RNS INSTITUTE OF TECHNOLOGY

(AICTE Approved, **VTU** Affiliated and **NAAC 'A'** Accredited)
(**UG programs** – CSE, ECE, ISE, EIE and EEE have been **Accredited** by **NBA**
for the *Academic Years 2018-19, 2019-20 and 2020-21*)
Channasandra, Dr. Vishnuvardhan Road, Bengaluru - 560 098
Department of Electronics and Instrumentation Engineering
(Accredited by NBA for the Academic Years 2018-19, 2019-20 and 2020-21)

The following students from the R&D center of IT Department, were awarded Ph.D. from VTU in the assessment years, under the guidance of Dr. Andhe Pallavi, Prof. & Head, IT Dept.

1. Archana R Kulkarni, with the thesis titled, 'Algorithm for reducing Power consumption in Wireless Sensor Networks', in the academic year 2016-17.
2. Y S Sumathy, with the thesis titled, 'Medical Image Compression and reliable transmission' in the academic year 2017-18.
3. Shreedevi Kulkarni, with the thesis titled, " Analysis of Drug in Low Concentrations using Signal Processing and Nanotechnology" in the academic year 2018-19.

Research Guide	Name of the Scholar	Topic of the Research	Status
Dr.Andhe Pallavi	Dr.Archana R Kulkarni	Algorithm for reducing Power consumption in Wireless Sensor Networks	Completed (Degree awarded in 2016-17)
	Dr.Y S Sumathy	Medical Image Compression and reliable transmission	Completed (Degree awarded in 2017-18)
	Dr.Shreedevi Kulkarni	Analysis of Drugs in Low Concentration using Signal Processing and Nanotechnology	Completed (Degree awarded in 2019-20)
	Dr.Madhura G	Image Processing Techniques for estimation of MMP levels & Predictive analysis of Metastatic Spread of Cancer using ANN	Completed (Degree awarded in 2019-20)
	Roopa Nayak	Investigation of the existing adaptive motor model for Induction Motors leading to the development of a new control strategy for load sharing using multiple Induction Motor	Comprehensive viva voce completed
	Latha P	Development and analysis of Novel reconfigurable schemes for joint channel security coding in resource constrained smart devices	Comprehensive viva voce completed
	S J Savita	Development of Novel Algorithms for Optimal interpretation of GPR Scans of underground utilities	

Ph.D Guidance

Name of the Faculty	Research Guide	Topic of the Research	Status
G N Srikanth	Dr. M K Venkatesha Principal, RNSIT	Detection of lip movements from human speech	Comprehensive viva voce completed
Manohar P	Dr. Mallikarjun S Holi, Prof & Head, IT Dept, UBDTCE, Davanagere	Automatic Detection of Diabetic retinopathy	Course work is completed
Madhura G	Dr. Andhe Pallavi, HoD, Dept. of IT, RNSIT	Image Processing Techniques for estimation of MMP levels & Predictive analysis of Metastatic Spread of Cancer using ANN	Completed (Degree awarded in 2019-20)
Mallikarjun H M	Dr. Suresh H N., Prof. BIT, Bengaluru & Dr. P Manimegalai, Prof, Dept. of ECE, KU, CBT	Multi resolution analysis of brain signal characterization using neural network techniques	Completed (Degree awarded in 2018-19)
Latha P	Dr.Andhe Pallavi, HoD, Dept. of IT, RNSIT	Development and analysis of Novel reconfigurable schemes for joint channel security coding in resource constrained smart devices	Comprehensive viva voce completed
S J Savita	Dr.Andhe Pallavi, HoD, Dept. of IT, RNSIT	Development of Novel Algorithms for Optimal interpretation of GPR Scans of underground utilities	Comprehensive viva voce completed
Chetan Ghatage	Dr.S Sumathi Asso.Porf. & Head, EEE Dept, RNSIT	Analysis and Mitigation of Power Quality Issues and Control Aspects of Grid Connected Matrix Converter Based Wind Energy Systems	Comprehensive viva voce completed

Faculty Pursuing Ph.D

Sl No.	Academic Year	Project Title / FDP	Funding Agency	Faculty Guide	Amount in ₹	Duration
1	2018-19	VTU TEQIP 1.3 SPONSORED FDP on IOT INDUSTRIAL APPLICATIONS – FRONTEND AND BACKEND CO-DESIGN"	AICTE	Dr. Andhe Pallavi Dr. Vipula Singh Dr. Sumathi	1,00000/-	2 Days
2	2018-19	Indoor Pollution Monitoring and Alerting System	KSCST 42nd series SPP	Sneha G C	5,000/-	3 Months
3	2017-18	Personalized Gesture Interface Using Machine Learning	VTU, Belagavi	Dr. Andhe Pallavi	5000/-	3 Months
4	2017-18	Card Based Anti-Piracy Screening System	VTU, Belagavi	Chetan Ghatage	5000/-	3 Months
5	2017-18	Detection of Mental Health Stages of Adolescent Female Students Using EEG Signal Processing in South Bengaluru Govt. Schools	KSCST, 41st series SPP	Mallikarjun H M	6500/-	3 Months
6	2016-17	Machine Learning Based Depression Level Predictor for Indian Farmers	KSCST, 40th series SPP	Mallikarjun H M	5500/-	3 Months

Sponsored Research

Development activities

➢ **Product Development**

✓ Mr. Ganesh Yernally, Asst. Prof, Dept. of IT developed mobile based module for late comers tracking in 2017. The application is helping faculties to monitor later comers in the department.

➢ **Research laboratories**

✓ IT Department is having approved Research Center from VTU, Belagavi.

✓ Center of Excellence on IoT Ecosystem was established to expose the students to the latest trends in industry.

- ✓ Madhura G, Asst. Prof, Dept. of IT automated system to quantify the protein biomarkers responsible for the cancer relapse and predict the first site of distant. Metastatic breast cancer is the spread of cancer cells to new areas of the body (often by way of the lymph system or bloodstream). The liver, lungs, lymph nodes, and bones are common areas of spread of metastasis. A Fuzzy arithmetic is used to develop a prediction model for the determination of first site of breast cancer metastasis. This research module helps doctors with better information on the protein biomarkers and improves the accuracy of predicting prognosis and effectively treating patients with metastatic disease.

- ✓ Manohar P, Assoc. Prof, Dept. of IT developed algorithm for preprocessing methods for automatic detection of diabetic retinopathy like green channel extraction, mask generation, non-uniform illumination, equalization and contrast enhancement were implemented using open CV within python software.

- ✓ Mr. Mallikarjun H M, Asst. Prof, Dept. of IT prepared emotion/ Depression level prediction module by using Neurosky's EEG kit and MATLAB. This research module helps to acquire real time Brain signals by using kit. He acquired more than 300 subjects' EEG data and made it open source within department for students' projects. His research module helped students to carryout final year projects for BE and/or M.Tech students (Academic year 2015-16, 2016-17, 2017-18).

PAPER PUBLICATIONS

2014-15

1. Madhura Gangaiah, Pranab Bhat, Dr. Sachin Jadhav, Dr. Andhe Pallavi, "Quantification of VEGF Protein Biomarker for Prediction of Metastases". International Journal of Advanced Information Science and Technology (IJAIST), Vol.31, No.31, PP.14-18, November 2014, ISSN:2319:2682.

2. Mallikarjun H M, Dr. H N Suresh, "Depression Level Prediction Using EEG Signal Processing", 2014 International Conference on Contemporary Computing and Informatics(IC3I), PP.928-933, 978-1-4799-6629-5/14/$31.000@2014 IEEE.

3. Divya Patil, Sangeetha D R, Dr. Andhe Pallavi, Madhura Gangaiah, "Tumor Size Processing Using Smart Phone". International Journal on Recent and Innovation Trends in Computing and Communication, Vol.3 Issue 2, PP.785-788, ISSN:2321-8169, 785-788.

4. Madhura Gangaiah, Pranab Bhat, Dr. Sachin Jadhav, Dr. Andhe Pallavi, "Quantification of VEGF for Diagnosis based on Protein Biomarkers". IEEE Sponsored 9th International Conference on Intelligent Systems and Control (ISCO) 2015, 978-1-4799-6480-2/15/$31.00 @ IEEE.

5. Madhura Gangaiah, Divya Patil, Sangeetha D R, Dr. Andhe Pallavi, Dr. Sachin Suresh Jadhav(MD), Dr. Jayanthi Thumsi (MS), "A Handy Diagnostic Tool for Preventive Therapy based on Prior Estimation of Metastasis", International Journal of Science and Research (IJSR), ISSN (Online):2319-7064, Index Copernicus Value(2013):6.14|Impact Factor(2013):4.438, PP. 445-449.

6. Bhagyashri Koppad, Dr. Andhe Pallavi, "Wind Farm Power Output Prediction based on Average Wind Speed Data". ELK Asia Pacific Journals- Special Issue, ICRBIT-2015.

7. Archana R Kulkarni, Dr. Andhe Pallavi, "Adaptable Packet Length for Power Hungry WSN". International Journal of Engineering Research and General Science Vol.3, Issue 2, PP. 242-247, March –April, 2015.

8. Julin Sara Thomas, Dr. Andhe Pallavi, "Adaptive Non-Invasive Blood Pressure Measurement". International Journal on Recent and Innovation Trends in Computing and Communication, Vol.3, Issue 4, PP. 2447-2451, ISSN: 2321-8169, 2447-2451.

9. Srinath K V, Dr. Andhe Pallavi, "Investigation on the Performance of Metal Oxide Varistors in Energy Meter". International Journal on Recent and Innovation Trends in Computing and Communication, Vol.3, Issue 5, PP. 2745-2749, ISSN: 2321-8169, 2745-2749, IJRITCC|May 2015, Available @ http://www.ijritcc.org.

10. Mallikarjun H M, Dr. H N Suresh, Vidyashree K H, "Human Emotions Learning Using EEG Signal processing". ISRASE 2nd National Conference on Emerging Trends in Electronics and Communication (NCETEC-15).

11. Syed Umar Farooq, Mallikarjun H M, "Epileptic Seizure Detection Using Brain Signal Processing". ELK Asia Pacific Journals-Special Issue, ICRBIT-2015. ISBN: 978-81-930411-5-4.

12. Prasanna A V, Srikantha G N, "Comparison of Linear Filtering Techniques for Extraction of Evoked Potential". ELK Asia Pacific Journals-Special Issue, ICRBIT-2015, April 29-30.

13. Ranjith N, Srikanth G N, "Speech Emotion Recognition System". International Journal on Recent and Innovation Trends in Computing and Communication Vol.3, Issue 5, PP. 2839-2842, ISSN:2321-8169, 2839-2842.

14. P. Manohar, Vipula Singh, Krishna R Murthy, "Microaneurysm Detection Methods for Diabetic Retinopathy", International Journal of Computer Science Engineering and Information Technology Research (IJCSEITR), ISSN(P): 2249-6831;ISSN€:2249-7943, Special Edition, April 2015,47-60, TJPRC Pvt. Ltd., www.tjprc.org, editor@tjprc.org.

15. Nayan Jyoti Talukdar, Prof. P. Manohar, "Comparison of Different Supervised Classifiers in Detection of Microaneurysms", International Journal on Recent and Innovation Trends in Computing and Communication. Volume: 3, Issue: 4, ISSN: 2321-8169, 2408-2412, IJRITCC|April 2015, Available @ http://www.ijritcc.org.

16. Dileep J, Manohar P, "Automatic Detection of Exudate in Diabetic Retinopathy Using K-Clustering Algorithm". International Journal on Recent and Innovation Trends in Computing and Communication Vol.3, Issue 5, ISSN: 2321-8169, 2879-2882, IJRITCC|May 2015, Available @ http://www.ijritcc.org.

17. Menaka S A, Mrs. Savita S J, "Design and Implementation of Embedded Controller for Solar Heat Powered Stirling Engine". ELK Asia Pacific Journals-Special Issue, ICRBIT-2015, April 29-30.

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18. Shreedevi Kulkarni, Dr. Andhe Pallavi, "A Review Paper on the Available Methods for the Analysis of an Anti-Diabetic Drug- "VOGLIBOSE". Bulletin of Environment, Pharmacology and Life Sciences, Vol.5, Issue 2, Jan 2016, PP.89-92, Global Impact Factor 0.533, Universal Impact Factor 0.9804. ISSN 2277-1808.

19. Roopa Nayak, Dr. Andhe pallavi, "Novel V/f Strategy Using Command Speed Compensator for Improved Load Sharing with Dual Induction Motor". IJISET-International Journal of Innovative Science, Engineering & Technology, Vol.3, Issue 2, PP. 465-470, February 2016. ISSN 2348-7968.

20. Mr. Raviteja G C, Dr. Andhe Pallavi, "Enhanced Temperature Control Logic for Electro Static Precipitator (ESP) Hoopper Heaters". International Research Journal of Engineering and Technology (IRJET), Vol. 03, Issue 03, PP. 636-640, |Mar-2016, e-ISSN: 2395-0056, p-ISSN: 2395-0072.

21. Sumathy Y S, Dr. Andhe Pallavi, "Progressive CT Image Compression Using Wavelet Transform". International Journal of Engineeing Trends and Technology (IJETT),Vol.37, No. 6,PP. 337-341, July 2016.

22. Shreedevi Kulkarni, Pramodkumar P. Gupta, Dr. Andhe Pallavi, "Investigation of Enzymes Binding to "Voglibose-an Antidiabetic Drug" and the Choice of Enzyme to be Used for Biosensing". British Journal of Pharmaceutical Research Vol.14, Issue 3, PP. 1-10, 2016; Article no.BJPR.30369, ISSN:2231-2919, NLM ID:101631759.

23. Mallikarjun H M, Dr. P Manimegali, Dr. H N Suresh, "Mental State Evaluation by using Signal Processing". International Journal of Engineering Research in Electronic and Communication Engineering (IJERECE) Vol 3, Issue 5, PP. 318-322, May 2016.

24. Raghu M U, P Manohar, "A Simple Approach for the Detection of Microaneurysms Using Morphological Transforms". International Journal of Innovative Research in Computer and Communication Engineering. ISO 3297:2007, Vol. 4, Issue 7, PP. 13121-13123, July 2016.

25. H. M. Mallikarjun, H. N. Suresh, P Manimegalai, "Mental State Recognition by using Brain Waves". Indian Journal of Science and Technology, Vol.9 Issue 33, PP. 1-5, DOI:10.17485/ijst/2016/v9i33/99622, September 2016, ISSN (online): 0974-5645, ISSN (Print):0974-6846.

26. Meghana P, Mr. Chetan Ghatage, "Neoteric Sensorless Control of BLDC Motor, Drives", International Research Journal of Engineering and Technology (IRJET), Vol. 03, Issue 04, PP. 2756-2761, April- 2016, e-ISSN:2395-0056, p-ISSN:2395-0072, www.irjet.net, Impact Factor value:4.45, ISO 9001:2008 Certified Journal.

2017

27. Y S Sumathy, Dr. Andhe Pallavi, "Medical Image Compression-Performance Analysis based on Decomposition Level". 2017 IJEDR|Vol. 5, Issue 4, PP. 385-390|ISSN:2321-9939.

28. Mallikarjun H M, Dr. P Manimegalai, Dr. H N Suresh, "Machine Learning Based Classifier for Falsehood Detection". IOP Conf. Series: Materials Science and Engineering 225(2017) 012258 doi:10.1088/1757-899X/225/1/012258.

29. Mallikarjun H M and P Manimegalai, "Adaptive Neuro-Fuzzy Inference System for Farmers Depression Stage Prediction" International Journal of Pure Applied Mathematics (SCOPUS), Nov.2017. Vol 116, No. 24 2017, PP. 119-129. ISSN: 1311-8080 (printed version); ISSN: 1314-3395 (on-Line version).

30. Mallikarjun H M and P Manimegalai, "Machine Learning Based Epileptic Seizure Prediction Using Brain Wave", Jpurnal of Advanced Research in Dynamical & Control Systems (SCOPUS), JARDCS, 13-Special Issue ISSN: 1943-023X, Pages:9-16, September 2017.

31. Mallikarjun H M and P Manimegalai, "Depression Identification by using PHQ-9 and SVM Classifier", ICSIPCA-2017, July 6th -7th, 2017, http://www.icsipca.com, published in Grenze International Journal of Engineering & Technology (GIJET), PP. 425-431.

32. Chetan Ghatage and S Sumathi "Analysis of Power Quality Issues of Wind Energy system using matrix converter"C^3 2nd International conference on Circuits, Controls and Communication, ISBN no. 978-1-5386-0615-5 December 2017.

33. S J Savita and Andhe Pallavi "Issues in Interpretation of underground utilities from GPR Images" C^3 2nd International conference on Circuits, Controls and Communication, ISBN no. 978-1-5386-0615-5 December 2017.

2018

34. P Manohar, Vipula Singh, "Morphological Approach for Retinal Microaneurysm Detection". 2018 Second International Conference on Advances in Electronics, Computer and Communications (ICAECC-2018).

2019

35. S.J. Savita, P. Anbazhagan, Andhe Pallavi "GPR Preprocessing Methods to Identify Possible Cavities in Lateritic Soil" Second International Conference on Research in Business management and Information Technology,IJCSE Vol.07, Special Issue.13,pp.38-43, E-ISSN: 2347-2693 ,May-2019

36. S J Savita, Akshay Chhetri, Apoorva G S, Nikhath Firdose, Nidhi S Kumar "Ground Cavity Detection Using GPR Image-Processing" IETE sponsored second National Conference on Emerging Trends in Engineering Science and Technology, May 03, 2019.

37. Lata P and Andhe Pallavi "Vulnerabilities threats and attacks on SCADA, Mobile Networks and in IoT" Second International Conference on Research in Business management and Information Technology, IJCSE Vol.07 , Issue.13, pp.10-15, E-ISSN: 2347-2693 , May-2019

38. Madhura Gangaiah, Dr. Andhe Pallavi "IOT based Breast Cancer Monitoring using MRI images Post Neoadjuvant Therapy" Second International Conference on Research in Business Management and Information Technology (ICRBIT),IJCSE Vol.07, Issue.13,pp.44-48, E-ISSN: 2347-2693, May-2019

39. Roopa Nayak, Dr. Andhe Pallavi "A Comparison of V/f and Field Oriented Control of Three Phase Induction Motors Employed in Load Sharing" Second International Conference on Research in Business Management and Information Technology (ICRBIT),IJCSE, Vol.07 , Issue.13, pp.49-56, E-ISSN: 2347-2693,May-2019

40. Akshay Chhetri, Apoorva G S, Gowri Jadhav, Sheetal B V, Madhura Gangaiah "IoT based Automated Fan Controller" Second National Conference on Emerging Trends in Engineering, Science and Technology. May 03, 2019, RNSIT

41. Rithika Shenoy, Madhura Gangaiah "Review on Fabrication of Integrated Circuits" Second National Conference on Emerging Trends in Engineering, Science and Technology. May 03, 2019, RNSIT .

42. Kiran Nanaiah N G, Akanksha Singh S, Ananya Pavan, Shivaprasada K B, Mallikarjun H M; "Review on Brain Attention Controlled Wheelchair", IETE Sponsored Second National Conference on Emerging Trends in Engineering, Science and Technology,May 03-2019, RNSIT.

43. Mallikarjun H M, Akshay Chhetri, Apoorva G S, Gowri Jadhav, Sheetal B V "Diagnosis of Disorders Using Bio-Signals", IETE Sponsored Second National Conference on Emerging Trends in Engineering, Science and Technology, May 03-2019,RNSIT.

44. Dr.Mallikarjun H M, "Manoglanistara - Emotional Wellness Phases Prediction of Adolescent Female Students by using Brain Waves", Current Signal Transduction Therapy (2019) 14: 1. DOI:10.2174/1574362414666190703151853 Vol:14, pp: 1-9, July 2019.

45. Dr. Mallikarjun H M, Akshay Chhetri, Apoorva G S, Gowri Jadhav, Sheetal B V "Depression Predictor Model for Farmers Using Machine Learning Techniques", ICDECS

-2019,Elsevier Scopus indexed journal: International Journal of Innovative Technology and Exploring Engineering (IJITEE). DOI: 10.35940/ijitee.B1047.1292S19, pp:540-543.

46. Chetan Ghatage, S.Sumathi "Matrix Converter Based Maximum Power Extraction through Wind Turbine and Induction Machine" International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8, Issue-4, November 2019.

47. Roopa Nayak, Andhe Pallavi "Cost Analysis Based Algorithm for Load Shared Multiple Induction Motor Set-up",International Journal of Recent Technology and Engineering (IJRTE) , ISSN: 2277-3878 (Online), Volume-8 Issue-4, November 2019. pp: 478-482.

48. Latha P, Dr. Andhe Pallavi "IOT Protocols, Authentication and Data Transmission of Class 0 Sensors On To Cloud", International Journal of Advanced Science and Technology Vol. 29, No. 11s, (2020), pp. 1322-1325.

49. S J Savita, Dr. P Anbazhagan, Abhay A Kulkarni, Danish Gufran, Dr. Andhe Pallavi, "Underground Object Size Approximation using GPR Signal and Image Processing" International Journal of Innovative Technology and Exploring Engineering (IJITEE) , Volume-9 Issue-7, Blue Eyes Intelligence Engineering& Sciences Publication ,May 2020.

50. S. J. Savita, Dr. P. Anbazhagan and Dr. Andhe Pallavi,"Implementation of Wavelet Algorithm to Detect Underground Targets Using GPR",International Journal of Advanced Science and Technology Vol. 29, No. 11s, (2020), pp. 1299-1304.

51. Dr. Madhura Gangaiah, Varun Shilesh, Abhilash M, Akshaj, Rithika Shenoy " Breast Cancer Detection Using Image Processing and Magnetic Resonance Imaging Files Transfer" International Journal of Advanced Science and Technology, 29(11s), pp. 1194 – 1202, June 2020.

Books Published

Faculty	Title	Publisher	Year
Dr. Andhe Pallavi, HoD, Dept. of IT	Signals & Systems	IK International Limited	2008 (Reprint 2011)
	8051 Microcontrollers Architecture Programming and Applications	Pearson Publications	2010
	Digital Signal Processors	Pearson Publications	2012
	8051 and MSP430 Microcontrollers	Elsevier Publications	2012
	8051 and MSP430 Microcontrollers: Architecture, Programming and Applications	Wiley Publications	2019

Patent Filed

"ADHESION TESTING MACHINE", Publication Date: 01/02/2019, Patent office: IN, Patent number 05/2019, Application number: 201941002769 A

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Title of the Work: SVM BASED DEPRESSION LEVEL ANALYSIS BY CAPTURING BRAIN WAVES USING WEARABLE SENSORS, Registration Number : SW-12757/2019