

**Dr. R GUNABALAN**  
 Assistant Professor  
 Department of EEE  
 University VOC College of Engineering  
 Anna University – Thoothukudi Campus  
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## **1. PERSONAL DETAILS**

**Date of Birth:** 05.01.1979

**Gender:** Male

**Nationality:** Indian

**Nativity:** Tamil Nadu

**Religion:** Hindu

**Marital Status:** Married

## **2. EDUCATIONAL QUALIFICATIONS**

|   | Degree  | Year | Subject                                      | University/Institution                                                                    | % of Marks                                     |
|---|---------|------|----------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------|
| 1 | Ph.D.   | 2015 | Electrical Engineering                       | Anna University – Chennai/<br>PSG College of Technology -<br>Coimbatore                   | -                                              |
| 2 | M.Tech. | 2006 | Electrical Drives<br>and Control             | Pondicherry University/<br>Pondicherry Engineering<br>College -Pondicherry                | 8.61 (CGPA)<br>First class with<br>Distinction |
| 3 | B.E.    | 2000 | Electrical and<br>Electronics<br>Engineering | Manonmanium Sundaranar<br>University/Government<br>College of Engineering,<br>Tirunelveli | 79.21<br>First class with<br>Distinction       |
| 4 | HSC     | 1996 | Maths & Biology                              | Sri Ganesar Hr. Sec. School,<br>Panickkanadarkudirupu                                     | 90.83<br>First class with<br>Distinction       |
| 4 | SSLC    | 1994 | Tamil & English                              | Govt. High School, Umarikadu                                                              | 87.40<br>First class with<br>Distinction       |

**PhD Thesis Title:** Simulation and Experimental Verification of Single Inverter fed Speed Sensorless Vector Control of Parallel Connected Induction Motor Drive

**Institute/Organization/University:** Anna University, Chennai

**Year of Award:** August 2015

### **3. WORK EXPERIENCES**

| S. No.           | Position held                                      | Name of the Institute                 | From                         | To                           |
|------------------|----------------------------------------------------|---------------------------------------|------------------------------|------------------------------|
| 1                | Vellore Institute of University – Chennai          | Professor                             | 1 <sup>st</sup> July 2022    | 1 <sup>st</sup> Dec. 2025    |
| 2                | Vellore Institute of University - Chennai          | Associate Professor                   | 12 <sup>th</sup> August 2015 | 30 <sup>th</sup> June 2022   |
| 3                | Vellore Institute of University - Chennai          | Assistant Professor                   | 4 <sup>th</sup> May 2015     | 11 <sup>th</sup> August 2015 |
| 4                | Chandy College of Engineering, Thoothukudi -05     | Assistant Professor                   | 18 <sup>th</sup> May 2011    | 9 <sup>th</sup> Sept. 2014   |
| 5                | Sri Ramakrishna Engineering College, Coimbatore-22 | Senior Lecturer & Assistant Professor | 8 <sup>th</sup> Dec. 2008    | 17 <sup>th</sup> May 2011    |
| 6                | Karpagam College of Engineering, Coimbatore-32     | Senior Lecturer                       | 5 <sup>th</sup> Dec. 2007    | 25 <sup>th</sup> Nov. 2008   |
| 7                | Velammal Engineering College, Chennai-66           | Lecturer & Senior Lecturer            | 3 <sup>rd</sup> July 2006    | 4 <sup>th</sup> Dec. 2007    |
| 8                | IFET College of Engineering, Villupuram            | Lecturer                              | 12 <sup>th</sup> Nov.2000    | 20 <sup>th</sup> July 2004   |
| Total Experience |                                                    |                                       |                              | 22 Years 4 Months            |

### **4. JOURNAL PUBLICATIONS**

#### **(i) Ph.D. Research Publications**

1. R.Gunabalan, V.Subbiah, B.Rami Reddy, “Sensorless Control of Induction Motor with Extended Kalman Filter on TMS320F2812 Processor”, International Journal of Recent Trends in Engineering, vol.2, no.5, pp.14-19, Nov.2009.
2. Gunabalan, R and Subbiah, V, “Sensorless vector control of parallel connected induction motor drive fed by a single inverter using natural observer”, World Academy of Science, Engineering and Technology, Paris, vol.44, no.5, pp. 475-480, 2010.
3. Gunabalan, R and Subbiah, V, “Review of speed-sensorless vector control of parallel connected induction motor drive fed by a single inverter”, Journal of Electrical Engineering, politehnica publishing house, Romania, vol.12, no.4, pp. 73-82, 2012.
4. Gunabalan, R and Subbiah, V, “Stability analysis of single inverter fed two induction motors in parallel”, World Academy of Science, Engineering and Technology, International Journal of

Electrical, Robotics, Electronics and Communications Engineering, Paris, vol.8, no.8, pp. 1236-1240, 2014.

5. Gunabalan, R and Subbiah, V, "Performance study of two motor single inverter sensorless drive with unequal ratings", International Journal of Control Theory and Applications, Serials Publications, India, Vol. 7, No.2, pp.175-182, 2014.
6. Gunabalan, R and Subbiah, V, "Speed sensorless vector control of induction motor drive with PI and fuzzy controller", International Journal of Power Electronics and Drives System, vol.5, no. 3, pp. 315-325, 2015.
7. Gunabalan R, Sanjeevi kumar P, Blaabjerg F, Ojo O, Subbiah V, "Analysis and implementation of parallel connected two induction motor single inverter drive by direct vector control for industrial application", IEEE Transactions on Power Electronics, vol. 30, no.12, pp. 6472-6475, Dec.2015 (IF: 6.008).
8. Gunabalan R, Subbiah V, Sanjeevi kumar P, "Vector control of three-phase parallel connected two motor single inverter speed sensorless drive", Turkish Journal of Electrical Engineering and Computer Sciences, vol.24, no.5, pp.4027-4041, Jun. 2016 (IF: 0.518).
9. R. Gunabalan, V. Subbiah, "Implementation of field-oriented speed sensorless control of induction motor drive", International journal of electrical engineering and informatics, vol.8, no.4, pp. 727-738, Dec. 2016.

**(ii) Publications with UG and PG Students**

10. Pavan kumar, Rohit Shinde, R. Gunabalan, "DC-DC double PWM converter for dimmable LED lighting", International journal of control theory and applications, vol. 9, no. 16, pp. 8333-8339, Sept. 2016.
11. S. Rohit, R. Gunabalan, M. Pavan Kumar, "Pulse density modulation flyback converter for LED automotive lighting", Indonesian Journal of Electrical Engineering and Computer Science, vol.8, no.1, pp. 85-91, Oct. 2017.
12. Pavan Kumar S M, Gunabalan R, Biswas S S, "Arduino Mega 2560 Microcontroller Built 3-Phase Seven Level Inverter", Journal of Electrical and Electronics Engineering, vol. 10, no. 2, pp. 35-40, Oct. 2017.
13. W. Taranjeet Singh, T. Ashwani, R. Gunabalan, "Analog control circuits for SEPIC converter", Journal of Electrical Engineering, vol. 17, no.4, pp. 93-98, Dec. 2017

14. V. Harikrishna, R. Gunabalan, S. Senthil Kumar, “Pulse width modulation converter for light-emitting diode tube light applications”, *Int. Trans. Electr. Energ. Syst.*, vol. 30, no. 4, pp. 1-10, April 2020 (IF:1.314) <https://doi.org/10.1002/2050-7038.12294>
15. Tinoy Santra, Ritik Gupta, R. Gunabalan, Implementation of Cuk converter with dSPACE1103 controller, *Journal of Physics: Conference series*, vol. 1716, pp.1-6, Jan. 2021.

**(iii) Publications with Ph.D. Scholars**

16. V. Pradeep, R. Gunabalan, R. Sridhar, “A Novel power control technique for series resonant inverter-fed induction heating system with fuzzy-aided digital pulse density modulation scheme”, *International Journal of Fuzzy Systems*, vol. 20, no. 4, pp. 1115-1129, March 2018. (IF: 2.198)
17. Pradeep Vishnuram, Gunabalan Ramachandiran, “Capacitor-Less Induction Heating System with Self-Resonant Bifilar Coil” *International Journal of Circuit Theory and Applications*, vol. 48. no. 9, pp. 1411-1425, Sept. 2020 (SCI indexed, IF-1.554) <https://doi.org/10.1002/cta.2830>
18. Vishnuram P, Ramachandiran G, Ramasamy S, Dayalan S. A comprehensive overview of power converter topologies for induction heating applications. *Int Trans Electr Energ Syst.* vol. 30, no.10, pp.1-33, Oct.2020. (IF:1.692).
19. Vishnuram P, Ramachandiran G, “A simple multi-frequency multi load independent power control using pulse density modulation scheme for cooking applications” *Int Trans Electr Energ Syst.*, vol. 31, no. 3, pp. 1-20, e12771, March 2021 (IF:1.692). DOI: <https://doi.org/10.1002/2050-7038.12771>
20. Sureshkumar A, Gunabalan R, “Design and implementation of single switch control DC - DC converter with wide input variation in automotive LED lighting”, *Int Trans Electr Energ Syst.* vol.31, no. 4, pp.1-22, e12776, April 2021 (IF:1.692). DOI: 10.1002/2050-7038.12776.
21. Vishnuram, P.; Ramachandiran, G.; Sudhakar Babu, T.; Nastasi, B. “Induction Heating in Domestic Cooking and Industrial Melting Applications: A Systematic Review on Modelling, Converter Topologies and Control Schemes.” *Energies* 2021, 14, 6634 <https://doi.org/10.3390/en14206634> (IF: 3.004)
22. P. Vishnuram and R Gunabalan, “Pulse density modulation control-based multi-load handling three leg inverter for cooking applications”, *Circuit World*, 2022. <https://doi.org/10.1108/CW-07-2021-0187> (IF: 0.876), vol.49, no. 4, pp. 383-396.

23. A Sureshkumar, R Gunabalan, “Design of robust guaranteed margin stability region PI controller for automotive LED lighting with parameter uncertainty” IEEE access, vol.10, pp. 15657–15670, Feb. 2022, [10.1109/ACCESS.2022.3146392](https://doi.org/10.1109/ACCESS.2022.3146392) (IF: 3.367)
24. Sureshkumar, A.; Gunabalan, R.; Vishnuram, P.; Ramsamy, S.; Nastasi, B. Investigation on performance of various power control strategies with bifilar coil for induction surface melting application, *Energies*, 15, 3301, pp.1-25, May 2022 <https://doi.org/10.3390/en15093301> (IF: 3.004)
25. R Amalrajan, R Gunabalan, “Performance analysis of boost converter fed BLDC motor drive with motoring and braking operation for electric rickshaw application”, *Electrica*, vol.22, no. 2 pp. 301-312, May 2022. DOI: 10.54614/electrica.2022.21093.

**(iv) Publications with Faculty members**

26. Gunabalan, R, Immanuel Prabakaran, S, Reegan, and Ganesh, S, “Simulation of inverter fed induction motor drive with LabVIEW”, *World Academy of Science, Engineering and Technology, International Journal of Electrical, Robotics, Electronics and Communications Engineering*, Paris, vol.8, no.1, pp. 91-95, 2014.
27. R. Gunabalan, “Comprehensive overview of performance comparison of passive LED driver for street lighting”, *Bulletin of electrical engineering and informatics*, vol. 5, no. 3, pp. 307-314, Sept. 2016.
28. R. Gunabalan, T. Siva, S. Gowtham, “three port dc-dc converter for four phase SRM drive”, *International Journal of Scientific Research and Review*, vol. 7, no 4, pp. 383-386, 2018 (Non-scopus)
29. Ramachandiran, G., Kandhasamy, J. & Saminathan, A. Virtual Instrumentation in Electrical Engineering Applications. *J. Inst. Eng. India Ser. B*, vol. 101, no. 2, pp. 193–199, April 2020. <https://doi.org/10.1007/s40031-020-00437-w>
30. Akila R, Gunabalan R, Akash Mondal, Ayyandurai M, Evolution of the mobile app for early diagnosis and sustainable management of rice diseases, *Results in Engineering*, (IF: 7.9) vol. 28, 2025, pp. 107401, ISSN 2590-1230, <https://doi.org/10.1016/j.rineng.2025.107401>.
31. Chand, Dangeti & Gunabalan, Ramachandiran & Inayathullah, M.A.. (2026). Design and Performance Analysis of Inner-Rotor IPM PMSMs for Cogging Torque and Ripple Reduction in EV Applications. *Results in Engineering* (IF: 7.9). 110269. 10.1016/j.rineng.2026.110269.

## **5. PUBLICATIONS IN INTERNATIONAL CONFERENCES**

### **(i) Ph.D. Research Publications**

1. V.Subbiah, R.Gunabalan and B.Rami Reddy, "Sensorless Control of Induction Motor using Natural Observer", International Conference on Energy Engineering, Pondicherry Engineering College, Pondicherry, 7-9 January 2009, pp.158-163.
2. R.Gunabalan and V.Subbiah, "Sensorless Vector Control Schemes for Induction Motor Drives", 4<sup>th</sup> International Conference on Intelligent Systems and Control, Karpagam College of Engineering, Coimbatore-32, 4-5 Feb.2010, pp.59 (Abstract).
3. R.Gunabalan and V.Subbiah, "Speed – Sensorless Vector Control of Parallel Connected Induction Motor Drive with Natural Observer", International Conference on Intelligent Design and Analysis of Engineering Products, Systems and Computation (IDAEPSC'10), Sri Krishna College of Engineering & Technology, Coimbatore-22, 9-10 July.2010, pp. 52 (abstract).
4. R. Gunabalan and V. Subbiah, "Speed sensorless vector control of parallel connected induction motor drive with fuzzy controller", In: Proceedings of IEEE International Conference (ICCIC'12), 18<sup>th</sup> -20<sup>th</sup> Dec. 2012, pp. 473-478.
5. R. Gunabalan and V. Subbiah, "Implementation of Speed-Sensorless Vector Control of Induction Motor Drive" International Conference on Innovative Research in Engineering and Technology, Jan.2013
6. R. Gunabalan and V. Subbiah, "Performance Characteristics of Speed-Sensorless Vector Control of Parallel Connected Induction Motor Drive" IEEE International Conference on Energy Efficient Technologies for Sustainability (ICEETS2013), April.2013.

### **(ii) Publications with PG Students**

7. N. Leena, B. Durai Raj and R. Gunabalan, "Computer-Based Laboratory Teaching Tools: An Overview of LabVIEW and MATLAB", IEEE International Conference on Engineering Education: Innovative Practices and Future Trends (AICERA), Kerala. 2012.
8. S. Thangaraj and R. Gunabalan, "Simulation of DC-DC Converter with Conventional and Single Input Fuzzy Logic Controller", International Conference SET' 2014, Vellore Institute of Technology, April 2014.
9. Shinde Rohit, Manda Suresh, R. Gunabalan, "Solitary Stage LED Driver for Street Lighting Applications with Input Power Factor Correction", International Conference on Innovations and Research in Marine Electrical and Electronics Engineering (ICIRMEEE 2017), 6<sup>th</sup> Oct. 2017, AMET University, Chennai.
10. Harikrishna V, Gunabalan R, "Performance Comparison of Two Stage LED Driver for Tube Light Applications", First international conference on robotics, intelligent automation and control technologies, 2-3<sup>rd</sup> Oct. 2020, VIT Chennai.

11. V Hrishikesh, R Gunabalan, "Design of a 48 A 28 Ah battery for e-motor vehicle", 5<sup>th</sup> International Congress on Khazar Scientific Research and Innovation, pp. 490 (abstract), December 26-28, 2024, Turkestan, Kazakhstan.
12. V. Hrishikesh, R Gunabalan, "Machine learning algorithms for state of charge estimation of a 12 V 4.5 Ah battery for e-motor cycle applications", UMTEB – XVII International Scientific Research Congress, May 4-6, 2025 / Prague, Czech.

**(iii) Publications with UG Students**

13. M. Kush, Ashish Prem, V. Harikrishna, R. Gunabalan, "Integrated DC-DC Converter for Low Power Pathway Street Lighting", International Conference on Innovations and Research in Marine Electrical and Electronics Engineering (ICIRMEEE 2017), 6<sup>th</sup> Oct. 2017, AMET University, Chennai.
14. Rishabh Yadav, Shivang Tiwari, R. Gunabalan, "A Comprehensive Review of Concentrated and Photovoltaic Solar Power", International Conference on Innovations and Research in Marine Electrical and Electronics Engineering (ICIRMEEE 2017), 6<sup>th</sup> Oct. 2017, AMET University, Chennai.
15. Tinoy Santra, Sahil Neekhara, Ritik Gupta and Gunabalan Ramachandiran, "Solar powered DC-DC converter fed electronically commutated motor driven electric bike", 9<sup>th</sup> international conference on smart trends in computing and communications (SmartCom2025), 29-31 January 2025, Pune, India.
16. R. Gunabalan, Vaishnav Tripathi, and Akshat Shukla, "Single switch-controlled DC-DC converter for battery charging applications", IEEE Systems Council Student Conference, 9<sup>th</sup> April 2024.

**(iv) Publications with Ph.D. Students**

17. R. Amalrajan, R. Gunabalan, Nilanjan Tewari, "DSPACE1103 Controller for PWM Control of Power Electronic Converters", International conference on power engineering computing and control, 12-14<sup>th</sup> Dec. 2019, VIT-Chennai.
18. M S Srinath, R Gunabalan, "Enhancement of charging efficiency of batteries for electric vehicles: review", Fourth International Conference on Emerging Research in Electronics, Computer Science and Technology (ICERECT), 26-27 December 2022, PES College of Engineering, Mandya, Karnataka, India.

**(v) Publications Aligned with Courses Handled**

19. R Gunabalan, "An effective online teaching and assessment methodology for renewable energy sources", Three-day international conference on current trends and future challenges in education, 7-9<sup>th</sup> Oct. 2020, VIT Chennai.
20. R Gunabalan, R Amalrajan, "Challenges in engineering education faced in covid-19 pandemic –

- a case study on electrical machines laboratory course”, Second International Symposium on Global Pandemics and Multidisciplinary Covid-19 Studies, pp. 74-79, 19-20<sup>th</sup> July 2021, Ankara, Turkey (ISBN: 978-625-7720-49-6).
21. R Gunabalan, R Amalrajan, D Mohan, G Itishree, “Simulation tools for engineering online education – a case study on basic electrical engineering laboratory course”, International Korkut Ata Scientific Researches Conference, 28-30<sup>th</sup> June 2022, Osmaniye Korkut Ata University, Osmaniye, Turkey (ISBN: 978-625-8323-69-6).
  22. R Gunabalan, “Experiential learning - A case study on measurement and instrumentation course”, second international architectural sciences and applications symposium, 9-11<sup>th</sup> September 2022, pp. 947-953, Baku Engineering University, Azerbaijan (ISBN: 978-625-8246-12-4).
  23. R Gunabalan, “Application of LTspice in electric circuits laboratory course”, International dile scientific research and innovation congress, 26-27 November 2022, pp.1328, Diyarbakir, Turkey (ISBN: 978-625-6380-15-8).
  24. R Gunabalan, F Ruby Vincy Roy, Itishree Ghatuari, “Analog Electronics Laboratory Course with LTspice Simulation – Experiential Learning”, 10<sup>th</sup> International Scientific Researches Conference, pp. 42-50, 2 - 4 April 2023 / Adana, Turkey (ISBN: 978-625-367-062-7).
  25. R Gunabalan, I Balakumar, Nikhil Mohan, V R Aniruth, P Binu Prasanna, “Applications of LabVIEW for power electronics laboratory”, 11<sup>th</sup> International Mardin Artuklu Scientific Researches Conference, pp. 78 (abstract), 13-15 December 2023, Mardin, Turkiye.
  26. Ankit Veda, Nivethitha Sankari Balamurugan, Shrinidhi RN, Ramachandiran Gunabalan, “Efficiency optimization of slip ring induction motors with particle swarm and genetic algorithm techniques”, IEEE Systems Council Student Conference, 9<sup>th</sup> April 2025.
  27. Anush Kannan, Mahissvel A, Sanjai M, Konduru Shyam Prasanth, Derick Blesswin J, Ramachandiran Gunabalan, “Development and Analysis of Voltage Regulation of an Induction Generator using Piecewise Linear Approximation Method”, IEEE Systems Council Student Conference, 9<sup>th</sup> April 2025.

**(vi) Other Collaborative Conference Publications**

28. T. Prabu, S. Sampathkumar and R. Gunabalan, “Advanced Direct Torque Control of Induction motor”, IEEE International Conference on Process Automation, Control and Computing (PACC), 2011.
29. Gunabalan, R.; Sanjeevikumar, P.; Blaabjerg, F.; Wheeler, P.W.; Fedak, V.; Ertas, A.H., "Transfer function modeling of parallel connected two three-phase induction motor implementation using LabView platform," in Electrical Drives and Power Electronics (EDPE), 2015 International Conference on, pp.373-378, 21-23 Sept. 2015.

30. R. Gunabalan, D R Binu Ben Bose and P. Sanjeevikumar, "Buck-boost LED driver with dimming characteristics", in first springer international conference on emerging trends and advances in electrical engineering and renewable energy, pp. 48 (abstract), Dec. 2016.
31. R. Gunabalan and T. Siva, "Three Port DC-DC Converter for Four Phase SRM Drive", International Conference on Emerging Trends in Science, Engineering and Technology, pp. 56 (abstract), March 2017.
32. R Gunabalan, R. Sridhar, "A Comprehensive Review on Speed Observers for Sensorless Induction Motor Drive Applications" Second international conference on robotics, intelligent automation and control technologies, 23-25<sup>th</sup> Sept. 2021, VIT Chennai.
33. R Gunabalan, R. Sridhar, "LabVIEW based speed-sensorless field-oriented control of induction motor drive" Virtual International Technical Conference on Control in Electric vehicles and Smart grid with Renewable Energy Synergies" 7-8<sup>th</sup> October 2021, VIT Chennai.
34. R Gunabalan, Dr. Siva Somana, "Innovative solution for COVID-19 biomedical waste handling, disposal and management", International Conference on COVID'19 studies, 5-6<sup>th</sup> September 2022, pp. 201-205, Ankara, Turkey (ISBN: 978-625-8213-52-2).

#### **6. PAPERS PRESENTED IN NATIONAL AND INTERNATIONAL CONFERENCES (2020-2025)**

1. Presented a paper on an effective online teaching and assessment methodology for renewable energy sources in a 3-days international conference on current trends and future challenges in education, 7-9<sup>th</sup> Oct. 2020, VIT Chennai.
2. Presented a paper on Challenges in engineering education faced in covid-19 pandemic – a case study on electrical machines laboratory course in a Second International Symposium on Global Pandemics and Multidisciplinary Covid-19 Studies, pp. 74-79, 19-20<sup>th</sup> July 2021, Ankara, Turkey (ISBN: 978-625-7720-49-6).
3. Presented a research paper on A Comprehensive Review on Speed Observers for Sensorless Induction Motor Drive Applications in a Second international conference on robotics, intelligent automation and control technologies, 23-25<sup>th</sup> Sept. 2021, VIT Chennai.
4. Presented a research paper on LabVIEW based speed-sensorless field-oriented control of induction motor drive in a Virtual International Technical Conference on Control in Electric vehicles and Smart grid with Renewable Energy Synergies, 7-8<sup>th</sup> October 2021, VIT Chennai.
5. Presented a paper on simulation tools for engineering online education – a case study on basic electrical engineering laboratory course in an International Korkut Ata Scientific Researches Conference, 28-30<sup>th</sup> June 2022, Osmaniye Korkut Ata University, Osmaniye, Turkey.
6. Presented a paper on innovative solution for COVID-19 biomedical waste handling, disposal and management in an International Conference on COVID'19 studies, 5-6<sup>th</sup> September 2022,

Ankara, Turkey.

7. Presented a paper on experiential learning - A case study on measurement and instrumentation course in a second international architectural sciences and applications symposium, 9-11<sup>th</sup> September 2022, Baku Engineering University, Azerbaijan.
8. Presented a paper on Application of LTspice in electric circuits laboratory course in an International dicle scientific research and innovation congress, 26-27 November 2022, pp.1328, Diyarbakir, Turkey.
9. Presented a paper on Analog Electronics Laboratory Course with LTspice Simulation – Experiential Learning”, 10<sup>th</sup> International Scientific Researches Conference, pp. 42-50, 2 - 4 April 2023 / Adana, Turkey

## **7. RESOURCE PERSON (KEYNOTE ADDRESS/INVITED TALK)**

### **(i) Keynote Address**

1. Keynote address on Converter Topologies for LED Lighting Applications at International Conference on Emerging trends in Electrical, Electronics and Communication Systems on 24<sup>th</sup> September 2016, Anna University, Trichy.
2. Keynote address on Power Electronic Converters for LED Driver Applications at Virtual National conference on Artificial intelligence for IoT and power grid networks on 3<sup>rd</sup> August 2020, SRM TRP Engineering College, Trichy.

### **(ii) Invited Talk**

1. Invited talk on Converter Topologies for LED Lighting Applications at DST sponsored FDP on 17<sup>th</sup> November 2016, VIT, Chennai.
2. Invited talk on dSPACE controller for power electronic converter applications at DST sponsored FDP on recent trends in controllers for renewable energy systems on 30<sup>th</sup> November 2018, VIT, Chennai.
3. Invited talk on Power Electronic Converters for LED Driver Applications at a webinar on 26<sup>th</sup> June 2020, St. Mother Teresa Engineering College, Thoothukudi.
4. Invited talk on Speed Sensorless Control of Induction Motor Drive at FDP on recent trends in electrical drives and control on 29<sup>th</sup> June 2020, RGM College of Engineering and Technology, Nandyal, Andhra Pradesh.
5. Invited talk on Brushless DC Motor Drive for Electric Vehicle Applications at ATAL FDP on research challenges in design and control of electric vehicle on 4<sup>th</sup> December 2020, University College of Engineering, Villupuram.
6. Invited talk on NAAC preparation at faculty induction program on 21<sup>st</sup> June 2022, VIT Chennai.
7. Delivered a lecture on electric machines and drives for first year B.Tech. EEE students during

the orientation program on 14<sup>th</sup> September 2022, VIT Chennai.

8. Invited talk on LabVIEW for electric drive applications on 15<sup>th</sup> September 2022 at FDP, VIT Chennai.
9. Delivered a lecture on active learning methods with simulation tools for ECE students on 26<sup>th</sup> June 2023, University College of Engineering, Villupuram.

## **8. BOOK CHAPTER PUBLICATIONS**

1. Gunabalan R., Binu Ben Jose D.R., Sanjeevikumar P. (2018) Buck–Boost LED Driver with Dimming Characteristics. In: Garg A., Bhoi A., Sanjeevikumar P., Kamani K. (eds) Advances in Power Systems and Energy Management. Lecture Notes in Electrical Engineering, vol 436. Springer, Singapore, pp. 295-305. (Available online from Nov. 2017)
2. R. Amalrajan, R. Gunabalan, Nilanjan Tewari, “DSPACE1103 Controller for PWM Control of Power Electronic Converters”, In: Pierluigi Siano, K. Jamuna (eds) Lecture notes in Advances in Smart Grid Technology, Lecture Notes in Electrical Engineering, vol. 687, Springer, Singapore, pp. 307 – 322. (Available online from 23<sup>rd</sup> September 2020)
3. V Harikrishna, R Gunabalan, Performance comparison of two-stage LED driver for tube light applications, C.M. Hussain, P. Di Sia (eds), Handbook of smart materials, technologies, and devices, Springer, pp.1-19, Nov. 2022 (ISBN: 978-3-030-58675-1).
4. R Gunabalan, R Sridhar, “LabVIEW-Based Speed-Sensorless Field-Oriented Control of Induction Motor Drive”, Smart grids for smart cities, O.V. Gnana Swathika, K. Karthikeyan, Sanjeevikumar Padmanaban (eds), Wiley, July 2023 (ISBN: 9781394215874).
5. Tinoy, S., Neekhara, S., Gupta, R., Ramachandiran, G. (2026). Solar-Powered DC-DC Converter Fed Electronically Commutated Motor-Driven Electric Bike. In: Senjyu, T., So-In, C., Joshi, A. (eds) Smart Trends in Computing and Communications. SmartCom 2025. Lecture Notes in Networks and Systems, vol 1465. Springer, Singapore. [https://doi.org/10.1007/978-981-96-7517-3\\_12](https://doi.org/10.1007/978-981-96-7517-3_12)
6. Tripathi, V., Shukla, A., Ramachandiran, G. (2026). Solar Powered Single Switch Controlled DC–DC Converter for Battery Charging Applications. In: Mellal, M.A., Nojima, Y., Masuyama, N. (eds) Computational Intelligence for a Greener Future: Innovations in Renewable Energy Systems. Studies in Computational Intelligence, vol 1240. Springer, Cham. [https://doi.org/10.1007/978-3-032-06732-6\\_17](https://doi.org/10.1007/978-3-032-06732-6_17), 2026, 291 -307.

## **9. MEMBERSHIP IN PROFESSIONAL BODIES**

- Life member – ISTE (LM31890)
- Senior Member – IEEE (93891281)

- Member -IEI (M1608724)

## **10. PROJECT AND RESEARCH GUIDANCE**

- No. of M.E./MTech. Projects Guided 15
- No. of B.E./B.Tech. Projects Guided 20
- No. of Students Completed Ph.D. 02

A Sureshkumar (17PHD1037) - Design and development of DC-DC converter with robust control for light emitting diode lighting applications.

V Pradeep (17PHD1038) – Investigation on resonant converters for induction heating applications

## **11. RESEARCH PROJECTS, CONSULTANCY AND PATENTS**

### **(i) Consultancy Projects**

| S. No | Title                                                                                                                               | Sponsoring Agency | Period | Amount       |
|-------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------|--------------|
| 1     | Technical Solutions -Valeo<br>Dr. R. Gunabalan/SELECT<br>Dr. Febin Daya J L/SELECT<br>Dr. Ravi V/SENSE<br>Dr. Balamurugan M S/SENSE | Valeo Pvt. Ltd    | 1 year | Rs. 53,000/- |

### **(ii) Details of Patents**

| S. No | Patent Title                                                | Name of Applicants (s)                    | Patent No.   | Filed date | Agency/Country | Status       |
|-------|-------------------------------------------------------------|-------------------------------------------|--------------|------------|----------------|--------------|
| 1.    | Emergency Backups for Existing Fluorescent Lighting Systems | R Sridhar,<br>Parthipan R,<br>R Gunabalan | 202141034590 | 31.07.2021 | Humcen/Chennai | Patent Filed |

## **12. COURSES HANDLED**

- Basic Electrical and Electronics Engineering
- Circuit Theory
- DC Machines and Transformers
- AC Machines
- Power Electronics
- Power Electronics and Drives
- Electrical Machines and Drives
- Electric Drives

- Special Electrical Machines
- Analog Electronics
- Measurement and Instrumentation
- Renewable Energy Sources
- Bio Medical Instrumentation

### **13. CURRENT RESEARCH ACTIVITIES**

- BLDC and PMSM motor drive with controllers for electric two-wheeler applications
- Efficient converter topologies for LED drivers for automotive and street lighting applications
- AI and Machine Learning for battery management system
- AI and Machine Learning for plant and fruit disease detection and management



R Gunabalan

29.06.2026