

2024 7th International Conference on Devices, Circuits and Systems (ICDCS 2024)

**Coimbatore, India
23 – 24 April 2024**



**IEEE Catalog Number: CFP2403R-POD
ISBN: 979-8-3503-5048-7**

**Copyright © 2024 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:	CFP2403R-POD
ISBN (Print-On-Demand):	979-8-3503-5048-7
ISBN (Online):	979-8-3503-5047-0
ISSN:	2470-847X

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
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Sl. No.	Title & Authors	Page No.
1.	MONITORING SENSOR DATA IN REAL TIME VIA INTEGRATED IOT PLATFORMS USING LORAWAN TECHNOLOGY S.Rubeena Grace Tamilarasi, G.Josemin Bala, Evangeline Persis G.P, A Andrew Moses, A Seetharaman	1
2.	MEDBOT ARTIFICIAL MEDICINE REMINDER AND DELIVER ROBOT WITH LINE FOLLOWER TECHNIQUE USING ARDUINO UNO IN HEALTHCARE M. Karthik, M. Gokul Nathan, R. Dhinesh, S. Ashwin	6
3.	DESIGNING A MULTIPATH FULLY DIFFERENTIAL OPERATIONAL TRANSCONDUCTANCE AMPLIFIER (OTA) WITH DUAL FLIPPED VOLTAGE FOLLOWER IN 50NM AND 75NM CMOS TECHNOLOGIES USING CADENCE TOOL Pavithra G, Shubhangi Milind Joshi, Sandeep K V, Kavana Salimath, Sindhu Sree M, T.C.Manjunath	11
4.	MINDSERENITY: VR ASCENTS TO SERENITY - A PERSONALIZED JOURNEY FOR ANXIETY REDUCTION, FOSTERING MENTAL WELL-BEING THROUGH IMMERSIVE AND TAILORED EXPERIENCES Reshma H, Thusharmubeen A, Geerthik S, Senthil G. A, Agileshwaran J	16
5.	STABILITY APPROXIMATION OF GEL ELECTROLYTES USING MACHINE LEARNING Senthil G. A, Geerthik S, Lakshmi Priya R V, Senthil Kumar, Mohan S	22
6.	AIR QUALITY INDEX PREDICTION USING BI-LSTM AND SPIDER MONKEY OPTIMIZATION R.Kingsy Grace, Jayasakthi Balaji G, Vishnu S, Saveetha V	27
7.	IMPLEMENTATION OF EFFICIENT SECURITY ALGORITHM A.Vinodhini, S.Sridevi Sathya Priya, P.Karthigai Kumar, N.M.Siva Mangai	32
8.	BRANCH LINE COUPLERS DEMYSTIFIED: A COMPREHENSIVE OVERVIEW Srividhya.G, Maheswari.S, Dharshan E K, Bhavan Shankar M, Dharaneesh T R	36
9.	WIRELESS SENSOR NETWORK AND WI WI-FI MODULE DEVELOPMENT OF DATA ACQUISITION ROBOT IN K. Muthulakshmi, G. Santhakumar, C. Padmavathy, M.A.P. Manimekalai	40
10.	CIRCUIT VISION: FAST AND EFFICIENT DIGITIZATION OF COMPLEX HAND-DRAWN CIRCUIT USING YOLOV8 Somnath Wategaonkar, Kantilal P. Rane, Tejeshree Bhoir, Komal Chaudhari, Prerna Bhopi, Sanesh Akhade	45

11.	COMPARATIVE ASSESSMENT OF CHARGE SHARING AND CHARGE COUPLING CIRCUITS: AN APPROACH FOR OPTIMAL IN-MEMORY COMPUTING Anshuman Bhasker, Ankit Lodhi, K P Pradhan	51
12.	ENABLING SECURE AND EFFECTIVE DEPLICATION IN MULTI CLOUDS Sreeja.B.P, Rajeshkumar G, Alagu Kiruthika.B, Sasi Prabha.N, Varshini.R, Afzal.J	55
13.	DESIGN OF CONVOLUTION NEURAL NETWORK FOR CRACK DETECTION D. Malathi, S. Gautham, M. Dineshkumar, K. Balakrishnan	60
14.	SIMULATION AND ANALYSIS OF BIT ERROR RATE IN OPTICAL FIBER COMMUNICATION USING OPTISYSTEM Nikhil R Hugar, Piruthiviraj P, Maleeha, Dhinesh V	67
15.	DESIGN OF ROUTING PROTOCOLS FOR HETEROGENEOUS WSN BASED ON MULTI-AGENT REINFORCEMENT LEARNING Melbin George, Baskar.S, Michaelraj Kingston ROBERTS	72
16.	AUGMENTING SMART CITY CONNECTIVITY: A ROBUST RADIO OVER FIBER SYSTEM RESILIENT TO CHROMATIC DISPERSION R D Soumitra, Joseph Zacharias	77
17.	REDUCING FWM EFFICIENCY IN DWDM NETWORKS BY EMPLOYING OFDM AND ALTERNATE CHANNEL DELAY Supriya S S, Joseph Zacharias	82
18.	SPECULATING FUTURE STOCK PRICE IN STOCK MARKET USING FEATURE SCALING AND PREDICTIVE MODELS Praveen M, Rosario Gilmary, Manvizhi N, Vikram M, Sanjay V	87
19.	EFFICIENT POWER CONVERSION OF NON-ISOLATED STEP-UP DC-DC CONVERTER COMPARED WITH A ZETA CONVERTER RECOVERY THROUGH SWITCHING LOSSES FOR PHOTOVOLTAIC APPLICATIONS Manish.k, S. Jaanaa Rubavathy, S.Gomathi	92
20.	POWER CONTROL IN DUAL ACTIVE CLAMP DC-DC CONVERTER WITH NON-ISOLATED DC-DC CONVERTER FOR MPPT (INC METHOD) WITH VARYING TEMPERATURES FOR PHOTOVOLTAIC APPLICATIONS Manish.k, S. Jaanaa Rubavathy, S.Gomathi	97
21.	VLSI ARCHITECTURE FOR REVERSIBLE RADIX-2 FFT USING MODIFIED CARRY SELECT ADDER Abhay Kumar Ranjan, Ompal Singh, Sandip Nemade	102

22.	A NOVEL DESIGN OF AREA EFFICIENT FULL ADDER ARCHITECTURE USING REVERSIBLE LOGIC GATES Chokkakula Ganesh, Aruru Sai Kumar, P Santhosh, Anreddy Ramya, Chennoji Shiva kumar, Ponugoti Thivani	107
23.	POWER EFFICIENCY EVALUATION OF DUAL EDGE TRIGGERED FLIP-FLOPS - A COMPARATIVE ANALYSIS Parthiban Murugesan, Sreenidhi Prabha Rajeev	112
24.	IMPLEMENTATION OF DYNAMIC COMPARATOR USING IMPROVED DIODE FREE ADIABATIC LOGIC DESIGN Sathish Periyasamy, Sreenidhi Prabha Rajeev	117
25.	REVOLUTIONIZING 5G NETWORKS BY HARNESSING GFDM WITH APSK MODULATION FOR ENHANCED COMMUNICATION EFFICIENCY Narendra Varma Gadiraju, Ramaswamy.T, S.P.V.Subba Rao, Mohammed Aamir Hussain, G. Siddartha Srinivas	122
26.	IMPLEMENTATION OF I2C PROTOCOL WITH ADAPTIVE BAUD RATE USING VERILOG Naveen RS, Sanjay S, Senthil Murugan A, Surya Prakash M, Mukuntharaj C	128
27.	SYNTHESIZABLE IMPLEMENTATION OF 2N/N BINARY DIVISION Gayatri V, Prathibha A Nair, M. Deepa, Ajita Fairen J, Dhanya Shree M	132
28.	DESIGN AND PERFORMANCE ANALYSIS OF ENHANCED OP-AMP FOR LOW PASS FILTER IN SUBWOOFER Sasikala. S, Mythily. S	137
29.	GAN HEMT NON LINEAR MODEL FOR RF SWITCH APPLICATIONS Kirti Bansal, Subhash Chander	142
30.	DESIGN AND DEVELOPMENT OF AIR BAG ASSISTED PNEUMATIC BOREWELL RESCUE SYSTEM R. Lal Raja Singh, R. Selvamathi, G.Gokul, P. Infant Praveen Jose	146
31.	DESIGN OF SHIFT REGISTERS USING DG-FINFET FOR LOW POWER APPLICATIONS G. Shanthi, K. Naga Vaishnavi, N. Manasa, V. Surya Pramod, S.Naga Leela, Shaik Shoukath Vali	151
32.	AN INTELLIGENT BASED IOT SYSTEM TO PREDICT PROACTIVE PAROXYSMS USING EDA SENSOR Raghav Sandeep P, Elavarasi K, Praveen Raj S	156
33.	QCA IMPLEMENTATION OF ARITHMETIC UNIT USING REVERSIBLE LOGIC GATES Mangalam H, Sakthivel V, Roupesh R, Sreeja P	163

34.	DESIGN OF CONTENT-ADDRESSABLE MEMORY FOR BIG DATA APPLICATIONS USING 18NM FINFET TECHNOLOGY	169
	Malathi D, Saranya M D, Ponmurugan P, Revathi S, Malavika S	
35.	DESIGN AND EVALUATION OF TWO STAGE OP-AMP FOR BIOMEDICAL APPLICATIONS USING 90NM CMOS TECHNOLOGY	174
	Pentamala Prakash Babu, Kolkuri Sindhuja, Thunuguntla Devi Sri Sai Lakshmi, Gongalla Sowmya, Dasari Akshitha	
36.	COMPACT COUPLED LINE BASED MULTIBAND BANDPASS FILTER	179
	Thiyagarajan Krishnan, Artson Tamilvanan, Kaarthik Raaja Siva Subramaniam, Kanishk Sakthishanmugam, Shivaguru Manikandan	
37.	A HARDWARE TROJAN DETECTION METHOD FOR GATE-LEVEL NETLISTS EMPLOYING THE CAMELOT MEASURE	183
	Priyadharshini M, Saravanan P, Charukesh V, Nihar Ahamed Fathima A	
38.	A LOW VOLTAGE 6T SRAM CELL DESIGN AND ANALYSIS USING CADENCE 90NM AND 45NM CMOS TECHNOLOGY	188
	T. Kalpana, Challa Lakshmi Reddy, Bandaru Saranya, Poluboyina Naveen	
39.	RAG-BASED LLM CHATBOT USING LLAMA-2	195
	Sonia Vakayil, D. Sujitha Juliet, Anitha. J, Sunil Vakayil	
40.	DIFFERENTIAL VOLTAGE CONTROLLED RING VCO WITH NO FEEDBACK LOOP TECHNIQUE FOR RADIO FREQUENCY APPLICATIONS	200
	Persiya Gnana Golda D, D.S. Shylu Sam, P.Sam Paul, D.Jayanthi, G. Nivetha	
41.	DEEP LEARNING APPROACHES TO GASTROINTESTINAL IMAGE CLASSIFICATION: EVALUATING VGG19 AND EFFICIENTNETB0 MODELS	205
	S. Padmakala	
42.	PERFORMANCE ANALYSIS OF HIGHLY FLEXIBLE ANTENNA FOR ON-BODY COMMUNICATION	211
	G. Dhayanithi, G. Umamaheswari, Praveena A	
43.	TEMPERATURE-DEPENDENT PERFORMANCE ANALYSIS OF BATTERY-SUPERCAPACITOR HYBRID ENERGY STORAGE SYSTEMS	216
	C. Noor Mohammad, B.Narashimha Murthy, H. Mohammed Shareef, Sourav Ghosh	
44.	PARAMETER EXTRACTION FOR LARGE PERIPHERY INDIGENOUS ALGAN/GAN HEMT DEVICE	221
	Deepti Mongia, Subhash Chander, D. Nirmal	
45.	A MACHINE LEARNING-BASED CHANGE DETECTION SCHEME FOR THE REMOTE SENSING IMAGES USING GAUSSIAN AND LEE FILTERS	224
	Bhavana.N.Sivadas, Jeshma Ullas, Sourabh Paul	

46.	INTEGRATING CHICKEN SWARM OPTIMIZATION WITH DEEP LEARNING FOR MICROARRAY GENE EXPRESSION CLASSIFICATION B. Shyamala Gowri, K. P. Sanal Kumar, S. Anu H Nair, S. Kamalakkannan	229
47.	VERIFICATION OF UART USING AHB VIP WITH MAXIMUM COVERAGE Persiya Gnana Golda D., S. Percy Deborah, Suji Sharon J., D.S. Shylu Sam, P.Sam Paul, D. Jayanthi, Ansia Liji K.S., G. Nivetha	234
48.	THEORETICAL INVESTIGATION OF BC3 MONOLAYER FOR THE ELECTRODE OF NA-ION BATTERIES Keerthana Vudumula, Jasil T K, Ashish Kumar Yadav, Rohit Singh, V P Vinturaj, Sushil Kumar Pandey	239
49.	DESIGN OF SRAM CELL USING FINFET FOR LOW POWER APPLICATIONS Shruthi Vajeer, Lavanya Vallab, Pravalika Yada, Sharmila Vallem	243
50.	PERFORMANCE ANALYSIS OF AN ENHANCEMENT MODE OPERATED ALGAN/GAN MIS-HEMT DEVICE WITH GA2O3 AS A BACK BARRIER R.Saravana Kumar, L.Lino, K.Yogeshvaran, M.Leeban Moses	248
51.	DESIGN AND ANALYSIS OF TWO STAGE OP-AMP IN 180NM CMOS PROCESS Smrithi V., D.S.Shylu Sam, G.Manoj	253
52.	ENHANCING RELIABILITY AND RF PERFORMANCE: THE IMPACT OF FE DOPED BACK BARRIER OPTIMIZATION IN GAN HEMTS S. Angen Franklin, Binola K Jebalin I.V, Subhash Chander, D.Nirmal	258
53.	PERFORMANCE AND EVALUATION OF CG-CS LNA OVER GAIN AND NOISE OPTIMIZATION Soundarya V, A. Alfred Kirubaraj, S. Senith	262
54.	AFFORDABLE BEAGLEBONE SOLUTION FOR PRECISE IRIG-B COUNTDOWN TIME SYNCHRONIZATION FOR SAFETY-CRITICAL APPLICATIONS Shazia Shanavas, Vipin V, Anandu A S, Reshmi S, Jathish JK, Ranjith K	267
55.	COMPARATIVE STUDY ON 45NM, 90NM AND 180NM 6T SRAM TECHNOLOGIES Nithin Kumar N.R., Sabitabratta Bhattacharya, S Lakshmi Narasimhan, Amogh R Naik, Rohanth Hari M	271
56.	COMPARATIVE STUDY ON 4-BIT ADDERS AND MULTIPLIERS WITH HARDWARE IMPLEMENTATION Sabitabratta Bhattacharya, S Lakshmi Narasimhan, Rohanth Hari M	276
57.	ANALYSIS OF THE NON-MONOTONIC DEPENDENCE OF FOM OF B-GA2O3 BASED JUNCTIONLESS FIELD EFFECT TRANSISTOR ON DOPING PROFILE LINEARITY IN THE DRIFT REGION V R Manukrishna, K S Nikhil	282

58.	QUANTUM DOT CELLULAR AUTOMATA FOR IMPROVED ADDER EFFICIENCY: A PERFORMANCE EVALUATION WITH CMOS Ashwini Priya S, Harini D, Priscila Lincoln, Sudharshana SR, Siva Mangai N.M, Aswathy N	287
59.	DESIGN AND ANALYSIS OF 4 BIT MULTIPLIERS USING PASS TRANSISTOR LOGIC AND GATE DIFFUSION INPUT TECHNIQUE USING 18NM FINFET TECHNOLOGY Pavithara P, Ramesh M, Prabu M, Kavin Kumar K, Ponmurugan P, Udaya Suriyan V	291
60.	DESIGN AND ANALYSIS OF WIDEBAND ANTENNA USING A NEW MTM SLOT FOR WIMAX/WI-FI/WLAN AND C-BAND APPLICATIONS K. Rani Rudrama, T. Devaraju, A. Prem Rathan, N. Chandra Sekhar	296
61.	A 3.5GHZ RECONFIGURABLE 2-STAGE CASCODE CMOS LNA WITH HPF NOISE MATCHING & BODY BIAS FOR 5G NR N78 BAND APPLICATIONS Hridhay Natanasubramanian, Chandana S, M. Bhaskar	301
62.	A COMPARATIVE REVIEW: PERFORMANCE PARAMETERS OF FIN, NANOWIRE AND NANOSHEET FIELD EFFECT TRANSISTORS ON 5NM NODE V.Karutharaja, N.B.Balamurugan, M.Suguna, D. Sriram Kumar	308
63.	ENHANCING DRAIN CURRENT PERFORMANCE OF ALGAN/GAN HEMT THROUGH GRADED ALGAN BARRIER M Keerthi, J Charles Pravin, B Mohan	313
64.	ANALYZING GA-POLAR AND N-POLAR GAN HEMTS: A COMPARATIVE STUDY FOR HIGH-POWER DC PERFORMANCE IN SEMICONDUCTOR APPLICATIONS B Mohan, J Charles Pravin, M Keerthi, P Prajoon	317