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.

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 Shivaleelavathi, Research Guide Dr. Veeramma Yatnalli (Co-Guide)**	Mrs. Chinmayi	FPGA Based Converter-Inverter Control Strategy for Photovoltaic Power Generation System	VTU	2019
		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	VTU	2023

			Critical Systems.		
		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
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, Associate Professor**	Mrs. Pooja S	A Hybrid Regulation 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

Research Guides and Areas Available for Ph.D. Programs

Sl.No.	Research Guide	Area of Specialization
1.	**Dr. P M Shivakumaraswamy,** Professor and HoD	Image Processing
2.	**Dr. Aravind H S,** Professor	Signal Processing
3.	**Dr. S T Veerabhadrappa,** Associate Professor	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
7.	**Dr. Mallikarjuna Swamy,** Associate Professor	VLSI and Communication
8.	**Dr. Thejaswini P** Associate Professor	VLSI and Image Processing, NoC, Hardware Security
9.	**Dr. K P Ravikumar** Associate Professor	Image Processing
10.	**Dr. B G Shivaleelavathi,** **Research Guide**	Power Electronics
11.	**Dr. Siddesh G K,** **Research Guide**	Multimedia and Wireless Networks

12.	Dr. Sathish Shet 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,** Professor and HoD	Mrs. Gouri S Katageri (Part Time)	Denoising and Analysis of SAR Images using Improved Threshold Technique in Frequency Domain	VTU 2019	Comprehensive Viva-Voce Completed
2	**Dr. H S Aravind,** Professor	Mr. I Vijay Kumar Reddy (Part Time)	Development of Fault Tolerance Technique for Hearing Aid	VTU 2015	Viva Voce was completed on 27.04.2024
		Mr. Praphul M N (Part Time)	High Efficient Intra Prediction Hardware for HEVC Video CODEC	VTU 2017	Viva Voce was completed on 17.05.2024
3	**Dr. Veerabhadrappa S T,** Associate Professor	Mrs. Suguna G C (Part Time)	Design of Wrist Pulse Acquisition System, Analysis and Classification of Pitta and Kapha Elements in Healthy and Unhealthy Subjects	VTU 2017	Comprehensive Viva-Voce Completed Open Seminar-1 completed
		Ms. Joy Lavinya (Part Time)	A Study on the Quantitative Analysis and Automatic Detection of Lumbar Disorders	VTU 2021	Course Work Completed
4	**Dr. Usha S M** Associate Professor	Ms. Shaista Tarannum (Part Time)	Performance Enhancement and Security Analysis in LoRaWAN using Machine Learning.	VTU 2021	Course Work Completed
		Mr.Ravi M (Part Time)	Breast cancer detection with deep learning	VTU 2022	Registration Completed, course work

			using Cad Systems Three D Mamography Images		(1) Completed
		Mr. Meghashree A C (Part Time)	A Novel Model Framework for Early Breast Cancer Detection in Medical Imagingto Enhance Cancer Diagnosis	VTU 2023	Registration Confirmed
5	**Dr. Mallikarjunasw amy,** Associate Professor	Sadiya Thazeen (Full Time)	Enhanced Mobile User Detection And Radiation Formation Using Smart Antenna	VTU 2018	Viva Voce was completed on 17.05.2024
		Prakyath D (Part Time)	A Novel Effective Detection Algorithm Against Fault Data Injection Attack In Smart Grid Using IoT Platform	VTU 2018	Thesis Submitted
		Mrs.Kavitha H S (Part Time)	An Efficient Renewable Energy based Hybrid Inverter for Smart Grid using Machine Learning	VTU 2014	Comprehen sive Viva-Voce Completed
		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
6	**Dr. Siddesh G K** Research Guide	Mr. Mahesh Kumar Patil (Part Time)	Design of Protocol to Improve Quality of Service for Real Time Multimedia Applications	VTU 2016	Thesis Submitted
		Mrs. Chaitanya S (Part Time)	Implementation of Secure Authentication Protocol for Internet of Things	VTU 2017	Comprehen sive Viva-Voce Completed
		Mrs. Shruthi (Part Time)	IoT Based Cloud Security Authentication Protocol	VTU 2017	Open Seminar I, Open Seminar II,

					Colloquium completed
7	**Dr. B G Shivaleelavathi,** Research Guide	Mrs. Sowmya R Bangari (Part Time)	A Novel Implementatioon of Control Strategy for an Inverter Using Embedded Systems	VTU 2021	Comprehensive Viva-voce Completed
8	**Dr. Sathish Shet. K.** Research Guide	Mrs. Shilpa B M (Part Time)	Design and Analysis: ASIC Based MEMCOMPs (memory+computer) machine	VTU 2019	2023
9	**Dr. Rajshekhar 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

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

Funded Research:

#	Project Title	Principal Investigator	Duration	Funding Agency	Amount	Action	Date of Sanction
1.	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	15,00,000/-	Ongoing	9th Jan, 2024
2.	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	5,000/-	Completed	2023-2024
3.	Design And Implementation of IoT Based Water Quality and Leakage Monitoring System Using MI	Dr. D. Mahesh Kumar Dr. Mallikarjunaswamy S. Ms. Koushalya M. Birabbi Ms. Sharanya U. G. Ms. Sahana B. H.	1 Year	KSCST	5,000/-	Completed	2023-2024
4.	Bone Cancer Detection from X-Ray Using Deep Learning	Dr. Aravindh H. S. Ms. Bhoomika H. Ms. Pavana G. Mr. Aruna Kirana Kumar Mr. Chinmayi A. P.	1 Year	KSCST	5,000/-	Completed	2023-2024
5.	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	5,000/-	Completed	2023-2024
6.	Autonomous E-Kart	PI:Mr. Manohar B S(ECE) Co-PI : Dr. Prabhudev Jagadeesh (CSE) Co-PI Mr. Kousik S(	1 Year	KSCST (FFP)	4,74,000/-	Ongoing	Feb 2023

		Mechanical)						
7.	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	12th Jan, 2023
8.	National Conference on Applied Computational intelligence -2023 (NACI-2023)	Dr.Veeramma Yatnalli	2 Days	Indian National Science Academy	1,00,000/-	Completed	2023
9.	Design and Development of Noninvasive Medical Device For Health Monitoring Using PPG Signal	Dr. Veerabhadrappa S T Mr. Sudarshan E Mr.Raghunandan V, Ms.Vaishnavi P Ms. Spoorthy R	1 year	KSCST	5,000/-	Completed	2022-23
10.	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/-	Completed	2022-23
11.	Dol-Skindi (Detection Of Lumpy Skin Disease)	Dr. P M Shivkumaraswamy Mr. Manohar B S Mr. Likhitha B Patil, Mr.Adithya A, Ms.Anusha M, Mr.Manjunatha G C	1 year	KSCST	5,000/-	Completed	2022-23
12.	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)	2,00,000/-	Completed	2022-23
13.	Smart Robot Vacuum Cleaner (Smart Mop Rob)	Mr. Manohar B S & Dr.Prabhudev Jagadeesh(CSE) Mr. Sumanth Rao C	1 Year	Vodafone Intelligent Solutions (_VOIS)	2,00,000/-	Completed	2022-23

		Mr. Shankar Singh C Mr. M Balasubramanian(CSE) Mr. Pratik Shrikant Rao(CSE)					
14.	New National Education Policy 2022	Dr. Mallikarjuna Swamy S Dr. Pavithra G S	2 Days	Karnataka State Higher Education Council	72,500/-	Completed	Nov, 2022
15.	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	25,000/-	Completed	25 -27 July 2022
16.	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	25th April 2022
17.	Ubiquitous precision crop management using agricultural IoT and UAV	PI:Dr. Aravind H S Co-PI:Dr Jagadish Prabhudeva M P Professor CSE Dept Co-PI:Mr. Pradeep H K, Asst Prof	2 Years	VTU research grants	10,00,000/-	On-going	01.02.2022
18.	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	6,000/-	Completed	2021-22
19.	Implementation Kannada to Barille translator	Dr. Anuradha M G Ms.Shishira P Ms. Shilpa Deshpande Ms. Sharanya G V Ms. Sahana	1 Year	KSCST	6,000/-	Completed	2021-22
20.	Smart Battery	Dr.SathishShet K	1 Year	KSCST	6,000/-	Completed	2021-22

	Management System for Electric Vehicles	Mr. Manohar B S Ms.Gayana A Jain Mr. K C Shobith Ms. Sampada S Ms. Vijayalakshmi A					
21.	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	06.10.2021
22.	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	6,000/-	Completed	23-04-2021
23.	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 Ms. Chethana S R	1 Year	KSCST	6,000/-	Completed	23-04-2021
24.	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	8,000/- 12,500 Best Project Award	Completed	23-04-2021
25.	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	5,500/-	Completed	23-04-2021
26.	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	1 Year	VTU	5,000/-	Completed	2021

		Ms.Hithashree J					
27.	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	5,000/-	Completed	2021
28.	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)	On-Going	09.11.2020
29.	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	18.01.2020
30.	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
31.	Solar Based Smart Street Lighting System	Dr B.G. Shivaleelavathi, Mr. Vinay M E Mr. Sucheeth V Mr. Rakesh H Mr. Shambulinga	1 year	KSCST	6,500/-	Completed	2017-2018
32.	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
33.	Computerized Segmentation of Pulmonary Nodules Depicted in CT Examinations Using Freehand Sketches	PI:Dr. Mrityunjaya V Latte Co-PI: Dr. Shetty Pramod Kumar, Associate Professor, E&CE, JNNCE, Shivamogga (Lead College)	1 year	VTU TEQIP competitive Research Grant	1,00,000/-	Completed	23.03.2018

34.	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)	30,00,000/- (10,00,000/- per year)	On Going	15.10.2018
35.	**Residence Power Regulation by Employing a Wireless Smart Socket And IOT**	Dr B.G. Shivaleelavathi Mr.Shakthi Murugan R, Mr.Sharath S Mr.,Rohit R Mr.Talanki, Sharath S	1 year	KSCST	4,000/-	Completed	2017 -2018
36.	FDP on IoT	Dr. B G Shivaleelavathi	6 days	KSTePS and VGST towards FDP	2,00,000/-	Completed	14.06.2017
37.	Hybrid Renewable Single Phase Power Generation System	Dr B.G. Shivaleelavathi Mr.Seeraj Mr.Kishan M Mr.Manoj Mr.Bharath	1 Year	KSCST	6,000/-	Completed	2014-2015
38.	FPGA/DSP based Converter inverter control Strategy for single phase wind power generation system	Dr B.G. Shivaleelavathi Mr. Rajath hebbar, Mr. Prajwal S N Mr. Srihari Mr.Sudarshan Keshri	1 Year	KSCST		Completed	2014-15

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)