Dr. PANWALA FENIL CHETANKUMAR

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Education

	Degree	Year	Institute	Specialization
1	Ph.D.	2020	NIT Nagaland, Dimapur, Nagaland	MEMS (E & I Dept)
2	M.Tech.	2017	SRM University, Kattankulathur, Chennai, Tamil Nadu	Electronics and Control (E&I Dept)
3	B.E	2014	Atmiya Institute of Technology And Science, Rajkot, Gujarat	Instrumentation and Control
4	HSC	2010	T & T.V, Surat, Gujarat	Science (MPC)
5	SSC	2008	Lokbharti English School,Surat, Gujarat	General

Professional Experience

	Date (from-to)	Designation	Organization
1	21-09-2020 to Till Date	Assistant Professor	Department of Electronics and Instrumentation Engineering, Siddaganga Institute of Technology, Tumakuru-572103, Karnataka, India

Positions held

- *Coordinated departmental level works as mentioned below:*
- Department level Internship/Industrial Training (UG/PG)
- Department level Technical Seminar (UG)
- Department level Patent Coordinator
- Department level NPTEL Coordinator
- Department level Magazine/Newsletter Coordinator
- Department Process Automation Laboratory Coordinator
- Department Virtual Instrumentation Laboratory Coordinator and Various other work allotted at Department and Institute level.

Affiliations of Professional organizations

- NIL

Awards and Honors

- **Guided and mentored** a student's team that **won 1st Prize** at **FKCCI's 17th Edition of MANTHAN 2025**, securing **₹3 Lakhs** among **560+ teams across Karnataka** depending the business plan presented on the topic **"EcoReactor – CO_2 Monitoring & Bioconversion System",** a sustainable innovation recognized for its environmental and economic impact.(2025)
- Recognized an "NPTEL Star" - **NPTEL MOTIVATED LEARNERS** for the year **Jul-Dec 2023 by NPTEL IIT Madras.**
- **Gold medal** handed by Ex-Vice President (Shri M Venkaiah Naidu) as a **Rank holder** in **MTech** (Electronics and Control) at SRM Institute of science and technology, Chennai in 2017.
- Awarded **Gold medal** for representing paper on "Continuous sorting for mass dependent particles by lattice-shaped micro-channel network using HDF", in **Research Day 2017** at SRM Institute of science and technology, Chennai.

Courses Taught

Undergraduate Courses

- Thin Film Instrumentation
- Computer Networks
- Industrial Control and Automation
- Control system
- Industrial Instrumentation
- Biomedical instrumentation
- Analytical Instrumentation
- Instrumentation in Agriculture and Food Processing
- Biology for Engineers
- Smart Sensors
- Electronics Measurement
- Industrial Safety and Data Communication
- Microcontroller and Interfacing
- Microprocessor and Interfacing

Postgraduate Courses

- ASIC Design

Research Guidance

Sl. no	Name of the Scholar	Title	Year of completion
1.	NIL	NIL	NIL

Research Areas

- Micro/Nano Electro Mechanical Systems (MEMS/NEMS)-BIOMEMS
- Sensors
- Instrumentation and Process Control
- Thin Film Technology
- Control System
- Automation (PLC, DCS and SCADA)
- Mechatronics
- Robotics
- VLSI
- Internet of Things
- Biosensors

Sponsored Projects

Ongoing Projects: NIL
Completed Projects: NIL

Publications

Journals

- M. B. Kulkarni, Vineela, N. Mandal, Y. N, **Panwala. Fenil. C**, S. O. Martínez-Chapa, and R. Izquierdo, "Recent advances in microfluidic-based biosensors for nucleic acid detection: From amplification strategies to point-of-care diagnostic devices," *SLAS Technology*, vol. 42, Art. no. 100470, 2026, doi: 10.1016/j.slast.2026.100470.

- Writtick Pakhira, R. Kumar, **Panwala Fenil Chetankumar**, Khalid mohd. Ibrahimi "Microfluidic design for continuous separation of Blood particles and Plasma using Dielectrophoretic Force principle", Computer Assisted Methods in Engineering and Science, Vol 3, Issue No. 3, pp 323-345, 2023. [doi: http://dx.doi.org/10.24423/cames.653]. *(SCOPUS)* (Impact Factor:0.50)

- Khalid mohd. Ibrahimi, R. Kumar, Writtick Pakhira, **Panwala Fenil Chetankumar** " Enhance the design and analysis of Micro-Cantilever based Bio-Sensor to detect Carcinoembryonic Antigen Tumor biomarkers" Computer Assisted Methods in Engineering and Science, Vol 3, Issue No. 3, pp 347-367, 2023.[DOI: http://dx.doi.org/10.24423/cames.654]*(SCOPUS)*(Impact Factor:0.50).

- Siddhanta Borah, R.Kumar, Subhradip Mukherjee, **Panwala Fenil Chetankumar,** A Prassanna Lakshmi "An Experimental Analysis of Quad Wheel Autonomous Robot Location and Path Planning Using Borahsid Algorithm (BsA) with GPS and Zigbee" (Submission code: IJVICS-253614), International Journal of Vehicle Information and Communication Systems (IJVICS), Inderscience Publisher, Vol 7, Issue No. 3, pp 290-305, 2022. *(SCOPUS)* (Impact Factor:0.30)

- Rituraj Bhattacharjee, R. Kumar, **Panwala Fenil Chetankumar** and P. Mohamed Shakeel, "Design and Analysis of an Optimized Microfluidic Channel for Isolation of Circulating Tumor Cells Using Deterministic Lateral Displacement Technique.",

Complex & Intelligent Systems, Springer, ISSN 2198-6053, Vol 6, Issue 3, pp. 711 - 720, 2020. *(SCI)* (Impact Factor: 6.8)

- **Panwala Fenil Chetankumar**, R.Kumar, P. Mohamed Shakeel "An analysis of bacteria separation and filtration from blood sample using passive methods" Measurement, Elsevier, ISSN 0263-2241, Volume 140, pp 29-46, 2019. ***(SCI)*** (Impact Factor: 5.13)

- **Panwala Fenil Chetankumar**, R.Kumar "Asymmetric sifter-shaped microchannel network in biological MEMS for size- and mass-based mammalian cell sorting and separation using hydrodynamic technique" The journal of supercomputing, **Springer US**, Online ISSN 1573-0484 & print ISSN 0920-8542 , vol 76, pp 3814-3846,2018. [DOI 10.1007/s11227-018-2715-9]. *(SCI)* (Impact Factor:2.469)

- **Panwala Fenil Chetankumar**, R.Kumar "Modelling and analysis of asymmetric Sieve shaped Skewed type microchannel network in BioMEMS for mass and size based mammalian cell separation and sorting using filtration method" Revista de la Facultad de Agronomia De La Universidad Del Zulia, ISSN 0378-7818, Volume 34, Issue 4, pp 566-591, 2017. *(SCIE)* (Impact Factor: 0.30)

- **Panwala Fenil Chetankumar**, R. Kumar, Trigunesh Narzary, A Vimala Juliet "An Enhanced and Sieve type microchannel network simulation model to detect the separation of size and mass dependent bacteria in microfluidic device", Journal of Advanced Research in Dynamical and Control Systems, **Elsevier**, ISSN 1943-023X, Volume 9, Issue 18, pp 1109-1124, 2017. *(SCOPUS)* (Impact Factor: 0.40)

Conference Proceedings

- **Panwala Fenil. C**, M. B. Kulkarni and Kumar R, "Solar-Powered Atmospheric Water Generator with IoT Monitoring and Thermodynamic Modeling," *2026 Control Instrumentation Systems Conference (CISCON)*, Manipal, Udupi, India, 2026, pp. 1-6, doi: 10.1109/CISCON71603.2026.11709220.

- **Panwala Fenil. C**., Poornima. S, Hemashree. K S, Moksha. J. H N and Thanuja. H K, "Illumicomm: ESP32-Based Optical Data Communication System," *2026 International Conference on Emerging Technologies in Computing and Communication (ETCC)*, Bangalore, India, 2026, pp. 1-6, doi: 10.1109/ETCC69750.2026.11681936.

- Thrishala M, **Panwala Fenil Chetankumar** "Design and Simulation of a Pulse-Driven 1-Bit SRAM Cell Using CMOS Technology," *2026 International Conference on Intelligent Processing, Hardware, Electronics, and Radio Systems (CIPHER)*, Jalandhar, India, 2026, pp. 1-4, doi: 10.1109/CIPHER70417.2026.11524028.

- Pooja C R, **Panwala Fenil Chetankumar** , Ravi H K **"**Design and Analysis of Two-Stage Comparator with Telescopic Amplifier and Dynamic Comparator for Low-Voltage Applications**"** *2025 International Conference on Smart Systems for applications in Electrical Sciences (ICSSES)*, Tumakuru, India, 2025, pp. 1-6 . doi: 10.1109/ICSSES64899.2025.11009925.

- Gagana B L, **Panwala Fenil Chetankumar,** Dayanand Y S **"**DFT Gasket Verification Using JTAG Protocol**"** *2025 International Conference on Smart Systems for applications in Electrical Sciences (ICSSES)*, Tumakuru, India, 2025, pp. 1-5 . doi: 10.1109/ICSSES64899.2025.11009289

- Gagana B L, **Panwala Fenil Chetankumar "Design** and Analysis of Enhanced Cascode Cross-Coupled Comparator**"** *2024 International Conference on Smart Systems for applications in Electrical Sciences (ICSSES)*, Tumakuru, India, 2024, pp. 1-4 .doi: *10.1109/ICSSES62373.2024.10561347*

- Bhumika S B, Chaitra N, **Panwala Fenil Chetankumar**, Harsha S,Babu Angadi, " Design and Analysis of peculiar piezoresistive pressure sensor (PPPS) for distinctapplication," 2023 9th International Conference on Signal Processing and Communication (ICSC)*, NOIDA, India, 2023, pp. 657-662, doi: 10.1109/ICSC60394.2023.10441380.*

- **Panwala Fenil Chetankumar**, Lokashree N. B, Naveen. T, K. V. Niranjan Sharma, Ranjitha. P and Panchami J, "Enhanced Crop Protection in Agriculture Utilizing Open Source Platform," *2023 International Conference on Smart Systems for applications in Electrical Sciences (ICSSES)*, Tumakuru, India, 2023, pp. 1-4, doi: 10.1109/ICSSES58299.2023.10200710.

- Hithashree H, **Panwala Fenil Chetankumar**, "Simulation and Comparative Analysis Between MOSFET and FinFET Based Digital Circuits", IEEE Xplore, IEEE 3rd Global Conference for Advancement in Technology-2022, Bangalore, Karnataka, pp 1-7, [DOI: 10.1109/GCAT55367.2022. 9971976], 2022.

- Trigunesh Narzary, R Kumar**, Panwala Fenil Chetankumar** "MEMS-Based Diaphragm Pressure Sensor using S-shaped Piezoresistors for Enhancing Sensitivity" IEEE Xplore, 2018 International conference on recent trends in Electrical, control and Communication(RTECC), Electronics ISBN: 978-1-5386-4310-5 & PoD ISBN: 978-1-5386-4311-2, pp 10-14, January 2018.

- **Panwala Fenil Chetankumar**, C Likith Kumar, A Vimala Juliet "Simulating the Lattice-Shaped microchannel for separation of bacteria beads using HDF," *2017 4th International Conference on Electronics and Communication Systems (ICECS)*, Coimbatore, India, 2017, pp. 54-58, doi: 10.1109/ECS.2017.8067836.

Book Chapters

- S. K. Prasad and **Panwala. Fenil C**, "Artificial Intelligence in Manufacturing, Industry 5.0, and Supply Chain Collaboration," in *AI-Driven Leadership and Cross-Sector Collaboration: Emerging Technologies for Innovation, Sustainability, and Digital Transformation*, ResNova Academic Press, India, 2026, ch. 5, pp. 90–110. doi: 10.65470/resnova.9788168816060.05.

- C. T. Silveira, N. da Costa Frias, N. Barreto, **Panwala. Fenil C**, T. C. Manjunath, and A. S. G. Gupta, "Edge Cloud Collaborative and Distributed Manufacturing Systems Based on STEP-NC," in *Transforming Manufacturing With STEP-NC: Computer-Aided Design, Computer-Aided Manufacturing, and Numerical Control*, IGI Global

Scientific Publishing, 2026, pp. 207–236. (SCOPUS)

- S. C. Kishore, P. Selvakumar, S. S. Fazlullah, **Panwala. Fenil C**, T. C. Manjunath, and A. S. G. Gupta, "Fundamentals of CAD/CAM and Numerical Control (NC) in the Context of STEP-NC," in *Transforming Manufacturing With STEP-NC: Computer-Aided Design, Computer-Aided Manufacturing, and Numerical Control*, IGI Global Scientific Publishing, 2026, pp. 281–308. (SCOPUS)

- R. Kumar and **Panwala Fenil Chetankumar**, **"**Micropatterning in BioMEMS for separation of cells/bioparticles**"** Book Title: MEMS Sensors- Design and Applications, InTechOpen Publication, Rijeka Croatia-European Union, ISBN:978-1-78923-395-7 and Print ISBN: 978-1-78923-394-0, pp 71-90, 2018. (WEB OF SCIENCE) (BOOK CITATION INDEX).

Books

- NIL

Editorial

- NIL

Reviewer of Journals

- IEEE Transactions on NanoBioscience
- *ELECTROPHORESIS*, Wiley
- Discover Oncology- Springer Nature SNAPP
- Journal of the Brazilian Society of Mechanical Sciences and Engineering
- Engineering Research Express
- Journal of Electrical and Electronic Engineering

Editor/ Reviewer of Journal

- IEEE Transactions on NanoBioscience
- *ELECTROPHORESIS*, Wiley
- Discover Oncology- Springer Nature SNAPP
- Journal of the Brazilian Society of Mechanical Sciences and Engineering
- Engineering Research Express
- Journal of Electrical and Electronic Engineering

Patents

- Dr. R. Kumar, **Dr. Fenil Chetankumar Panwala**, "**Sieve/Sifter type 3d microchannel network in biological MEMS for separation and sorting of bioparticles using passive method**", Official Journal of the Patent Office, INDIA, Issue no: 42(2018).
  - Patent No.: 422354
  - Application No**:** 201831036289 A
  - Filed Date: 26/09/2018
  - Published Date: 19/10/2018
  - Status: **GRANTED** on 20-02-2023

- Dr. R. Kumar, Siddhanta Borah, **Dr. Fenil Chetankumar Panwala,** Subhradip Mukherjee, S.K Sathya Lakshmi Preeth "**Pocket Soil Moisture Sensor (P-SMS)**" Official Journal of the Patent Office, INDIA.
  - Patent No.: 526826
  - Application No**:** 202131029151 A
  - Filed Date: 29/06/2021
  - Published Date: 13/08/2021
  - Status: **GRANTED** on 15-03-2024

- Dr. R. Kumar, Rituraj Bhattarcharjee, **Dr. Fenil Chetankumar Panwala** "**Microfluidic Channel Housing with Rounded Micro Masts for Entrapping of Circulating Tumor Cells Employing Deterministic Lateral Displacement Principle**" Official Journal of the Patent Office, INDIA.
  - Patent No.: 607257
  - Application No**:** 202131018244 A
  - Filed Date: 20/04/2021
  - Published Date: 28/05/2021
  - Status: : **GRANTED** on 27-10-2026

- **Dr. Fenil Chetankumar Panwala**. et.al "**Solar-Powered Integrated System for Real-Time Monitoring and Biological Conversion of Atmospheric Carbon Dioxide**" Official Journal of the Patent Office, INDIA.
  - Application No**:** 202641011350 A
  - Filed Date: 03/02/2026
  - Published Date: 06/03/2026
  - Status: Filed→RQ Filed→Published → **Waiting for Examination**

- **Dr. Fenil Chetankumar Panwala**. et.al "**HTAP Instrument and blending process developed for blending of waste plastic with Asphalt using PET Modifier**" Official Journal of the Patent Office, INDIA.
  - Application No**:** 202341080488
  - Filed Date: **28/11/2023**
  - Status: Filed →RQ Filed →Published →Examination Completed→ **Awaiting result**

Invited Lectures, talks and workshops

✓ Invited Lectures:

- Lectures delivered in 5 days workshop on **"Biology for Engineers"** to faculty members of Department of Physics, Chemistry, Chemical and Biotechnology at Siddaganga Institute of technology, Tumakuru-572103, Karnataka, India. 2023
- Lecture Delivered in the workshop on "**PLC, SCADA and DCS in Industries**" on 18th & 19th July 2022 at Siddaganga Polytechnic, Tumakuru-572103, Karnataka, 2022.

✓ Technical Talk:

- Lecture Delivered on "**Nanotechnology Assisted Microfluidic System for Separation and Analysis of Bioparticles in BioNEMS**" in SERB Sponsored (Under Symposium & Seminar Scheme) Five-day Workshop On Recent Trends in Engineering Nano-Materials & Nano-Technology for Optoelectronics and Memory Application, Organized by School of Electronics and Communication Engineering, REVA University, Bengaluru, India, 2023.
- Lecture given on "**Modelling and Analysis of Micro-Channel Device for sorting of size dependent Bio-particles in BioMEMS using Filtration Technique**" at AICTE Training and Learning (ATAL) Academy Sponsored online Faculty Development Programme On Lab On Chip-smart Materials, Micro Devices, Fabrication Techniques and Characterization for Emerging Applications Organized by Department of Electronics and Instrumentation Engineering SRM Institute of Science and Technology, Kattankulathur, 2021.

✓ Workshops:

- Attended Two-days Workshop on "**Modeling, Simulation and Fabrication of Emerging Electron Devices and Circuits**" Organized by Department of Electronics and Communication Engineering and IEEE MITS Student Chapter, Madanapalle Institute of Technology and Science, Madanapalle, Andhra Pradesh, India, 2021.
- Attended Five days Workshop on "**Advance MATLAB and its Applications (AdMAT-2021)**" organised by Indian Institute of Information Technology Kota in collaboration with Mathwork, 2021.
- Attended Workshop on " **Recent Development and Advances in Manufacturing Processes 2020**", Sponsored by Technical Education Quality Improvement Programme (TEQIP)-III Scheme Organized by Department of Mechanical Engineering, NIT Nagaland,2020.
- Attended Virtual Workshop on "**Sources of research Grants and Art of Writing a Research Paper**" Organised by Department of Mechanical Engineering, R J Jalappa Institute of Technology, Karanataka, 2021
- Attended National Level Workshop sponsored by TEQIP-III on "**Raspberry PI Based Industrial Application with IOT Technology**" Organized by Department of Electronics and Instrumentation Engineering, NIT Nagaland, Association with VI Microsystem, 2018.
- Attended National Level Workshop on "**Industrial Automation Using PLC and DCS**" Organized by Department of Electronics and Instrumentation Engineering, NIT Nagaland, Association with SIEMENS, 2018.
- Attended Workshop on "**Applications of MEMS in Instrumentation Engineering**" Organized by Department of Electronics and Instrumentation Engineering, SRM Institute of science and technology, Kattankulathur, Chennai, 2015.

✓ FDP's (Faculty Development Program):

- Successfully participated & completed AICTE Training And Learning (ATAL) Academy

Faculty Development Program on "**Advanced Embedded Systems: RTOS and Automotive can Applications**" at Sri Siddhartha Institute of Technology from 18/08/2025 to 23/08/2025(Evening)

- Participated in One Week In-House Faculty Development Program (Workshop Series – 47) on **"Quantum Leap: Introduction to Quantum Computing and Its Applications"** organized by the Internal Quality Assurance Cell (IQAC) and Depts. of Physics, Mathematics, Computer Science & Engg., Electrical & Electronics Engg., Electronics & Instrumentation Engg., Information Science & Engg., Electronics & Telecommunication Engg. and MCA from 19th to 23rd August 2025(Morning & Afternoon).
- NPTEL FDP on "**Methodology of Educational Research**" completed with consolidated score of **81% (Silver + Elite)**, by IIT Kharagpur, January-April 2026. (12 Week Course). (2026)
- NPTEL FDP on "**Electronic Systems for Cancer Diagnosis**" completed with consolidated score of **72% (Elite)**, by IISC Bangalore, July-October 2025 (12 Week Course). (2025)
- NPTEL FDP on "**Introduction to Biomimicry**" completed with consolidated score of **53% (Pass)**, by IIT Madras, July-September 2025 (08 Week Course). (2025)
- NPTEL FDP on "**Education Technology and ICT**" completed with consolidated score of **90% (Gold +Elite)**, by IIT Kharagpur, January-April 2025 (12 Week Course). (2025)
- NPTEL FDP on "**Roadmap for Patent Creation**" completed with consolidated score of **58% (Pass)**, by IIT Kharagpur, January-March 2025 (08 Week Course). (2025)
- NPTEL FDP on "**Biomedical Ultrasound-Fundamentals of Imaging and Micromachined Transducers**" completed with consolidated score of **58% (Pass)**, by IIT Gandhinagar, July-October 2024 (12 Week Course). (2024)
- NPTEL FDP on "**Thin Film Technology**" completed with consolidated score of **57% (Pass)**, by IIT Kharagpur, July-October 2024 (12 Week Course). (2024)
- NPTEL FDP on "**Computer Networks and Internet Protocol**" completed with consolidated score of **69% (Elite)**, by IIT Kharagpur, January-April 2024 (12 Week Course). (2024)
- NPTEL FDP on "**Microfluidics and Nanofluidics**" completed with consolidated score of **50% (Pass)**, by IIT Kharagpur, July-October 2023 (12 Week Course). **(2023)**
- NPTEL FDP on "**Sensor Technologies: Physics, Fabrication and Circuits**" completed with consolidated score of **52% (Pass)**, by IISER Bhopal, July-September 2023 (08 Week Course). **(2023)**
- NPTEL FDP on "**Sensors and Actuators**" completed with consolidated score of **64% (Elite)**, by IISC Bangalore, January-April 2023 (12 Week Course). **(2023)**
- NPTEL FDP on "**Multiphase Microfluidics**" completed with consolidated score of **52% (Pass)**, by IIT Guwahati, January-April 2023 (08 Week Course). **(2023)**
- NPTEL FDP on "**Op-Amp Practical Applications: Design, Simulation and Implementation**" completed with consolidated score of **49% (Pass)**, by IISC Bangalore, January-April 2023 (12 Week Course). **(2023)**
- NPTEL FDP on "**BioMEMS and Microfluidics**" completed with consolidated score of **82% (Silver + Elite)**, by IIT Kanpur, July-September 2022 (8 Week Course).

- NPTEL FDP on "**Fundamentals of Micro and Nanofabrication**" completed with consolidated score of **53% (Pass)**, by IISC Bangalore, July-October 2022 (12 Week Course). **(2022)**
- NPTEL FDP on "**Surface Engineering of Nanomaterials**" completed with consolidated score of **70% (Elite)**, by IIT Roorkee, January-March 2022 (8 Week Course).
- NPTEL FDP on "**Fabrication Techniques for MEMs-based Sensors-Clinical Perspective**" completed with consolidated score of **60% (Elite)**, by IISC Bangalore, Jul-Oct 2021 (12 Week Course).
- Attended Five-days Faculty development Programme on "**Novel & Sustainable Membrane Technology**" Organized by Department of chemical Engineering, Siddaganga Institute of Technology, Tumakuru, Karnataka and supported by USIEF and FULLBRIGHT from 17th October 2022 to 21 October 2022.
- Attended Five-days Faculty development Programme on "**Inculcating Universal Human Values in Technical Education**" Organized by All India Council for Technical Education (AICTE) from 4th October 2021 to 8 October 2021.
- Attended Five-days Faculty development Programme on "**Science: How it is documented Communicated and Published**" Organized by National Institute of Technology Nagaland in Collaboration with All India council for Technical Education, 2021.
- Attended Five-days Faculty development Programme on "**Recent Advances in Material Characterization Techniques**" under RTU (ATU) TEQIP-III Organized by Rajasthan Technical University, Kota (Vivekananda Institute of Technology, Jaipur), 2021.