FACULTY PROFILE

Dr.AL.VALLIKANNU, M.E, Ph.D
Professor &HoD - ECE
School of Electrical Sciences
Hindustan Institute of Technology and Science
Mail ID: abiuma2008@gmail.com, vallikannu@hindustanuniv.ac.in

EXPERIENCE: 23 years

RESEARCH INTERESTS:

Mobile Adhoc Networks, Wireless Sensor Networks, Wireless Embedded Networking, IoT

RECENT PUBLICATIONS:

Publications of articles in National and International Journals

1. Vinoth, M., Vallikannu, R., Allen, S "A disk-shaped complementary split ring resonator antenna for 5G mid-band applications"*International Journal of Engineering Trends and Technology* 2021, 69(11), pp. 187–191
2. Vinoth, M., Vallikannu, R."Performance analysis of integrated array headed for 5g mid-band frequencies"*International Journal of Engineering Trends and Technology*2021, 69(8), pp. 185–189
3. M Vinoth, R Vallikannu, "A compact Inset Fed Microstrip Patch Antenna with Defected Ground Structure for Sub-6 GHz / 5G applications" , *Solid State Technology,* Vol.63, No.5, 2020.
4. M Vinoth, R Vallikannu, "CSRR Based Low profile Antenna for Wireless-5 and Wireless-6 Devices", *Solid State Technology,* Vol.63, No.5, 2020.
5. P.Mahalakshmi, R Vallikannu, "A Planar Rat-Race Coupler based Retrodirective Analysis" ,*Solid State Technology,* Vol.63, No.6, 2020.
6. K.Sakthidasan, Aby K Thomas, P ThirumaraiSelvan, Vallikannu R, " Autonomous prediction of Hazardous Gas Leakage using Machine Learning Technique and Wireless Sensor Networks" *Journal of Green Engineering,* Vol.10, Issue: 7, July 2020.
7. P.Mahalakshmi, Vallikannu R, "Design of Rat-Race based Retro-directive Arrays For sub 6GHzband" *Journal of Critical Reviews*, Vol.7, Issue-5, pp. 1503-1512, 2020

8. Meenakshi B, S Shrividya, Vallikannu R and Anukumari " Design of safety control for Gas turbine using PLC and SCADA" *Journal of Test Engineering and Management,* Vol. 83, pp. 12653 – 12662, April 2020.

9. Vallikannu R, VenkateshKanna T, Vimala Rani G, Sakthidasan K, "An optimized assistive Epileptic seizure detection system for human environmental conscientiousness" *Journal of Green Engineering,* Vol.10, Issue: 1, February 2020.

10. BC.Kavitha, Vallikannu R, Sakthidasan K, "Delay-aware concurrent data management method for IoT collaborative Edge Computing Environment "*Journal of Microprocessor and Systems,* Vol.9 , Issue.2, pp. 167-174, January 2020, https://doi.org/10.1016/j.micpro.2020.103021.

11. V. Kanpur Rani, Vallikannu R, K.Sakthidasan, "Effect of Vehicle Pollution on Urban Areas and Various Corrective Measures" *Journal of Green Engineering (JGE),* Vol.9 , Issue.2, pp. 167-174, August 2019.

12. Vallikannu R, VenkateshKanna, Punithavathy T, "Epileptic Seizure detection from EEg signals by adaptive wavelet support machines"*International Journal of Engineering & Technology (UAE),2018,* 7, 4.36 Special Issue, Pp: 247-253.

13. Aby K Thomas, Vallikannu R , SaiAdvait Narayanan, "Minimizing the Energy Consumption of WSN by using Modified Hybrid Energy Efficient Distributed (Modified HEED) Clustering Protocol" *International Journal of Engineering & Technology (UAE),* Vol.7, issue 3.24, pp. 758-763, 2018.

14. Kavitha BC, Vallikannu R, "The Internet of Things Model Architectures for Customized Applications: A Review" *International Journal of Simulation, System, Science and Technology,* Vol. 19, issue.6, pp.32.1 -32.6, 2018, DOI: 10.5013/IJSSST.a.19.06.32

15. Punithavathy K, Vallikannu R, Niveditha S, "Computer Vision Based Pothole Detection and Notification" *International Journal of Engineering & Technology (UAE),* Vol.7, issue 2.34, pp.353-355, Dec 2018, DOI: 10.14419/ijet.v7i3.24.22684

16. VenkateshKanna T, Vallikannu R, "Epileptic Seizure Detection from EEG signals by Adaptive Wavelets and Support Vector Machine" *International Journal of Engineering & Technology (UAE),* Vol.7, issue 4.36, pp. 247-253, Dec 2018.

17. V.kanpur Rani and AL.Vallikannu , "A pollution monitoring system for Vehicles in smart city" *International Journal of Civil Engineering and Technology (IJCIET),* Volume 9, Issue 11, November 2018, pp. 3059–3065, November 2018.

18. VenkateshKanna T, Vallikannu R , "Analysis of Translation Invariant Wavelet Transform for Epileptic Seizure Detection Using Support Vector Machine" *Indian Journal of Public Health Research & Development,* Vo.9(8), pp.No.1609 – 1611, August 2018, DOI: 10.5958/0976-5506.2018.00763.5.

19. VenkateshKanna T, Vallikannu R, "Anlaysis of EEG Signal Classification Using Dual Tree M Band Wavelet Transform" *Journal of Advanced Research in Dynamical and Control Systems,* Vol. 9. Sp– 18 / 2017, pp. 2291 -2301.

20. NuzhatFathima , P.Ramesh , A.L.Vallikannu " Energy Aware Dynamic Slack Allocation for Multiprocessor System" *International Journal of Innovative Research in Science, Engineering and Technology,* Vol. 6, Issue 5, pp. 7476 – 7483, May 2017, ISSN(Online) : 2319-8753.

21. P. Mohanappriya, AL. Vallikannu, "Design and Implementation of Energy Efficienct Worn Architecture in BAN Using IoT", *International Journal of Informative and Futuristic Research,*Vol.4(8), April 2017.

22. Vallikannu R, A George ,S.K.Srivatsa, "Dynamic and Secure Joint Routing and Charging Scheme with Mobile Power Back Ferry Nodes in Mobile Adhoc Networks" *International Journal of Science and Technology, Vol 9(33), DOI: 10.17485/ijst/2016/v9i33/99592, September 2016.*

Paper Presentation in International and National Conferences:

1. Binu, R. and Vallikannu, R. "Characterization of Microsecond Pulsed Amplification in a Core Pumped Erbium Doped Fiber Amplifier", *TENSYMP 2021 - 2021 IEEE Region 10 Symposium*, 2021

2. Vinoth, M. and Vallikannu, R. "A Fractal Miniaturized Compact Antenna for V2X-5G Communication" *5th International Conference on Computer, Communication, and Signal Processing,*2021, pp. 29–32.

3. Jayanthi, E and Vallikannu, AL, "A Review on Workload Characteristics For Multi Core Embedded Architectures Using Machine Learning And Deep Learning Techniques", *International Conference On Wireless Communications, Signal Processing And Networking,* WISPNET 2021, PP. 456–461.

4. Kanpurrani, V. and Vallikannu, AL, "Emission Analysis Of Combustion Process From The Transportation In Smart City", AIP Conference Proceedings, 2021.

5. Vinoth, M. and Vallikannu, R, "Design and Analysis of Metamaterial Patch Antenna 5G And X Band Applications", *International Conference On Computer Communication And Informatics,* 2021.

6. Mahalakshmi, P. and Vallikannu R, "Compact Planar Retrodirective Antenna with a Rat-Race Coupler for Autonomous Car Applications" *Lecture Notes in Electrical Engineering*, 2021, 355, pp. 145–155

7. Vallikannu, R., Meenakshi, B., Subhash, V., Basha,, KiranKumar, C., "Automated Rocker Rover for Terrain Surface Surveillance"*Lecture Notes in Networks and Systems*, 2021, 179 LNNS, pp. 225–235

8. V Kanpur Rani, A L Vallikannu "An Analysis of Air Quality by Vehicular Exhausts" Lecture notes in Electrical Engineering", *LNEE*, Pp-653-661.

9. Mahalakshmi, P. and Vallikannu, R, "Design of Retrodirective Arrays Using Hybrid Couplers For Autonomous Car", *Lecture Notes On Data Engineering And Communications Technologies,*2021, 55, Pp. 295–304

10. V Kanpur Rani, A L Vallikannu. "Air Pollution Monitoring System using Internet of Vehicles and Pollution Sensors" in proceedings of 2020 4th International Conference on Electronics, Communication and Aerospace Technology (ICECA), Dec 2020, 10.1109/ICECA49313.2020.9297372.

11. Binu R, Vallikannu R, "Thermal Management Approach in Erbium Ytterbium Doped Fiber Amplifiers for Improved Efficiency" in proceedings of *IEEE 2nd PhD Colloquium on Ethically Driven Innovation and Technology for Society (PhD EDITS)*, 10.1109/PhDEDITS51180.2020.9315317

12. M Vinoth, R Vallikannu, " A compact triple slotted Rectangular Microstrip Patch Antenna with Metamaterial ground for Sub-6 GHz/5G communication" in proceedings of IEEE Fifth International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN), 2020, DOI:10.1109/ ICRCICN50933. 2020. 9296184.

13. Kavitha B.C, R Vallikannu, "IoT Assisted Predictive Maintanence& Worker Safety: An Initiative", in proceedings of Information and Communication Technology for Competitive Strategies (ICTCS 2020), published in Lecture Notes in Networks and Systems.

14. Kavitha.B.C and Valikannu R, "IoT Based Intelligent Industry Monitoring System using Raspberry-Pi", in proceedings of 6th International Conference on Signal Processing and Integrated Networks SPIN 2019, March 2019, Amity University, Noida.

15. Vallikannu R, Punithavathy Mohan, Kavitha BC, SaiAdvait Narayanan, "Reviewing the performance and quality of service of Satellite Communication and proposing the use of

Multi Carrier CDMA and Speed Tracking Feature" in proceedings of International Conference on Robotics, Automation and Non-destructive evaluation (RANE 2018), July 19 & 20 2018.

16. Kavitha BC, Deepa Jose, Vallikannu R, "IoT Based Pollution Monitoring System Using Raspberry–Pi" in proceedings of International Conference on Innovations and discoveries in Science, Engineering and Technology, April 2018, KCG college of Technology, Chennai.

17. Babu I .DeepaJose ,Vallikannu R, " Novel steganography system using MIMO for remote voice data interchanges" in proceedings of International Conference on Innovations and discoveries in Science, Engineering and Technology, 17th & 18th April 2018.

18. Punithavathy K, Vallikannu R, Mithilesh , "Bone tumor detection using Segmentation technique" in proceedings of International Conference on Robotics, Automation and Non-destructive evaluation (RANE 2018), July 19 & 20 2018.

19. BC Kavitha, Vallikannu R "IoT Assisted worker safety: An Initiative", in proceedings of 12th International Conference on Intelligent Systems and Control (ISCO'18), January 2018, Karpagam College of Engineering, Coimbatore.

20. BC.Kavitha and Vallikannu R "The Internet of Things Model Architectures for Customized Applications: A Review", in proceedings of IETE 60th Annual Convention, 2017, Cochin. (Best paper Award- 3rd Prize).

21. Binu R, Samuel Verghese and Vallikannu R, "Performance Optimization of Erbium Ytterbium Co Doped Fiber for High Power Amplifiers" in proceedings of IETE 60th Annual Convention, 2017, Cochin (Best Paper Award – 2nd Prize) submitted to IETE Journal of Research.

22. Vallikannu R, BC.Kavitha, Punithavathy Mohan, "Mobile Cluster Based Relay Reconfiguration Routing Protocol for Mobile Adhoc Networks" in proceedings of National Conference on Intelligent Information Systems, February 2017.

23. Punithavathy K, Vallikannu AL" Advanced Automobile Security System using IoT " National Conference on Intelligent Information Systems, pp. 3, February 2017.

24. BC Kavitha, Vallikannu R "Enhancement of Industrial Safety Using IoT", in proceedings of 1st International Conference on Advanced Technologies in Engineering, Management and Sciences-(ICATEMS'17), November 2017, Golden Valley Integrated Campus, Madanapalle, AP.

25. . RincyJuliet, R. Vallikannu and B. C. Kavitha, "A novel design of hybrid microwave bandpass filter using lumped element and microstrip line technology," 2017 IEEE International Conference on Intelligent Computing and Control (I2C2), Coimbatore, India, 2017, pp. 1-4. doi: 10.1109/I2C2.2017.8321876. (Scopus Indexed)

26. Krishna Chaitanya, Lohith, Sheetal, AL. vallikannu' IoT based wireless display using Wi-Fi IEEE 802.11" in proceedings of National Conference on Intelligent Information Systems, pp. 23, February 2017.

27. Vallikannu R, A. George and S.K.Srivatsa, "Routing and Charging Scheme with Ferry Nodes in Mobile Adhoc Networks", in proceedings of 3rd IEEE sponsored International conference on Innovations in Information, Embedded and Communication Systems, Coimbatore, March 2016, Vol.5, pp.127-129. (Scopus Indexed)

PUBLICATIONS OF BOOKS

"Measurements and Instrumentation "- Charulatha Publications, December 2003.

"Transmission Lines and Networks "- CharulathaPublications, July 2004.

Book Chapter:
Kavitha, B.C., Vallikannu, R., "**IoT Assisted Predictive Maintenance and Worker Safety: An Initiative**" *Lecture Notes in Networks and Systems*, 2022, 191, pp. 719–727

PATENTS

INDIAN PATENTS:

1. TITLE: WIFI INFO DISSEMINATOR, Application Number: 201941027805, Status: Filed
2. TITLE: Secured Intelligent Vehicular Systems using Wireless Sensor Networks Application Number: 202041034715A, 4/9/2020, Application Date: 12.08.2020 Status: Published
3. TITLE: Reactor Monitoring System Using Wireless Embedded Sensor For Human Safety, PUBLISHED 12.02.021, 202141004393, 01.02.2021

INTERNATIONAL PATENT:

1. Air Pollution Monitoring System Using Internet Of Vehicles And Pollution Sensors, GRANTED on 6.06.2021, Patent No: 2021012486, AUSTRALIAN PATENT
2. Securing Critical Assets Of Chemical Industries Using Secure Development Operational Environment(SDOE) Framework, Granted on 16.06.2021, Patent No: 2021102532, AUSTRALIAN PATENT
3. Low Profile desired beam Antenna for V2X - 5G Communication, Granted Australian Patent, Granted on 12.08.21, Patent No: 202105341
4. A System and Method For Delay-Aware Concurrent Data Management For Industrial IoT, Australian Patent, Granted on 19.08.2021, Patent No: 202106046
5. Analysis Of Mammogram Images for Organ CancerDetection Using Shape Descriptors, Australian Patent, Filed

HONORS AND AWARDS

- ➢ **Encouragement Award** – Hindustan University.
- ➢ **Dr.APJ Abdul Kalam Award for Innovative Research**- by SEEE society.