

Name : Dr M PARIMALA DEVI  
Designation : Associate Professor  
Department : Electronics and Communication Engineering  
College : Velalar College of Engineering and Technology  
College Address : Thindal, Erode-638012  
Area of specialization : VLSI Design, IOT, Machine Learning  
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### ***Publications:***

#### **SCI & Scopus Indexed Publications**

1. **Parimala Devi Muthusamy**, Gowrishankar Velusamy, Sathya Thandavan, Boopathi Raja Govindasamy & Nithya Savarimuthu, “Industrial Internet of Things-based Solar Photo Voltaic Cell Waste Management in Next Generation Industries”, “ Environmental Science and Pollution Research”, Vol.29, No.24, pp.35542-35556, May 2022, Impact factor : 5.8 <https://doi.org/10.1007/s11356-022-19411-8>. (SCI & Scopus- Annexure-1).
2. R. Deepa, **M. Parimala Devi**, N. Arun Vignesh & S. Kanithan, “Implementation and Performance Evaluation of Ferroelectric Negative Capacitance FET”, Silicon, Vol.14, No.5, pp.2409-2419, April 2022, Impact Factor : 3.2. <https://doi.org/10.1007/s12633-022-01722-7>. (SCI & Scopus- Annexure-1).
3. **Parimala Devi, M.**, Awasthi, S.K., Alipour-Banaei, H., Nambi, R., “Refractive Index EV Sensor based on Conventional and Mirror Image 1D Defective Photonic Crystal Designs: Theoretical Study”, Journal of Computational Electronics, Vol. 21, No.6, pp. 1404–1415. Impact Factor: 2.1. <https://doi.org/10.1007/s10825-022-01945-2>. (SCI & Scopus- Annexure-1).
4. **Parimala Devi M**, Ravanan, V., Kanithan, S., Vignesh, N.A. “Performance Evaluation of FinFET Device Under Nanometer Regime for Ultra-low Power Applications, 2022, Vol. 14, No.10, pp. 5745–5750, Impact Factor:3.2. (SCI & Scopus- Annexure-1). <https://doi.org/10.1007/s12633-022-01772-x>
5. Nithya, S., Vijayalakshmi, K. & **Parimala Devi, M.**, “Predictive Maintenance of Industrial Equipment’s Using IOT”, In book: Proceedings of International Conference on Power

- Electronics and Renewable Energy Systems, pp.257-269, Lecture Notes in Electrical Engineering, 2022, 795. (Scopus). [https://doi.org/10.1007/978-981-16-4943-1\\_24](https://doi.org/10.1007/978-981-16-4943-1_24).
6. **Parimala Devi . M**, Sathya.T & Boopathi Raja.G “Remote Human’s Health and Activities Monitoring Using Wearable Sensor-Based System—A Review”, Efficient Data Handling for Massive Internet of Medical Things, Internet of Things. Springer, Cham. [https://doi.org/10.1007/978-3-030-66633-0\\_9](https://doi.org/10.1007/978-3-030-66633-0_9), 2021, pp. 203–228. Print ISBN978-3-030-66632-3. Springer Nature. (Scopus).
7. **Parimala Devi . M**, Boopathi Raja.G, Gowrishankar. V & Sathya.T “IOMT-based smart Diagnostic/Therapeutic Kit for Pandemic Patients”, Studies in Big Data, Internet of Medical Things for Smart Healthcare. Studies in Big Data, vol 80, pp. 141–165, 2020, Print ISBN978-981-15-8096-3. Springer, Singapore. [https://doi.org/10.1007/978-981-15-8097-0\\_6](https://doi.org/10.1007/978-981-15-8097-0_6), . (Scopus)
8. **Parimala Devi. M.**, Choudhry, M.D., Nithiavathy, R., Boopathi Raja, G., Sathya, T., “Blockchain Based Edge Information Systems Frameworks for Industrial IoT: A Novel Approach”, Blockchain Applications in the Smart Era. EAI/Springer Innovations in Communication and Computing, , pp. 19–39, 2022, Print ISBN978-3-030-89545-7, Springer. [https://doi.org/10.1007/978-3-030-89546-4\\_2](https://doi.org/10.1007/978-3-030-89546-4_2). (Scopus)
9. Nithya, S., Vijayalakshmi, K., **Parimala Devi, M.**, “Security Challenges in Smart Grid Management” Smart and Power Grid Systems - Design Challenges and Paradigms, IEEE Explore, 2022, pp. 117–134. (Scopus).
10. Nithya Savarimuthu, **Parimala Devi M**, Boopathi Raja G, Sathya T, Hemalatha R, Modeling and Simulation of Improved Hybrid Dual Converter Using Wave Energy AIP Conference Proceedings 2813, 020013 (2023) <https://doi.org/10.1063/5.0156898>. pp. No. 020013-1 to 020013-14 (Scopus).
11. V Gowrishankar; G Prabhakaran; K S Tamilselvan; T Judgi; **M Parimala Devi**; A Murugesan, “IoT based Smart ID Card for Working Woman Safety”, IEEE-7th International Conference on Intelligent Computing and Control Systems (ICICCS), <http://dx.doi.org/10.1109/iciccs56967.2023.10142631>. 2023. (Scopus).
12. **Parimala Devi Muthusamy**, G. Boopathi Raja, T. Sathya, P. Nandhini, “ Impact of Artificial Intelligence in Managing Complications in Pregnancy and Childbirth” in book Titled Predicting Pregnancy Complications Through Artificial Intelligence and Machine Learning, September 2024, ISBN13: ISBN13: 9781668489765, IGI Global. (Scopus).
13. Deepa R, Sakthivadivel M, Saravanakumar S, Ganesh Karthikeyan V, **Parimala Devi M**, Madumitha S, “Feature Extraction and Classification Using Ensemble Method to Enhance

- Parkinson's Disease Prediction” IEEE-Annual International Conference on Emerging Research Areas: International Conference on Intelligent Systems (AICERA/ICIS), 2023, <https://ieeexplore.ieee.org/document/10420274>. (Scopus).
14. Pavithra M, Murugesan A, Saranya K, Srihari T, Mohanraj K and Parimala Devi M, “Facial Detection and Recognition-based Smart System on Feature Extraction using Raspberry Pi”, 2023 3rd International Conference on Innovative Mechanisms for Industry Applications (ICIMIA).979-8-3503-4363-2/23/\$31.00, DOI: 10.1109/ICIMIA60377.2023.10425794. (Scopus).
  15. M.Parimala Devi, “Leakage Analysis of a Low Power 10 Transistor SRAM Cell in 90 nm Technology”, Circuits and Systems, Vol.7, PP.1033-1041.2016.  
M.Parimala Devi, “Leakage Characterization of a Novel Transmission Gate based 10T SRAM Cell”, Asian Journal of Research in Social Sciences and Humanities”, Vol.6, No.7, PP.844-853.2016.
  16. M.Parimala Devi, “Analysis of Power efficient modulo  $2^n+1$  adder architectures”, International Journal of Computer Applications, Vol.70, No.4, PP.8-16, 2013.
  - 17.

### **Books and Book Chapters**

- 1 **P.Jayachandar, P.Brindha & M.Parimala Devi**, “Advanced Microprocessors and Microcontrollers”, University Science Press, New Delhi, 2018/ ISBN No: 978-93-5274-384-1.
- 2 **M. Parimala Devi**, Ms.T. Sathya, Dr.V. Gowrishankar, Mr.G. Boopathi Raja & Dr.S. Nithya, “An Efficient Control Strategy for Prevention and Identification of COVID-19 Pandemic Disease”, Health Informatics and Technological Solutions for Coronavirus (COVID-19), CRC Press, Taylor & Francis Group, **April 2021, 9781003161066**.
- 3 **M. Parimala Devi**, Mani Deepak Choudhry M, G. Boopathi Raja & T. Sathya, “A Roadmap towards Robust IoT-Enabled Cyber-Physical Systems in Cyber Industrial 4.0”, Handbook of Research of Internet of Things and Cyber-Physical Systems An Integrative Approach to an Interconnected Future, Apple Academic Press co-publishing with CRC Press, Taylor & Francis Group, January 2022, Hard ISBN: 9781774638347.
- 4 **Dr.M.Parimala Devi**, G Boopathi Raja, T Sathya and Dr.V Gowrishankar, “ Post-analysis of COVID-19 pneumonia based on chest CT images using AI algorithms: a clinical point of view” in book titled, Artificial Intelligence Strategies for Analyzing COVID-19 Pneumonia Lung Imaging, Volume 1, IOP Science, April 2022, Online ISBN: 978-0-7503-3795-3 Print ISBN: 978-0-7503-3793-9.

5 **Dr.M. Parimala Devi**, Mani Deepak Choudhry, Sundarrajan M, P Sivapriyanga, “An Efficient 24 x 7 Patient’s Vital Parameter Monitoring Framework using Machine Learning based Internet of Biomedical Things: A Comprehensive Approach” in book titled Advances in Image and Data Processing using VLSI Design, Volume 2, Biomedical applications, IOP Science Publishers, <https://doi.org/10.1088/978-0-7503-3923-0ch14>, July 2022.

6 G.Boopathi Raja,T.Sathya, V.Gowrishankar, **Dr.M. Parimala Devi**, “ Cloud based IoMT for early COVID-19 Diagnosis and Monitoring”, The Institution of Engineering and Technology, June 2022, **Book DOI:** [10.1049/PBHE042E](https://doi.org/10.1049/PBHE042E), **Chapter DOI:** [10.1049/PBHE042E\\_ch3](https://doi.org/10.1049/PBHE042E_ch3)  
**ISBN:** 9781839535185

7 G.Boopathi Raja, **M. Parimala Devi**, T. Sathya, and Arun Seeralan Balakrishnan, “Collaboration of Blockchain-Based Digital Twins in the Healthcare Industry: From Idea to Implementation” in book titled Blockchain-Based Digital Twin Research Trends and Challenges, October 2024, ISBN: 9781774918425, Apple Academic Press CRC Press.

8 Mani Deepak Choudhry, M. Sundarrajan, M. Parimala Devi, S. Jeevanandham, Akshya Jothi, “Introduction to Cloud Computing and Cloud Services”, Source Title: Emerging Technologies and Security in Cloud Computing, 2024, |Pages: 18  
DOI: 10.4018/979-8-3693-2081-5.ch001.

### Copyrights and patents

#### Copyrights- Registered

S.No .	Copyright/ Patent	Name of the Work	Diary Number	Date
1.	Copyright (Computer Software)	NAND Gate Based Architecture for Data Matching Encoded with Error Correcting Codes in Cache Memory	12002/2018-CO/SW	Registered SW-12161/2019
2.	Copyright (Computer Software)	NOR Based Architecture for Data Matching Encoded with Error Correcting Codes in Cache Memory	1377/2020-CO/SW	Registered SW-13738/2020
3.	Copyright (Computer Software)	Multiplexer Approximation Logic based 4x4Dadda multiplier using Carry Look Ahead Adder	Diary: 21331/2020-CO/SW	Registered SW-15525/2022 Dated 28/06/2022
4.	Copyright (Computer Software)	Multiplexer Approximation Logic based 4X4 Dadda Multiplier using	Diary: 17557/2021-CO/SW	Registered SW-15525/2022

		Ripple Carry Adder		
5.	Copyright (Computer Software)	Low Latency and Area Efficient Systolic AB <sup>2</sup> Parallel Multiplier over GF 2 <sup>M</sup>	Diary: 2370/2023- CO/SW	Registered SW-17817/2023

### Patents- Granted

S.No.	Name of the Patent filed	Name of the Inventors	Date of filing	Patent Number	Status
1.	An Internet of Things based Civil Engineering Water Pump with Embedded Solar System	M.Parimala Devi	03/07/2021	2021103839	Australian Patent Granted on 11 August 2022
2	A Block chain-IOT based Patient Monitoring System	1.M.Parimala Devi 2.T.Sathya 3.V.Gowrishankar	10/07/2021	2021104030	Australian Patent Granted on 03 March 2022

### a) Conferences

#### International

1. M.Parimala Devi, "Design Challenges and Circuit Optimization Methodologies for Low Leakage SRAM Cell" International conference on "International convention cum pre-conference workshop on Innovations in Engineering and Technology for sustainable development IETSD 2012, Bannari Amman Institute of Technology, Erode, September 2012.
2. M.Parimala Devi, "Survey on Sub-threshold and Gate Leakage Currents of 6T, 7T, 8T, 9T, 10T and 11T SRAM cell structures", International Conference on Advances in Computing, Control, Communication, Automation and Structural Engineering – 2015 (ACCCAS - 2015), Al – Ameen Engineering College, April 2015.
3. M.Parimala Devi, "A Survey on the Performance Analysis of 6T SRAM cell", "International Conference on Emerging Trends in Science, Engineering and Technology(ICETSET' 15), Nandha College of Technology, Erode, March 2016.
4. M.Parimala Devi, "Optimized Architecture for Data matching encoded with error correcting codes", International Conference on Green, Intelligent Computing and Communication Systems [ICGICCS'17], Hindustan College of Engineering and Technology, Coimbatore, March 2017. **(Best Paper Award)**

5. M.Parimala Devi, "Variation tolerant SRAM cell for low power Applications", IEEE-International Conference on Electrical sciences, SNS College of Technology, Coimbatore, March 2017. **(Best Paper Award)**

6. M.Parimala Devi, "Design of High Speed Constant Multiplier Based on VHBCSE Algorithm with Brent Kung and Ling Adders", International conference on recent innovations in Engineering, Techonology and Management, Nandha Engineering College , March 2018.

7. M.Parimala Devi, "Design of an Optimized Multiplier Based on Approximation Logic", International conference on recent innovations in Engineering, Techonology and Management, Nandha Engineering College , March 2018.

8. M.Parimala Devi, "IoT based super Market System", International conference on recent innovations in Engineering, Techonology and Management, Nandha Engineering College , March 2018.

9. M.Parimala Devi, "A study on the leakage mechanism of standard 6T SRAM cell", International Conference on Information sciences and renewable energy sources, Selvam College of Technology, Namakkal, March 2019.

M.Parimala Devi, "RFID based Accident Buster", International Conference on Information sciences and renewable energy sources, Selvam College of Technology, Namakkal, March 2019.

10. M.Parimala Devi, "Implementation of Electronic Alerting System for Real Time Application", International Conference on Science, Technology, Engineering and Management(ICSTEM'20), Kalaignar Karunanithi Institute of Technology, Coimbatore, March 2020.

11. M.Parimala Devi, "Automation of Air Leakage Testing Machine using PLC & HMI", 9th International Conference on Advanced Science and Engineering Research, Selvam College of Technology, Namakkal, March 2020.

12. M.Parimala Devi, "Leakage Characterization of Read Decoupled 10T S RAM Cell", 9th International web Conference on Innovations in Communication and Computing(ICICC'20), Velammal College of Engineering and Technology, Madurai, October, 2020.

13. M.Parimala Devi, "Predictive Maintenance of Industrial Equipment's using IOT", Second International Conference on Instrumentation, MEMS and Bio-sensing Technology (ICIMBT-2021) , Department of Electronics & Instrumentation Engineering, SRM Institute of Science & Technology, Chennai, February 2021.

#### **National**

14. M.Parimala Devi, "Floating Point Core based Arithmetic Expression Evaluation", National

- Conference on Computer & Communication System Technology (CCST '09), Nehru Institute of Engg.& Tech., Coimbatore, March 2009.
15. M.Parimala Devi, "Reconfigurable FPGA based on Double gate transistors", National Conference on Future of Electrical and Instrumentation Technology ECLECTIC'09, Vivekananda College of Engg. for Women, Nammakal, April 2009.
16. M.Parimala Devi, "Low Leakage SRAM Design using HCS Technique", National Conference on Signal Processing Communication & VLSI Design, Anna University Coimbatore, May 2009.
17. M.Parimala Devi, "Design and Performance Analysis of power Efficient Sense Amplifier flip flop", National Conference on Industrial Technology, Bannari Amman Institute of Technology, March 2012.
18. M.Parimala Devi, "Low Power High Performance SRAM Design", National Conference on Industrial Technology, Bannari Amman Institute of Technology, March 2012.
19. M.Parimala Devi, "A Survey on Circuit Level Techniques for standby power reduction in Nano scale CMOS VLSI Systems", National Conference on Advanced embedded systems and signal Processing(NCAESP' 13), Park College of Engg & Tech, Coimbatore, March 2013.
20. M.Parimala Devi, "Modified Modulo  $2n+1$  Adder Architectures for Cryptographic applications", 5th National Conference on Electronics, VLSI, Embedded Systems, Networking, Telecommunication and Signal processing, Velalar college of Engg. & Tech, Erode-12, March 2013.
21. M.Parimala Devi, "Comparative Study of 8T SRAM Cell using CMOS, FINFET AND CNTFET in Nano scale Technologies", 5th National Conference on Electronics, VLSI, Embedded Systems, Networking, Telecommunication and Signal processing, Velalar college of Engg. & Tech, Erode-12, March 2013.
22. M.Parimala Devi, "NBTI Effects on SNM for a variation tolerant SRAM", National Conference on "Innovations in Information and Communication Technologies, Sri Krishna College of Technology, Coimbatore, February 2014.
23. M.Parimala Devi, "Subthreshold leakage reduction strategies for the design of low power SRAM", 5<sup>th</sup> National Conference on Industrial technology, Department of EIE , Amman Institute of Technology, Sathyamangalam, Coimbatore, February 2014.
24. M.Parimala Devi, "Design of low power 8T SRAM cell using FINFET nanoscale technologies", 5<sup>th</sup> 6<sup>th</sup> National Conference on Electronics, VLSI,Embedded systems, Networking, Telecommunication and Signal processing, Department of ECE, Velalar College of Engineering and Technology, Erode, March 2014.
25. M.Parimala Devi, "Design of Polar List Decoder Using 2-bit SC Decoding Algorithm ",

- National Conference on “Trends in Engineering Applications and Management”, Velalar College of Engineering and Technology, Erode., March 2015.
- M.Parimala Devi, “Analysis of A Single Ended SRAM Cell For Low Voltage Operation”,  
26 National Conference on “Trends in Engineering Applications and Management”, Velalar College of Engineering and Technology, Erode., March 2015.
- M.Parimala Devi, “High speed SRAM cell architecture using Gated VDD technique in 90nm  
27 technology ”, National Conference on Industrial Technologies NCIT-2016, Department of EIE, Bannari Amman Institute of Technology, Sathyamangalam., February 2016.
- M.Parimala Devi, “Leakage Reduction Strategies of 6T SRAM cell”, National Conference on  
28 Trends in Engineering Applications and Management [NCTEAM’16], Velalar College of Engineering and Technology, Erode., March 2016.
- M.Parimala Devi, “Low Power Applications using SRAM Cell”, National Conference on  
29 Trends in Engineering Applications and Management [NCTEAM’17], Velalar College of Engineering and Technology, Erode., March 2017.
- M.Parimala Devi, “Gate and Subthreshold Leakage Current Mechanism in Standard 6T SRAM cell”, National Conference on Trends in Engineering Applications [NCTEA’19], Velalar College of Engineering and Technology, Erode., March 2019.

**Additional Responsibilities held :**

- a. Department Anti Ragging Committee Member
- b. Dept. Board of Studies- UG & PG (2016-2024)
- c. Dept. Admission Team coordinator (2015-2021),
- d. Class Committee Chair person (2020- Till Now)
- e. Department R&D Coordinator (2018- 2023)
- f. Dept. NIRF and AISHE Coordinator (2018- 2023)
- g. Faculty Activities Coordinator (NBA-Criteria 5) (2018- 2023)
- h. NAAC- Criteria 3 Coordinator (2018- 2023)
- i. VLSI Design Lab Incharge (2013-2018)
- j. Department Timetable Coordinator(2011-2016)
- k. Project Coordinator (2019-2022)
- l. Class Mentor (2013 Batch, 2021 Batch, 2025 Batch)
- m. VLSI & Embedded Systems Domain Coordinator (2018 onwards)
- n. Department IIC Coordinator (2023 onwards)
- o. VCET IIC Events coordinator (2023 onwards)
- p. VCET Yukthi & Niral Hacakthaon coordinator



## Professional Society Membership

- Institution of Electronics and Telecommunication Engineers (IETE-M237128)- Life Member.
- Institution of Electronics and Telecommunication Engineers (IEICE), Membership number: 1884778, Registered Society : C

## RESEARCH ACTIVITIES

**Project Supervised:** Undergraduate: 16 & Post Graduate: 10

**Ph.D Supervision: 5 (Anna University Supervisor Recognition No: 4190022)**

S.No.	Name of the Scholar	Reg.No	Registered Session	Title of Research
1	Sathya T	24249691119	Jan 2024	FPGA based Convolutional Neural Network for Image Classification
2	Thilagarani M	24244691135	Jan 2024	Deep NLP Approaches for Enhanced Text Classification
3	Nithya S	24244691147	Jan 2024	Machine Learning Approaches for Named Entity Recognition for NLP
4	Vanitha K	2424969124	Jan 2024	Design and Fabrication of Wearable Multi band Antenna for Wireless Body Area Network
5	Vidhya R		June 2024	Image Encoding for Time Series Imputation and Forecasting using Deep Learning based Generative Models

## Reviewer:

- Cluster Computing, Springer
- Environmental Science and Pollution Research, Springer
- Peer-to-Peer Networking and Applications, Springer
- Journal of Ambient Intelligence and Smart Environments
- Knowledge Information Systems, Springer
- Multiscale and Multidisciplinary Modeling, Experiments and Design
- The Journal Of Engineering, IET
- Environmental Health Insights
- Silicon, Springer
- Journal of Intelligent and Fuzzy Systems, IOS Press

- IGL Global- Book chapter

#### **NPTEL COURSES COMPLETED**

- NPTEL Online Certification -12 week course- NBA Accreditation and Teaching – Learning in Engineering (NATE) **(ELITE+SILVER) +FDP**
- NPTEL Online Certification -8 week course- Accreditation and Outcome Based Learning **(ELITE+SILVER) +FDP.**
- NPTEL Online Certification -12 week course- Introduction to Industry 4.0 and Industrial Internet of Things **(ELITE+SILVER) +FDP**

#### **ACHIEVEMENTS- STUDENT MENTOR**

1. Faculty mentor for the Batch ERROR- 404, who have won SMART INDIA Hackathon (ACY: 2023-2024) - Technological Solutions for early decomposition of Fecal Matter.
2. Faculty mentor for the Batch ERROR- 404- Technological Solutions for early decomposition of Fecal Matter- Round 3 Entry of Yukthi 2023.
3. IIT Madras- Team Cyber Sentimentals/PALS ANALYZE – CASE STUDY EVENT (Case Study Topic - PEDESTRIAN SAFETY SYSTEM IN CARS)- Appreciation Category. 2023
4. IIT Madras – Team- Provista/Ideas to Impact Challenge (i2I) 2023-24, Technological solution to empower underground miners with a Smart Jacket for enhanced safety and connectivity in service to lower fatalities.
5. AIC RAISE- Team- Geek Squad/Technological solution to introduce a smart jacket in the mining industry, enhancing safety measures, and lowering fatalities.

#### **Awards**

- a. Awarded appreciation certificate for 100% result in the Academic year 2011-12, 12-13,14-15,15-16,16-17,17-18, 18-19.
  - b. **Received best paper awards in international conference**
1. M.Parimala Devi, “Optimized Architecture for Data matching encoded with error correction codes”, International Conference on Green, Intelligent Computing and Communication Systems [ICGICCS’17], Hindustan College of Engineering and Technology, Coimbatore March 2017. **(Best Paper Award).**
  2. M.Parimala Devi, “Variation tolerant SRAM cell for low power Applications”, IEEE-International Conference on Electrical sciences, SNS College of Technology, Coimbatore March 2017. **(Best Paper Award).**

