

Faculty Profile



Dr A R KALAIARASI M.E., Ph.D
Professor / EEE

HIGHLIGHTS:

- Number of Journal Publications: 16
- H-Index: 6
- i10 index: 4
- Patents Published: 7
- Patents Granted: Nil
- Recognized Anna University Supervisor. Yes

PROFESSIONAL LINKS:

- Scopus ID: 54393462300
- Scopus Link: <https://www.scopus.com/authid/detail.uri?authorId=54393462300>
- Google Scholar ID: 60VVBI4AAAAJ
- AICTE Faculty ID: 12189171539
- Anna University Supervisor ID: 2530028
- LinkedIn: www.linkedin.com/in/kalaiaarasi-a-r-b0147722

Ph.Ds GUIDING:

- Full Time Scholars: Nil
- Part Time Scholar : 2

PROFESSIONAL BACKGROUND:

- Teaching Experience : 15.4
- Research Experience: 5

FDP Conducted

Sl.No	Name of the Event	Role	Duration and Place
1.	AU Approved FDTP-on Embedded Systems	Co-Ordinator	1 week, Dept. of EIE, Saveetha Engineering College, Dec 1-8, 2017.

AREA OF SPECIALIZATION: MEMS, VLSI Design and Control systems and Instrumentation,

PATENTS PUBLISHED/GRANTED:

Sl. No	Name of the Patent Applicants	Title of the Patent	Patent Ref. No	Status
1.	Dr.A.R.Kalaierasi and Dr.A.Manonmani	Smart Monitoring System For Plant Growth Using bot And Controlling Through IOT	202141050604	Published in IPO (19/11/2021)
2	Dr.A.R.Kalaierasi et al.,	Seismic Quantification In Comprehensive Recorded Directional Phases: A Machine Learning Workflow For Precedence	202341021873	Published in IPO (21/04/2023)
3	Dr.A.R.Kalaierasi and Dr.A.Manonmani	Identification of lead metal concentration in agricultural soil using IOT & AI based robotic vehicle	202341072776	Published in IPO 26/10/2023
4	Dr.A.R.Kalaierasi et al.,	IOT BASED MONITORING SYSTEM FOR&NBSP;COAL MINE USING ARDUINO	202441051511 A	19/07/2024
5	Dr.A.R.Kalaierasi et al.,	DEVELOPMENTS OF IOT BASED GROWTH MONITOR AND YIELD PROMOTER IN TOMATO PLANT	202541015783 A	21/03/2025
6	Dr.A.R.Kalaierasi	AI-ENABLED REAL-TIME LOAD FORECASTING AND DYNAMIC DEMAND RESPONSE CONTROL IN SMART CITIES	202541086660	03/10/2025
6	Dr.A.R.Kalaierasi	COGNITIVE INSTRUMENTATION SYSTEM WITH CONTEXT-AWARE MEASUREMENT ADAPTATION	202641000853 A	06/03/2026
7	Dr.A.Manonmani and Dr A R Kalaierasi	AUTONOMOUS SENSOR CALIBRATION SYSTEM USING AI-BASED REFERENCE PATTERN RECOGNITION	202641099155 A	28/08/2026

PUBLICATIONS:

1. Kalaierasi A R et al, “Graphene-integrated hybrid Au-Ag plasmonic terahertz meta-surface with Nano resonances and XGBoost-assisted performance prediction for high-sensitivity label-free peptide biosensing”, 2026, Volume 169, Part A,114051,ISSN 0925-9635, <https://doi.org/10.1016/j.diamond.2026.114051>.
2. Kalaierasi A R et al, “Machine learning-assisted hybrid graphene–MXene–WS₂ terahertz metasurface biosensor for highly sensitive label-free chikungunya virus detection”, Results in Optics, Volume 25, 2026, 101149, ISSN 2666-9501, <https://doi.org/10.1016/j.rio.2026.101149>.

3. Kalaiaarasi A R et al, "Hierarchical graphene-integrated Cu–Ag plasmonic metasurface for ultrasensitive terahertz refractive index sensing with machine learning-assisted prediction", Optik, Volume 352, 2026, 172838, ISSN 0030-4026, <https://doi.org/10.1016/j.ijleo.2026.172838>.
4. Kalaiaarasi A.R et. Al, "IOT Based Smart PV Panel Monitoring System", International Journal of Reconfigurable and Embedded Systems, **International Journal of Reconfigurable and Embedded Systems**, 2024, 13(2), pp. 341–351.
5. Kalaiaarasi A.R et. al, "Microsensor for Cancer Detection and MEMS Actuator for Cancer Therapy", Transactions on Electrical and Electronic Materials, <https://doi.org/10.1007/s42341-022-00421-9>, Scopus Indexed.
6. Kalaiaarasi A.R et. al, "Design, Simulation, and Analysis of Micro/Nanoelectromechanical System Rotational Devices", Hindawi, Journal of Nanomaterials, Volume 2021, Article ID 6244874, pp 1-13. <https://doi.org/10.1155/2021/6244874>(SCI Indexed, Scopus Indexed, Anna university Annexure.
7. Kalaiaarasi A.R et. al, "Design and Fabrication of Infrared based Menstrual Waste Dispenser", Eleyon, Engineering Reports, Vol. 1 Iss. 2, PP.83-86, 2018
8. Kalaiaarasi A.R et. al, "Design and Development Mems Based Microneedle for Transdermal Drug Delivery System", Eleyon, Engineering Reports, Vol. 1 Iss. 2, PP. 103-110, 2018
9. Kalaiaarasi et al. "Design, Analysis and Modelling of Micro Needle for Transdermal Drug Delivery System", Journal of Chemical and Pharmaceutical Sciences ISSN: 0974-2115, Special Issue 9: June 2017, pp 47-50.
10. Kalaiaarasi et. al. "Design and Modelling of MEMS based Piezoelectric and Electrostatic Energy Harvester", Journal of Chemical and Pharmaceutical Sciences ISSN: 0974-2115, Special Issue 9: June 2017, pp 43-46.
11. Kalaiaarasi et. al. "Design of MEMS Based Microneedle for Drug Administration", Journal of Chemical and Pharmaceutical Sciences ISSN: 0974-2115, Special Issue 9: June 2017, pp 36-38.
12. Kalaiaarasi, A.R et. al. "Design and optimization of an Electro thermally Actuated Gripper", International Journal of Innovative Research in Science, engineering and Technology, Vol. 3, Special Issue 3, March 2014. ISSN (Online) : 2319 – 8753
13. Kalaiaarasi, A. R. and HosiminThilagar, S. "Modeling and Characterisation of a SOIMUMP's Hybrid Electro Thermal Actuator", Microsystem Technologies, Springer, Vol. 1, No. 1, pp. 113–120, 2013. DOI 10.1007/s00542-012-1566-1, ISSN: 0946-7076. (Reputed Journal listed in Anna University Annexure - I) SCIE
14. Kalaiaarasi A. R. and HosiminThilagar, S. "Performance Enhancement of Electrostatically Actuated Microgripper with Modified Shape Fingers for Microassembly", Advanced Materials Research, Vol. 622-623, pp. 1810 -1814, 2013, ISSN:1022-6680. (Reputed Journal and listed in Anna University Annexure - II) UGC listed
15. Kalaiaarasi A. R. and HosiminThilagar, S. "Closed Form models for Pull-in Voltage of Electrostatically Actuated Cantilever Beams and Comparative Analysis of Cantilevers and Microgripper", Journal of ELECTRICAL ENGINEERING (Slovak), Vol. 63, No. 4, pp. 242–248, 2012. ISSN: 1335-3632. (Reputed Journal listed in Anna University Annexure - I) SCI
16. HosiminThilagar, S. and Kalaiaarasi, A. R. "Design, Simulation and Analysis of Cantilever Sensor for in-Vitro LDL Detection", Sensors and Transducers, IFSA, Vol. 130, No. 7, pp. 136-141, 2011. ISSN 1726-5479. Scopus Listed from 2011 – 2014.
17. A.R.Kalaiaarasi et al., "An Intelligent Mobility System Integrating Obstacle Detection and Road Anomaly Recognition", 2026 7th International Conference on Mobile Computing and Sustainable Informatics (ICMCSI), **Scopus Indexed, IEEE Conference.**
18. A.R.Kalaiaarasi et al., "A Review on Autonomous Robot for Hazardous Sample Delivery with Obstacle Avoidance and Safety Monitoring", 2025 10th International Conference on Communication and Electronics Systems (ICCES), **Scopus Indexed, IEEE Conference.**

19. A.R.Kalaifarasi et al., "Advanced Micro/Nano Biodegradable Materials for the Design and Modeling of Bio-Medical Applications", 2025 4th International Conference on Automation, Computing and Renewable Systems (ICACRS), **Scopus Indexed, IEEE Conference**.
20. A.R.Kalaifarasi et al., "A Review on Smart Piezoelectric Sensor-based Welcome Mat for Real-Time Visitor Detection and Greeting Systems", 2025 6th International Conference on IoT Based Control Networks and Intelligent Systems (ICICNIS), **Scopus Indexed, IEEE Conference**.
21. A.R.Kalaifarasi et al., "Smart Vehicle Safety Framework Integrating Alcohol Detection and Driver Drowsiness Monitoring", 2026 Second International Conference on Multi-Agent Systems for Collaborative Intelligence (ICMSCI) **Scopus Indexed, IEEE Conference**
22. A.R.Kalaifarasi et al., "Literature Review on Optimizing Solar Panel Efficiency through Dynamic Solar Tracking", 3rd International Conference on Electronics and Renewable Systems, ICEARS 2025 – Proceedings, pp. 13-18. **Scopus Indexed, IEEE Conference**.
23. A.R.Kalaifarasi et al., "Smart Home Energy Management System", Artificial Intelligence for Next Generation Energy Management- **Book Chapter, Scopus Indexed**.
24. A.R.Kalaifarasi et al., "A Study to Analyze the Vulnerabilities and Threats Faced by the Power Sector", Artificial Intelligence for Next Generation Energy Management- **Book Chapter, Scopus Indexed**.
25. A.R.Kalaifarasi et al., "Dual-Function Health Monitoring System For Alcohol Detection And Epileptic Seizure Prediction", **Lecture Notes in Networks and Systems**, Volume **1823**, **Springer**.
26. A.R.Kalaifarasi et al., "Elevated Food Safety With Pesticide Detection In Fruits and vegetables", 8th International Conference on Inventive Material Science and Applications (ICIMA 2026). **Scopus Indexed, IEEE Conference**.
- 27.
28. A.R.Kalaifarasi et al., "IoT-Enabled Autonomous Robot for Hazardous Sample Delivery with Environmental Safety Monitoring" 7th International Conference on Inventive Research in Computing Applications (ICIRCA 2026), **Scopus Indexed, IEEE Conference**.
29. A.R.Kalaifarasi et al., "Utilization Of Thermoelectric Generator (Teg)-Based Power Harvesting Systems For Iot Applications", 7th International Conference on Inventive Research in Computing Applications (ICIRCA 2026)
30. A.R.Kalaifarasi et al., "Literature Review on Remote Monitoring and Control System for Manufacturing Equipment using IoT, 3rd International Conference on Electronics and Renewable Systems, ICEARS 2025 – Proceedings, pp. 469-474. **Scopus Indexed, IEEE Conference**
31. A.R.Kalaifarasi et al., "Water Quality Monitor And Autofill System", AIP Conference Proceedings, 3216(1). **Scopus Indexed**.
32. A.R.Kalaifarasi et al, "Design and Modeling of Roof Top Integrated PV for Laboratory Building", 5th International Conference on Sustainable Communication Networks and Application, ICSCNA 2024 – Proceedings, pp. 345-349. **Scopus Indexed, IEEE Conference**
33. A.R.Kalaifarasi et al, "Design and Development of an Intelligent Automated Waste Segregation System Using Arduino for Efficient Waste Management", Proceedings - 2024 IEEE 16th International Conference on Communication Systems and Network Technologies, CICN 2024, pp. 1063-1068. **Scopus Indexed, IEEE Conference**
34. A.R.Kalaifarasi et al, "IoT-Enabled Management of Smart Grid Systems", 3rd International Conference on Automation, Computing and Renewable Systems, ICACRS 2024 – Proceedings, pp. 531-536. **Scopus Indexed, IEEE Conference**
35. A.R.Kalaifarasi et al, "A Review on Error Reduction in a Closed-Loop Buck-Boost Converter Through the Implementation of Different Controllers", Proceedings of 5th International Conference

on IoT Based Control Networks and Intelligent Systems, ICICNIS 2024, pp. 677-683. **Scopus Indexed, IEEE Conference**

36. A.R.Kalaiarasi et al, "Optimizing Virtual Power Plant Allocation to Enhance Indian Distribution Grid Performance under Extreme Conditions", 4th International Conference on Power, Energy, Control and Transmission Systems: Harnessing Power and Energy for an Affordable Electrification of India, ICPECTS 2024. **Scopus Indexed, IEEE Conference**
37. A.R.Kalaiarasi et al, "Minimization of Error of Closed Loop Boost Converter Using Various Controllers", Lecture Notes in Electrical Engineering (1162), pp. 315-325. **Scopus Indexed.**
38. A.R.Kalaiarasi et al, "A Review on Error Reduction in a Closed-Loop Buck-Boost Converter Through the Implementation of Different Controllers", Smart Grids as Cyber Physical Systems: Artificial Intelligence, Cybersecurity, and Clean Energy for Next Generation Smart Grids, pp. 55-67. **Scopus Indexed.**
39. Kalaiarasi A.R et. al, "Design and Development of Land Rover for Disaster Management", 2023 Innovations in Power and Advanced Computing Technologies, i-PACT 2023, 2023,IEEE Conference, **Scopus Indexed.**
40. Kalaiarasi A.R et. al, "Footstep power generator using piezoelectric techniques", *AIP Conf. Proc.* 2946, 030006 (2023),<https://doi.org/10.1063/5.0178065>, 3rd International Conference On Robotics, Intelligent Automation And Control Technologies (RIACT2022). **Scopus Indexed.**
41. Kalaiarasi et al, "Validation of Snap-Through Voltages of Electrostatically Actuated Devices with Closed Form Equations", *Proceedings of IEEE InC4 2023 - 2023 IEEE International Conference on Contemporary Computing and Communications*, 2023, **Scopus Indexed, IEEE Conference**
42. Kalaiarasi et al, "IOT based hazardous gas detection and Control", PECCON 22, held on May 5-6, 2022, VIT Chennai. **Scopus Indexed, IEEE Conference**
43. Kalaiarasi et al, "IOT based smart Waste Management System", VIT-CES-RES, held on 7-8th Oct 2021, VIT Chennai. **Scopus Indexed, Book Chapter Published.**
44. Kalaiarasi et al. "Design and Fabrication of Infrared based Menstrual Waste Dispenser", International Conference on automation and Computing Technologies – (ICACT-18)"held on 17th March,2018. - **Best Paper Award**
45. Kalaiarasi et al. "Design and Development of Mems Based Microneedle for Transdermal Drug Delivery System", International Conference on automation and Computing Technologies – (ICACT-18)"held on 17th March,2018.
46. A.R.Kalaiarasi and S.HosiminThilagar, "Design and Modeling of Electrostatically Actuated Microgripper", 8th International Conference on Mechatronic and Embedded Systems and Applications (MESA), IEEE/ASME, 2012, July 8-10, Suzhou, China.
47. A.R.Kalaiarasi and S.HosiminThilagar, "Performance Enhancement of Electrostatically actuated Microgripper with Modified Fingers for Microassembly", International Conference on Manufacturing Science and Technology, ICMST 2012, August 18-19, New Delhi, India.
48. A.R.Kalaiarasi et al. (2012) "Design and analysis of a Tunable Optical Filter using MEMS technology", International Conference on Advances in Communication technology (ICACT'12), TamilNadu, India.
49. A.R.Kalaiarasi et al. (2012) "MEMS –Based Wide Range Tunable Fabry Perot Filter", IEEE International Conference on Advances in Engineering, Science and Management (IEEE-ICAESM 2012).
50. A.R.Kalaiarasi (2011) "Design and Finite Element analysis of Electro thermal actuators", in COMSOL 2011 conference, Bangalore 2011.
51. A.R.Kalaiarasi (2011) "Design and analysis of MEMS gold coated cantilever piezoresistive sensor for Bio-sensing applications", in TIMA conference, Chennai, January 2011.

52. A.R.Kalaiaarasi (2010) “Closed form models of cantilever beam’s pull-in voltage and their comparative analysis”, in International Conference on power, control and Embedded systems”, Chennai, December 2010.

COURSES CERTIFIED:

1. Online certified course on “Complete Python Bootcamp : Go from zero to hero in python 3 from Udemy.
2. Online certified course on “PLCs by Tata Steel”, from Tata Steel Learning Centre.
3. Online certified course on “Industry 4.0 by Tata Steel”, from Tata Steel Learning Centre.
4. Online certified course on “Introduction to FPGA Design for Embedded Systems”, from Courseera
5. Online certified course on “Hardware Description Languages for FPGA Design” from Courseera
6. Online certified course on “Introduction to Internet of things” from NPTEL, **Grade : Elite Silver.**
7. Online certified course on “Accreditation And Outcome Based Learning” from NPTEL, **Grade : Elite Silver**

SPECIAL SESSIONS DELIVERED:

Sl.No	Name of the Event	Organized by	Date
1.	Applications in MEMS in Engineering AMIE’2015- A national level Workshop	Dept of EIE, SRM University, Chennai Tamilnadu	24-25 Aug - 2015
2.	Guest lecture on “Sensors and Actuators”	Dept of EEE, Velammal Institute of Technolgy, Chennai Tamilnadu	08, Aug 2016
3.	Sensor designing using Intellisuite - (Online)	Centre for Micro Nano Design and Fabrication (CMNDF), Saveetha Engineering College, Chennai Tamilnadu	26, June 2020
4.	International E-Conference on Science and Technology for environmental enrichment and public Health (STEEP 2020) Conference Session Chair	Easwari Engineering College	30.09.2020
5.	MEMS based Sensors and Actuators for Biomedical Application (Online)	Dept. of ECE, KL University, Andhra Pradesh, India.	5-11-2020
6.	MEMS Sensors and Actuators Using FEM Software	Dept. of ECE, Mailam Engineering College, Tamil Nadu	6-10-2021 to 8-10-2021
7.	Micro-fluidics and Bio-MEMS	Dept. of Biomedical Engineering, EGS Pillay Engineering College, Tamil Nadu	11-12-2021
8.	Mems Sensors and actuators	Dept of ECE, Velammal Engineering College.	12-05-2022
9.	International Technical Conference on “Control in Electric Vehicles and Smart Grid with Renewable Energy Synergies for Sustainable Development" VIT-CES-RES 2024 (SERB Sponsored)	School of Electrical Engineering (SELECT) Vellore Institute of Technology (VIT) Chennai.	10 -05- 2024
10.	Virtual International Conference on Sustainable Smart Cities Integrated with Clean Energy Sources (SCES 2024) Sponsored by Shastri Indo Canadian Institute (SICI)	School of Electrical Engineering (SELECT) Vellore Institute of Technology (VIT) Chennai,	1 st -2 nd , February, 2024.

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PROFESSIONAL MEMBERSHIPS:

The Institution of Engineer(s) India - AM1234261