity sensor and organic vapor sensor array with integrated signal processing systems*

Abstract: The porous silicon an electrochemical derivative is a promising material for fabricating CMOS compatible humidity sensors but the porous silicon sensors suffer from drift due to aging, hysteresis, nonlinearity and temperature. Stability is another important

issue. In this thesis work, limitations of the porous silicon based humidity sensors such as, nonlinearity, hysteresis, long-term drift were addressed and ANN based softcomputing techniques were developed to compensate these errors. The range of humidity measurement was extended from 10-98 % RH to 6 to 200 ppmV trace moisture. Moisture measurement in trace level is always a challenging task and a costly affair. A suitable signal processing circuit based on phase detection principle was developed. A porous silicon based vapor sensor array for the detection and estimation of concentration of organic vapors like ethanol, methanol, isopropyl alcohol with ANN based pattern recognition technique was developed for e-nose application. Finally, an ASIC of the ANN model for compensating long term and short-term drift was designed and simulated.

Masters' Dissertation:

Title: *Development of capacitive sensors to ascertain the quality of edible oils and oil Seeds*

Abstract: Thesis work was mainly to develop capacitive sensors and related measurement systems to analyze the quality of edible oils and oil cake. A comprehensive study was made in the employment of capacitive technique for the characterization of edible oils to develop a low cost and appreciable accurate instrument. Several accurate capacitive sensors were designed and fabricated for measuring the dielectric constant of edible oils. A signal processing circuit was developed to measure the capacitance accurately.

Referees.

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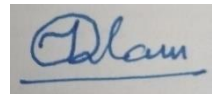
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Personal Information

Date of birth:	22 nd December 1970
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Father's name:	Md. Abul Hossain
Languages known:	English, Hindi, Bengali
Nationality:	Indian
Marital status:	Married



Dr. Tarikul Islam