

Journal:

2026:

- (1) **A. Bora**, R. Chutia, and A. Saha, "Statistical estimation of lead (Pb) in groundwater from smartphone images of paper test strips using CIEDE2000 model," *Indian Journal of Science and Technology*, vol. 19, no. 9, pp. 583–591, 2026, doi:10.17485/IJST/v19i9.1920 (Web of Science indexed)

2025:

- (2) J. Talukdar, **B. Das**, A. Srivastava, W. V. Devi, and R. Singh, "TMDC-based TFETs: Progress, potential, and pathways to energy-efficient electronics," *Micro and Nanostructures*, vol. 208460, Nov. 2025
- (3) Singh, S., **Das, A.**, Bordoloi, S. et al. Design Optimization of AlGaN/GaN HEMT Biosensors for Enhanced Biomolecule Sensitivity: Gate Dielectric and Spacing Effects. *Semiconductors* 59,1213-12(2025). <https://doi.org/10.1134/S1063782625602468>
- (4) "Automated Flood Detection and Rapid SMS Alert System", Dipankar Kalita, **Namrata Katak**, *GIS Science Journal (UGC care II)*, ISSN NO: 1869-9391, Vol. 12, Issue 6, 2025, pp. 793–798, DOI: <https://doi.org/10.5281/zenodo.15795816>
- (5) Coal Mine Sentinel: A Wireless Air Quality Monitoring and Alarming Device for Coal Mining Industry – Dipankar Kalita, **Namrata Katak**, *GIS Science Journal (UGC CARE II)*, ISSN: 1869-9391, Girijananda Chowdhury University, Vol. 12, Issue 6, 2025, pp. 799–805, DOI: <https://doi.org/10.5281/zenodo.15795874>

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- (6) J. Talukdar, M. Malvika, **B. Das**, G. Rawat, and K. Mummaneni, "Source-engineered TFET for digital inverters Application," *Physica Scripta*, vol. 99, no. 4, Mar. 2024.
- (7) Mohd Azizuddin Ahmed, **Alokojwal Das**, Sandip Bordoloi, (2024), Design and Development of a Standalone Biomedical System to Determine Patient's Health Condition Using Machine Learning, *International Journal of Advances in Science, Engineering and Technology(IJASEAT)*, pp. 24-28, Volume-12, Issue-3.

2023:

- (8) **B. Das** and B. Bhowmick, "Dielectrically modulated ferroelectric-TFET (Ferro-TFET) based biosensors," in *Materials Science and Engineering: B*, Vol. 298, pp. 116841(1-11), Sep. 2023.
- (9) "Disease identification of tomato plant using deep convolutional neural network (CNN)", **Namrata Katak**, Jintu Kakati, Dibyani Darsha Borah, *GIS Science Journal (UGC care II)*, ISSN NO : 1869-9391, volume 10, issue 7, 2023, Page no: 1218-1224 DOI:20.18001.GSJ.2022.V10I7.23.411469
- (10) "Webcam Based Drowsiness Detection And Alert System For Vehicles Using Convolutional Neural Network (CNN)", **Namrata Katak**, Abhirup paul, *GIS Science Journal (UGC care II)*, ISSN NO : 1869-9391, volume 10, issue 7, 2023 page no : 1234-1239. DOI:20.18001.GSJ. 2022.V10I7.23.411471

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- (11) **B. Das** and B. Bhowmick, "Impact of traps on DC, analog/RF, and linearity performance of Ferro-TFET," in *Silicon*, Oct. 2022. Doi: <https://doi.org/10.1007/s12633-022-02167-8>.

- (12) **Abhinandan Kalita**, "In-dept Understanding of LSTM and its recent advances in lung disease diagnosis," World Journal of Advanced Research and Reviews, eISSN: 2581-9615, CODEN(USA): WJARAI, Impact Factor: 7.8, Vol. 14, Issue 03, Pg. 517–522, June 2022. DOI: <https://doi.org/10.30574/wjarr.2022.14.3.0602>
- (13) **Abhinandan Kalita**, "Detection of COVID-19 using Modified VGG Architectures", International Journal of Current Science Research and Review, ISSN: 2581-8341, Impact Factor: 5.995, IPI Value: 2.87, Vol. 05, Issue 06, Pg. 2113-2118, June 2022. DOI: 10.47191/ijcsrr/V5-i6-40
- (14) **Namrata Katak**, Dr. Amrita Ganguly, "Application of edge detection technique on dental images to find human identity," in International Journal for Modern Trends in Science and Technology, Volume 8, Issue 06, June 2022, pg no 154-15, ISSN: 2455-3778
- (15) Taskin Hayat, **Namrata Katak**, "IoT Based Solar Grid Monitoring and Performance Analysis System", International Journal for Research in Engineering Application & Management (IJREAM) ISSN: 2454-9150 Vol-08, Issue-02, MAY 2022 pg 226-233.
- (16) **Namrata Katak**, Sanjana Dutta Choudhury, Hrishikesh Gogoi, Swaraj Bora, Pratyosh Pawan Bora, "Implementation of Machine Learning in Early Detection of Breast Cancer", International Journal of Emerging Technologies and Innovative Research (JETIR) ISSN:2349-5162, Vol.9, Issue 5, page no.c261-c267, May-2022.
- (17) **Namrata Katak**, Dibyani Darsha Borah, "Design and implementation of a Smart Stick for visually impaired person using Arduino", International Journal for Modern Trends in Science and Technology, Volume 8, Issue 04, April 2022 ISSN: 2455-3778 , pg 162-165.
- (18) **Anindita Bora**, IOT based smart farming using ESP8266, International journal of creative research thoughts, 2022.

2021:

- (19) Shaiba Akhter, **Subhadra Das**, "Currency Detection using Image Processing with Artificial Intelligence", International Journal of Advanced Computational Engineering and Networking, ISSN(p): 2320-2106, ISSN(e): 2321-2063 Volume-9, Issue-9, Sep.-2021. DOIONLINE NO - IJACEN-IRAJ-DOIONLINE-18152
- (20) **B. Das** and B. Bhowmick, "Effect of Curie Temperature on Ferroelectric Tunnel FET and Its RF/Analog Performance," in IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, vol. 68, no. 4, pp. 1437-1441, April 2021, doi: 10.1109/TUFFC.2020.3033761.

2020:

- (21) **Abhinandan Kalita**, "Vessel Detection using Morphological Operations on Fundus Images," International Research Journal of Engineering and Technology, e-ISSN: 2395-0056, Impact Factor: 7.529, Volume 7, Issue 6, Pg 7661-7667, June, 2020.
- (22) **Abhinandan Kalita**, "Early Detection of Diabetic Retinopathy", International Journal of Advanced Research in Science, Engineering and Technology, e-ISSN: 2350-0328, Impact Factor: 6.646, Volume 7, Issue 6, Pg. 14249-14256, June, 2020.

2019:

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- (24) **N. Katak**, P. Das, M. Chetry, N. Sharma, D. Pathak, "IOT based solar powered automatic irrigation system" International Journal for Research in Applied Science & Engineering Technology (IJRASET) ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.177. Volume 7 Issue VII, July 2019 pp.1188-1193
- (25) **Subhadra Das**, Bhaskar Jeet Dutta, Bhaskarjyoti Deka, Biplab Kr. Das, "Design of an image restoration model using filtering techniques", Journal of research in image and signal processing, vol 4 , issue 2, June 2019
- (26) **Abhinandan Kalita**, "Feature Set for the Extraction of Exudates for the Analysis of Diabetic Retinopathy," International Journal for Research in Engineering Application and Management, UGC Journal No.-64077, ISSN-2454-9150, Impact Factor: 5.646, Vol. 05, Issue 03, Pg. 469-472, June, 2019.
- (27) **Abhinandan Kalita**, "Exudates Detection in Fundus Images," International Journal of Computer Sciences and Engineering, UGC Journal No.-63193, ISSN-2347-2693, Impact Factor: 2.638, Page 516-521, Vol. 07, Issue 06, June, 2019.

2018:

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- (31) **Abhinandan Kalita**, "Analysis of Diabetic Retinopathy based on Texture Properties of Retinal Images", International Journal of Computer Sciences and Engineering, UGC Journal No.-63193, ISSN-2347-2693, Impact Factor: 2.638, Page 516-521, Vol. 06, Issue 05, May, 2018.
- (32) **Subhadra Das**, "Adaptive Filtering based noise cancellation in stochastic wireless channels," Journal of Electronics and Optical communication engineering, volume 3 , Issue 1, 2018.

2017:

- (33) **Gargi Kar Purkayastha**, "Performance Analysis of Coherent and Non-Coherent Modulation Schemes in Faded Wireless Channels using ANN-assisted MRC", International Journal of Computer Applications(0975 – 8887), Volume 160- No.5, February 2017.

2016:

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- (35) **Subhadra Das** and Kandarpa Kumar Sarma, "Coding Assisted Adaptive Noise Cancellation in Stochastic MIMO wireless channels" International Journal of Computer Applications (IJCA), Foundation of Computer Science, USA, volume 143, number 11, DOI-10.5120/ijca2016910500, ISBN:973-93-80893-44-8, June 2016

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2015:

- (38) B.Bhowmick, R.Goswami and **B.Das**. "A Mathematical Model and an Algorithm for Transmission in Single Rectangular Potential Barriers," International Journal of Pure and Applied Mathematics, v.101, no.5, pp 605-615, Jun., 2015.
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- (40) **Anindita Bora**, Temperature Modulation of MOS Gas sensor for Enhanced Gas detection, International Journal of Scientific Progress and Research , 2015
- (41) **Anindita Bora**, A temperature Modulation circuit for MOS gas sensor, Indian journal of Science and Technology, 2015

2014:

- (42) S. Choudhury, **N. Katak**, "An Innovative Way for Computerized Smith Chart Generation and Transmission Line Problem Solving", IJRET, Vol. 3, Issue 09, Sep 2014 e-ISSN: 2319-1163 | p-ISSN: 2321-7308, impact factor 2.375, pp 290-295

2012:

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- (44) **Gargi Kar Purkayastha**, Kandarpa Kumar Sarma, "Maximal Ratio Combining using Self Organizing Map in Wireless Channels", International Journal of Computer Applications (0975 – 888), Volume 48, No.4, pp. 32-37, June, 2012.
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Conference:

2026:

- (1) Javed Hasan and **Gargi Kar Purkayastha**, “DEEP Learning Based Cattle and Buffalo breed recognition: An Integration of Technology with Indian Knowledge Systems”, International Conference on Bridging Sacred Wisdom and Scientific Vision: Re-envisioning Knowledge Discourses from Global Perspectives with emphasis on the Indian Knowledge Systems, GCU, 2026.
- (2) “A Survey on Traditional Textile Wisdom and Electronic Technologies for Sustainable Heritage Conservation in India”, Rangana Saha, **Namrata Katak**, International Conference on “Bridging Sacred Wisdom and Scientific Vision: Re-envisioning Knowledge Discourses from Global Perspectives with Emphasis on the Indian Knowledge System (IKS)”, 22–23 January 2026
- (3) “Integrating Indigenous Agricultural Wisdom with IoT-Enabled Smart Irrigation Systems for Sustainable Farming using Solar Technology”, Krishti Talukdar, Piyush Agarwala, **Namrata Katak**, International Conference on “Bridging Sacred Wisdom and Scientific Vision: Re-envisioning Knowledge Discourses from Global Perspectives with emphasis on the Indian Knowledge System (IKS)”, 22–23 January 2026
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2025:

- (5) B. Das, “Dual-Gate Asymmetric MoS₂ TFETs: Design, Simulation, and Performance Evaluation,” 2025 IEEE Guwahati Subsection Conference (GCON), Itanagar, India, 2025, pp. 1-3.
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2024:

- (9) Priyompolly Saikia and **Gargi Kar Purkayastha**, “AI Enabled Smart GPS Tracker” Research Conclave 2024-GCU Assam
- (10) R. Bora and **A. Bora** “Application of sensor in Agriculture- a detailed study” presented in a two days international conference on Energy, Sustainability and Climate Change, in Kaziranga University, 7-8 Nov. 2024.

2023:

- (11) **Abhinandan Kalita**, P. Rangababu and Shaik Rafi Ahamed, "A Featherlight CNN-based Method for COVID-19 Detection," 4th Research Conclave-2023 organized by National Institute of Technology, Meghalaya, Shillong, India, during 28th February to 1st March 2023.

2022:

- (12) **Abhinandan Kalita**, P. Rangababu and Shaik Rafi Ahamed, "Detection of COVID-19 using a Deep Neural Network with Transfer Learning Approach," IEEE International Conference on Smart Technologies and Systems for Next Generation Computing organized by IFET College of Engineering, Villupuram, Tamil Nadu, India during 25 - 26, March 2022.

- (13) **Abhinandan Kalita**, P. Rangababu and Shaik Rafi Ahamed, "A Study of LSTM and its Importance in Diagnosing COVID-19," 3rd Research Conclave-2022 organized by National Institute of Technology, Meghalaya, Shillong, India, during 28th February to 1st March 2022 [2nd best paper award (Oral Presentation-Engineering)].

- (14) **Anindita Bora**, Study of ESRGAN Based Model for Style Transfer on Images, 2022 USTM-AIMT International.

2021:

- (15) Shaiba Akhter, **Subhadra Das**, "Currency Detection using Image Processing with Artificial intelligence" International conference on communication, electronics, and electrical engineering (ICCEEE) under International society for scientific research and development (ISSRD) held in Dispur on 9th August, 2021, ISBN: 978-93-90150-28-1.

- (16) **Alokojjwal Das**, Dipamani Pathak and Kukil Khanikar, "Analysis of Probability of Collision of CAMs in Opportunistic Vehicular Communication," 2021 IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS), 2021, pp. 1-6, doi: 10.1109/ANTS52808.2021.9937019.

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2020:

- (18) **Abhinandan Kalita** and Rajesh Kalita, "Early Detection of Diabetic Retinopathy," 3rd National Conference in Recent Advances in Science and Technology (Poster Presentation) organized by Assam Science and Technology University, Guwahati (Under TEQIP-III), August 17-19, 2020.

2019:

- (19) **Anindita Bora**, Analysis of gas sensors using temperature modulation, Conference ICAEES2019.

2017:

- (20) J.Talukdar and **B.Das**, "An Improved TIQ Comparator based 3-bit Flash ADC," in Proceedings of 1st International Conference on Electronics, Materials Engineering & Nano Technology (IEMENTECH 2017), Science City, Kolkata, India, 28-29 April, 2017. (Participated and Presented).

2016:

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- (23) T.Kalita and **B.Das**, "A 4 bit Quantum Voltage Comparator based flash ADC for low noise applications," in Proceedings of International Conference on Emerging Devices and Smart Systems (ICEDSS), Namakkal, Tamil Nadu India, 4-5 March, 2016.

2015:

- (24) **Anindita Bora**, Recent Advances in Electronic Nose and Signal Analysis, The International Conference on Electronic Devices Circuits Applied Electronics and Communication Technology, 2015
- (25) **Alokojjwal Das**, Jhimli Kumari Das, "Development of Sensor Based System to study the effect of venation on Optical properties of Leaves," 11th IRF International Conference, 2015, ISBN: 978-93-84209-27-8, pp.142-145.

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- (27) Rupam Goswami, **Basab Das**, Brinda Bhowmick and Shanidul Haque, "A single gate nanoscale n-channel Silicon MOSFET with gate overlap Silicon Germanium region for improved Ion/Ioff ratio," in Proceedings of IEEE International Conference on Circuit, Power and Computing Technologies (ICCPCT 2014), Noorul Islam Centre for Higher Education, Kumaracoil, India, March 20-21, 2014.
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- (29) Brinda Bhowmick, Srimanta Baishya, Rupam Goswami, **Basab Das**, and C Joshy, "An Optimized SOI g-TFET and its application in a Half Adder Circuit," in Proceedings of IEEE International Conference on Devices, Circuits and Systems 2014 (ICDCS'14), Karunya University, Tamil Nadu, India, March 6-8, 2014.
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2013:

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2012:

- (32) **Abhinandan Kalita**, Anjan Kr. Talukdar and Kandarpa Kr. Sarma, "Medical Image Denoising Using Adaptive Threshold Based on Wavelet Transform," International Conference on Electronics and Communication Engineering, Guwahati, India, Pg. 101-107, ISBN: 978-93-81693-56-8, June, 2012.
- (33) **Subhadra Das**, "Adaptive Filtering and Coding based Noise Cancellation in Stochastic MIMO Wireless Channels" at International Conference on Electronics and Communication Engineering and Power System Operation and Energy Management (ECE) and (PSOEM), June 3, 2012.
- (34) **Gargi Kar Purkayastha**, Kandarpa Kumar Sarma, "Maximal Ratio Combining using ANN-Assisted Equalisation in Wireless Channels", 2nd IEEE National Conference on Computational Intelligence and Signal Processing (CISP-2012), pp. 37-40, Guwahati, India, March, 2012.
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- (36) **Abhinandan Kalita**, Anjan Kr. Talukdar and Kandarpa Kr. Sarma, "Comparative Analysis of Different Wavelet Families with a New Adaptive DWT based Image Denoising Technique," International Conference on Electronics and Communication Engineering, Guwahati, India, pp. 82-92, ISBN: 978-93-81693-56-8, January, 2012.
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2009:

- (38) **Anindita Bora**, Design of a Compact Polarised Square microstrip Antenna using Inductive Loading, 2009, National conference on Communication.

2007:

- (39) **Anindita Bora**, On design of Compact Aperture coupled Microstrip Antenna using Inductive Loading, 2007 IEEE Applied Electromagnetics Conference, 2007 IEEE Applied Electromagnetics Conference.

Book Chapter:

1. Shaw Tavishi, **Kalita Abhinandan**, Agro automatic weather station. In: Data-Driven AI: A Multidisciplinary Approach – Techniques, Applications, and Insights from Multiple Domains. London: CRC Press, Taylor & Francis Group; 2025. pp. 84–91. ISBN: 978-1-041-27236-6. doi:10.1201/9781003753377.
2. J. Talukdar, Malvika, **B. Das**, and K. Mummaneni, “Tunnel field effect transistors: Harnessing light sensitivity for optical sensing,” in Handbook of Advanced Semiconductor Field Effect Transistors, Hoboken, NJ, USA: John Wiley & Sons, Inc., pp. 169–182.2025.
3. **Anindita Bora**, “কৃষি ক্ষেত্ৰত সেন্সৰ প্ৰযুক্তিৰ ওপৰত এটা বিস্তৃত পৰ্যালোচনা - সম্ভাৱনা আৰু প্ৰত্যাহ্বানৰ সৈতে”, in অভিযোজন: শক্তি, জলবায়ু পৰিৱৰ্তন আৰু বহনক্ষম উন্নয়ন, Unika Publication, 2024, ISBN: 978-93-91883-98-0.
4. **B. Das**, H. Borah, and B. Bhowmick, “A detailed review on growth and evolution of TFET biosensor for Biosensing application,” in Handbook of Emerging Materials for Semiconductor Industry, Y. S. Song, L. R. Thoutam, S. Tayal, S. B. Rahi, and T. S. A. Samuel, Eds. Pp 633–655, Jan.2024. Singapore: Springer, 2024.
5. **Das, S.**, Gogoi, M., Barua, P. (2023). Integrating artificial intelligence, internet of things and omics data for early and accurate detection of diseases in rice: An overview. Abstract Book of the International Conference on Next Gen Preparedness for Food Security and Environmental Sustainability, Agricultural University, November 22–24, 2023. ISBN: 978-81-965526-6-4
6. **B. Das** and B. Bhowmick, " Effect of Noise and Temperature on the Performance of Ferro-Tunnel FET," In: R. Goswami, R., R. Saha (eds) Contemporary Trends in Semiconductor Devices. Lecture Notes in Electrical Engineering, vol 850. Springer, Singapore. https://doi.org/10.1007/978-981-16-9124-9_3

Patent:

- (1) **Abhinandan Kalita** and Ritushree Dutta, inventors; Deep Learning Based Brain Stimulation Device, Indian Design Patent, Design No. 490569-001, Award Date: 16-03-2026, Status: Granted (Registered Design).
- (2) Rahul N.N., **Abhinandan Kalita** et al., inventors; Diabetes Patient Monitoring System using Lightweight DL Model for Risk Assessment. Indian Patent 202541050086 A, Date of publication: 30-05-2025.
- (3) Design Patent: Title: Radio Frequency Rectenna, Design Number: 445854-001, Inventors: Malvika, Dr. Jagritee Talukdar, Dr. Prabhat Singh, Dr. Ashutosh Srivastava, Gaurav Kumar Pandey, **Dr. Basab Das**, Award Date: April 30, 2025, Agency: Indian Patent Office, India, Status: Granted (Registered Design).

Research & Consultancy Projects:

Completed:

1. Dr. Anindita Bora

Grant for conducting Workshop under VAANI (Workshop on Semiconductors) Funding Agency: AICTE, Duration: 2024 – 2025, Amount: 2,00,000/-

2. Dr. Anindita Bora

Title of the Project: “A study of groundwater with special reference to Arsenic concentration in Kamrup District and development of a low-cost paper-based analytical platform for detection of Arsenic.”

Funding Agency: AICTE

Duration: 2021 - 2024

Amount: 5,00,000/-

3. Dr. Basab Das

Assam Science Technology and Environment Council, Assam, India

September, 2021 – 2024

Topic: - “Intelligent Video Analytics”

Grant: - Rs. 4,30,000/-

4. Dr. Anindita Bora

Title of the Project: Design of a low-cost portable tea quality assessment system

Funding Agency: DST under TEQIP III

Duration: 2019-2021

Amount: 3,00,000/-

5. Mr. Abhinandan Kalita

Title of the Project: Early Detection of Diabetic Retinopathy

Funding Agency: DST under TEQIP III

Duration: 2019-2021

Amount: 3,00,000/-

Ongoing:

1. Dr. Anindita Bora

Title of the Project: “Design and development of a smart Tracking System for wild animals”,

Funding Agency: Aaranyak

Duration: 2025 – 2026 (1 year)

Amount: 1,00,000/-

2. Dr. Basab Das

Title: Simulation-Based Investigation of Electric Field Engineering in Gallium Oxide Semiconductor Devices for High-Voltage Applications.

Funding Agency: University SEED Grant (GCU Assam)

Duration: 2026-28 (2 years)

Amount: 75,000/-