3.3.1

Link for Research Paper/Journal/Website/URL of the Print Journal (2020)

Greater Noida Institute of Technology (Engg. Institute)

Plot No. 7, Knowledge Park II, Greater Noida
Uttar Pradesh 201310 India

3.3.1 Number of research papers published per teacher in the Journals notified on UGC website during the last five years

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal / Digital Object Identifier (doi) number		
						Link to website of the Journal	Link to article / paper / abstract of the article	Is it listed in UGC Care list
Lead time for cities of Northern India by using multi parameter EEW algorithm	Rakhi Bhardwaj	ECE	International journal of Geophysics	2018	0908-6205	https://www.hindawi.com/journals/ijge/	https://doi.org/10.1155/2018/9086205	Yes
Experimental Investigation and Optimization of Process Parameters for Shear Strength of Compound Cast Bimetallic Joints	Sudhir Kumar	ME	Transactions of the Indian Institute of Metals	2018	0972-2815, 0975-1645	https://www.springer.com/journal/12666	https://doi.org/10.1007/s12666-018-1349-1	Yes
Experimental Investigation and Optimization of Process Parameters for Impact Strength of Compound Cast Bimetallic Joints	Sudhir Kumar	ME	International Journal of Metal casting	2018	2163-3193 1939-5981	https://www.springer.com/journal/40962	DOI 10.1007/s40962-017-0190-3	Yes
MICROSTRUCTURE EVALUATION, THERMAL AND MECHANICAL CHARACTERIZATION OF HYBRID METAL MATRIX COMPOSITE	Sudhir Kumar	ME	Journal of Science and Engineering of Composite Materials	2018	2191-0359	https://www.degruyter.com/journal/key/secm/html	https://doi.org/10.1515/secm-2017-0210	Yes
Characterization and microhardness evaluation of A356/Mg joint produced by vacuum assisted sand mold compound casting process	Sudhir Kumar	ME	International Journal of Metal Casting	2018	2163-3193 1939-5981	https://www.springer.com/journal/40962	https://doi.org/10.1007/s40962-018-0264-x	Yes
Experimental Investigation and Evaluation of Joint Strength of A356/Mg Bimetallic Fabricated Using Compound Casting Process	Sudhir Kumar	ME	International Journal of Metal casting	2018	2163-3193 1939-5981	https://www.springer.com/journal/40962	https://doi.org/10.1007/s40962-018-0288-2	Yes
New Dynamic Metrics Suite To Measure Complexity Of Component Based Software	Anjali Chaudhary	CSE	International Conference on Emerging Trends in Science, Engineering & Technology with VSRD International Journal of Technical and Non-technical Research Volume IX	2018	0976-7967	https://www.vsrdjournals.com/jms/home.php?ii=12	https://www.vsrdjournals.com/jms/home.php?ii=12	Yes
An efficient algorithm for CBIR using clustering techniques for large dataset	Monika Jain	CSE	IEEE Explore via conference published in IEEE Xplore	2018	NA	https://www.aconf.org/conf_147077/abstract.html	https://www.aconf.org/conf_147077/abstract.html	Yes
Analysis and Impact of Social Media and it's Privacy on Big Data	Shilpi Bansal	CSE	IEEE Explore via International Conference on Advances in Computing and Communication Engineering (ICACCE), Paris, 2018	2018	NA	https://www.aconf.org/conf_147077/abstract.html	https://www.aconf.org/conf_147077/abstract.html	Yes
Blockchain -the Technology of Crypto Currencies	Shilpi Bansal	CSE	IEEE Explore via International Conference on Advances in Computing and Communication Engineering (ICACCE), Paris, 2018	2018	NA	https://www.aconf.org/conf_147077/abstract.html	https://www.aconf.org/conf_147077/abstract.html	Yes
Study and comparison of performance of Shell and Tube Heat Exchanger with Two Numerical Methods	Navin Kumar	ME	International journal for research in applied science and engineering technology (IJRASET)	2018	2321-9653	https://www.ijraset.com/	https://www.ijraset.com/	Yes
A MIG welding testing on tensile and hardness using Taguchi method	Navin Kumar	ME	International journal of Advanced Research in Electronics and Communication Engineering (IJARECE)	2018	2278-909X	https://journals.indexcopernicus.com/journal/34390	https://journals.indexcopernicus.com/journal/34390	Yes
Performance enhancement for scale-up of Gas hydrate forming reactors using stirred tank reactors	Navin Kumar	ME	International journal of Advanced Research in Electronics and Communication Engineering (IJARECE)	2018	2278-909X	https://journals.indexcopernicus.com/journal/34390	https://journals.indexcopernicus.com/journal/34390	Yes
A review on phytoconstituents and medicinal properties of Emblica officinalis	Dipti Bharti	AS	Annals of Horticulture Journal	2018	0976-4623	https://www.indianjournals.com/ijor.aspx	10.5958/0976-4623.2018.00002.6	Yes
Air Quality Index Analysis and Solutions for High Traffic, Industrial and Residential Regions in Delhi/NCR	Tabish Quadri	CE	Journal of Advances and Scholarly Researches in Allied Education (JASRAE)	2019	2230-7540	http://ignited.in/J/JASRAE	http://ignited.in/J/JASRAE	Yes

SFDR Enhancement of 120o Phase Angle Based RoF Link by using Linear Polarizers	Shelly Garg	ECE	IEEE PhotonicsTechnologyLetters,	2019	1041-1135	https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=68	10.1109/lpt.2019.2904726	Yes
Mitigating the effects of non linear distortion using polarizers in microwave photonic link	Shelly Garg	ECE	Journal of Optical Communication	2019	2191-6322	https://www.degruyter.com/journal/key/joc/html	https://doi.org/10.1515/joc-2019-0244	Yes
SNDR Optimization of Linearized Mach Zehender Modulator For Multi-Tone RoF System	Shelly Garg	ECE	Journal of Optics, SpringerScience,	2019	0974-6900 0972-8821	https://www.springer.com/journal/12596	https://doi.org/10.1007/s12596-019-00524-2	Yes
Intercultural Competence In Lahiri's 'Hell Heaven'	Shivani Kaul	ASHU	THINK INDIA JOURNAL	2022	0971-1260	Think India Journal (thinkindiaquarterly.org)	Think India Journal (thinkindiaquarterly.org)	Yes
Ball Pen Ink level Indicator	YATIN KUMAR AGARWAL	CSE	IJRTE	2019	2277-3878	https://thinkindiaquarterly.org/	Think India Journal (thinkindiaquarterly.org)	Yes
Multiple Object Detection and Tracking	YATIN KUMAR AGARWAL	CSE	IJRECE	2019	2393-9028	http://www.i2or-ijrece.com/	http://www.i2or-ijrece.com/	Yes
A Review: Cryptography and Steganography for data hiding in images	YATIN KUMAR AGARWAL	CSE	JETIR	2019	2349-5162	http://www.i2or-ijrece.com/	http://www.i2or-ijrece.com/	Yes
Online retreival and indexing of images using multi feature vectors	YATIN KUMAR AGARWAL	CSE	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	2019	2349-5162	https://www.ijitee.org/	https://www.ijitee.org/	Yes
Systemetic analysis of semantic web search based on ontology modeling and its search engines	ARUN MITTAL	CSE	JETIR	2019	2349-5162	http://www.i2or-ijrece.com/	http://www.i2or-ijrece.com/	Yes
Self-optimization in LTE: An Approach to Reduce Call Drops in Mobile Network	Divya Mishra	CSE	FTNCT 2018, Springer (CCIS Series)	2019	1865-0929 1865-0937	https://link.springer.com/book/10.1007/978-981-13-3804-5	https://link.springer.com/book/10.1007/978-981-13-3804-6	Yes
Performance Enhanced and Improvised Approach to Reduce Call Drops Using LTE-SON	Divya Mishra	CSE	RAACE 2017, Springer (Singapore)	2019	978-981-32-9584-1	https://link.springer.com/book/10.1007/978-981-32-9585-8	https://doi.org/10.1007/978-981-32-9585-8_15	Yes
Fine tuning of MapReduce jobs using parallel K Map clustering	Divya Mishra	CSE	Journal of Emerging Technologies and Innovative Research (UGC)	2019	2349-5162	https://www.jetir.org/	https://www.jetir.org/	Yes
Automated Car Parking with Empty Slot Detection Using IoT	Shilpi Bansal	CSE	International Conference on Advances in Engineering Science Management & Technology (ICAESMT) - 2019,Uttaranchal University, Dehradun, India.	2019	NA	https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3403921	https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3403921	Yes
A Review on Software Effort Estimation Techniques	Dhwani Agrawal	CSE	International Research Journal of Management Science and Technology	2019	2395-0072	https://www.irjet.net/	https://www.irjet.net/archives/V6/i4/IRJET-V6I41063.pdf	Yes
An Evolution on Software Effort Estimation Techniques	Abhishek Singh	CSE	International Research Journal of Management Science and Technology	2019	2250-1959 2348-9367	http://www.irjmst.com/	http://www.irjmst.com/	Yes
A Review on Software Effort Estimation Techniques	Reena Chaudhary	CSE	International Research Journal of Management Science and Technology	2019	2250-1959 2348-9367	http://www.irjmst.com/	http://www.irjmst.com/	Yes
A Review on Software Effort Estimation Techniques	Rashmi Chaudhary	CSE	International Research Journal of Management Science and Technology	2019	2250-1959 2348-9367	http://www.irjmst.com/	http://www.irjmst.com/	Yes
Prediction Analysis Techniques of Data Mining: A Review	Rajiva Ranjan Divivedi	CSE	International Conference on Advance Computing and Software Engineering ICACSE-2019 Organized by Kamla Nehru Institute of Technology Sultanpur.	2019	NA	NA	NA	Yes
Classification Technique for Heart Disease Prediction in Data Mining	Rajiva Ranjan Divivedi	CSE	International Journal of Recent Technology and Engineering (IJRTE)	2019	2277-3878	https://www.ijrte.org/	https://www.ijrte.org/	Yes
SARLA - A 3-TIER ARCHITECTURAL FRAMEWORK BASED ON THE ACO FOR THE PROBABLISTIC ANALYSIS OF THE REGRESSION TEST CASE SELECTION AND THEIR PRIORITIZATION	Neha Kashyap	CSE	International Conference on Advancements in Computing & Management (ICACM-2019) SSRN	2019	NA	NA	NA	Yes
Audio Steganography using ASCII Code and GA	Amba	CSE	ICTUS 2017, DUBAI	2019	NA	NA	NA	Yes

Development and comparison of tensile and compressive strength and percentage shrinkage of glass-jute hybrid fibre reinforced polymer composites	Navin Kumar	ME	IOP Journal of Physics: Conference series	2019	1742-6596	https://iopscience.iop.org/journal/1742-6596	DOI 10.1088/1742-6596/1240/1/012123	Yes
Analytical study on any gate logic function as a pull-up network of pMOS transistors and a pull down tetwork of nMOS transistors	Navin Kumar	ME	IOP Journal of Physics: Conference series	2019	0094-243X (PRINT) 1551-7616 (WEB)	https://pubs.aip.org/aip/acp	https://doi.org/10.1063/1.5122363	Yes
Study on transistors transistors logic with reference to their circuits and noise margin	Navin Kumar	ME	ICABS 2019 ,International conference held at GDC memorial college, Behal, Bhiwani, HR	2019	NA	NA	NA	Yes
Role of Fe2O3 and MoO3 content on optical properties of lead borate glasses	Navin Kumar	ME	AIP Conference Proceedings	2019	0094-243X (PRINT) 1551-7616 (WEB)	https://pubs.aip.org/aip/acp	https://doi.org/10.1063/1.5122426	Yes
Synergistic Effects of Some Medicinal Plants and Transition Metal Ferrocyanides on Some Selected Fungus	Dipti Bharti	ASH	Journal of Pharmacognosy and Phytochemistry	2019	2278-4136	https://www.phytojournal.com/	https://www.phytojournal.com/	Yes
Adsorption of hazardous dye crystal violet from industrial waste using low cost adsorbent Chenopodium album	Dipti Bharti	ASH	Desalination and Water Treatment	2019	1944-3986	https://www.deswater.com/home.php	doi: 10.5004/dwt.2019.24595	Yes
A Novel Cryptographic Data Security Approach for Banking Industry to Adopt Cloud Computin	Anuranjan Misra	CSE	International Journal of Recent Technology and Engineering (IJRTE)	2019	2277-3878	https://www.jetir.org/	https://www.jetir.org/	Yes
Linearization of Photonic Link Based on Phase-Controlled Dual Drive Dual-Parallel Mach–Zehnder Modulator	Shelly Garg	ECE	Wireless Personal Communications	2020	0929-6212	https://www.springer.com/journal/11277	https://doi.org/10.1007/s11277-020-07351-w	Yes
Cooperative Spectrum Sensing Optimization Using Meta-heuristic Algorithms	Vivek Gupta	ECE	Wireless Personal Communications	2020	0929-6212	https://www.springer.com/journal/11277	https://doi.org/10.1007/s11277-020-07290-6	Yes
Bio – Inspired Optimal Weighted Fusion in Cooperative Spectrum Sensing For Cognitive Radio	Vivek Gupta	ECE	International Journal of Advanced Science and Technology	2020	2005-4238	http://sersc.org/journals/index.php/IJAST/index	http://sersc.org/journals/index.php/IJAST/index	Yes
Conventional Combining Scheme in Cooperative Spectrum Sensing	Vivek Gupta	ECE	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	2020	2278-3075	https://www.ijitee.org/	https://www.ijitee.org/	Yes
Third Order Intermodulation Power Variations Of Radio Over Fiber Link By Employing Mzm And Dd-Mzm Modulator	Shelly Garg	ECE	Telecommunications and Radio Engineering	2020	0040-2508 1943-6009	https://www.dl.begellhouse.com/journals/0632a9d54950b268.html	DOI: 10.1615/TelecomRadEng.v79.i14.40	Yes
Dynamic Range Measurement Of Radio Over Fiber Link By Employing 120° Phase Shift Method	Shelly Garg	ECE	Telecommunications and Radio Engineering	2020	0040-2508 1943-6009	https://www.dl.begellhouse.com/journals/0632a9d54950b268.html	DOI: 10.1615/TelecomRadEng.v79.i2.20	Yes
Analysis And Implementation FPGA Implementation For Image Processing Algorithm.	Shelly Garg	ECE	Journal of Critical Reviews	2020	ISSN- 2394-5125	https://www.jcreview.com/index.php	doi: 10.31838/jcr.07.14.514	Yes
Performance Comparison Of High Speed And Low Power Forward Error Correction (Fec) Through Viterbi Decode Communication Channel Through Xilinx.	Shelly Garg	ECE	Journal of Critical Reviews	2020	ISSN- 2394-5125	https://www.jcreview.com/index.php	doi: 10.31838/jcr.07.13.517	Yes
Implementation of PID Controller Using An FPGA	Shelly Garg	ECE	Journal of Critical Reviews	2020	ISSN- 2394-5125	https://www.jcreview.com/index.php	https://www.jcreview.com/admin/Uploads/Files/61b3143f450950.95102316.	Yes
A Novel Hybrid Fuzzy PD-TID Controller for Load Frequency Control of a Standalone Microgrid	Bhuvnesh Khokhar	EE	Arabian Journal for Science and Engineering	2020	ISSN-2193-567X	https://www.springer.com/journal/13369/	https://doi.org/10.1007/s13369-020-04761-7	Yes
A novel fractional order proportional integral derivative plus second-order derivative controller for load frequency control	Bhuvnesh Khokhar	EE	International Journal of Sustainable Energy	2020	1478-6451	https://www.tandfonline.com/journals/gsol20	10.1080/14786451.2020.1803861	Yes
A Robust Cascade Controller for Load Frequency Control of a Standalone Microgrid Incorporating Electric Vehicles	Bhuvnesh Khokhar	EE	Electric Power Components and Systems	2020	1532-5008	https://www.tandfonline.com/toc/uemp20/current	10.1080/15325008.2020.1797936	Yes
Nuglets: A Virtual Currency	Dhwani Agrawal	CSE	International Research Journal of Engineering & Technology	2020	2395-0072 2395-0056	https://www.irjet.net/	NA	Yes
Nuglets: A Virtual Currency	Abhishek Singh	CSE	International Research Journal of Engineering & Technology (IRJET)	2020	2395-0072 2395-0056	https://www.irjet.net/	NA	Yes

A Survey on Various Machine Learning Algorithms	Dhwani Agrawal	CSE	International Research Journal of Engineering & Technology	2020	2395-0072 2395-0056	https://www.irjet.net/	NA	Yes
A Survey on Various Machine Learning Algorithms	Abhishek Singh	CSE	International Research Journal of Engineering & Technology	2020	2395-0072 2395-0056	https://www.irjet.net/	NA	Yes
Removal of crystal voilet from aqueous solution using iron based metal organic framwork	Dipti bharti	ASH	Desalination and water Treatment	2020	1944-3994	https://www.deswater.com/	10.5004/dwt.2020.26387	Yes
A Study on Coal Ash Slurry Flow at Higher Solid Concentrations in Pipeline	Navin Kumar	ME	Proceedings of International Conference in Mechanical and Energy Technology pp 817-822	2020	ISBN 978-981-15-2647-3	https://link.springer.com/book/10.1007/978-981-15-2647-3	https://link.springer.com/chapter/10.1007/978-981-15-2647-3_77	Yes
Optimization of process parameters of A-359 aluminium alloy in EPS-assisted-investment casting process using Taguchi method	Girendra Bhati	ME	IOP Conference Series: Materials Science and Engineering	2020	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/804/1/012020	Yes
Antimicrobial Potential of Some Selected Medicinal Plants Collected from Himachal Pradesh	Dipti Bharti	AS	Research Journal of Chemistry and Environment	2020	0972-0626	https://ores.su/en/journals/research-journal-of-chemistry-and-environment/	NA	Yes
Post Quantum Cryptography: A Literature Review	Shipra Srivastava	IT	Shodh Sarita	2020	0974-5823	https://kalaharijournals.com/ijme.php	NA	Yes
A study and Comarative analysis of some advanced symmetric Block Cipher Techniques	Shipra Srivastava	IT	International Journal of Creative Research Thoughts	2020	2320-2882	www.ijert.org	NA	Yes
"Medical Image Security Analysis and Enhancement for Telemedicine Applications"	V.K.PALLAW	MCA	European Journal of Molecular & Clinical Medicine	2020	2515-8260	https://ejmcm.com	NA	Yes
Risk Management in Metro Rail Construction Case Study : Delhi Metro Corridor from Kalkaji to Botanical Garden	Tabish Quadri	CE	INTERNATIONAL RESEARCH JOURNAL OF ENGINEERING AND TECHNOLOGY (IRJET)	2020	ISSN: 2395-0056	https://www.irjet.net/	NA	Yes
A Prototype for Data Integrity in Cloud Environmen	Anuranjan Misra	CSE	EAI Endorsed Transactions on Cloud Systems	2020	2410-6895	https://eudl.eu/	doi/10.4108/eai.7-9-2020.166287	Yes
Blockchain Enabled E-Voting System	Anuranjan Misra	CSE	Dogo Rangsang Research Journal	2020	2347-7180	https://www.journal-dogorangsang.in/	NA	Yes
A Comparative Study on the Seismic and Cost Analysis of RCC and Composite Structure in India	Anuj Sharma	CE	International Journal of All Research Education & Scientific Methods	2020	2455-6211	http://www.ijaresm.com/	NA	Yes
Rigid Triaxial Rotor Model Description of yy-Band in Some Even Nuclei	Moti Singh	ASHU	Physics of Particles and Nuclei Letters, Springer	2021	1547-4771	https://www.springer.com/journal/11497	https://doi.org/10.1134/S154747712202011X	Yes
Using Waste Polymer for Soil Stabilization	Taranpreet Kaur	CE	International Journal of Innovative Science and Research Technology	2021	2456-2165	https://www.ijisrt.com/	NA	Yes
Soil Stabilization Using Plastic Chips, Granules & Sugarcane Bagasse Ash Mixture	Arvind Kumar	CE	International Journal for Research in Applied Science & Engineering Technology (IJRASET)	2021	2321-9653	https://www.ijraset.com/	NA	Yes
Comparison of Concrete made through TSMA using Metakaolin and GGBS vs Normal Concrete made through NMA	Anuj Sharma	CE	International Research Journal of Engineering and Technology (IRJET)	2021	2395-0072	https://www.irjet.net/	NA	Yes
Dynamic Analysis of G+15 Multi-storied RCC Commercial Buildings with Different Plan Configuration in Seismic Zone V using ETABS 2018	Anuj Sharma	CE	International Research Journal of Engineering and Technology (IRJET)	2021	2395-0072	https://www.irjet.net/	NA	Yes
Evaluation on Risk Assessment on Indoor Air Pollution: A Case Study of Delhi-NCR Region	Tarun Kumar	CE	IOP Conf. Series: Earth and Environmental Science 796 (2021) 012055	2021	NA	https://iopscience.iop.org/journal/1755-1315	doi:10.1088/1755-1315/796/1/012055	Yes
Influence of Incorporating Industrial Byproducts/Wastes on Mechanical Properties and Durability Characteristics of Self-Consolidating Concrete: A Review	Rajesh Kumar Sharma, Saurav Yadav	CE	Recent Trends in Industrial and Production Engineering, Springer	2021	ISBN: 978-981-16-3330-0	https://link.springer.com/book/10.1007/978-981-16-3330-0	https://link.springer.com/chapter/10.1007%2F978-981-16-3330-0_16	Yes
Load frequency control of a microgrid employing a 2D Sine Logistic map based chaotic sine cosine algorithm	Bhuvnesh Khokhar	EE	ELSEVIER	2021	1568-4946	https://www.sciencedirect.com/journal/applied-soft-computing	https://doi.org/10.1016/j.asoc.2021.107564	Yes

An Application of Analytical Hierarchy Process in Selection of Coating Material Composition in Lost Foam Casting Process	Gagan Varshney	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012010	Yes
An Application of Analytical Hierarchy Process in Selection of Coating Material Composition in Lost Foam Casting Process	Syed Qaisar Husain	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012010	Yes
An Application of Analytical Hierarchy Process in Selection of Coating Material Composition in Lost Foam Casting Process	Avinash Ravi Raja	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012010	Yes
An Application of Analytical Hierarchy Process in Selection of Coating Material Composition in Lost Foam Casting Process	Girendra Bhati	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012010	Yes
Application of thermal spraying process in advancement of welding Technology	Syed Qaisar Husain	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012021	Yes
Application of thermal spraying process in advancement of welding Technology	Gagan Varshney	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012021	Yes
Application of thermal spraying process in advancement of welding Technology	Girendra Bhati	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012021	Yes
Application of thermal spraying process in advancement of welding Technology	Avinash Ravi Raja	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012021	Yes
Estimation of temperature during TIG welding of titanium	Avinash Ravi Raja	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012023	Yes
Estimation of temperature during TIG welding of titanium	Anuj Dixit	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012023	Yes
Estimation of temperature during TIG welding of titanium	Syed Qaisar Husain	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012023	Yes
Estimation of temperature during TIG welding of titanium	Gagan Varshney	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012023	Yes
High-efficiency thermodynamic cycles for Kalina power generation systems: A comprehensive review	Alok Manas Dubey	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012030	Yes
Optimization of FDM 3D printing process parameters using Taguchi technique	M S Rawat	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012022	Yes
Optimization of FDM 3D printing process parameters using Taguchi technique	Kapil Kumar	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012022	Yes
Optimization of FDM 3D printing process parameters using Taguchi technique	Kumar Rishi Singh	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012022	Yes
Heat Transfer Analysis And Optimisation Of 2-Wheeler Engine Cyclinder Head Fins Using FEA	Avinash Ravi Raja	ME	IOP Conf. Series: Materials Science and Engineering	2021	1757-899X	https://iopscience.iop.org/journal/1757-899X	doi:10.1088/1757-899X/1168/1/012012	Yes
Designing E-learning Portal: How Academics come efficiently into Practice	Shipra Srivastava	IT	IJCRT	2021	2320-2882	https://ijcrt.org	https://ijcrt.org/viewfull.php?&p_id=IJCRT2106487	Yes
Lightweight Cloud Storage Auditing With Deduplication Supporting Strong Privacy Protection	Shipra Srivastava	IT	IJCRT	2021	2320-2882	https://www.ijcrt.org	https://www.ijcrt.org/papers/IJCRT2103474.pdf	Yes
Used car price prediction	Ramveer Singh	IT	IJARIIT	2021	2454-132X	https://www.ijariit.com	https://www.ijariit.com/manuscript/used-car-price-prediction/	Yes
Used car price prediction	Shipra Srivastava	IT	IJARIIT	2021	2454-132X	https://www.ijariit.com	https://www.ijariit.com/manuscript/used-car-price-prediction/	Yes
Next Generation AI based Virtual	Shipra Srivastava	IT	IJRASET	2021	2321-9653	https://www.ijraset.com	https://www.ijraset.com/fileserve.php?FID=33663	Yes
GANAKA: WEB BROWSER	Shipra Srivastava	IT	IRJET	2021	2395-0056	https://www.irjet.net	https://www.irjet.net/archives/V8/i7/IRJET-V8I7327.pdf	Yes
Security and Automation using Raspberry Pi and Arduino for Home	Shipra Srivastava	IT	IRJET	2021	2395-0056	https://www.irjet.net	https://www.irjet.net/archives/V8/i7/IRJET-V8I7232.pdf	Yes
A Novel Approach Based on EMD to improve the Performance of SSVEP Based BCI System	MUKESH kUMAR OJHA	ECE	Wireless Personal Communication	2021	2455–2467	https://www.springer.com/journal/11277	https://doi.org/10.1007/s11277-021-08135-6	Yes

An explicit output current-mode quadrature sinusoidal oscillator and a universal filter employing only grounded passive components- A minimal realization	Shiv Narain Gupta	ECE	Advances in Electrical and Electronic Engineering	2021	1804-3119	http://advances.utc.sk/index.php/AEEE	10.15598/aeee.v19i3.4121	Yes
Big Data Security Problem and Its Solution	Anuranjan Misra	CSE	International Journal of Engineering and Advanced Technology (IJEAT)	2021	2249-8958	https://www.ijeat.org/	NA	Yes
Importance of Security in Big Data Log Files on Cloud	Anuranjan Misra	CSE	International Journal of Engineering and Advanced Technology (IJEAT)	2021	2249-8958	https://www.ijeat.org/	NA	Yes
Queing Theory: Effective and Efficient Tool to Reduce the Waiting Time in Hospital	Shikha Srivastava	ASH	International journal of analytical and experimental modal analysis	2021	0886-9367	https://ijaema.com/	DOI:18.0002.IJAEMA.2021.V13I6.200001.015685903002	Yes
Queing Theory: Effective and Efficient Tool to Reduce the Waiting Time in Hospital	Renu Kaushik	ASH	International journal of analytical and experimental modal analysis	2021	0886-9367	https://ijaema.com/	DOI:18.0002.IJAEMA.2021.V13I6.200001.015685903002	Yes
IMPACT OF COVID – 19 ON INDIAN EDUCATION SYSTEM: A STUDY WITH SPECIAL REFERENCE TO GREATER NOIDA SCHOOLS AND COLLEGES	Renu Kaushik	ASH	International journal of analytical and experimental modal analysis	2021	0886-9367	https://ijaema.com/	DOI:18.0002.IJAEMA.2022.V14I05.200001.015685971377	Yes
IMPACT OF COVID – 19 ON INDIAN EDUCATION SYSTEM: A STUDY WITH SPECIAL REFERENCE TO GREATER NOIDA SCHOOLS AND COLLEGES	Shikha Srivastava	ASH	International journal of analytical and experimental modal analysis	2021	0886-9367	https://ijaema.com/	DOI:18.0002.IJAEMA.2022.V14I05.200001.015685971377	Yes
EFFECT OF QUEUING THEORY APPLICATION: WITH SPECIAL REFERENCE OF BANKING SECTOR	Renu Kaushik	ASH	International journal of analytical and experimental modal analysis	2021	0886-9367	https://ijaema.com/	DOI:18.0002.IJAEMA.2021.V13I8.200001.01568590499	Yes
Study of mechanical properties of pultruded Jute-glass reinforced unsaturated polyester bio- composites with hybrid filler loading	Navin Kumar	ME	World Journal of Engineering	2021	1708-5284	https://www.emerald.com	https://www.emerald.com/insight/content/doi/10.1108/WJE-04-2020-0127/full/html	Yes
Tribological characterization of pultruded hybrid glass-jute fibre reinforced plastic composites from room tempearture to 75.C	Navin Kumar	ME	World JournalofEngineering	2021	1708-5284	https://www.emerald.com	https://www.emerald.com/insight/content/doi/10.1108/WJE-03-2021-0147/full/html?utm_source=rss&utm_medium=feed&utm_campaign=rss_journalLatest	Yes
parametric optimization of friction stir processing on micro hardness of Al/B4C composite	Kapil Kumar	ME	International Journal of Materials Research	2021	2195-8556	https://www.degruyter.com/journal/key/ijmr/html	https://doi.org/10.1515/ijmr-2020-8027	Yes
Scheduling in Fog Computing: A Survey	Navin Kumar	ME	Design Engineering	2021	0011-9342	NA	NA	Yes
Study on Effect of variation of Goographical and Climatic Conditions on Chemical Constituents and Biological Activity of Emblica officinalis	Dipti Bharti	AS	Research Journal of Chemistry and Environment	2021	0972-0626	https://ores.su/en/journals/research-journal-of-chemistry-and-environment/	DOI:10.25303/2510rjce114120	Yes
PM2.5 AND PM10: EXISTANCE, TREATMENT AND PROBLEMS	Anuj Sharma	CE	Journal of Emerging Technologies and Innovative Research (JETIR)	2021	2349-5162	https://www.jetir.org/v	NA	Yes
Semiconductor devices	Dr. Dhiraj Gupta, Nikhil Gupta	EE	Journal of Innovative Science and Research Technology	2021	2456-2165	https://www.ijisrt.com	NA	Yes
Vehicle Accident Spotting and Rescue System using Internet of Things	Nikhil Gupta	EE	International Research Journal of Engineering and Technology (IRJET)	2021	2395-0056	https://www.irjet.net	NA	Yes
Enhancement in properties of concrete by Silica fumes.	Arvind Kumar	CE	International Research Journal of Engineering and Technology (IRJET)	2022	2395-0056	https://www.irjet.net/	NA	Yes
Study of Bond Ash Properties of Concrete utilizing Fly Ash, Marble and Granite Powder	Shreeja Kacker	CE	International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET);	2022	2319-8753 2320-6710	http://www.ijirset.com/	NA	Yes
Design of Road & Transportation System in Surjkund Area (Faridabad)	Shreeja Kacker	CE	International Journal of All Research Education & Scientific Methods	2022	ISSN: 2455-6211	https://www.citefactor.org	NA	Yes
Optimum Replacement of Coarse Aggregate by Steel Slag and Fie Aggregate by Waste Glass Powder	Shreeja Kacker	CE	International Research Journal of Engineering and Technology (IRJET)	2022	2395-0056	https://www.irjet.net/	NA	Yes

Effect of Steel Fibre and Marble Dust on the Mechanical Properties of High Strength Concrete (HSC)	Anuj Sharma	CE	International Research Journal of Engineering and Technology (IRJET)	2022	2395-0056	https://www.irjet.net/	NA	Yes
Design & Development of Maglev Girder Bridge & Vehicle	Anuj Sharma	CE	International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET);	2022	2319-8753 2320-6710	http://www.ijirset.com/	NA	Yes
Manufacturing of Bricks with Solid Waste	Tabish Quadri	CE	International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET);	2022	2319-8753 2320-6710	http://www.ijirset.com/	NA	Yes
A Study on Plastic Waste for Replacement of Coarse Aggregate with Soft and Hard Plastic in Concrete	Saurav Yadav	CE	International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET);	2022	2319-8753 2320-6710	http://www.ijirset.com/	NA	Yes
Load Frequency Control of a Multi-Microgrid System Incorporating Electric Vehicles	Bhuvnesh Khokhar	EE	Electric Power Components & Systems, Taylor & Francis	2022	1532-5008	https://www.tandfonline.com/journals/uemp20	https://doi.org/10.1080/15325008.2022.2049648	Yes
Detection of SSVEP Frequency component using Filter Bank Approach for EEG Based BCI System	Mukesh Kumar Ojha	ECE	Neuroquantology	2022	1303-5150	https://www.neuroquantology.com	https://10.14704/nq.2022.20.6.NQQ22359	Yes
Detection of SSVEP Frequency component using Filter Bank Approach for EEG Based BCI System	Dhiraj Gupta	ECE	Neuroquantology	2022	1303-5150	https://www.neuroquantology.com	https://10.14704/nq.2022.20.6.NQQ22359	Yes
Detection of SSVEP Frequency component using Filter Bank Approach for EEG Based BCI System	Priyesh Tiwari	ECE	Neuroquantology	2022	1303-5150	https://www.neuroquantology.com	https://10.14704/nq.2022.20.6.NQQ22359	Yes
Cuckoo Search Constrained Gamma Masking for MRI Image Detail Enhancement (SCIE, SCOPUS)	Mukesh Kumar Ojha	ECE	Traitement du Signal, IIETA	2022	0765-0019, 1958-5608	https://www.iieta.org/	https://doi.org/10.18280/ts.390433	Yes
Cuckoo Search Constrained Gamma Masking for MRI Image Detail Enhancement	Dhiraj Gupta	ECE	Traitement du Signal, IIETA	2022	0765-0019, 1958-5608	https://www.iieta.org/	https://doi.org/10.18280/ts.390433	Yes
Cuckoo Search Constrained Gamma Masking for MRI Image Detail Enhancement	Priyesh Tiwari	ECE	Traitement du Signal, IIETA	2022	0765-0019, 1958-5608	https://www.iieta.org/	https://doi.org/10.18280/ts.390433	Yes
Relative Result and Design Analysis of SPV Tracking System on Simulink Platform	Priyesh Tiwari	ECE	ADBU Journal of Engineering Technology (AJET)	2022	2348-7305	https://journals.dbuniversity.ac.in/ojs/index.php/AJET/index	https://journals.dbuniversity.ac.in/ojs/index.php/AJET/article/view/3611	Yes
Predicting Carbon Residual in Biomass Wastes Using Soft Computing Techniques	Preety Verma	CSE	Adsorption Science & Technology	2022	0263-6174, 2048-4038	https://www.hindawi.com/journals/ast/	https://doi.org/10.1155/2022/8107196	Yes
Service Providers for Home Appliances	Indradeep Verma	CS-IoT	Journal of Positive School Psycology	2022	2717-7564	https://journalppw.com/index.php/jpsp	NA	Yes
Green Manufacturing: An Insight	Iqbal Ahmend Khan	ME	GIS Science Journal	2022	1869-9391	https://gisscience.net/	NA	Yes
A new CMOS compatible high performance first-order all-pass filter realisation	Shiv Narain Gupta	ECE	Australian Journal of Electrical and Electronics Engineering	2022	2205-362X	https://www.tandfonline.com/journals/tele20	https://doi.org/10.1080/1448837X.2022.2068487	Yes
First Order Mixed Mode MOS-C All-Pass Frequency Selective Analog Network with Electronic Tuning	Shiv Narain Gupta	ECE	Walailak Journal of Science and Technology	2022	2774-0226	https://tis.wu.ac.th/index.php/tis/index	https://doi.org/10.48048/tis.2022.4616	Yes
CMOS Transistors based First-Order Voltage-Mode All-pass Filter with Tunable Transformation Possibility	Shiv Narain Gupta	ECE	Journal of Circuits, Systems, and Computers	2022	1793-6454	https://www.worldscientific.com/worldscinet/jcsc	https://doi.org/10.1142/S0218126622502942	Yes
Treatment of thyroid disease through machine learning predictive model	Ajay Kumar Sahu	IT	International Journal of Health Sciences	2022	2550-6978 2550-696X	https://sciencescholar.us/journal/index.php/ijhs/index	https://doi.org/10.53730/ijhs.v6nS8.12813	Yes
Treatment of thyroid disease through machine learning predictive model	Shivani Dubey	IT	International Journal of Health Sciences	2022	2550-6978 2550-696X	https://sciencescholar.us/journal/index.php/ijhs/index	https://doi.org/10.53730/ijhs.v6nS8.12813	Yes
Analysis of Stock Market Prediction by using PSO Algorithm Optimizing LS- SVM	Shivani Dubey	IT	International Journal of Computer Sciences and Engineering	2022	2347-2693	https://www.ijcseonline.org/	https://doi.org/10.26438/ijcse/v10i2.2630	Yes
Analysis of Stock Market Prediction by using PSO Algorithm Optimizing LS- SVM	Amit kumar agrawal	CSE-AIML	International Journal of Computer Sciences and Engineering	2022	2347-2693	https://www.ijcseonline.org/	https://doi.org/10.26438/ijcse/v10i2.2630	Yes
Implementation of IoT based Automatic Street light illumination by using IR sensor	Shivani Dubey	IT	GIS Science Journal	2022	1869-9391	https://gisscience.net/	NA	Yes
Case Study: An Efficient Survey on Security Analysis of Social Networking	Shipra Srivastava	IT	TCS transactions	2022	1938-6737 1938-5862	https://iopscience.iop.org/journal/1938-5862	DOI:10.1149/10701.15533ecst	Yes
Production of Ethanol From Jaggery	Syed Qaisar Husain	ME	International Journal for Research in Applied Science & Engineering Technology IJRASET	2022	2321-9653	https://www.ijraset.com/	NA	Yes

A survey on Crane wire rope Failure	Syed Qaisar Husain	ME	International journal of recent Technology Science and Management	2022	2455-9679	http://sjifactor.com/passport.php?id=19039	NA	Yes
A survey on Crane wire rope Failure	Avinash Ravi Raja	ME	International journal of recent Technology Science and Management	2022	2455-9679	http://sjifactor.com/passport.php?id=19039	NA	Yes
Design and Analysis on Crane wire ropes by Using FEA methods	Syed Qaisar Husain	ME	International journal of recent Technology Science and Management	2022	2455-9679	http://sjifactor.com/passport.php?id=19039	NA	Yes
Design and Analysis on Crane wire ropes by Using FEA methods	Avinash Ravi Raja	ME	International journal of recent Technology Science and Management	2022	2455-9679	http://sjifactor.com/passport.php?id=19039	NA	Yes
MIMO Antennas: Design Approaches, Techniques and Applications	Preeti Sharma	ASHU	MDPI, SENSOR	2022	1424-8220	https://www.mdpi.com/journal/sensors	doi.org/10.3390/s22207813	Yes
Dual-band trident shaped MIMO antenna with novel ground plane for 5G applications	Preeti Sharma	ASHU	AEU - International Journal of Electronics and Communications	2022	1434-8411 1618-0399	https://www.sciencedirect.com/journal/aeu-international-journal-of-electronics-and-communications	doi.org/10.1016/j.aeue.2022.154364	Yes
Automated Health Monitoring System Using GSM and IOT	Akshika Jain	CSE-AIML	International Journal of Scientific Research in Computer Science, Engineering and Information Technology	2022	2456-3307	https://ijsrcseit.com/	doi : https://doi.org/10.32628/CSEIT228126	Yes
Emotions specified Automatic Report Generator for Psychiatrist	Pooja Sharma	CSE-AIML	International Journal of Scientific Development and Research	2022	2455-2631	www.ijsdr.org	www.ijsdr.org	Yes
Implementation of IoT based Automatic Street light illumination by using IR sensor	Shivani Dubey	CSE-AIML	GIS Science Journal	2022	1869-9391	https://gisscience.net/	https://gisscience.net/	Yes
Automated Irrigation System for monitoring the Soil Moisture Content via Automatic Watering by using Microcontroller Node MCA ESP8266	Shivani Dubey	CSE-AIML	Journal of Emerging Technologies and Innovative Research	2022	2349-5162	www.jetir.org	www.jetir.org	Yes
Multi-Resolution based Singular Value decomposition approach for Breast Cancer Image Classification	Vijay Shukla	CSE	BioMd Research International Journal, Q2, Indexing in Web of Science, SCIE, Scopus (Publisher: Hindwai)	2022	NA	https://pubmed.ncbi.nlm.nih.gov/	https://www.hindawi.com/journals/bmri/2022/6392206/	Yes
Design and Optimization of 4-Bit Array Multiplier with Adiabatic Logic Using 65 nm CMOS Technologies	Mukesh Ojha	ECE	IETE Technical Review	2022	2307-1877	https://www.tandfonline.com/journals/tijr20	https://doi.org/10.1080/03772063.2023.2204857	Yes
X-Ray Image Authentication Scheme Using SLT and Contourlet Transform for Modern Healthcare System	V. K. PALLAW	MCA	Journal of Universal Computer Science (SCI IF-1.05).	2022	0948-6968	https://academic-accelerator.com/Impact-of-Journal/Journal-of-Universal-Computer-Science	103897/jucs.94132	Yes
A Novel adaptive intelligent MPC scheme for frequency stabilization of a microgrid considering SoC control of EVs	Bhuvnesh Khokhar	EE	Applied Energy	2022	0306-2619	https://www.sciencedirect.com/journal/applied-energy	doi.org/10.1016/j.apenergy.2021.118423	Yes
Smart Chatbot	Sonam Sirohi	ECE	Journal of Emerging Technologies and Innovative Research (JETIR)	2022	2349-5162	https://www.jetir.org/	https://www.jetir.org/	Yes
Removal of Error by finding deffect in RGB image	Anil Kumar Debey	ECE	Journal of Emerging Technologies and Innovative Research (JETIR)	2022	2349-5162	https://www.jetir.org/	https://www.jetir.org/	Yes
Face Mask Detection	Shiv Narain Gupta	ECE	Journal of Emerging Technologies and Innovative Research (JETIR)	2022	2349-5162	https://www.jetir.org/	https://www.jetir.org/	Yes
Plant Disease Detection Using Machine Learning	Shiv Narain Gupta	ECE	Journal of Emerging Technologies and Innovative Research (JETIR)	2022	2349-5162	https://www.jetir.org/	https://www.jetir.org/	Yes
AI Based Chess Engine	Anil Kumar Debey	ECE	Journal of Emerging Technologies and Innovative Research (JETIR)	2022	2349-5162	https://www.jetir.org/	https://www.jetir.org/	Yes
Real-Time Face Recognition using openCV	Anil Kumar Debey	ECE	Journal of Emerging Technologies and Innovative Research (JETIR)	2022	2349-5162	https://www.jetir.org/	https://www.jetir.org/	Yes
ROAD SAFETY PLAN FOR HAIRPIN CURVES	Sushant Kumar	CE	International Research Journal of Engineering and Technology (IRJET)	2022	2395-0056	https://www.irjet.net	https://www.irjet.net	Yes

Seismic Response study of multi-storied reinforced concrete building with fluid viscous dampers	Shreeja Kacker	CE	International Research Journal of Engineering and Technology (IRJET)	2022	2395-0056	https://www.irjet.net	https://www.irjet.net	Yes
MHD FLOW OF DUSTY VISCOUS FLUID THROUGH A POROUS MEDIUM BOUNDED BY AN OSCILLATING POROUS PLATE IN SLIP FLOW REGIME	Dr. Kirti	AS	International Research Journal of Engineering and Technology (IRJET)	2022	2395-0056	https://www.irjet.net	https://www.irjet.net	Yes
Energy Meter	Dr. Dhiraj Gupta, Nikhil Gupta	EE	International Journal of Innovation Science and Research Technology	2022	2456-2165	https://www.ijisrt.com	https://www.ijisrt.com	Yes
GSM Based Smart Home Appliances	Aneep Kumar	EE	International Journal for Scientific Rouch & Development	2022	2821-4613	https://www.ijsrd.com	https://www.ijsrd.com	Yes
Bill Board Wifi Based Bill Board Led Display	Dr. Dhiraj Gupta, Nikhil Gupta, Aastha Dixit	EE	International Journal of Inovative Science and Research Technology	2022	2456-2165	www.ijisrt.com	www.ijisrt.com	Yes
Comparative Performance Analysis of MPPT Techniques For Solar Power Extraction Using Zeta Converter	Dr. Dhiraj Gupta, Nikhil Gupta	EE	International Journal of Research in Engineering and Science (IIRES)	2022	2320-9156	www.nes.org	www.nes.org	Yes
Scrolling Display GSM based Messages Crolling Led Display	Dr. Dhiraj Gupta, Nikhil Gupta	EE	International Journal of Innovative Science and Research Technology	2022	2456-2165	https://www.ijisrt.com	https://www.ijisrt.com	Yes
LED DISPLAY SCROLLING BOARD BASED ON GLOBAL SYSTEM FOR MOBILE COMMUNICATION	Dr. Dhiraj Gupta	EE	International Research Journal of Modernization in Engineering Technology and Science	2022	2582-5208	www.irimets.com	www.irimets.com	Yes
GSM BASED MESSAGE SCROLLING LED DISPLAY	Nikhil Gupta	EE	International Research Journal of Engineering and Technology (IRJET)	2022	2395-0056	www.irjet.net	www.irjet.net	Yes

Wireless Personal Communications (2020) 114:85–92
https://doi.org/10.1007/s11277-020-07351-w

Linearization of Photonic Link Based on Phase-Controlled Dual Drive Dual-Parallel Mach–Zehnder Modulator

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Published online: 13 April 2020

Abstract
This paper presents analytical analysis for a linearization method of a microwave photonic (MWP) link based on dual-drive dual-parallel Mach–Zehnder Modulator. Electric phase shifters are utilized to suppress intermodulation distortion terms and to further increase linearity of the link. A simulation model is designed to evaluate spurious free dynamic range (SFDR) against third order intermodulation distortion as it is a key performance measurement parameter of MWP link. A suppression of 68 dB is found in intermodulation terms and SFDR enhances by 16 dB which ensures the improvement in performance of link against intermodulation terms.

Keywords MWP · SFDR · IMD · DD-DPMZM

1 Introduction

A potential solution to meet user's ever rising demand for higher bandwidth is to exploit high frequency band of radio spectrum as low frequency spectrum is already over occupied [1]. These high frequency waves i.e. millimeter (mm waves) offers broad bandwidth at cost of lesser distance travelled [2]. This limitation can be overcome by modulating high radio frequency (RF) signal upon an optical carrier [3]. This modulated signal is carried over an optical fiber up to a base station and then received on a mobile station wirelessly [4]. This technique is termed as radio-over-fiber (RoF) technology and offers low insertion losses, low transmission losses and remains immune to electro-magnetic interference [5].

The key requirement for designing an efficient RoF link is to find out a method to modulate RF signal while suppressing all possible losses [6]. However, most commonly used modulator in RoF system is Mach–Zehnder modulator (MZM) and perceived as one of the external modulator [7]. These modulators introduces numerous non-linear terms during modulation process due to modulator's inherent non-linearity but considered as promising

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Wireless Personal Communications (2020) 113:1755–1773
https://doi.org/10.1007/s11277-020-07290-6

Cooperative Spectrum Sensing Optimization Using Meta-heuristic Algorithms

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Published online: 8 April 2020

Abstract
Spectrum sensing helps to sense the unutilized spectrum in an opportunistic manner for cognitive radios. The various cognitive radios work in a cooperative manner to improve the efficiency of sensing by making use of the heterogeneity of multiusers. Meta-heuristic methods are being widely used for optimization problems in different domains. The selection of the best meta-heuristic algorithm results in high performance. These algorithms can also be used for optimizing the spectrum sensing in cognitive radio network. In this paper, two meta-heuristic algorithms namely grey wolf optimization (GWO) and dragonfly algorithm (DA) are used for cooperative spectrum sensing in cognitive radio network. These algorithms evaluate the optimal weighting vectors used in the data fusion center. This is further used for allocation of spectrum to the secondary users. The proposed methods are compared with genetic algorithm and particle swarm optimization based cooperative spectrum sensing optimization. The results show that both the proposed methods for cooperative spectrum sensing optimization based on DA and GWO have better convergence rate. Also, the maximum probability of detection is achieved with DA and GWO. Further it is observed that GWO performs even better than DA.

Keywords Cooperative spectrum sensing · GWO · DA · PSO

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International Journal of Advanced Science and Technology
Vol. x, No. x, (20xx), pp. xx-xx

Bio – Inspired Optimal Weighted Fusion in Cooperative Spectrum Sensing For Cognitive Radio

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Abstract

Software defined radio (SDR) uses the under-utilized spectrum by the dynamic spectrum allocation. Cooperative spectrum sensing is extensively used in software defined radio (SDR) for detecting white space in the licensed spectrum in a efficient manner. Selection of Fusion rule at Fusion center effect efficiency of spectrum sensing. In this research article we proposed a optimal weighted Fusion rule in which the weight of local decision node are altered until we get highest detection probability at the Fusion center. A Biological heuristic algorithm Cuckoo Search (CS) is used weight alteration. Simulation is being performed for proposed Fusion rule under the various parameter variations and compared with conventional hard, soft fusion rule. It is found that proposed Optimal Weighted Fusion rule work very effective than any Fusion rule.

Keywords: *Cooperative Spectrum Sensing, Software defined radio (SDR), Fusion Centre, Hard Fusion, Soft Fusion, Optimal Weighted Fusion.*

1. Introduction

In the recent Technical Environment the effective utilization of the allotted spectrum is urgent need. Software defined radio (SDR) increase the spectrum utilization efficiency by the dynamic allocation of the licensed freq band. The spectrum sensing was first proposed by Urkowitz [1]. In this proposal The received signal energy with fixed sensing time interval is evaluated and compare with pre-defined threshold to ensure whether the spectrum is vacant or not .Several spectrum sensing (SS) method have been investigated like Energy detection (ED), Match filter (MF), Cyclostationary or feature detection out of these method the Cooperative spectrum sensing is best even in very low signal to noise ratio (SNR) condition [2]. Cooperative spectrum sensing is receiver based spectrum sensing technique that is perform when various secondary user perform the spectrum sensing task individually and final decision is taken collaboratively. Local node or secondary users are Energy detector due to less realization complexity [3]. Secondary user perform spectrum sensing at individual level and all the individual local results are transmitted to Fusion center to generate the global result whether the white space are available or not for the use of secondary user [4]. Fusion center is core element of Collaborative Cooperative spectrum sensing that is used for generating the global result after combining the local node decision. At the fusion center local node decision can be fuse by Hard Fusion rule like AND, OR, MAJORITY and likelihood ratio (LRT) proposed in [5-6]. In all these rule one bit soft decision is transmitted from the each local node to the Fusion center where all the local result is logically combined to generate the global result. Fusion center can also fuse the local

ISSN: XXXX-XXXX IJXX

International Journal of Innovative Technology and Exploring Engineering (IJITEE)
ISSN: 2278-3075, Volume-9 Issue-7, May 2020

Conventional Combining Scheme in Cooperative Spectrum Sensing

Vivek Gupta, Narendra S. Beniwal, S. N. Sharan

Abstract: Spectrum Sensing (SS) is a key constituent of software defined radio (SDR) or Cognitive radio (CR). Spectrum sensing (SS) investigate the white hole in allotted spectrum to the primary user. Cooperative spectrum sensing (CSS) has work in a best manner than any other spectrum sensing (SS) technique to detect white space or spectrum hole in the licensed spectrum. In this paper we compare various combining scheme that are to be perform at the Fusion centre (FC). Fusion centre (FC) is the central part of Cooperative spectrum sensing (CSS) that combines individual node decision. Simulation has performed for hard and soft combining scheme. According to the simulation the soft combining scheme performed better then hard combining scheme but the complexity and bandwidth (BW) requirement in the soft combining is more than hard combining scheme. In the proposed paper we also explore detection error that is to be present in various combining scheme.

Keywords: Spectrum sensing (SS), software defined radio (SDR), Fusion centre (FC), hard combining, soft combining.

I. INTRODUCTION

Wireless application is increasing day by day therefore effective utilization of frequency band is very necessary but in Static allocation of frequency band some of the frequency band remains underutilize therefore dynamic allocation of frequency band is need of hour. Cognitive radio (CR) is the solution of above problem it uses dynamic allocation of the frequency band. Spectrum sensing(SS) is the central part of cognitive radio (CR) it monitor the presence of primary user (PU) in the accessible spectrum if primary user(PU) is found to be absent then cognitive radio will hand over the spectrum to the secondary user (SU) without destructive intervention with primary user (PU).The concept of signal detection was first given by [1].In the above proposal the energy of received signal is being measured in time window to judge whether the primary user(PU) is present or not . There are various spectrum sensing (SS) technique have been developed like energy detection (ED), match filter (MF) cyclostationary or feature detection [2].

Energy detector(ED) is a blind, non-coherent spectrum sensing technique it does not require prior knowledge of input signal. In the energy detection spectrum sensing (SS) energy of received signal is being measured for a time interval then it is compare with predefined threshold to decide whether the primary user are present or not energy detector (ED) have low implementation cost and have better detection probability (p_d) but at low signal to noise ratio (SNR) Energy detector(ED) cannot differentiate between primary user signal (PUS) and that of noise [3]. Match filter (MF) detection scheme is coherent detection scheme of the spectrum sensing (SS) where prior knowledge of the input signal is very necessary. In match filter detection convolution is being performed between unknown primary signal and that of time shifted version of the transfer function of match filter and output is being compare with the predefined threshold the match filter (MF) detection perform better then energy detector at low (SNR) region but the drawback of this technique is it has high realization complexity [4]. Cyclostationary or feature detection method feature of received signal is used to differentiate between the signal and noise it is also coherent detection technique but has high complexity in Computation. Prior information of the input signal is necessary [5] in the feature detection method.

Cooperative spectrum sensing (CSS) is a receiver detection based spectrum sensing technique that is performed when various Cognitive radio users (CRU) perform Spectrum sensing .Each individual Cognitive radio user give the sensing information to the central server that is also known as the fusion center (FC) central sever then aggregate all the individual cognitive radio (CR) and give the final decision whether the spectrum is vacant or not [6]. Three topology are being used in the cooperative spectrum sensing (CSS) that are Centralize coordinated topology in which there all node give their decision to central hub that give final decision whether the white space is present or not next is decentralize coordinated system in which there is no central hub each node communicate their decision to each other by some gossip or clustering algorithm third one is decentralize uncoordinated topology in which neither there will be a server to aggregate all the information nor each node share their information to each other [6] . At the Fusion center (FC) individual Cognitive radio (CR) can combined be combined by the soft combining or hard Combining scheme .In proposed work there is a relative comparison is being performed on the soft combining and hard combining scheme. Spectrum sensing (SS) is typical due to the time variation feature of the channel and shadowing effect that can be overcome in the cooperative spectrum sensing (CSS) . As we know that spatial diversity of various CR user is present in (CSS).

In section 2 individual node modeling and system model is designed .In section 3 various combining rules are explored in section 4numerical result have discussed and in section 5 conclusion from complete article have represented.

Revised Manuscript Received on April 21, 2020.
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Telecommunications and Radio Engineering, 79(14):1239-1243 (2020)

WIRELESS NETWORKS

THIRD ORDER INTERMODULATION POWER VARIATIONS OF RADIO OVER FIBER LINK BY EMPLOYING MZM AND DD-MZM MODULATOR

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This paper highlights and demonstrates optical single sideband technique in Radio over Fiber (RoF) link which can become the backbone of upcoming next generation wireless and broadband communication networks. The RoF link consists of two tone radio frequency signals, operated on 9 GHz and 8 GHz, Mach Zehender Modulator (MZM), Dual Drive Mach Zehender Modulator (DD-MZM), optical fiber and photodetector. The severe issue in RoF transmission is intermodulation distortions and the third order intermodulation (IM3) errors which have its spectrum near to desired RF signals, are most performance degradation factors. This paper has its consideration on IM3 errors and a comparative analysis is drawn to illustrate the IM3 power variations with respect to optical modulators: MZM and DD-MZM in RoF link. The proposed model is designed in OptSIM software to confirm and validate the analysis and results. The results show that the RoF link based on DD-MZM can reduce 10.6 dB the IM3 errors as per its bias voltages in comparison with RoF link based on MZM.

KEY WORDS: *Radio over Fiber (RoF), Mach Zehender modulator (MZM), Dual Drive Mach Zehender modulator (DD-MZM) and 3rd Order Intermodulation (IM3)*

1. INTRODUCTION

The wireless mode is becoming a dominant mode for subscribers and explosive growth in wireless mode is continued. The wireless mode provides flexibility in various applications such as eHealth, smart cities, autonomous vehicles, Internet of things, and broadband and mobile users. All these applications require low latency, high data-rate instantaneous communications, and massive connectivity [1,2]. The important substitute for these requirements is achieved by the RoF link. The RoF link in which RF signals are modulated by optical signal at the central station and this optical signal

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DYNAMIC RANGE MEASUREMENT OF RADIO OVER FIBER LINK BY EMPLOYING 120^{O} PHASE SHIFT METHOD

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A reliable method to enhance the spurious-free dynamic range (SFDR) of the 120° phase shift based on the radio over fiber (RoF) link, has been proposed, analyzed and demonstrated. The computer simulation results of the proposed method are presented for a different frequency of input RF signal exhibiting an enhancement in the fundamental power and suppression in 3rd order intermodulation errors. The results also show that the proposed method can bring an enhancement of 7.13dB in SFDR compared with the conventional method at 10km optical fiber length. Thus, the proposed phase shift method can give a tremendous perspective in the implementation of a cost-effective RoF link.

KEY WORDS: *radio over fiber (RoF), dual drive mach zehender modulator (DD-MZM), 3rd order intermodulation (IM3), spurious free dynamic range (SFDR)*

1. INTRODUCTION

The explosive growth in mobile data traffic due to smart devices, the last ten years are witnessed and is projected to increase by several orders of magnitude by the year 2030 [1,2]. To address this expansion, there are requirements of cost-effective and green-oriented links with higher capacity, higher energy efficiency, lower latencies and wider coverage. The RoF link can be considered as an important substitute in which RF signals are modulated by optical signals at a central station and this optical signal is transmitted from a central station and a set of base stations via optical fiber. The base stations are simple and cost-effective structures that only consist of an optical-to-electrical converter, radio frequency amplifiers, and antennas. But the performance degradation parameter: 3rd order intermodulation (IM3) distortion error which is not filtered [3-5] and key responsible to degrade a dynamic range of RoF link.

Many research in view of overcoming nonlinear distortion and enhancement of dynamic range are adopted [6-10]. Each method has its advantages and disadvantages. But most of them result in more system complexity. In this paper, the RoF link using a 120° phase shift method is used due to its received spectrum at the photodetector. The simulation result for the RoF link using a 120° phase shift against intermodulation

JOURNAL OF CRITICAL REVIEWS

ISSN- 2394-5125 VOL 7, ISSUE14, 2020

ANALYSIS AND IMPLEMENTATION FPGA IMPLEMENTATION FOR IMAGE PROCESSING ALGORITHM

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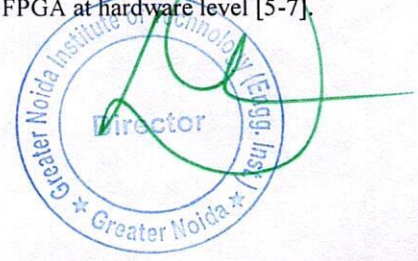
Received: 14 March 2020 Revised and Accepted: 8 July 2020

ABSTRACT: The Field Programmable Gate Array (FPGA) platform has recently been a powerful tool for video image-related algorithms. The groundbreaking FPGA software technology allows all such applications to capture some aspects of video image manipulation. The software was useful in video development with increasing image size and distance. High-speed video processing includes real-time applications such as those for this project. However, vast volumes of data obtained using satellite and land tenure systems are popular. The configuration of the FPGA system comprises of software inputs, program development, and software deployment, deployment of device programs and testing of designs. Validation of the project entails validating and validating the period that happens during the project process. The control middle filter theory uses the feedback signal to discriminate between neighboring stimuli for each feedback. A neighbor's architecture is a "gate" enclosing the whole input signal. Not just the initial and post-installation windows are the most visible 1D markers, but also 2D (or larger) indications like images, clear window patterns (such as "box" or "patterns"). Alternatively, determine easily after all window entries are ordered numerically, it's just the mid-value. There's more than one standard with an equal amount of entries. These modules are designed using VHDL and synthesized using Xilinx Integrated software environment (ISE). The design is simulated using ISIM. The design implementation is done on Xilinx Vertex-6 XC6VCX75T device.

KEYWORD- Xilinx Vertex-6 XC6VCX75T device, Field Programmable Gate Array (FPGA), Image-Related Algorithms.

I. INTRODUCTION

Recently, Field Programmable Gate Array (FPGA) technology has become a viable target for implementing appropriate algorithms for video image processing applications. FPGA's unique architecture allows the technology to be used in many of these applications that span all aspects of video image processing. The software is less effective in the area of video editing with the rise in picture sizes and the bit range. Real-time systems such as those which are the goal of this project are necessary for the high velocities required in video processing. Furthermore, the processing of a vast volume of data collected by satellites and land dependent detection systems is a major concern. Software Device Processor (DSP) technologies are used to systematically minimize the quantity of data to be interpreted, meaning that only the necessary data is sent to a human analyzer. Much of the video analysis is eventually required to take place on DSP devices, with no human involvement. This is obviously beneficial, as analysts of human data are expensive and may not be entirely accurate. FPGAs are also used as tools for the execution of real-time image processing systems as their architecture can leverage spatial and temporal parallelism. The tool used is window shooting technology to pierce and add filters through pixels in an image. As the bit depth for image sizes increases, programs become less useful and hardware systems have to replace them in real time. It is very difficult today to operate real-time image processing algorithms on serial processors, since picture sizes may be very wide even at high resolutions. Take a regular, 24 frames per second (not quite Full HD) 720p video feed. Processing this stream includes minimum operations of 66 million per second. Many applications for image processing demand that many (dozen) operations be conducted on each pixel. This adds to incredibly intense load management for a single serial processor. The usage of Field Programmable Gate Array (FPGA) technology is an acceptable solution to this. Recent years have seen significant improvements to the size and functionality of FPGAs. This has led to increased interest in their use as deployment platforms for applications for image processing, especially those requiring real time processing. Although anything expressly built for graphics production, such as a graphics processing unit (GPU), has the drawback of being programmed to have a generic range of functions, as compared to the real programmability and configuration of an FPGA at hardware level [5-7].



JOURNAL OF CRITICAL REVIEWS

ISSN- 2394-5125 VOL 7, ISSUE 13, 2020

PERFORMANCE COMPARISON OF HIGH SPEED AND LOW POWER FORWARD ERROR CORRECTION (FEC) THROUGH VITERBI DECODE COMMUNICATION CHANNEL THROUGH XILING

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Received: 14 March 2020 Revised and Accepted: 8 July 2020

ABSTRACT: The FEC channel coding is widely used in the network of communication. FEC decoder's key function is used to retrieve data from errors through the communication system. Convolution code in any digital communication system is the most effective forward error correction tool. Present codes have been decoded using decoders of Viterbi. Recognizing and decoding together Viterbi constitutes a successful FEC tactic when AWGN corrupts the message in a loop. In order to obtain a more accurate decoder, General Viterbi algorithm (VA), requires an exponential improvement in hardware efficiency. The changed form of subscription uses a pointer principle. In order to maintain transport drums and road metrics, additional head registers are needed. VHDL is used in the various modules that incorporate the software space of Xilinx Integrated (ISE). Model Sim is the proposed architecture for this research. The Xilinx Spartan 2E xc2s15-6cs144 concept launch has been completed. The average frequency of service was 195.886MHz. The investigation of Viterbi is limited to the minimum duration of the problems. For the duration of the problem, Viterbi decoder with changed register will continue to research an exchange process.

KEYWORD: FEC channel, Viterbi Decode, AWGN corrupts, Automatic Repeat Request (ARQ), Convolutional Codes

I. INTRODUCTION

Forward error correction (FEC) (also called channel coding) in communication and information theory is an error detection method for transmitting data. This is on a one way contact system and the recipient does not have the right to order a retransmission when the fault is found, which is separate from an automated replay order (ARQ). Moreover, in this method, the sender adds repetitive data to its messages, also known as error correction code that is created systematically. Forward Error Correction (FEC) is, to be exact, to use the system that applies the data to relay the frequency information, the receiver would be able to create the data where there is a mistake. FEC technology increases the efficiency of all the contact device. This innovation achieves substantially improved output and service quality in terms of power enhancement, productivity improvement, reliability improvement, message latency reduction, bandwidth utilization, signal strength, and traffic congestion prevention [one]. The Encoding error rate is lower, the error correction code occupies the highest ratio and the decoding threshold specifications are lower for the same power, that is, the receiving antenna's opening requirement is lower. And it's simpler to receive; vice versa.

1.1 Forward Error Correction (FEC)

Forward Error Correction (FEC) is a form of error correction to identify and fix a small amount of errors in the data transmitted without the need for retransmission. In this approach the sender sends the data frame with a repeated error correction message. Based on redundant bits the receiver performs the necessary checks. If it finds the data to be error-free it will run an error-correcting code generating the actual frame. It then removes redundant bits before the message is passed to the upper layers. Repetition helps the recipient to find a small range of errors that may exist somewhere in the communication and such errors are often resolved without retransmission. Forward Error Correction (FEC) offers the receiver with the opportunity to resolve errors by needing a reverse channel to allow retransmission of data but at the cost of higher defined forward channel bandwidth. Thus, FEC is implemented in circumstances where retransmission is expensive or impractical, such as one-way contact connections, and multi-cast transfer to various receivers. FEC operation can be extended in the future to a physical bit source, or to a digitally modulated carrier demodulation. Of the above, FEC will in principle be an essential part of the original analog-to - digital transfer. The ECC specification specifies the highest number of mistakes or incomplete bits that can be corrected, and various direct error correction codes

JOURNAL OF CRITICAL REVIEWS

ISSN- 2394-5125 VOL 7, ISSUE 14, 2020

IMPLEMENTATION OF PID CONTROLLER USING AN FPGA

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Received: 14 March 2020 Revised and Accepted: 8 July 2020

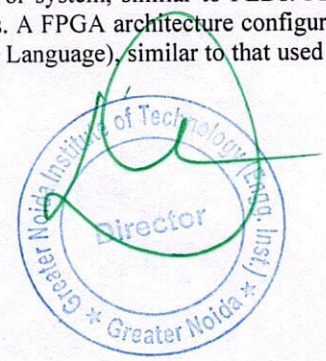
ABSTRACT: Modern device inventions including the Field Programmable Gate Array (FPGA) take place with microelectronic technological advancements and can be seen as tests for machine control algorithms. FPGAs do not pass this rule. Initially, FPGAs were built as an evolution of CPLDs (Complex Programmable Logic Devices), although each new addition of up to a billion transistors has grown considerably in recent years. Moreover, the increased integration rate in these circuit breakers is primarily due to energy-related growth. One of the recommendations was to use FPGA to allow samples easier to identify in many production and development sectors. Most vehicle control panels are PID buttons. During this time cycle, the PID code must be generated electronically. Current computer control systems often require improved, accurate component measurement. FPGA-based solution is included in the current system to integrate a temperature regulator. Integrated software designers usually have three stages of developing automatic control systems. Block sequence will use the plant process reaction. As a result, well-integrated implementation time is substantially high. We investigate the arithmetic model to use a slightly digitized PID system for future work. Benefits High processing speed of FPGA, reduced hardware power with enhanced networking.

KEYWORD: FPGA circuits, CPLDs (complex programmable logic devices), PID system

I. INTRODUCTION

First developments have been rendered in the automated application of microprocessor power algorithms. Such numerical methods addressed the issues relevant to the use of analog searches. These are therefore of considerable economic value and have greater versatility in architecture. New digital technologies such as FPGA (Field Programmable Gate Array) [1] are possible with technological advances in microelectronics, and can be used as goals for implementing digital control algorithms. The Field Programmable Gate Array (FPGAs) does not overcome this rule. Originally, FPGA circuits were established as the normal progression of CPLDs (Complex Programmable Logic Devices), but with increased sophistication in increasing modern application before the last iterations have exceeded the billion transistors. Nonetheless, the higher degree integration is primarily attributed to power development equivalent to such circuit estimates. Some of the approaches suggested was the use of FPGAs for fast sampling, and they continue to find a place in other manufacturing and technological sectors. PID controls are mainly the production device controllers [9]. At this perspective, the PID algorithm would need to be digitized. Current computer control systems typically need better and faster components for the computation. With the usage of several modern control algorithms such as adaptive control, fuzzy control and slider mode control this form of feature is indispensable. While the PID controllers are the newest, they are now the controls most commonly utilized in automotive control systems. The goal FPGA system used in this paper is Xilinx Design's newly produced Spartan-3A and debugging into a low-cost, robust feature set that Diligent makes available. The board offers all the resources you need to get the Spartan-3 model concepts planned and tested easily.

The term FPGA stands for Field Programmable Gate Array and is a type of semiconductor logic chip that can be programmed to transform virtually any type of digital circuit or system, similar to PLDs. PLDS is limited to hundreds of gateways, but FPGAs back thousands of gateways. A FPGA architecture configuration is generally defined using a language, such as HDL (Hardware Description Language), similar to that used in ASIC (Special Application Integrated Circuit).



Arabian Journal for Science and Engineering
https://doi.org/10.1007/s13369-020-04761-7

RESEARCH ARTICLE-ELECTRICAL ENGINEERING

A Novel Hybrid Fuzzy PD-TID Controller for Load Frequency Control of a Standalone Microgrid

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Received: 19 October 2019 / Accepted: 1 July 2020

Abstract
Uncertainties related to the power output from the renewable energy sources and low inertia of a standalone microgrid (SMG) demand a robust control strategy for continuous frequency control of the SMG. Consequently, this paper proposes a novel hybrid fuzzy proportional derivative–tilt integral derivative (FPD-TID) controller for the load frequency control (LFC) analysis of a SMG. Inspiration for the proposed controller comes from combining the advantages of both the FPD and the TID controllers. Gains of the proposed controller are optimized using a robust chaotic crow search algorithm (CCSA). In order to validate the proposed control scheme, comparative frequency deviation responses of the SMG are presented considering multiple disturbances. Also, the proposed controller is put to test for its sensitivity and robustness subject to a ± 30% variation in the SMG parameters and disconnection of various SMG subsystems, respectively. Since operational stability of the SMG is highly desirable under such circumstances, the proposed control scheme aims to achieve a trade-off between its performance and the operational stability of the SMG. The operational stability of the SMG is established through eigenvalue and root locus analysis.

Keywords Chaotic crow search algorithm · Hybrid FPD-TID controller · Load frequency control · Standalone microgrid

Abbreviations and Nomenclature

f	Nominal frequency (Hz)
RES	Renewable energy source
SMG	Standalone microgrid
LFC	Load frequency control
CCSA	Chaotic crow search algorithm
FDR	Frequency deviation response
DG	Distributed generation
PID	Proportional integral derivative
WTG	Wind turbine generator
PV	Photovoltaic
DEG	Diesel engine generator
EV	Electric vehicle
FC	Fuel cell
BESS	Battery energy storage system
FESS	Flywheel energy storage system
AE	Aqua electrolyzer
CB	Circuit breaker
J_P	Performance index
ITAE	Integral of the time multiplied absolute error
T_{sim}	Simulation time (s)
ΔP_D	Incremental load change (pu MW)
D	Load damping coefficient (pu MW/Hz)
H	Inertia constant of the MG (s)
R	Governor speed regulation coefficient (Hz/pu MW)
T_G	Governor time constant (s)
T_T	Turbine time constant (s)
T_{DEG}	DEG time constant (s)
T_{EV}	EV time constant (s)
T_{BESS}	BESS time constant (s)

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Published online: 28 August 2020

INTERNATIONAL JOURNAL OF SUSTAINABLE ENERGY
https://doi.org/10.1080/14786451.2020.1803861

Taylor & Francis
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A novel fractional order proportional integral derivative plus second-order derivative controller for load frequency control

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ABSTRACT

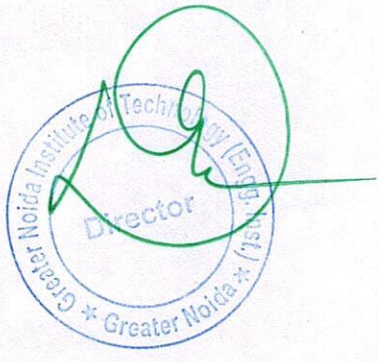
This paper proposes a novel fractional order proportional integral derivative plus second-order derivative (FOPID+DD) controller for the load frequency control (LFC) of a hybrid power system (hPS). The investigated hPS incorporates conventional and certain distributed generation sources. Parameters of the proposed controller are optimised using a newly developed and powerful water wave optimisation (WWO) algorithm. The effectiveness of the proposed control scheme is established by considering multiple disturbances and nonlinearities like generation rate constraint, governor dead band and time delay related with the hPS. The performance of the proposed controller is compared with other controllers that are well studied in the literature. Simulation results reveal that the frequency dynamics of the hPS are enhanced with the proposed controller in terms of reduced frequency deviations and improved transient specifications. The sensitivity of the proposed controller is validated subject to wide variations in the hPS parameters.

ARTICLE HISTORY
Received 4 May 2020
Accepted 18 July 2020

KEYWORDS
FOPID+DD controller; hybrid power system; load frequency control; WWO algorithm

Nomenclature

f	nominal frequency (Hz)
Δf	frequency deviation (pu Hz)
OF_{ITAE}	integral time absolute error based objective function
OF_{ISE}	integral square error based objective function
OF_{AGG}	aggregated objective function
$tsim$	simulation time (s)
ΔP_D	incremental load change (pu MW)
K_{PS}	power system gain (Hz/pu MW)
T_{PS}	power system time constant (s)
T_G	governor time constant (s)
T_T	turbine time constant (s)
K_R	reheater gain
T_R	reheater time constant (s)
R	governor speed regulation coefficient (Hz/pu MW)
T_{DEG}	DEG time constant (s)
K_{DEG}	DEG gain
T_{BESS}	BESS time constant (s)
K_{BESS}	BESS gain
T_{FC}	FC time constant (s)
K_{FC}	FC gain
T_{AE}	AE time constant (s)



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Electric Power Components and Systems, 0(0): 1–16, 2020

ISSN: 1532-5008 print / 1532-5016 online
DOI: 10.1080/15325008.2020.1797936

A Robust Cascade Controller for Load Frequency Control of a Standalone Microgrid Incorporating Electric Vehicles

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CONTENTS

Abstract—Intermittency in the output power of renewable and green energy sources (RGES) and low inertia of a standalone microgrid (SMG) result in large frequency deviations. Use of energy storage systems (ESSs) alleviate the SMG frequency deviations in an adorable manner but their high cost and low power density calls for alternative sources to balance the mismatch between power supply and demand. In recent years, utilization of the battery of an electric vehicle (EV) to minimize the frequency deviations has gained a lot of attention. Consequently, this paper proposes a robust and newly developed bio-inspired Salp Swarm Optimization (SSO) algorithm based PI-PD cascade controller for load frequency control (LFC) of the SMG integrated with the EVs. To demonstrate the efficacy of the proposed controller, its performance has been compared with other well-known controllers and algorithms considering diverse SMG operating scenarios. Simulation results distinctly prove the superiority of the proposed controller over the other controllers. Also, robustness of the proposed controller has been tested subject to ±50% variation in certain SMG parameters. Results clearly justify the robustness of the proposed controller. Additionally, operational stability of the SMG has been appraised through Eigenvalue and Bode diagram analysis for all the scenarios.

Keywords: cascade control, electric vehicle, energy storage systems, integral square error, load frequency control, PI-PD cascade controller, renewable and green energy sources, salp swarm optimization, standalone microgrid, total energy model

Received 31 October 2018; accepted 23 June 2020

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1. INTRODUCTION

Increasing energy crisis and environmental degradation due to exhausts of the fossil fuel based conventional power plants have become a matter of serious concern all over the world [1]. This has led many researchers to shift their focus toward the application of RGES to resolve this issue. A microgrid (MG) employing the RGES could prove to be a promising solution for the above problem. The Consortium for Electric Reliability Technology Solutions (CERTS) first introduced the concept of the MG as an assemblage of microsources and loads operated at medium voltage (MV) and low voltage (LV) distribution side [2].

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 07 | July 2020 www.irjet.net p-ISSN: 2395-0072

Nuglets: A Virtual Currency

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Abstract - *In mobile ad-hoc network, there is always an assumption being made that all the nodes are belong to a single mastery. Therefore, to cooperate in order to support basic functions of the network is expected from the nodes such as routing. Here in this paper, we take an account that every belongs to an individual master and tries to maximize the benefits it gets from its network. For this, concept of virtual currency is being introduced.*

Keywords: *Virtual currency.*

1. INTRODUCTION

A mobile ad-hoc network is usually a wireless network created by some nodes in a self-organized structure which is independent of any established infrastructure. Working of mobile ad-hoc networks is deliberately depend upon the cooperative behavior of their nodes that's why all the services that are assumed to be necessary to a network are provided by the network itself. Communication between two nodes A and B depend on the intermediate nodes that forward packets for the beneficiary of A and B.

So, applications of mobile ad-hoc networks can be visualized mainly for the situations that are much critical such as in military or in rescue operations. In this type of application areas, all the nodes present in the network are belong to a single master (such as single rescue team manager) and they share a common goal. Because of this, nodes are naturally cooperated with each other.

Since, because of this progress in technology, deployment of mobile ad-hoc networks on a huge platform for civilian scenario will be possible very soon. Such applications will include network of cars, provision of communication facilities in remote areas. In these types of networks, nodes simply do not belong to a single authority or master. Each node belongs to a different authority: to its user and they so not share the same goal. And these networks could be much bigger and have larger lifetime and they could be completely self-organized means they can be run by operation of its end users.

In these types of networks, there is no need to assume that nodes are cooperating and provide services to each other. Service provision is not in the interest of the nodes, because it consumes energy and it does not have any direct advantages. Nodes in the mobile ad-hoc network are battery powered in general, so, energy consumption is must since energy is the precious resource that they may not want to waste for the benefit of other nodes.

Lack of cooperation may have very worse effect on the operation the network. In this paper, we are concerned for the problem of non-cooperating nodes in large, self-organized, mobile ad-hoc network for civilian purpose. Assumption is that nodes are belong to the different mastery, which has all control on nodes. In practical, the user can interfere with the hardware and software of the node and can modify its behavior and nature to adapt the better goal on his own.

On the other hand, users are not interested in altering the low-level protocols of their nodes. These protocols have to be participated in the network, but they do not provide very much benefits to the node or to the network. Modification in these can be disturbance to the network. This results in a network where nodes are selfish. They use the services which are provided by the other nodes but do not provide their own services free to the community. In such network, it is more necessary to simulate for cooperation. In this paper, we have an economic approach for this type of network. We introduce a virtual currency called nuglets. It is a mechanism for charging/rewarding service usage.

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 07 | July 2020 www.irjet.net p-ISSN: 2395-0072

A Survey on Various Machine Learning Algorithms

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Abstract - *Apparently, we are living in the most defining and developing period of human history. This is the period where computing generation reached from large mainframes to PCs to cloud. But what makes it defining is not what happened, but what is coming our ways in future. There is no doubt that machine learning/ artificial intelligence has rapidly gained more vogue in the previous couple of years. As the hottest mania in the tech industry at present, machine learning extremely powerful to make predictions and calculated suggestions which is generally based on the very large amount of data. This paper tells about how the machine learning algorithms adaptively enhance their performances as the inputs available for learning increases.*

Keywords: *Machine learning algorithms.*

1. INTRODUCTION

In the era, where almost all manual works are being automated, the definition of manual is reshaping. Machine learning algorithms can help computers to play games, perform surgeries and get smarter and more private.

We are living in the world where technology is changing very rapidly like day-by-day. One of the main features of these transformations is how computing techniques and tools have been democratized. In the past few years, data scientist has assembled evolutionary data-crunching machines by seamlessly executing advanced techniques. The results are amazing.

Machine learning is a data analytics technique through which computers learns to do what comes naturally to humans and animals i.e. learn from experience. Machine learning algorithms use computational methods to remember information which is directly from the data without depending on a predetermined equation. The machine learning algorithms adaptively enhance their performances as the inputs available for learning increases.

There is no doubt that artificial intelligence/ machine learning has rapidly gained more popularity in the previous couple of years. As Big Data is the trending mania in the tech industry at present moment, machine learning is very strong for calculated suggestions and make predictions which is based on the large amount of data. Some of the very common and famous examples of machine learning are Netflix's algorithms to make movie suggestions based on movies you have watched in past or Amazon's algorithms that recommend books based on the books you have bought or searched before.

2. EVOLUATION OF MACHINE LEARNING

Machine learning was born from pattern recognition and the theory that computers can learn without being programmed to perform some specific tasks. But researchers who are concerned in artificial intelligence wanted to see that if computers could learn from data. The repetitive side of machine learning is important because models learn from computations to generate reliable, repeatable decisions and results.

While there are many machine learning algorithms have been around for a very long time, the capability to automatically apply complex mathematical calculations to big data is a new development.

Desalination and Water Treatment
www.deswater.com

doi: 10.5004/dwt.2020.26387

205 (2020) 386–399
November

Removal of crystal violet from aqueous solution using iron based metal organic framework

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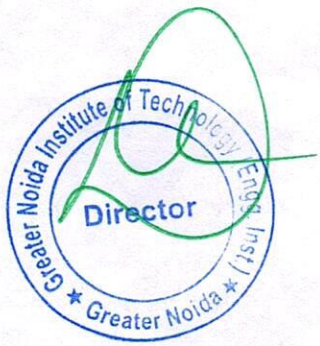
Received 24 June 2019; Accepted 25 July 2020

ABSTRACT

Iron-benzene dicarboxylic acid (BDC) metal-organic framework (MOF) has been synthesized by solvothermal method at room temperature and tested for the adsorptive removal of the organic dye crystal violet from aqueous solution. Dye removal efficiency and adsorption characteristics were determined to investigate factors such as the effect of dye concentration, contact time, temperature, dose, and pH. Maximum dye removal efficiency was recorded to be 100% with an initial dye concentration of 5 mg/L. Langmuir, Freundlich, and Temkin adsorption isotherm models were used to investigate the adsorption process. The adsorption isotherm of crystal violet onto Fe-BDC-MOF can be described by Freundlich isotherm model and Langmuir isotherm model. Pseudo-second-order kinetic model with rate constant 1.22×10^{-2} g/mg.min is found to be the best fit for the adsorption. Thermodynamic parameters viz. free energy; enthalpy, and entropy have been calculated with the help of adsorption isotherm data. The values of enthalpy and entropy have been obtained as 0.0947 kJ/mol and 0.325 kJ/mol/K, respectively, indicating an endothermic process with an increase in randomness at the solid-solution interface during adsorption. Negative value of ΔG illustrates the process to be spontaneous. Column adsorption capacity of Fe-BDC-MOF has been recorded 26.65 mg/g.

Keywords: MOF; Crystal violet; Adsorption; Kinetics; Thermodynamics



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Chapter 77
A Study on Coal Ash Slurry Flow at Higher Solid Concentrations in Pipeline

Navneet Kumar, Kanwar Pal Singh, V. K. Dwivedi, J. K. Yadav, Sudhir Kumar and Navin Kumar

Abstract In India, thermal energy accounts for more than 70% of electricity production and millions of tons of coal are burned in these thermal power plants. Thus, large quantities of coal ash (fly ash and bottom ash) are produced and the current level of production is about 120 million tons per year. Out of this, approximately 20% is bottom ash and the rest 80% is fly ash. The ash produced in India usually has higher specific gravity as Indian coal has a much higher content of non-combustible matter. Also, the majority of the thermal power plant in India disposes of both the materials, namely fly ash and bottom ash to ash ponds using the same pipeline. The knowledge of slurry rheology is very vital for the design of a slurry pipeline particularly for the dense phase conveying system. Since the pilot plant loop tests at these concentrations are tedious, time-consuming, and complex in nature, the slurry pipeline designers have been adopting the empirical approach for slurry pipeline design based on the rheological model of the slurry. From the vast study of literature, an attempt has been made to highlight the various influencing parameters like concentration of solid, rheological properties, and chemical additives that affect the flow of coal ash slurry in the long-distance pipelines.

Keywords Coal ash · Slurry · Rheological behavior · Shear rate · Shear stress

77.1 Introduction

A slurry pipeline system is used for conveying solid particles using fluid which is generally water as a carrier. Slurry pipeline transportation has been one of the progressive technologies for conveying a large number of materials over long distances [1–3]. The mineral ores in mining and process industries, coal ash in thermal power

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S. Yadav et al. (eds.), *Proceedings of International Conference in Mechanical and Energy Technology*, Smart Innovation, Systems and Technologies 174,
https://doi.org/10.1007/978-981-15-2647-3_77

Optimization of process parameters of A-359 aluminium alloy in EPS-assisted-investment casting process using Taguchi method

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Abstract. The purpose of this research is to optimize the process parameters such as pouring temperature, pouring time and the thickness of coating using Taguchi mod in expandable polystyrene assisted investment casting process. In this paper, zircon flour and mullite sand with potassium silicate binder and coarse fused-silica sand stucco are used as coating materials. Problems like cracking, breaking, bending, expanding and distending in shell are eliminated by preheating the shell and slowly rise in temperature, during foam removal process. For maximum impact strength, the optimum values of process parameters- pouring temperature, pouring time and thickness of coating layers are 750°C, 15 seconds and 5 mm respectively.

Keywords: Expandable Polystyrene Pattern, A-359 Aluminium Alloy, Pouring temperature, Pouring time and Thickness of coating layers, Taguchi Method.

1. Introduction

In present time, the dimensional accuracy and surface finish of casted complex shape products have become a critical issue to reduce machining cost. So, different types of casting processes have been introduced. In this row, two types of castings are preferred named as evaporative pattern casting (EPC) and investment casting process. But evaporative pattern casting is facing problems of pin holes, porosity, ash content etc. in castings [1-2]. In investment casting process, these defects can be reduced. Generally, wax patterns are used in investment casting. But due to low softening point, the change in shape of wax pattern takes place. Another problem is to handle the big and complex shapes of wax pattern [3-4]. To remove these problems, there is a great opportunity in investment casting to use Expandable Polystyrene pattern, instead of wax pattern. This hybrid casting process is called EPS Assisted Investment Casting Process [5-6]. To achieve good characteristics of casting, Al-Si system of aluminium alloys is preferred. The range of Si may vary 4% to 13%. In this research work, A-359 aluminium alloy has been selected because of it has low melting point, high strength, good fluidity, low ductility,decreased corrosion resistance and surface roughness, good grain structure and ability to increase the strength by heat treatment [6]. The composition of A-359 is shown in table-1.

APPROVED UGC CARE ISSN - 2348 - 2397

SHODH SARITA

JOURNAL OF ARTS, HUMANITIES AND SOCIAL SCIENCES

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Post Quantum Cryptography: A Literature Review

This is certified that your research paper has been published in Shodh Sarita, Volume 8, Issue 27 (V), July to September 2020

Date: 20.10.2020

Director

SHODH SARITA
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ISSN - 2348-2397
APPROVED UGC CARE
SPECIAL ISSUE

SHODH SARITA
Vol. 8, Issue 27(V), July-September, 2020
Page Nos. 377-383

AN INTERNATIONAL BILINGUAL PEER REVIEWED REFEREED RESEARCH JOURNAL

Post Quantum Cryptography: A Literature Review

Shipra Srivastava *
Anoop Tiwari **
Prabhat Srivastava ***

ABSTRACT

The world is moving away from the classical computers whose basis is binary digits to a completely innovative way of computation whose working principle is based on qubits or quantum bits. As this quantum computer technology is in its early budding days which seem very promising as it can solve a complex problem using lesser processing time. Whereas, in a conventional computer it would take hours of processing time. An attack from a quantum computer to traditional cryptography will not be able to withstand the computational power. So, the researcher and scientists around the world are researching cryptography which is quantum secure, where the quantum computer fails to break such security. This paper discusses the algorithms that pose a threat to classical cryptography and a brief explanation about the current quantum secure algorithms that can handle the future world from the threats. This paper focuses on the devastating effects on Shor's and Grover's algorithm which lead to the further development of quantum secure Symmetric and Asymmetric algorithms.

Keywords: Quantum safe cryptography, quantum secure Symmetric Algorithm, quantum secure Symmetric Algorithm, quantum resistant AES, Lattice based encryption.

Introduction

Cryptography is the technology that prevails in this era of computation to keep the information hidden from unapproved excess. The subject cryptography is a vast subject that is responsible for almost every aspect of a website to e-mail system to the electronic transaction to online shopping to online messaging implementing its protocols to keep the current architecture safe from any attempts of hacking and theft. This technology makes sure at the foremost to convert plaintext to encrypted text from the sender end and decrypted at the receiver end. It uses many protocols and techniques to encrypt and decrypt a plaintext. The algorithm which encrypts a plaintext is called 'cipher' and the output of the algorithm is called 'cipher-text' [2]. With an example of Bob and Alice, where Alice sends an important hidden message to Bob using an open unsecured channel where anyone can check the message. In this kind of situation, a secure way is to use encrypting the message. Using a hidden bit called 'key' which is shared by Alice to Bob. Alice transforms the plaintext message to ciphertext by using the key. Bob after receiving the message can transform the ciphertext using his key to plaintext [1] and their secret message remains hidden from other intruders in the channel.

In cryptography, its security is dependent on the key's secrecy which was played the most important role during World War II. The information sending over the unsecured channel was the only option back then, by using some mechanical devices to encrypt the messages. The messages and information that were transmitted were to determine the faith of World War II. One such machine that was used by German to encrypt messages was Enigma which was used to communicate by their military. The Germans considered Enigma as unbreakable, as the allied forces were working to decrypt the Enigma codes. In London, Bletchley Park a team of cryptanalysis headed by Alan Mathison Turing successfully decrypted the messages of Enigma which became the turning point of World War II.

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Volume 8 Issue 7 , Date of Publication:July 2020 2020-07-17 04:15:17

PAPER ID : IJCRT2007372

Registration ID : 196950

ISSN 2320-2882 IJCRT

EDITOR IN CHIEF

Scholarly open access journals, Peer-reviewed, and Refereed Journals, Impact factor 7.97 (Calculate by google scholar and Semantic Scholar |AI-Powered Research Tool) , Multidisciplinary, Monthly Journal

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IJCRT | ISSN: 2320-2882 | IJCRT.ORG

Greater Noida Institute of Technology

European Journal of Molecular & Clinical Medicine
ISSN 2515-8260 Volume 7, Issue 4, 2020

Medical Image Security Analysis and Enhancement for Telemedicine Applications

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Abstract:
With the remarkable development of digital medical images and high-speed transmission networks and computer technologies in current year, authenticity and security of the medical images have been big issues for E-health application. In order to this many different remarkable watermarking strategies and concepts have been introduced by researchers. In this paper we concentrate on the possibilities for assurance of medical images using the principle of digital watermarking. There are many methods it looks from their basic perspective. One of them perspective is security to ensure authenticity and copyrights. Other we discuss watermarking methods classification which are based on different parameters such as: insertion domain (spatial and frequency domains)..

Keywords: Watermarking, security, DICOM, medical images, transform domain.

1. Introduction

Due to exceptional improvement of the computer technologies and transmission networks, the present-day medical systems are based on sharing of the medical data across the different parts of the world among distinctive doctors or health professionals for different purposes via unsecured transmission networks like Internet. So, it is necessary to provide security to assure medical information during the transmission, because of any modification of the medical information will affect in the specialist diagnostics [27]. It is very important to secure physical access & electronic access to whole part of system, starting with capturing modalities, data storage, communication media, server, and ending with doctor's diagnostic workstations. This is possible to be made with standard & proven methods, which are used in communications, it is important to secure data of medical images itself. Currently, data hiding techniques provide remarkable grandness for data assurance of medical images [1].

The digital watermarking is data embedded into the host object like audio, video, image, or other computerized information, without any changing its visual quality. With help of watermarking strategies medical images are secured beside the electronic patient information (EPI) [2] [3]. The watermarking of medical images has been broadly identified as an important strategy for improving information security, authenticity, picture devotion and content confirmation in present E-health framework where digital medical images are kept, recovered and transmitted over communication network. Medical image watermarking saves the quality of images which are essential for medical diagnosis and treatment [29]. In order to study of medical images, it is necessary to build advanced data storing & archiving called picture archiving & communication system (PACS). PACS may be a medical imaging innovation which give temperate capacity & helpful get to pictures from numerous modalities which is described in [1] [2]. Data of medical images are generated by several modalities like CT scan, MRI, X-rays, and ultrasound. As standard for transmission, storing medical images & data used international standard protocol called DICOM. DICOM (Digital Imaging & Communications in Medicine) may be standard protocol for administration & forwarding of medical images & related information over public network and is utilized in numerous healthcare offices. DICOM images contain information and metadata in header such as patient name, patient ID, Date of Birth,

INTERNATIONAL RESEARCH JOURNAL OF ENGINEERING AND TECHNOLOGY (IRJET) E-ISSN: 2395-0056
VOLUME: 07 ISSUE: 08 | AUG 2020 WWW.IRJET.NET P-ISSN: 2395-0072

Risk Management in Metro Rail Construction

Case Study : Delhi Metro Corridor from Kalkaji to Botanical Garden

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Abstract— This paper deals with a method of identifying project risk associated with various construction stages in overhead metro rail construction and the processes required or existed to control the risks. The sources of major risk are quantified in terms of probability and severity rating in the construction of metro railways. A case study of the Delhi metro corridor of DMRC magenta line of phase-3 from botanical garden to Okhla NSIC in the capital city of India has been considered for this project work. The methodology for this work is based on the risk response extracted from the experts who were associated and involved in this metro railway projects.

Keywords—Project risk, Probability and Severity rating,Risk response, Metro rail.

1. INTRODUCTION

Project risk management is the art and science of identifying, analyzing, and responding to risk throughout the life of a project and in the best interests of meeting project objectives. Risk management is an essential and integral part of project management in major construction projects. For an infrastructure project, risk management can be carried out effectively by investigating and identifying the sources of risks associated with each activity of the project. These risks can be assessed or measured in terms of probability and impact. Depending upon the severity of each of the risks obtained, specific risk mitigation measures are proposed. It includes the recognition of potential risk event conditions in the construction project and the clarification of risk responsibilities. Risk identification develops the basis for the next steps: analysis and control of risk management. Corrects risk identification ensures risk management effectiveness. The responsible entity/authority of the project should take appropriate decision/action pertaining to the adoption of the mitigation measures for reducing the likelihood of occurrence of the identified risks involved in the project.

In this project report, Construction of Elevated metro of DMRC magenta line of phase-3 from botanical garden to Okhla NSIC has been considered for formulation of Project Risk Management. The major activities consist of survey works, launching of parapets, piling works, geotechnical investigation, pile cap and pier works, pier caps ,construction of decks, casting of segments, launching of segments, plate load test of pile, initial pile load test, minor repairing and repairing of segments etc. In each activity , various risks are identified and their hazard concern is analysed with severity and probability explanation and their rating on risk level 1 to 5.

2. METHODOLOGY

A. Collection of Data

Collection of data is based on the survey and questionnaire of Construction Company namely - Delhi Metro Rail Corporation Limited and Afcons Infrastructure Limited, which includes the risk factors at the construction site. The data is collected from Delhi Metro Rail line - Construction of Elevated metro of DMRC magenta line of phase-3 from botanical garden to Okhla NSIC.

B. Questionnaires and Risk Identification

The risk factor of questionnaire were based on different construction methods that are adopted in overhead metro construction such as method of piling, erection and fixing of parapets, construction of pile cap, construction of pier and pier cap, grade slab construction, casting of segments, launching of segments, stressing of girders etc. covering risks as work at height , hit by person, hit by equipment , hit injury to workmen, road accident, improper handling of heavy reinforcement bars, transportation of girders from casting yard to site location, traffic control, launching of segments at night, shifting of launching truss, presence of unauthorized person .

C. Risk Analysis

The mean and average value of the risk factors from the questionnaire survey is assessed in the form of risk severity and probability rating as High, Medium and Low. Risk Level is defined according to their severity from 1 to 5.

D. Risks Response Planning

Having recognized the risk and evaluated probabilistically its possible impact, the contractor will prepare appropriate risk management strategies and precautions. These

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A Prototype for Data Integrity in Cloud Environment

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Abstract

Currently in world wide computing (Cloud) has a great impact on life. Everyone can access the all services of cloud if he/she is on different location. Client user can access the cloud services as per their requirement. If one user on cloud, Integrity of data is an important aspect. Data integrity is the upkeep of and the confirmation of the exactness and consistency of, data over its whole life-cycle, and is a basic perspective to the outline, execution and use of any framework which stores, forms, or recovers data. In this research paper, a fitting technique that guarantees the integrity of data and in addition rightness of calculations done by the cloud service provider is introduced.
Integrity is a method for protecting the consistency of the put away data in cloud server and guaranteeing the innovation of the data put away in the cloud server. It implies that the data can be altered just by approved people, along these lines expanding the certification, confirmation and dependability of the cloud service providers.

Keywords: Data Integrity, Authentication, Storage, Data.

Received on 31 May 2020, accepted on 14 August 2020, published on 0[illegible] September 2020

doi: 10.4108/eai.7-9-2020.166287

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1. Introduction

In this, the integrity of the outsourced data put away in the un-confided in remote cloud servers has been guaranteed. It has been finished by executing a strategy that gains a proof of data ownership by creating metadata of the data in the In this, the integrity of the outsourced data put away in the un-confided in remote cloud servers has been guaranteed. It has been finished by executing a strategy that gains a proof of data ownership by creating metadata of the data in the cloud. This evidence checks that the data put away in the remote cloud server are not changed by unapproved clients, along these lines guaranteeing the data integrity. Along these lines, this verification protocol keeps the remote cloud stockpiling servers and unapproved people from harming, distorting or changing the data without the learning of the data proprietor by directing incessant security minds the data stockpiling. This evidence confirms that the data put away in the remote cloud server are not adjusted by unapproved clients, accordingly guaranteeing the data integrity. Along these lines, this verification protocol keeps the remote cloud stockpiling servers and unapproved people from harming; distorting or changing the data without the information of the data proprietor by leading regular security minds the data storage.

2. Integrity Checking Methods

2.1 Message Authentication Code (MAC):

To confirm the data integrity, MAC for the whole data is created by the DO before putting away the data record in a remote server. It is held by the DO in the neighborhood stockpiling, however the first data is put away in the remote server. Keeping in mind the end goal to confirm the integrity of the data, the data proprietor recovers the whole data from the remote server, re-figures the MAC

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 06 | June 2020 www.irjet.net p-ISSN: 2395-0072

A Comparative Study on Cost Analysis of RCC and Composite Structures in India

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Abstract- We all know that the 70% Indians are live in rural areas, according to census of 2011, so it is cleared that maximum construction in India is going to low rise buildings. And we also know that our construction techniques are too old and too slow.

But now a days the future of construction is steel concrete composite structure, this construction technique is accepted by most of the developed and developing country, because it is economical, take less time in completion, it reduces cost and amount of material as compare to RCC structure for high rise buildings, and also steel concrete composite structure is more durable as compare to the RCC structure and at the time of earth quake the seismic behavior of steel concrete composite structure is very satisfactory as compare to RCC structure. While, for less than G+12 building construction it is not economical, instead of it shows high cost for the construction as compare to RCC or no major difference in cost and create the complexity in construction.

So, in this paper we study about different commercial buildings i.e; G+11, G+15 & G+20 to analyse them by using software Staad Pro.

Key Words: Steel concrete composite structure; RCC structure; cost analysis; high rise buildings; low rise buildings

1.INTRODUCTION

As we all know that concrete is good at compression and easily fail at tension

but steel is good at compression and as well as at tension, so when we bind these two material together they work as single unit and shows very good results as compare to RCC and this process of binding different types of material or heterogeneous materials is known as composite construction, so now we are deeply study about the cost analysis of composite structure and RCC structure for low rise buildings, because in India 3/4 population is live in rural areas so the low rise building construction is always in demand and due to this the consumption of steel in India is low as compare to other countries.

In this paper we analyse three various building models i.e; G+11, G+15 & G+20 by using software STAAD PRO.

2. COMPONENTS OF COMPOSITE STRUCTURE

A composite structure consist different components as follows:

1. Composite deck slab
2. Composite beam