

# **2022 IEEE International Conference on Signal Processing, Informatics, Communication and Energy Systems (SPICES 2022)**

**Thiruvananthapuram, India  
10 – 12 March 2022**



**IEEE Catalog Number: CFP22A74-POD  
ISBN: 978-1-6654-4941-0**

**Copyright © 2022 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP22A74-POD
ISBN (Print-On-Demand):	978-1-6654-4941-0
ISBN (Online):	978-1-6654-4940-3

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

<b>Paper Index</b>				
<b>Sl No:</b>	<b>Paper ID</b>	<b>Paper Title</b>	<b>Authors</b>	<b>Page No.</b>
1	4	Current Control with Hysteresis Controller and Sliding mode Controller in SRM	Stella Kurian, Nisha G.K.	1-6
2	10	Performance study of Capacitor Clamped Multilevel Inverter fed Induction Motor Drive for Electric Vehicle Application	Praveen O, Nisha G. K	7-11
3	11	BER-SNR Evaluation using Phase Shift Keying with OSTBC in MIMO Environment	Satya Singh, Milind Thomas Themalil	12-16
4	13	Area efficient implementation of short length QC-LDPC codes for Ultra-Reliable Low-Latency Communication (URLLC) application	Lakshmi J L, Jayakumari J	17-21
5	18	Vehicle Accident Detection and Prevention using IoT and Deep Learning	Lakshmy S, Renjith Gopan, Meenakshi M L, Adithya V, Mariya R Elizabeth	22-27
6	23	Modelling and Performance Estimation of All Inorganic Double Perovskite Solar Cells	Deepthi Jayan K.	28-32
7	30	Design of a Dual Processor Based Single Board GNSS Receiver Embedded Navigation Computer for Low Cost Launch Vehicles	Vinoj V S, Aneesh K Thampi, Biju VS, Anand Shankar OT, C Radhakrishna Pillai	33-37
8	33	Design considerations for selecting GNSS antenna mounting location in launch vehicles	Anand Shankar O T, Aneesh K Thampi, Biju V S, Vinoj VS, Radhakrishna Pillai C	38-42
9	35	Design Methodology of Solid State C-Band Transponder for Radar Calibration	Indu Gopan, Muhammed Suhail S, Sherly Joy, Mukundan KK	43-48
10	38	WaterHCI Part 1: Open Water Monitoring with Realtime Augmented Reality	Steve Mann, Faraz Sadrzadeh-Afsharazar, Samir Khaki, Zhao Lu, Christina Mann and Jaden Bhimani	49-54
11	40	Aquila Optimizer based Deep Neural Network for Automatic Diabetic Retinopathy detection and classification	V. Desika Vinayaki, R. Kalaiselvi	55-60

12	46	A set of novel stress tests for high dynamic NavIC/GPS receiver software with RF signal input, observations and mitigation strategies	Biju V S, Anand Shankar O T, Aneesh K Thampi, Vinoj VS, Radhakrishna Pillai C	61-65
13	47	Development of a New Portable Test Station for Remote testing of Inertial Navigation Systems for Launch Vehicles	Anwar K Backer, Deepa Sara John, Aneesh K Thampi, Renjis Mathew	66-71
14	48	A Heuristic Approximation Algorithm to Design Power and Area Efficient FIR Filters in the Canonic Signed Digit Space	Sreegul G, Hareesh V, Bindiya T. S	72-76
15	49	SPV Panel Hotspot Thermal Profile Modeling and Characterization with Active Cooling Employing CAD Simulation	Polaka Divya Reddy, Pranavi Kakani, Ketan Ramaneti, Surya Prakash	77-80
16	50	Supervised Fan Beam Computed Tomography Image Synthesis using 3D CycleGAN	Jiffy Joseph, Pournami P. N., Jayaraj P. B.	81-86
17	52	Open-Circuit Switch Fault-Tolerant Half-Bridge LLC Resonant Converters for Satellite Applications	Abraham Mathews, Jagadanand G	87-91
18	53	Graph Based Document Model and its Application in Keyphrase Extraction	Sincy V. Thambi, P. C. ReghuRaj	92-98
19	54	Design of Computationally Efficient IFIR based Filter Structure for Digital Channelizer*	Rinu C Varghese, Amir A	99-104
20	56	Design and Performance Analysis of Various 32-bit Hybrid Adders using Verilog	Renjith R, Ancy Joy, Benson Biju, Vaishnavi Ganeshan, Sivasankar R	105-112
21	57	Comparison of Different Machine Learning Algorithms for Cardiac Auscultation	Indu T, Ashin Prakash, S Rishikesh Chandran, Nevin Babu, Soorya R	113-117
22	59	Cross Spectral Image Registration for Fever Detection	Joseph Mathew, Sudhish N. George	118-122
23	61	Performance Evaluation of DFT Based Channel Estimation for Spatial Modulated FBMC-COQAM systems on Multipath Fading Channels	Anetha Mary Soman, R.Nakkeeran, Shinu Mathew John	123-128

24	64	Comparison of GSEIM with Simulink with respect to simulation speed	Akhil Nandan, Mahesh B. Patil	129-134
25	65	Design of Band-Pass FIR Filter Using Modified Social Group Optimization Algorithm and Its Implementation On FPGA	Arijit Nag, Supriya Dhabal, Tania Paul Das, Palaniandavar Venkateswaran	135-140
26	66	Design of Quadrature Mirror Filter using Grasshopper Optimization Algorithm	Aritra Ghosh, Supriya Dhabal, Palaniandavar Venkateswaran	141-145
27	67	A Survey on Various Combination of Breast Cancer Biomarkers	Ms. Sheethal Aji Mani, T. K. Thivakaran	146-151
28	70	Performance Analysis of Path Tracking Controllers for Robotaxi Manoeuvres	Anurag R, V R Jisha	152-157
29	71	Passive Control of Annealing in Polymerase Chain Reaction Using Phase Changing Materials	B. Indulakshmi, Nikhil Prasad, Ranjith S. Kumar	158-161
30	73	Regenerative Braking of Switched Reluctance Motor for Electric Vehicle Application	Aaliya Farzana P. A, Bindu V. R.	162-167
31	74	Steering Angle Estimation for an Autonomous Car	Shalu George K, Abhiram A, Amal Jose, Ajay Soorya Madhav, Najiya N, S Aswin	168-173
32	81	A study of Change Impact Analysis Techniques based on Requirement Defects during the Software Development Process	Anjali C, Julia Punitha Malar Dhas, J. Amar Pratap Singh	174-179
33	82	Torque Ripple Reduction and Speed Control of PMSM Using Fuzzy Logic for Propulsion Application	Lekshmi P. Nair, Nisha G.K.	180-186
34	83	A Survey of Metadata Retrieval through Sentiment Analysis	M. Thanga Subha Devi, R. Suji Pramila	187-191
35	89	SnO <sub>2</sub> Thin Film Coated Fiber Optic VC Sensor based on Intensity Modulation Technique	A. Prasanth, Athira C, Kanzul T A, M. Velumani, S. Narasimman, Z. C. Alex	192-194
36	92	Implementation of Testing Accreditation Analytical Framework for Higher Education System	Sushitha S, Niveditha B	195-200
37	98	Design of an Optimized Controller for Docking System for Space Application	Navya S Warriar, Ann Elizabeth Babu, Shyju Susan Mathew, Aswin R B	201-206

38	103	Design and Development of a Simulation Environment for IoT Devices	Srivatsan V, Vinod Pathari	207-211
39	108	Design and Numerical Analysis of a Compact Microstrip Antenna Sensor for Wireless Body Area Networks	Sreelekshmi.S, S.Perumal Sankar	212-216
40	109	Voltage Profile Improvement of a Multi Microgrid Interconnection Scheme using Synchronverters	Charivil Sojy Rajan, Mabel Ebenezer	217-222
41	110	A blockchain-based platform for smart contracts and intellectual property protection for the additive manufacturing industry	Abhiram Haridas, Adil Abdul Samad, Vysakh D, Deepak Lawrence K, Vinod Pathari	223-230
42	113	Social media monitoring using ELK Stack	Perumal Sankar, Deepa Elizabeth George, Aparna Sankar N S	231-235
43	118	Measurement of chaos and quantum decoherence in H&E stained images of oral epithelium for early detection Oral Submucous Fibrosis	Aparajita Karmakar, Reetoja Nag, Mousumi Pal, Ranjan Rashmi Paul, Jyotirmoy Chatterjee, Raunak Kumar Das	236-242
44	125	Parametric Analysis on Charge Scheduling and Pricing of Electric Vehicles	Lakshmi M Nair, Mary Synthia Regis Prabha D M	243-248
45	126	An Efficient Analysis of E-Commerce Site using Big Data Assisted Modified Learning Strategy based on Novel Customer Recommendations	HO CHI MINH PERUMAL, BALA SUBRAMANIAN CHOKKALINGAM	249-256
46	127	Performance Assessment of a Hybrid Islanding Detection Scheme for PV Based Distributed Generators Combining Total Harmonic Distortion and Bidirectional Reactive Power Injection	Praveen Raj R S, Sreejaya	257-262
47	129	A cellular IoT based sensor system for atmospheric studies using UAVs	Rajesh K, Laxma Reddy Ch, Varaprasad G, Muralikrishnan S	263-267
48	130	IPMSM Drive with Interleaved Bidirectional Converter for Electric Vehicle Application	Chandni Asok, Deepa M. U.	268-273
49	132	Analysis of Mental Task Ability in Students based on Electroencephalography Signals	T. Ananda Babu, Sridevi Gadde, S. Ravi, K. V. Venkateswara Rao, Y. Mamillu, D. Krishna	274-278

50	134	Smart Bridges Based on Bridge Information Modelling	Saju S	279-284
51	136	A Comparative Analysis of Localization Techniques in Wireless Sensor Network	Akshay A, Arlene Davidson	285-289
52	137	Investigation of Choice of State Space for Reinforcement Learning Based Battery Scheduling in Microgrid	Imthias Ahamed T P, Rahul Roy, Sajin Siyad, Sarin Santhosh, Vaishak Rajeev	290-295
53	139	LSTM based Synthesis of 12-lead ECG Signal from a Reduced Lead Set	Ato Kapfo, Sumit Datta, Samarendra Dandapat, Prabin Kumar Bora	296-301
54	140	Decentralized Crowdfunding Platform using Smart Contracts	Sujaritha M, Arun Bharath S, Inderajith K, Shunmugapriya S, Hariharan S	302-307
55	141	An efficient approach for spammer detection on Twitter and their behavior analysis	Anaswara K, Saleema A, Indu V	308-313
56	142	Star identification in night sky images using mobile phone camera	Harsh Gupta, Dhruv Balkrishna Salvadi, Anu Shaju Areeckal, Sujay Udupa	314-319
57	144	Modelling of Power Flow Dynamics for Congestion Control	Chakravarthi Kotakonda, Pratyasa Bhui	320-325
58	147	A Comparative Study of State-of-the-art Image Splicing Localization Methods Using Fully Convolutional Networks	Vidya K.R., Shajimon K. John, M Wilsy, Remya Revi K., Rahul Antony	326-332
59	150	Emotion Classification using Physiological Signals: A Recent Survey	Amita Dessai, Hassanali Virani	333-338
60	167	High Power Microwave Rectifier for Lower Variation to Input Power and Phase	Vivek Kumar, Amit Kumar Baghel, Shashank S. Kulkarni, Niraja Pravin Sanghai, Sisir Kumar Nayak	339-342
61	168	New Mixed Model Order Reduction Approach for Linear System	Kishan Mushar, Yogesh V. Hote, G. N. Pillai	343-348
62	169	Fractional Order Modelling and Controller Design for Non-ideal DC-DC Buck Converter	Deeksha Mittal, Yogesh V. Hote	349-354
63	173	Exhibiting the Effect of Time Delays on Load Frequency Control of Multi Area Interconnected Hybrid Power System	P V N S Harideep, P V S Gowtham, P. Sri Harsha, P. Mahesh Babu, V. Pavan Sai Reddy, CH.Naga Sai Kalyan	355-360

64	181	Shallow SegNet with bilinear interpolation and weighted cross-entropy loss for Semantic segmentation of brain tissue	Pranav Goyal	361-365
65	183	Cost Analysis of a Smart Home Energy Management System-A Case Study	Reshmi K M, Divya N A	366-371
66	188	Revocable and Scalable Access to Personal Health Records in a Cloud Computing Environment	F. Sammy, S. Maria Celestin Vigila	372-377
67	190	WaterHCI Part 2: Open water sensing, meta-sensing, and observing with drones and augmented reality	Steve Mann, Zhao Lu, Faraz Sadrzadeh-Afsharazar, Christina Mann, Samir Khaki, Jaden Bhimani	378-383
68	192	A holistic approach towards detection, tracking, and recognition of face	Kuldeep Singh Yadav, Naseem Ahmad, Anish Monsley K, Saharul Alom Barlaskar, Naragoni Saidulu, Rabul Hussain Laskar	384-388
69	194	Automated Alert Generation Ensuring Women Safety Using Heartbeat Detection	Anindya Kumar Patro, Anusha Jhampri, S. Metilda Florence	389-394
70	201	Review of Battery Charging Methods for Electric Vehicle	Sandhya.P, Nisha.G.K	395-400
71	203	Alzheimer's Disease Classification from Cross-sectional Brain MRI using Deep Learning	Sreelakshmi S, Malu G , Elizabeth Sherly	401-405
72	207	Fraud Detection and Analysis for Insurance Claim using Machine Learning	Abhijeet Urunkar, Amruta Khot, Rashmi Bhat, Nandinee Mudegol	406-411
73	208	Sensor-less Vector Control of Surface PM Synchronous Motor Using Reduced -Order Cubature Kalman Filter Based Estimator	Arabindo Chandra, Soumyajit Datta, Aritro Dey, Sumana Chowdhuri	412-417
74	211	FEM analysis and experiments of a Double-sided Axial Flux Switched Reluctance Motor for two alternative phase winding terminal connections	Sabarni Pal, Mainak Sengupta	418-424
75	218	An Overview on Handling Anti Forensic Issues in Android Devices Using Forensic Automator Tool	H. Hemanth Bharath Bhushan, S Metilda Florance	425-430
76	219	On some issues in Kalman filter based trilateration algorithms for indoor localization problem	Hena Kausar, Suvendu Chattaraj	431-435



77	223	Gain Scheduled LQR Control of a Two Wheeled Mobile Robot with Heavy Payloads	Anu Gopinath, V. R. Jisha	436-441
78	224	Decentralized Control of a Slow Moving Mobile Manipulator	Shyju Susan Mathew, V.R. Jisha	442-447
79	225	Patch-based All Convolutional Neural Network Model for Classification of Benign and Malignant Mammograms	Gurpreet Kaur, Annie Julie Joseph, Pournami P N	448-455
80	227	A solution to power balancing in high renewable penetration power system: Use of Abandoned Generating Units	Athul Jose P, Arun V Jose, Deepak M, Sunitha R	456-462
81	229	Achieving Market Segmentation from B2B Insurance Client Data Using RFM & K-Means Algorithm	Srijith J Kumar, Abin Oommen Philip	463-469
82	231	Radial force reduction of Switched Reluctance Motor for EV application	Rani S, Jayapragash R	470-475
83	235	A Single-Phase Hybrid Seventeen Level Multilevel Inverter Topology	Sahana B K, Rupesh K C	476-480
84	239	Maximizing Strategy in Customer Segmentation Using Different Clustering Techniques	Pavithra M, Ayushman Prashar, Abirami	481-485
85	240	Performance Comparison of Classifiers of MR Brain Tumor Images on Various Datasets	Divya Mohan, V. Ulagamuthalvi, Nisha Joseph	486-490
86	242	A Disturbance Observer Based Control for Quadrotor Aircraft Subject to Wind Gusts	Sini S, T Ananthan	491-496
87	243	Design, Fabrication, Analysis and Testing of a Planar Inductor on a High Frequency Buck Converter using SiC Device	Arnab Dey, Kousik Ghosh, Abhishek Kar, Mainak Sengupta	497-502
88	245	Virtual Smart Canteen System	Tanay Bagayatkar, Shivam Pawar, Vishal Salvi, Kiran Gawande	503-508
89	247	A Secured Key Management Scheme for Mobile Ad Hoc Networks with Modified Montgomery Modular Arithmetic	Janani.V. S, M S K Manikandan	509-512

90	248	Space syntax analysis of Total connectivity through the evolution of Bag Bazar Street, Kolkata (1746-2020)	Shilpi Chakraborty, Shiva Ji	513-518
91	249	Techno-Economic Feasibility Analysis of LVDC System to Retrofit an Existing AC System: Case Study	R. P. Nishitha, Akhil Sabu, Lijo Joseph O, Rani Chacko, Jaimol Thomas, Victor Jose	519-524
92	251	Detailed FEM-based Analysis of Vibration in a 3-phase Switched Reluctance Motor and its Experimental Validation	Samrat Das, Devraj Roy, Mainak Sengupta	525-530
93	252	Investigations on Performance Parameters of Hybrid Perovskite Solar Cells	Kiran Susan Pavu, Sreelekshmi P. S, Jobymol Jacob	531-535
94	253	Analyzing Tone of the Annual Report - An Indian Context	Prakash K. Aithal, Dinesh Acharya U., Geetha M.	536-542
95	257	Gate Matching Algorithm for Early False Path Detection in Statistical Static Timing Analysis	Sachin K Bhat Agni, R. Jayagowri	543-548
96	259	Hot Carrier Effect on Base Resistance of SiGe Heterojunction Bipolar Transistors	Ann Mary Alex, Jobymol Jacob	549-552
97	261	Performance Analysis of Code Hopping Multiple Access using Orthogonal Complementary Codes under Rician Fading Channels	D. Judson, K. A. Aswathy	553-558
98	262	Transfer learning for Speech Based Emotion Recognition	Meenu S Nair, Deepa P Gopinath	559-564
99	263	A Novel State Space Model of an Interleaved Boost Converter operating over a wide range of duty ratio	Frieda Mohan, Nikhil Sasidharan	565-570
100	268	Parameter Independent Backstepping Controller for Bidirectional Buck-Boost Converter in DC Grid Battery Interface with CPL	Renuka V. S, Nikhil Sasidharan, Abraham T. Mathew	571-576
101	269	A Real-Time IoT and Cloud System for Carbon Dioxide Monitoring in Dhaka City's Buildings with Rooftop Garden and without Rooftop Garden	Md. Hasan Imam Bijoy, Aysha Siddika, Md. Mahbubur Rahman, Md Rabin Mia, Fizar Ahmed, Fahad Faisal	577-583

102	276	Effective Software Effort Estimation using Heterogeneous Stacked Ensemble	Somya Goyal	584-588
103	278	Dual Stepped Line Impedance Antenna for 8 GHz Communication	Ankita Bagri, Mukesh Yadav	589-594
104	279	Residual Network based Single Object Tracking	Shiv Kumar, Sandeep Kumar Singh	595-600