



JSS MAHAVIDYAPEETHA
JSS ACADEMY OF TECHNICAL EDUCATION
 JSSATE Campus, Uttarahalli – Kengeri Main Road, Bengaluru – 560060
Department of Electronics & Communication Engineering

RESEARCH INITIATIVES

VTU Research Centre in the Department of Electronics & Communication Engineering was started in the year 2014, with provision for Ph.D. (Full Time / Part-Time). Since then the research facility is available for research scholars to carry out research in their specific area. Students and research scholars are encouraged to take up interdisciplinary research in various domains like cryptography, Signal and Image Processing, Wireless Sensors Network, Fault Tolerance, VLSI, Communication, Bio-medical Signal Processing, Machine Learning and Deep Learning. VLSI and Image Processing, NoC, Hardware Security, Low Power VLSI design. Power Electronics, Multimedia and Wireless Networks, Analog and Digital VLSI Design, Pattern Recognition, Information Security.

Ph.D. was awarded by VTU to the following Research Scholars of E&CE department Research center affiliated to VTU.

Sl. No.	Guide	Research Scholar	Area	University	Year of Award
1	Dr. Mrityunjaya V Latte, Research Guide	Mr.Dushantha N D	Analysis and Modelling of Diffuse Ultrasonic Signals for Structural Health Monitoring using Image Processing Techniques.	VTU	2017
		Mr.Hanumappa C Hadmani	Interference Management Techniques to Improve the Performance of Multiple Input Multiple Output(MIMO) Systems for next Generation Cellular Networks	VTU	2017
		Mr. Kumar Swamy V	Automatic Identification and Classification of Fractures in Limb from X-Ray And CT Images	VTU	2020
2	Dr. B G Shivalleelavathi, Research Guide	Mrs. Chinmayi	FPGA Based Converter-Inverter Control Strategy for Photovoltaic Power Generation System	VTU	2019

	Dr. Veeramma Yatnalli (Co-Guide)	Mrs. Ambily Babu	Design and Development of Control Technique for Efficiency Enhancement of Envelope Tracking Power Amplifier	VTU	2024
3	Dr. Aravinda H S, Professor	Mr.Raghunath B H	Fault Tolerant Technique For SRAM-Based FPGA Using Partial Dynamic Reconfiguration In Safety Critical Systems.	VTU	2023
		Mr.Praveen P B	Multi-Channel Distant Speech Enhancement	VTU M.Sc(Engg)	2024
		Mrs.Kavitha R J	Design and Characterization of Microstrip Patch Antennas for Wireless Communication	VTU	2023
		Mr. I Vijay Kumar Reddy	Development of Fault Tolerance Technique for Hearing Aid	VTU	2024
		Mr. Praphul M N	High Efficient Intra Prediction Hardware for HEVC Video CODEC	VTU	2024
		T.G Shivapanchakshari		VTU	2022
4	Dr. Siddesh, Research Guide	Mr. Prakash Jadhav	Bandwidth Reduction of Virtual Multimedia Payload Using Self-Modifying Wavelets And Implementation of Tree Based Streaming Protocol over Multimedia Networks	VTU	2019
5	Dr. Mallikarjunaswamy, Professor	Mrs. Pooja S	An Hybrid Regularization Algorithm for efficient Blind Image Deblurring	VTU	2023
		Mr. Mahendra H N	An Efficient Classification of Remotely Sensed Data using Supervised Classifier on South-Western Part of Indian Subcontinent	VTU	2023
		Sadiya Thazeen (Full Time)	Mobile User Detection and	VTU	2024

			Narrow Beam Formation Algorithms for Next Gen Smart Antenna		
		Mrs.Kavitha H S (Part Time)	An Efficient Renewable Energy based Hybrid Inverter for Smart Grid using Machine Learning	VTU 2021	2025
		Prakyath D (Part Time)	A Novel Effective Detection Algorithm Against Fault Data Injection Attack In Smart Grid Using IoT Platform	VTU 2018	2025
6	Dr. S T Veerabhadrapa Associate Professor	Suguna GC (Part Time)	Design of Wrist Pulse Acquisition System, Analysis and Classification of Pitta and Kapha Elements in Healthy and Unhealthy	VTU	2025

Research Guides and Areas Available for Ph.D. Programmes

Sl. No.	Research Guide	Area of Specialization
1.	Dr. P M Shivakumaraswamy Research Guide	Image Processing
2.	Dr. Aravind H S Professor	Signal Processing
3.	Dr. S T Veerabhadrapa Associate Professor and Head	Bio Medical Signal Processing
4.	Dr. Veeramma Yatnalli Associate Professor	Image Processing and Communication
5.	Dr. Usha S M Associate Professor	VLSI and Communication
6.	Dr. Saroja S Bhusare Associate Professor	VLSI design, Low Power VLSI Design, Analog and mixed-signal VLSI Design
7.	Dr. Poornima N Associate Professor	Embedded and Low Power VLSI Design
8.	Dr. Mallikarjuna Swamy, Professor	VLSI and Communication
9.	Dr. Thejaswini P Professor	VLSI and Image Processing, NoC, Hardware Security

10.	Dr Anuradha M G Associate Professor	VLSI, Clustering, Pattern Recognition & Image Processing
11.	Dr. Ramya K N Professor and Head (R & A)	Embedded System and IoT
12.	Dr. Kavitha M Assistant Professor	Communication and VLSI
13.	Dr. K P Ravikumar Assistant Professor	Image Processing
14.	Dr. Savitha A C Assistant Professor	Wireless Sensor network, Networking, Embedded System, IoT , M2M, Communication
15.	Dr. Sangeetha K N Assistant Professor	Information Security
16.	Dr. Mahendra H N Assistant Professor	Digital Image Processing and VLSI
17.	Dr. B G Shivaleelavathi, Research Guide	Power Electronics
18.	Dr. Siddesh G K, Research Guide	Multimedia and Wireless Networks
19.	Dr. Sathish Shet Research Guide	VLSI and Image Processing
20.	Dr. Kiran B Assistant Professor	Digital Image Processing and VLSI
21.	Dr. Rajshekhar Shetter Research Guide	VLSI and Image Processing

Research scholars Pursuing Ph.D. under JSSATEB VTU Research Centre, ECE Dept

#	Guide	Research Scholar (Full/Part Time)	Research Topic	Registration (Year)	Status
1.	Dr. P M Shivakumaraswamy, Research Guide	Mrs. Gouri S Katageri (Part Time)	Denoising and Analysis of SAR Images using Improved Threshold Technique in Frequency Domain	VTU 2019	Open Seminar II Completed
	Co-Guide Dr. K P Ravikumar	Mrs. Radha G H (Part Time)	An approach to Develop AI Models for Early detection and Prediction of Brain Tumor	VTU 2024	Registration Confirmed

			and Treatment Analysis		
2.	Dr. Veerabhadrappa S T, Associate Professor	Ms. Joy Lavinya (Part Time)	A Study on the Quantitative Analysis and Automatic Detection of Lumbar Disorders	VTU 2021	Course Work Completed
3.	Dr. Usha S M Associate Professor	Ms. Shaista Tarannu m (Part Time)	Performance Enhancement and Security Analysis in LoRaWAN using Machine Learning.	VTU 2021	Comprehensive viva-voce completed
		Mr. Ravi M (Part Time)	Breast cancer detection with deep learning using CAD Systems 3D Mamography Images	VTU 2022	Course work completed
		Mr. Meghashree A C (Part Time)	A Novel Model Framework for Early Breast Cancer Detection in Medical Imaging to Enhance Cancer Diagnosis	VTU 2023	Course work (3) completed
4.	Dr. Mallikarjunaswamy Professor	Bindhya R (Full Time)	An Efficient Mapping of Remotely Sensed Data for Land Use Land Cover Using Machine Learning	VTU 2024	Registration Confirmed
		Kavya B M (Part Time)	An Efficient Power Management Algorithm for Renewable Energy based Smart Grids using Machine Learning	VTU 2024	Registration Confirmed
		Mrs. Chetana H S	Machine Learning Approaches	VTU 2024	Registration Confirmed

	Co-Guide Dr. Mahendra H N	(Part Time)	for Intrusion detection in Next Generation Smart Grids		
	Co-Guide Dr. Savitha A C	Chiranth L N	Optimized Renewable Energy Hybrid Power Management System for Smart Grid Using Reinforcement Learning Algorithm	VTU 2024	course work completed
5.	Dr. Thejaswini. P Professor	Mr. Rejeesh M R(Part Time)	Image Enhancement Techniques for Images Captured in Adverse Conditions	VTU 2024	Registration Confirmed
6.	Dr. Ramya V Associate Professor	Mr. Ravi Y C(Part Time)	Design and Develop an Efficient Real Time Object Detection and Image Quality Enhancement model	VTU 2024	Registration Confirmed
7.	Dr. Siddesh G K Research Guide	Mrs. Chaitanya S (Part Time)	Implementation of Secure Authentication Protocol for Internet of Things	VTU 2017	Comprehensive Viva-Voce Completed
8.	Dr. B G Shivaleelavathi, Research Guide	Mrs. Sowmya R Bangari (Part Time)	Control Strategy and Small signal Stability Analysis of the Microgrid Inverter with Renewable Energy Sources	VTU 2021	Comprehensive Viva-voce Completed
9.	Dr. Sathish Shet. K. Research Guide	Mrs. Shilpa B M	Design and Development of MEMCOMP for Analysis of MRI Images	VTU 2019	Comprehensive Viva-voce Completed

		(Part Time)			Open Seminar 1 Completed
10.	Dr. Rajashekhar Shetter, Professor (External)	Mrs. Sunita L Shirahatti (Part Time)	Design and Performance Analysis of RNS Based Reversible Arithmetic Units For DSP Applications	VTU 2015	Comprehensive Viva-voce & Open Seminar 1 Completed
11.	Dr. Kiran B Assistant Professor	U NARMATHA	SUPPRESSION OF BACKGROUND NOISES FOR RENEWABLE ENERGY ENVIRONMENTS IN VOICE TRANSMISSION SYSTEMS USING DEEP LEARNING APPROACH	VTU 2025	Registered & taking course work
		GEETHA LAKSHMIN	POWER OPTIMIZATION IN ANALOG AND MIXED MODE GATE DRIVERS IC DESIGN USING MACHINE LEARNING TECHNIQUES FOR AUTOMATIVE APPLICATIONS	VTU 2025	Writing course work
		GURUSWAMY T B	Predictive Synthesis Optimization of Design and Functional Verification for Flash Memory using AI-driven methods	VTU 2025	Open

Industry Institute Interaction

The department has signed Memorandum of Understanding (MoU) with the reputed Industries.

1. M/s Digital Shark Technology, (Established industry Tie-up lab in the Dept.: -TI Innovation Lab)
2. M/s Renalyx Pvt. Ltd.
3. M/s FICE Vodafone
4. M/s Wynncom Digital Devices Pvt. Ltd.
5. M/s Innovact Pvt Ltd.
6. Centre for Development of Advanced Computing C-DAC(T)
7. Indian Institute of Technology-Guwahati, India
8. Pravishya Tech in Association with NASA Space App

Funded Research:

#	Project Title	Principal Investigator	Duration	Funding Agency	Amount	Action	Date of Sanction
1.	International Conference on Agri voltaic innovations Focusing on Smart Farming with Renewable Energy Machine Learning and Embedded Technologies	Dr. Mallikarjunswamy S Dr. Mahendra H N Mr. Basavaraju N M	-	AICTE AQIS Scheme for GOC Scheme 2024-2025	3,00,000	Completed	30 th December 2024
2.	Science Technology and Innovation (STI) based Entrepreneurship Training Programme	PI Dr. Mallikarjunaswamy, CO PI: Dr. D Mahesh Kumar, Dr. Mahendra H N, Dr. Pavithra G S, Mr. Basavaraju N M, Dr. Sharmila N	-	Department of Science and Technology	7,50,000	Completed	17 th September 2024
3.	Efficient Implementation of Cryptographic Algorithms for Security	Dr. Thejaswini P Mentor: Dr Sukumar Nandi, Dept of CSE, IIT Guwahati	3 Years	Science and Engineering Board-DST, Government of India	18,30,000/-	Ongoing	9 th Jan, 2024
4.	Autonomous E-Kart	PI:Mr. Manohar B S(ECE) Co-PI : Dr. Prabhudev Jagadeesh (CSE) Co-PI Mr. Kousik S(Mechanical)	1 Year	KSCST (FFP)	4,74,000/-	Completed	10 thFeb 2023
5.	FDP on Research Applications in Machine Learning and Artificial Intelligence	PI: Dr. Veeramma Yatnalli Co-PI: Dr. Poornima N	1 week	VGST	2,00,000/-	Completed	12 th Jan, 2023

6.	New National Education Policy 2022	Dr. Mallikarjuna Swamy S Dr. Pavithra G S	2 Days	Karnataka State Higher Education Council	72,500/-	Completed	11 th July 2022
7.	FDP on Python Programming for Artificial Intelligence(AI), High-Performance Computing(HPC), and Data Analytics	Dr.VeerammaYatnalli Dr. Ch. Sudhakar Dept.of CSE, NIT Warangal	2 Weeks	NIT Warangal	1,00,000/-	Completed	25 th April 2022
8.	National Conference on Applied Computational intelligence -2023 (NACI-2023)	Dr.Veeramma Yatnalli	2 Days	Indian National Science Academy	1,00,000/-	Completed	24 th 2023
9.	Advanced Software Resources for Digital Library Management and Library Automation	Dr. Mallikarjunaswamy S Dr. D Mahesh Kumar	3 days	Raja Ram Mohan Roy Information Center	2,50,000/-	Completed	11.10.2021
10.	A Novel Effective Clusters Algorithm Against Fault Data Injection Attack in Smart Grid Using IoT	PI: Dr. Mallikarjunswamy S, Assoc Prof, Co-PI: 1)Dr. Siddesh G K, Assoc. Prof., 2) Prakyath D, Asst. Prof., EEE Dept., SJBIT 3) Sharmila N, EEE Dept.RNSIT	1 year	VTU TEQIP competitive Research Grant	1,50,000/-	Completed	10.12.2019
11.	Establishment of Renewable Smart Grid Laboratory	PI:Dr. Mallikarjuna Swamy S Co-PI:Dr. D Mahesh Kumar	2 years	VGST under K-FIST L2	30,00,000/- (15,00,000/- per year)	Completed	09.11.2020
12.	Computerized Segmentation of Pulmonary Nodules	PI:Dr. Mrityunjaya V Latte Co-PI: Dr. Shetty Pramod Kumar,	1 year	VTU TEQIP competitive Research Grant	1,00,000/-	Completed	23.03.2018

	Depicted in CT Examinations Using Freehand Sketches	Associate Professor, E&CE, JNNCE, Shivamogga (Lead College)					
13.	Innovation Lab for Rapid Prototyping of IoT Products	Dr. Aravind H S,	3 years	Vision Group of Science & Technology, Dept. of IT, BT and S&T, Government of Karnataka, proposals sanctioned by VGST for Government grants during the year 2018-19, Scheme: Centers of Innovative Science Engineering and Education (CISEE)	20,00,000/- (10,00,000/- per year)	Completed	15.10.2018
14.	FDP on IoT	Dr. B G Shivaleelavathi	6 days	KSTePS and VGST towards FDP	2,00,000/-	Completed	14.06.2017
15.	AN OPTIMAL RENEWABLE ENERGY WIRELESS POWER MANAGEMENT SYSTEM FOR ELECTRIC VEHICLES	Dr. P. M. Shivakumaraswamy Dr. Mallikarjunaswamy Mr. Nikhil N. Mr. M. Vijayraghav Mr. Nagaraj Moger Mr. Yuvaraj N.	1 Year	KSCST	Rs. 5000/-	Completed	2023-2024

16.	INTERNET OF THINGS BASED SERICULTURE FARM AUTOMATION USING MACHINE LEARNING ALGORITHM	Dr. Sangeetha K. N. Dr. Mallikarjunaswamy S. Ms. Punya H. R. Ms. Harshitha Mr. Sunil P. Mr. Srujan S. P.	1 Year	KSCST	Rs. 5000/-	Completed	2023-2024
17.	BONE CANCER DETECTION FROM X-RAY USING DEEP LEARNING	Prof. Aravindh H. S. Ms. Bhoomika H. Ms. Pavana G. Mr. Aruna Kirana Kumar Mr. Chinmayi A. P.	1 Year	KSCST	Rs. 5000/-	Completed	2023-2024
18.	DESIGN AND IMPLEMENTATION OF IOT BASED WATER QUALITY AND LEAKAGE MONITORING SYSTEM USING ML	Dr. D. Mahesh Kumar Dr. Mallikarjunaswamy S. Ms. Koushalya M. Birabbi Ms. Sharanya U. G. Ms. Sahana B. H.	1 Year	KSCST	Rs. 5000/-	Completed	2023-2024
19.	Design and Development of Noninvasive Medical Device For Health Monitoring Using PPG Signal	Dr. Veerabhadrappe S T Mr. Sudarshan E Mr. Raghunandan V, Ms. Vaishnavi P Ms. Spoorthy R	1 year	KSCST	5,000.00	Completed	2022-23
20.	E-Health Monitoring And Medicine Prescription Generation System Using Iot And Machine Learning	Mr. Mahendra H N Dr. Mallikarjunaswamy S Mr. Chethan S Ms. Kruthika B Ms. Muktha S Mr. Jithendra S H	1 year	KSCST	5,000.00	Completed	2022-23
21.	Dol-Skindi (Detection Of Lumpy Skin Disease)	Dr. P M Shivkumaraswamy Mr. Manohar B S	1 year	KSCST	5,000.00	Completed	2022-23

		Mr. Likhitha B Patil, Mr.Adithya A, Ms.Anusha M, Mr.Manjunatha G C					
22.	AI Based Voice Translator	Dr. VeerammaYatnalli & Dr. Saroja S Bhusare Mr. Tushar M S Mr. Tarun G V Mr. Vijay M Mr. Sumukha A	1 Year	Vodafone Intelligent Solutions (_VOIS)	200000	Completed	2022-23
23.	Smart Robot Vacuum Cleaner (Smart Mop Rob)	Mr. Manohar B S & Dr.Prabhudev Jagadeesh(CSE) Mr. Sumanth Rao C Mr. Shankar Singh C Mr. M Balasubramanian(CSE) Mr. Pratik Shrikant Rao(CSE)	1 Year	Vodafone Intelligent Solutions (_VOIS)	200000	Completed	2022-23
24.	SANIHA: Application to create Virtual Relationship between Farmers & Consumers	Ms.Gunasagari G S Dr. N Poornima Mr. Manjunatha R Mr. Achal N Bharadwaj Mr. Shashank H K Mr. Shanth Kumar T U	1 Year	KSCST	6000	Completed	2021-22
25.	Implementation Kannada to Barille translator	Dr. Anuradha M G Ms. Shishira P Ms. Shilpa Deshpande Ms. Sharanya G V Ms. Sahana	1 Year	KSCST	6000	Completed	2021-22
26.	Smart Battery Management System for Electric Vehicles	Dr. Sathish Shet K Mr. Manohar B S Ms. Gayana A Jain Mr. K C Shobith	1 Year	KSCST	6000	Completed	2021-22

		Ms. Sampada S Ms. Vijayalakshmi A					
27.	Design and Development of Personalized Health Detection Device for COVID-19	Dr. Veeramma Yatnalli Dr. Saroja S Bhusare Ms. Divya Sri R Ms. Ananya L N Simha Ms. Maria Nuzath Subhani Ms. Hithashree J	1 Year	VTU	Rs. 5000/-	Completed	2021
28.	Colored Object Tracking Robot Automation for Agricultural Applications	Mrs. Latha B N Dr. Sathish Shet K Ms. Sampada D D Ms. Madhuri M Ms. Shobhita T R	1 Year	VTU	Rs. 5000/-	Completed	2021
29.	Secure Video Transmission Using Incremental Encryption Technique	Dr Thejaswini P Mr. Sagar Dev Achar Mr. Pavana Narayana K Mrs. Sahana A R Mr. Phanikrishna N M	1 Year	State Level Engg students Project Exhibition, SRISHTI	25000	Completed	25 -27 July 2022
30.	Non-Invasive Glucose and Cholesterol Monitoring Device	Mrs. Shubha B, Mrs. Anuradha M G Ms. Suprada H S Ms. Prathiksha R V Ms. Shrilaxmi Dixit Ms. Sumedha C	1 Year	KSCST	Rs.6,000/-	Completed	23-04-2021
31.	Keller: Indian Sign Language Gesture to Text and Speech Assistant	Ms. Gunasagari G S Dr. N Poornima Ms. Abhijna Yaji Mr. Achuth M Ms. Anisha Maria Dsilva	1 Year	KSCST	Rs.6,000/-	Completed	23-04-2021

		Ms. Chethana S R					
32.	Smart Meter for Water Utilization Using Iot	Dr. Mallikarjunaswamy S Dr. Siddesh G K Mr. Sriramulu Hemanth Kumar Mr. Abhishek M Mr. Deepak S Mr. Yasin Qureshi M	1 Year	KSCST	Rs.8,000/- Rs. 12500 Best Project Award	Completed	23-04-2021
33.	Cloud Based Centralized Smart Cart and Contactless Billing System	Mr. Mahendra H N Mrs. Neela Mr. Chandan B Nooli Mr. Hrishikesh Mashalkar	1 Year	KSCST	Rs.5,500/-	Completed	23-04-2021
34.	Skin Cancer Detection using Support Vector Machine Technique	Mrs. Neela A G, Mr. Kushal Kumar K Mr. Madan Kumar S Mr. Nishanth S R Ms. Meghana R	1 year	KSCST	5,000	Completed	2018-2019
35.	Solar Based Smart Street Lighting System	Dr B.G. Shivalaelavathi, Mr. Vinay M E Mr. Sucheeth V Mr. Rakesh H Mr. Shambulinga	1 year	KSCST	6,500	Completed	2017-2018
36.	Autonomous Ship Navigation System	Dr. Siddesh G K, Mr. Vishwas Suman S Dsouza Mr. Yoganand H R	1 year	KSCST	6,000	Completed	2017-2018
37.	Residence Power Regulation by	Dr B. G. Shivalaelavathi Mr. Shakthi Murugan R, Mr. Sharath S	1 year	KSCST	4000	Completed	2017 -2018

	Employing a Wireless Smart Socket And IOT	Mr. Rohit R Mr. Talanki, Sharath S					
38.	Hybrid Renewable Single Phase Power Generation System	Dr B.G. Shivaleelavathi Mr. Seeraj Mr. Kishan M Mr. Manoj Mr. Bharath	1 Year	KSCST	6000/-	Completed	2014-2015
39.	FPGA/DSP based Converter inverter control Strategy for single phase wind power generation system	Dr B.G. Shivaleelavathi Mr. Rajath hebbbar, Mr. Prajwal S N Mr. Srihari Mr. Sudarshan Keshri	1 Year	KSCST		Completed	2014-15
40.	AICTE IDEA lab	Dr Mallikarjunaswamy M S-PI-Professor ECE, Dr Prabhudev Jagadeesh- Co-PI-Professor CSE	3 Year	AICTE-JSSATE	9000000/-	On going	2025
41.	Quantum-CNN based hybrid network for remote sensing image classification	Dr. Mahendra H N. PI Assistant Professor, Dept. of ECE Dr Mallikarjunaswamy S, Associate Professor, Co-PI, Dept. of ECE	2 Year	JSSATE-Seed Fund	390000/-	On going	2025

Consultancy Details

SL.No	Name of the Faculty	Project Title	Funding Agency	Amount in Lakhs	Duration
1	Mr. Manohar B S, Mr. Pramukh(Civil)	Third party inspection	KRIDL, GOK, Karnataka	0.315	20-06-2022 (Completed)
2	Mr. Manohar B S, Mr. Abhishek(Civil)	Third party inspection	KRIDL, GOK, Karnataka	0.7	13-01-2023 (Completed)
3	Dr. D R Swamy(IEM), Mr, Krishnaprasad(IEM), Mr. Manohar B S	Safety Audit	M/S PJ Margo Pvt. Ltd, Tumkur	0.55	23-03-2020 (Completed)