Books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during academic year 2021-22

S.No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference	National / International	ISBN number of the proceeding	ISBN number of the proceeding (Link)	Page No.
1	R.S.S. SrikanthVemuri	A Study material for the applied Chemistry	NA	NA	NA	National	978-1-68576-101-1	https://iip.myinstamojo.com/product/3224744/a-study-material-for-applied-chemistry_	18
2	D.Niramla Devi	Nanotechnology	NA	NA	NA	National	9789391987-50-3	http://www.jayalakshmipublications.com/uploads/4/9/9/4/49948067/nano-technology-wrapper-cop_orig.jpg	21
3	Dr. K Venkata Prasad	NA	Quantum Chemical study on 21-Methoxy-2-fluorobenzophenone	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	23
4	Dr Chandra Sekhar Beera	NA	Vibrational analysis of halogenated benzophenone	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	24
5	Dr K Chaitanya	NA	Thermodynamic functions and Reactivity descriptors of 3,4 –dichlorobenzophenone by using DFT	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	25

S.No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference	National / International	ISBN number of the proceeding	ISBN number of the proceeding (Link)	Page No.
6	Mr S Ravi Kumar	NA	Based on ab initio HF and DFT, 3-bromo-4-chlorobenzophenone vibrational frequency assignment	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	26
7	K.Murali	NA	Vibrational analysis of Bendamustine	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	27
8	K.Surya Narayana Rao	NA	Carbon Materials' Function in Organic Pollutant Removal	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	28
9	Dr. K Venkata Prasad	NA	Molecular docking studies on 3-bromo-4chlorobenzophenone	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	29
10	Dr Chandra Sekhar Beera	NA	Conductivity and scalling process of Nb Gd and Sm doped barium titanate lithium ferrite	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	30

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11	Dr K Chaitanya	NA	Vibrational investigations of 3,5-dimethylbenzophenone using by HF and DFT methods	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	31
12	Dr Chandra Sekhar Beera	NA	Experimental and theoritical study of 4 chloro 3 iodobenzophenone	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	32
13	Dr. K. P. Suhasini	NA	Synthesis of 1, 5-bis (substituted phenyl) 1, 7 -heptadiene-3, 5-diones and their Inhibition of Human Pathogenic Bacteria by Green Technology	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	33
14	Dr. K. P. Suhasini	NA	Buffalo Population Change and Composition in Relation to Cattle during After Green Revolution Period in Andhra Pradesh, India	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	34
15	Dr. D. Nirmala Devi	NA	A study of Nonanedihydrazide with Manganese (II) and Nickel (II) Complexes in Aqueous Medium	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	35

S.No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference	National / International	ISBN number of the proceeding	ISBN number of the proceeding (Link)	Page No.
16	MS. K. Lavanya	NA	Status of Soil Pollution in Visakhapatnam	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	36
17	Mrs. M. Pavani	NA	Soil Analysis for Industrial Special Economic Zone in Rambilli Mandal, Visakhapatnam District, India	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	37
18	Dr. R. S. S. Srikanth Ven	NA	Oxidation of Ascorbic Acid Influence by CTAB / $CHCl_3$/ C_6H_{14} / H_2O Micelles with Methylene Blue	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	38
19	Dr. R. S. S. Srikanth Ven	NA	Green Synthesis of Silver Nanoparticles and Their Structural and Catalytic Characterization with Application	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	39
20	Mrs. M. Pavani	NA	Statistical Aanalysis for Heavy Metals in the Soils of Industrial Zone, Visakhapatnam	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	40

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21	Dr. Y. Bhaskar Guptha	NA	Performance of DC-DC converter with modified VMC for micro grid.	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	41
22	Dr.K.Durga Syam Prasad	NA	Minimization of road accidents by using GSM module based smart helmet	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	42
23	Mrs K.Therissa	NA	Suppression of inrush currents using a series connected voltage source PWM converter in a transformer	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	43
24	Mrs.P.Renuka	NA	AVR microcontroller based power factor controlling to minimize electricity bill	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	44
25	Mr.B.T.Rama Krishna Ra	NA	Performance comparison of conventional controller for speed control of DC- motor	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	45

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26	Mr. Y.Sumith	NA	Performance of the MC-UPQC and adaptive control algorithm for power quality improvement for power quality improvement	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	46
27	Ms.V.Krishna	NA	STATCOM based harmonic reduction in transmission lines	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	47
28	Mr.K.V.Sri Ram Prasad	NA	Maintaining power quality for sensitive load	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	48
29	Ms.V.V.Sai Santoshi	NA	Grid tied wind energy conversion system (WECS) Simulink implementation using STATCOM	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	49
30	Mr.P.Bharath Kumar	NA	84 pulse based STATCOM with VSC configuration for special applications	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	50

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31	Ms.S.Kezia	NA	Simulation of robust control scheme based SMC and its application to dynamic voltage restorer	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	51
32	Mr.V.Avinash	NA	Optimal switching - pulses to the motor inverter for torque control of induction motor drives	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	52
33	Dr.E.Gouthami	NA	Parabolic Equations: Homotopy Analysis Method	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	53
34	Dr. K. Jyothsna	NA	Analysis of an impatient customer queue with optional service and multiple working vacations and general arrivals	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	54
35	Dr. Shouri Dominic	NA	Performance Characterization of Single Vacation Queue with Change over Time	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	55

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36	K. Santhosh Kumar	NA	A Comparative Analysis of Private Sector Banks	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	56
37	A.Venkata Lashmi	NA	Marketing Planning & Forecasting	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	57
38	Dr. Pardhasaradhi Malla	NA	A Comparitive Study on Liquidity and Profitability Performance on Pharma Companies	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	58
39	T.Suguna	NA	Work life balance : A Comparative Study on public sector working women and IT sector working women and challenges faced by them	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	59
40	N.Madhuri	NA	A study on firm's capital structure and the factors influencing the firm value	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	60

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41	B.Lavanya	NA	A comprehensive study on government schemes for women enterprenuership in india	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	61
42	M.Satyavathi	NA	Evaluating the industrail development banks performance in india	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	62
43	T.Suguna	NA	Analysis and Review on organizational commitment by administrative staff in haweasse university	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	63
44	K.Swarna Latha	NA	A study on benefited people from pradhan mantri jan dhan yojana scheme	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	64
45	Dr.S.Ramesh	NA	Study on Internet Banking in Visakhapatnam with Reference to Consumers Perception	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	65

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46	K. Santhosh Kumar	NA	Common strategies to direct a mutual-fund portfolio	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	66
47	Dr.P.S.Ravindra	NA	A study on the trends in banking industry by the implementation of activity based costing	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	67
48	T.Lalitha	NA	Performance assessement of andhra pradesh grameena vikas bank	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	68
49	Dr. Pardhasaradhi Malla	NA	Overview: Indian Stock Market with reference to FIIs	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	69
50	M.Sirisha Rani	NA	Awareness to genaral public on health insurance and claim process system	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	70

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51	M.Satyavathi	NA	Social account - A survey based on evidence	Proceedings of International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International Conference on Research, Innovations and Practices in Science, Technology and Management for Societal Benefits	International	978-93-91535-30-8	http://www.conferenceworld.in/Conference/conference-in-jaipur-2022	71
52	B.Chandra Sekhar	Piezoelectricity and Its Applications	NA	NA	NA	International	978-1-83968-992-5	https://www.intechopen.com/books/10511	72
53	B.Chandra Sekhar	Corrosion in chemical and fertilizer industries	NA	NA	NA	International	978-981-14-8183-3	https://www.eurekaselect.com/chapter/14949	76
54	R.S.S. Sri KanthVemuri	Previous, Contemporary, and Prospects of E-Waste and its management	NA	NA	NA	International	978-17998-4921-6	https://www.igi-global.com/chapter/previous-contemporary-and-prospects-of-e-waste-and-its-management/268564	79
55	R.S.S. Sri KanthVemuri	Sustainable Approaches for the Treatment of Industrial Wastewater Using Metal-Organic Frame Works	NA	NA	NA	International	978-3-030-76008-3	https://link.springer.com/content/pdf/bfm%3A978-3-030-76008-3%2F1	81
56	M.Dhanalakshmi Bhavani	Application of VANET to avoid pedestrain collision in automative vehicles	NA	NA	NA	International	978-100-3006-81-7	https://www.taylorfrancis.com/books/edit/10.1201/9781003006817/augmented-intelligence-toward-smart-vehicular-applications-nishu-gupta-joel-rodrigues-justin-dauwels?refId=a3fdf682-0f4c-40c0-9a79-7467fc94acec&context=ubx	83

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57	Sariki R.K., Kambavalasa S.K., Bandari N.K., Moningi R.K.	NA	Design and fabrication of POF Couplers/Splitters for Networking and Displacement Sensing	IEEE	International Symposium of Asian Control Association on Intelligent Robotics and Industrial Automation (IRIA)	International	978-1-6654-3323-5	https://www.scopus.com/record/display.uri?eid=2-s2.0-85119100251&doi=10.1109%2fIRIA53009.2021.9588705&origin=inward&txGid=2e3e8da2b42127f09bc40ac06bf8c37e	84
58	Anitha Bhavani Ch	NA	High frequency Chirp signal generator using multi DDS approach on FPGA	IEEE	International Conference on Trends in Electronics and Informatics	International	978-1-6654-1571-2	https://ieeexplore.ieee.org/document/9453012	85
59	Lingampalli J.R., Namdeo V.	NA	Unique smart card verification system for validating university degree certificates	IEEE	5th International Conference on Intelligent Computing and Control Systems, ICICCS 2021	International	978-1-6654-1272-8	https://ieeexplore.ieee.org/document/9432360?denied=	86
60	Sudhakar J., Rao E.J., Sravani D.	NA	A Systematic Analysis of Low Power and Low Area Multipliers by Evading Wastage of energy	IEEE	2nd International Conference on Applied Electromagnetics, Signal Processing, and Communication, AESPC 2021	International	978-1-6654-4259-2	https://www.lap-publishing.com/catalog/details/store/ru/book/978-613-9-88119-2/self-timed-null-convention-logic-approaches?search=Self%20time%20null%20convection%20logic%20approaches	87
61	Rao E.J., Krishna K.M., Katta M., Busa K.	NA	Efficient Design of Multiplier using EGDI Technique	IEEE	2nd International Conference on Applied Electromagnetics, Signal Processing, and Communication, AESPC 2021	International	978-1-6654-4299-2	https://ieeexplore.ieee.org/document/9708531	88
62	Lingampalli J.R., Namdeo V.	NA	Advanced unique smart card verification system for Validation of university certificates with AES and LUHN algorithm	IEEE	5th International Conference on Electronics, Communication and Aerospace Technology, ICECA 2021	International	978-1-6654-3524-6	https://ieeexplore.ieee.org/document/9675970	89

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63	Ch.Suresh	NA	Experimental investigation on VCR diesel engine fuelled with Al2O3nanoparticles blended cottonseed biodiesel - Diesel blends	Materials Today: Proceedings	2nd International Conference on Manufacturing Material Science and Engineering	International	2214-7853	https://www.sciencedirect.com/science/article/pii/S2214785320359046	90
64	Chitturi S., Bhaumik M., Dandu K., Mudidana R.K.	NA	Experimental investigation on mechanical properties of FeCoCrNiMo High Entropy Alloy & B4C reinforced Al6061 hybrid MMCs	Materials Today: Proceedings	2nd International Conference on Manufacturing Material Science and Engineering	International	2214-7853	https://www.sciencedirect.com/science/article/pii/S2214785320401427	91
65	Baratam Sailaja	NA	Student Result Prediction Before Attempting Exams Using Machine Learning Algorithm	Springer Link	Proceedings of 6th International Conference on Recent Trends in Computing	International	978-981-33-4501-0	https://link.springer.com/chapter/10.1007/978-981-33-4501-0_75	92
66	Bhaumik M., Maity K.	NA	Finite element simulation and experimental investigation of Ti-5Al-2.5Sn titanium alloy during EDM process	Materials Today: Proceedings	2nd International Conference on Manufacturing Material Science and Engineering	International	2214-7853	https://www.sciencedirect.com/science/article/pii/S2214785320336919	93
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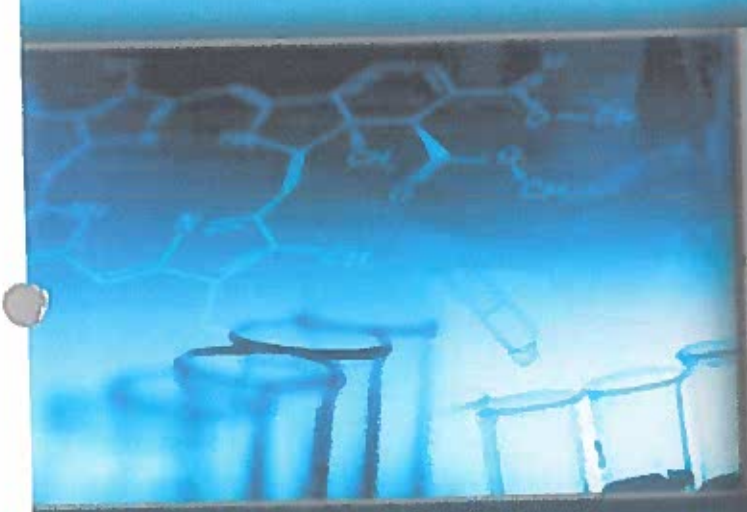
A Study Material for Applied Chemistry



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A Study Material for Applied Chemistry

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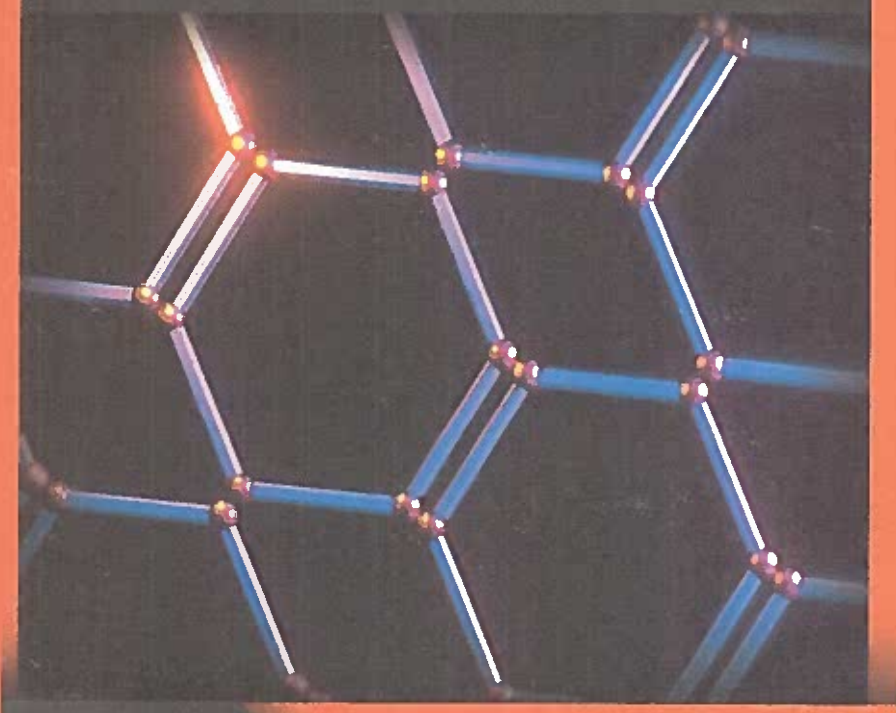

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Quantum Chemical study on 21-Methoxy-2-fluorobenzophenone

K.VENKATA PRASAD

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ABSTRACT: *Methoxy-vibrational fluorobenzophenone's frequencies were determined from FT-IR and Raman spectral data, and they were assessed based on DFT using the accepted method B3LYP with 6-31G(d,p), the basis set. The assignments for the various frequencies were specified using the potential energy distribution, the Normal-Coordinate Analysis, and the scaled quantum mechanical force methodology. The molecule's first order hyperpolarizability and electric dipole moment () values were calculated. In order to better understand electronic transitions, the UV-absorption spectrum was also captured. It is evident from the computed HOMO and LUMO energies that charge transfer takes place inside the molecule. The intramolecular hyperconjugative interactions were studied using the NBO methodology. The net charges for Mulliken were assessed.*

Keywords: *DFT, FTIR, FT-Raman, NBO, MEP, HOMO, LUMO.*

I. INTRODUCTION

Benzophenone (BP) and its derivatives are generally known for their pharmaceutical applications. Some are noted for preparation of plastics, rubbers, cosmetics, sunscreens, anti-aging products [1], UV-filters [2], phosphors in light emitting devices [3], non linear optical properties [4] engineering applications, biological activity [5], piezoelectric effect [6], phosphorescence emission, electrical properties such as second harmonic generation materials and so on. Some more are applicable for high density information storage system, photo switching [7] etc. hence we have considered a few of the substituted BPs such as 4-dichlorobenzohenone, 3-iodo4-chlorobenzophenone, 3-bromo-4chlorobenzophenone,4-fluoro-3-methylbenzophenone, 21-methoxy-2-fluorobenzophenone(21Me2Fl). This paper deals with details associated with one such molecule 21Me2Fl (Fig1). It is also on par with experimental work carried out on vibrational frequencies and electronic transitions in our Molecular Spectroscopy Laboratories, Andhra University on a large number organic compounds such as benzenes, naphthalenes, anthracenes, oxazoles, indoles, pyridines, furans, pyroles, pyrines and others. We have extended theoretical calculations also for vibrational frequencies and electronic transitions with Benzophenones, anthracenes and naphthalenes. The details are given under experimental, calculation, results and conclusion section as follows.

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Vibrational analysis of halogenated benzophenone

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ABSTRACT: *From the FT-IR and Raman spectral data, the vibrational frequencies of the molecule 3,4-dichlorobenzophenone (DclBP) have been determined. The frequencies are also theoretically assessed using the standard B3LYP/6-311+G(d, p) method and basis set combination, based on the density functional theory (DFT). The assignments for the various frequencies are made using the potential energy distribution estimated with the MOLVIB algorithm. A scaling factor modification is also done to get theoretical and experimental values to correspond more closely. The results of the final analysis and the various vibrational modes' assignments are provided. Ab initio quantum chemical calculations were used to determine the values of the examined molecule's electric dipole moment and first-order hyperpolarizability . Charge transfer happens within the estimated HOMO and LUMO energies.*

Keywords:*FT-IR, Raman, vibrational analysisservice, hyperpolarizability*

I. INTRODUCTION

In view of the various applications of benzophenones it is found interesting to investigate (1) the fundamental spectral characteristics such as the vibrational frequencies from IR and Raman spectra, (2) theoretical evaluation of vibrational frequencies using Gaussian Programme 03, (3) study of electronic transition from highest occupied molecular orbital to the lowest unoccupied molecular orbital, (4) the hyperpolarizabilities with a view to understand the NLO properties, and (5) thermodynamic properties and also to report the NBO analysis for a few of the substituted benzophenones in our laboratories. The present paper deals with such studies conducted on 3,4-dichlorobenzophenone (Fig 1). The vibrational spectra of benzophenone (BP) was studied by Puranik et al [8] both by recording the IR and Raman spectrum and also by theoretical evaluation using normal coordinate analysis. The IR spectrum of BP in crystal state was recorded by Mallikarjuna Rao et al [9]. The vibrational analysis was carried out by them using factor group correlation technique. The observed frequencies were reported by them from Raman spectrum. The Raman spectrum of BP was also investigated by Bistevic et al [10].The normal mode calculation for BP was also carried out by them. The analysis was attempted with the help of potential energy distribution. Finally, a comparison between the observed and calculated values together with benzene relations of Wilson's notation was carried out by them.

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Thermodynamic functions and Reactivity descriptors of 3,4 – dichlorobenzophenone by using DFT

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ABSTRACT : The FT-IR and Raman spectrum data were used to determine the vibrational frequencies of 3,4-dichlorobenzophenone (DCLBP), which were then assessed using Density Functional Theory and the standard method B3LYP with 6-311+G(d,p) as the basis set. The assignments for the various frequencies were given based on potential energy distribution, normal-coordinate analysis, and scaled quantum mechanical force methods. The molecular first-order hyperpolarizability (β) and electric dipole moment (μ) values were calculated. In order to better understand electronic transitions, the UV-visible absorption spectrum was also captured. It is evident from the computed HOMO and LUMO energies that charge transfer takes place inside the molecule. The intramolecular hyperconjugative interactions were studied using the NBO methodology. The net charges for Mulliken were assessed.

Keywords:DFT,FTIR

I. INTRODUCTION

The vibrational spectra was investigated on the basis of comparison of Wilson modes of vibration together with those of CC(O)C [1]. From the IR and Raman spectra of BP the vibrational frequencies were reported by Kole et al. [2] and the assignments were compared with the Wilson modes of benzene. Investigations of the spectra of series of mono and dihalogenated substituted benzophenones were carried out by different authors. The vibrational spectrum of para nitro benzophenone was studied by Mohan et al. [3] The vibrational spectra of para substituted benzophenones with (F, Cl, Br and CH3) were investigated through Raman and IR [4] spectra. Raman and IR spectra of 3,4-diaminobenzophenone were recorded and vibrational frequencies were reported by Krishnakumar et al. [5] The vibrational frequencies of 4-methyl benzophenone were determined both from IR and Raman spectra [6]. In a more recent work on cross-conjugated system, benzophenone thiosemicarbazone, a vibrational spectroscopic study was computed with B3LYP method. The electronic structure was described in terms of natural bond orbital (NBO) analysis by Ravikumar and Hubert Joe [2].

II. EXPERIMENTAL DETAILS

3,4-DCLBP was graciously provided by Dr. Heron, Dept. of Colour Chemistry, UK [16]. This was used as such for the spectral measurements. The Fourier Transform Infrared spectrum

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Based on ab initio HF and DFT, 3-bromo-4-chlorobenzophenone vibrational frequency assignment

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ABSTRACT: In the current investigation, we looked into 3-Bromo-4-chlorobenzophenone's potential as a medicine. Using the DFT tool, structural and electronic properties (HOMO-LUMO, MEP) are examined. The baseline molecule is used in vibrational spectral analysis for FT-IR and FT-Raman. UV-Vis spectrum analysis is used to discuss the properties of electronic transitions. MEP analysis identifies sites that are biologically active. The HOMO-LUMO band gap energy is used to study and analyse electron delocalization features. Furthermore, the NBO technique provides an explanation for intramolecular interactions. To discover the relationships between different illnesses, molecular docking studies are carried out. Analysis has been done on the electron density's topological characteristics.

Keywords: Density functional theory; Molecular structure; Natural bond orbital analysis.

I. INTRODUCTION

Benzophenone, an aromatic diphenyl keytone is a very important compound as its related analogues are applicable in drugs as antiallergic[1], antiasthamatic[2], antimalarial[3], antimicrobial and antianaphylactic agents [4] and also pesticides, optical fiber as in printed circuit boards act as optical filter and in the manufacture of synthetic perfumes. The benzophenone compounds have pharmacological properties such as anti-inflammatory activity [5], vasorelaxant [6], analgesia [7]. Most of the benzophenones have crystal structures and exhibit pharmaceutical applications [8]. As the compounds possess a large number of applications in different fields, the study of substituted benzophenones has been taken up and this paper deals with 3 – Bromo - 4 - chlorobenzophenone (3Br4ClBP). As a continuation of spectral investigations on halogenated benzophenones [9,19], the author has taken up the evaluation on the vibrational frequencies, the electronic transitions, intramolecular hyperconjugative interactions by natural bond orbitals (NBO) and hyperpolarizability. These have been studied using both experimental and theoretical calculations together with MOLVIB programme for vibrational analysis.

II. EXPERIMENTAL DETAILS

The title molecule 3Br4ClBP is pale brown microcrystals, (67%), with melting point as 89-91^{0}C. This was newly synthesized by the Colour Chemistry Laboratory [11]. The FT Infrared spectrum

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Vibrational analysis of Bendamustine.

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ABSTRACT: *In this study, potential energy distribution was used to summarise the optimization geometry of the molecule, FT-IR, FT-Raman, and UV-Vis spectra, vibrational frequencies, and assigning of acceptable vibrational modes of Bendamustine (an anti-cancer medication). In order to conduct spectroscopic research, DFT/B3LYP with 6-311++G (d, p) level is used. The results of the calculations were used to predict the Bendamustine spectra, and they are in good agreement with the measured spectra. The TDFT had been used to calculate oscillator strengths. HOMO and LUMO analytics were used to determine the transfer of charge within the molecule. By detecting internal charge transfer, hyperconjugation, and stabilisation energy, the NBO research has been used to confirm the molecule's stability*

Keywords: *IR, Raman, UV DFT, NBO, Fukui functions, Molecular docking*

I. INTRODUCTION

According to Global statistics, "Cancer is the third most deadly disease in the world", behind cardiovascular, parasitic, and infectious disorders. Nearly 19.3 million individuals were treated with cancer in 2020, indicating that cancer remains a significant hazard to humanity today [1]. Therefore, the medical demands associated with cancer continue to be one of the most challenging fields of scientific research. The title drug molecule Bendamustine in Fig. 1 has an IUPAC name ("4-(5-(Bis (2-chloroethyl) amino)-1- methyl-1H-benzo [d]imidazol-2-yl")butyric acid, molecular formula C16H21Cl2N3O2 and molecular weigh.358.2 g-mole−1 [2]. It is a chemotherapeutic drug with a distinct cytotoxicity pattern compared to typical alkylating agents. It has both antimetabolite and alkylating characteristics. The characteristics of the alkylating agent are the same as those of melphalan, chlorambucil, and cyclophosphamide. The ring is the same as that of cladribine. Molecular tests have shown that bendamustine differs in its mechanism of action from other alkylating drugs. Differences in its impact on DNA repair and cell cycle advancement were detected. In addition, both apoptotic and non-apoptotic pathways can lead to bendamustine cell destruction, keeping action even in cells without the use of a viable apoptotic pathway. The drug molecule has shown remarkable success in indolent lymphoma patients and "chronic lymphocytic leukemia (CLL), especially in patients with conventional alkylating drugs and minimal illness refractory diseases. Combination therapy with bendamustine and rituximab shows superior efficacy in patients with previously untreated indolent B-cell non-Hodgkin's lymphoma" in standard rituximabcontaining chemotherapy

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Carbon Materials' Function in Organic Pollutant Removal

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ABSTRACT : Pesticides and dyes are two examples of organic pollutants whose negative impacts on aquatic biota have been clearly demonstrated by several tragic events around the world. Even yet, it has been reported that pesticide poisoning causes up to 180000 fatalities annually in developing nations. Organic colours like azo dyes are extremely persistent, nonbiodegradable, and carcinogenic in addition to concurrent organic contaminants. A birds-eye view focused on several strategies for removing pesticides and dyes from water sources while peering into the dangers of these substances. Adsorbents like carbon nanotubes and graphene have recently been used in the adsorption approach to remove these substances. Additionally, the features of graphene include a high surface-to-volume ratio, an aromatic honeycomb structure that resembles a sizable polyaromatic molecule, and exceptional chemical stability.

Keywords: graphene; carbon nanotubes; nanocomposite; adsorption and adsorption

1. INTRODUCTION

The industrial revolution has changed the world economy and technological aspects in the forward direction and concomitantly also an impetus for the rapid environmental degradation [1]. As the years rolled down, there was still a quest for secluded facts and sources of aquatic pollution since it reached an alarming condition globally that might adversely influence public health and the environment if the present situation continues. Despite many reasons for it, organic pollutants have been grabbed a major share among them [2]. It seems that water pollutants like organic pollutants might induce havoc on water pollution via oxygen demanding wastes, synthetic organic compounds, and oil [3]. Every day sewage around twenty crore tons flows into freshwater bodies and 70% of the household sewage, followed by 33% of the industrial waste directly released into water, which is a primary cause for the supply of approximately 90% of contaminated water to cities [4]. A microscopic view on synthetic organic compounds like pesticides, synthetic dyes, polyaromatic compounds, and pharmaceutical compounds entered into water bodies through various sources, particularly industrial effluents. So it understands that a major threat to freshwater resources, 0.1% in the form of surface water and 0.6% of groundwater out of 2.7% prevailed with anthropogenic activities rather than natural causes [5]. Thereupon pesticides and dyes are considered emerging contaminants (ECs) since they are unregulated compounds and hazardous to the environment and living organisms [6]. To

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Molecular docking studies on 3-bromo-4chlorobenzophenone

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ABSTRACT: In the current investigation, we looked into 3-Bromo-4-chlorobenzophenone's potential as a medication. Using the DFT tool, structural and electronic properties (HOMO-LUMO, MEP) are examined. The headline molecule is used for vibrational spectral analysis for FTIR and FT-Raman. UV-Vis spectrum analysis is used to discuss the properties of electronic transitions. MEP analysis identifies sites that are biologically active. The HOMO-LUMO band gap energy is used to study and analyse electron delocalization features. Furthermore, the NBO technique provides an explanation for intramolecular interactions. To discover the relationships between different illnesses, molecular docking studies are carried out. Analysis has been done on the electron density's topological characteristics.

Keywords:DFT, Docking, vibrational analysis

I. INTRODUCTION

The benzophenone compounds have pharmacological properties such as anti-inflammatory activity [1], vasorelaxant [2], analgesia [3]. Most of the benzophenones have crystal structures and exhibit pharmaceutical applications [4]. Recently, benzophenone derivatives also exhibit potential DPP-IV inhibitors [5]. As the compounds possess a large number of applications in different fields, the study of substituted benzophenones has been taken up and this paper deals with 3 – Bromo - 4 - chlorobenzophenone (3Br4ClBP). As a continuation of spectral investigations on halogenated benzophenones [6], the author has taken up the evaluation on the vibrational frequencies, the electronic transitions.

II. EXPERIMENTAL DETAILS

The FTRaman (FT-Raman) spectrum of 3Br4ClBP was recorded on the spectrograph with FRA-106 at 4000-100 cm− 1 in FT-Raman spectrum with 1064 nm of a Nd-YAG laser. The Optical Infrared and Raman spectra are well compared as revealed in Fig. 2 and Fig. 3. The Ultra-Violet (UV) spectrum of 3Br4ClBP was documented in dichloro methane solution in the UV-Vis spectrophotometer – 950PerkinElmer LAMBDATM 950. Quantum chemical calculations for the head compound are done using Gaussian-03 software package (M. J. Frish, G. W. Trucks, H. B. Schlegel et al Wallingford, CT, USA).

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Conductivity and scaling process of Nb, Gd, and Sm-doped barium titanate-lithium ferrite.

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ABSTRACT : The structural properties like X-ray diffraction (XRD), FESEM, electrical properties like electric modulus (M0), complex electric modulus (M00) and conductivity properties of doped and undoped composites have been discussed. The XRD studies confirm the incorporation of Gd and Sm in the composites. FESEM reveals an increase in the average grain size of composite upon doping with Gd/Nb and Sm/Nb. The conductivity and the real electric modulus (M0) of composites are increases steeply with increase in frequency at all temperatures. The real electric modulus (M0) approaches to maximum value indicative of dispersion in all composites at all temperatures. The imaginary electric modulus (M00) increases with frequency and exhibits a peak at a certain frequency. The peaks of complex electric modulus (M00) of composites have shifted towards higher frequency with temperature. The shift of the relaxation peak to the higher frequencies upon heating suggests the decrease in the relaxation rate of the process.

Keywords: Conductivity, Electric modulus, Relaxation time, Activation energy, Frequency, Gadolinium Samarium

I. INTRODUCTION

The amalgamation of ferroelectric and ferrite composites leads to new multiferroics which has earned great technological interest in recent years [1,2]. It is essential to synthesize different dielectric materials for different applications [3]. The dielectric material possessing a low dielectric constant is used in applications like Integrated Circuit (IC) insulation materials and the dielectric materials possess high dielectric constant are preferred in some applications like gate dielectrics in Field Effect Transistors (FET) [4]. The composite materials comprising of more than one constituent materials possess remarkable chemical and physical properties [5]. A ferrite material when doped in suitable materials form composites which exhibit both dielectric and magnetoelectric properties. Among all ferrite type materials, *M*-type hexaferrites are excellent candidates for such magnetoelectric material with transition temperature is 740 K. This is the oldest type of all ferrites with a hexagonal structure. Based on the this type of compounds, more than 90% of permanent magnets are produced all over the world. They are deep insulators whose resistivity (ρ) is 10^{12} Ω-cm at room temperature. They also have a ferrimagnetic nature and a total magnetic moment is close to 20 μB in the ground state [6,7]. In mobile communication

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Vibrational investigations of 3,5-dimethylbenzophenone using by HF and DFT methods

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ABSTRACT: At ambient temperature, the FT-IR solid phase and FT-Raman spectra of 3,5-Dimethylbenzophenone (3,5-DMBP) were captured. The ground state molecular geometries (bond lengths and bond angles), harmonic vibrational frequencies, infrared intensities, Raman activity, and bonding characteristics of this compound were all calculated using density functional theory calculations with B3LYP/ 6-31+G(d, p) basis set. The Scaled Quantum Mechanical Force Field approach was used to assign the vibrational spectra with the aid of normal co-ordinate analysis (NCA) (SQMFF). Using the HF/6-31+G(d,p) based on the finite-field approach, the first order hyperpolarizability of this unique molecular system and related properties of DMBP are computed. Utilizing NBO analysis, the molecule's stability has been examined.

Keywords: 3,5-dimethylbenzophenone,FT-IR,FT-Raman,NCA,NBOanalysis

I. INTRODUCTION

Benzophenone and its derivatives were of great interest because of their extensive application in varied areas, such as medicine [1–3] and photochemistry [4, 5]. These molecules possess non-centro symmetry and hence they are widely used in the synthesis of molecules having non-linear responses [6, 7]. The investigation on the structure and fundamental vibrations of benzophenone and its derivatives are still being carried out increasingly. The inclusion of an electron donating methyl group in aromatic ring leads to the variation of charge distribution in the molecule, and consequently affects the structural, electronic and vibrational parameters. The vibrational spectra of benzophenone and its derivatives were measured and discussed by several authors [8–23]. While the standard molar gas-phase enthalpies of formation, at T = 298.15 K, of 2-, 3-, and 4-methylbenzophenone [24] and 2,3-, 2,4-, 2,5-, 2,6-, 3,4-, 3,5-, 2,2'-, 2,3'-, 2,4'-, 3,3'-, 3,4'- and 4,4'- dimethylbenzophenone [25] have been studied both by experimental and computational techniques, there comprehensive normal-mode analysis is unavailable. Crystal, molecular structure and vibrational spectra of α-4-methylbenzophenone by density functional theory calculations have been carried out by Sasiadek et al. [26]. Literature survey reveals that so far there is no complete vibrational spectral study for the title compound 3,5-DMBP.

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Experimental and theoretical study of 4 Chloro 3 iodobenzophenone

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ABSTRACT: Four-Chloro-3-Iodobenzophenone (4, 3- ClIBP), a substituted benzophenone molecule is subjected to a vibrational investigation utilising both FT-IR and FT-Raman spectra as well as quantum chemical calculations of the scaled frequencies using the DFT method B3LYP/LanL2DZ basis set. This molecule's natural bond orbital analysis has been used to describe the many intramolecular interactions that have helped stabilise the molecule. The energy gap between the HOMO and LUMO has been calculated using the TD-DFT theory, and the variations are contrasted with UV-absorption spectra. For the range of 3000e1000 k, the statistical thermodynamic functions are computed. In order to describe the activity of the locations, the Fukui functions are evaluated.

Keywords: FT-IR, FT-Raman, UV-absorption, DFT and Fukui functions

1. INTRODUCTION

Benzophenone (BP) and its derivatives are aromatic ketones which have very wide applications such as inks, adhesive coatings, optical fiber as well as in printed circuit boards. In different fields, many dyes, pesticides and drugs can be synthesized using parent BP. These are in general free radicals and undergo bimolecular reactions which can act as optical filters useful in industrial applications, sunscreen agents, reduction in skin damage and also as skin-protectors. Halogenated benzophenones in general show bioactivity and in that too fluorinated compounds are more [1] The bromo substituted BPs were generally registered for second harmonic generation [2]. The substituted BPs exhibit variation of charge distribution as a consequence of the structural, electronic and vibrational parameters were changed [3]. The substitutions of weak electron donor such as Cl, Br, F, CH3 and OH etc on phenyl group resulting in non centro symmetric structure are considered to be suitable donor groups for designing NLO chromophores subject of interest for molecular engineering of efficient NLO materials [4] Theoretical and experimental investigations were carried out by several authors on a number of substituted benzophenones such as BP 2,4- dicarboxylic acid [5], 3,5-dimethylBP [6], 2-methylamino-5- chloroBP [7], 2-amino-5-nitroBP [8], 2-hydroxy-4-methoxyBP [9], 3,4-dichloroBP [10], 4-Fluoro-3-methylBP and 3-Bromo-4- ChloroBP resulting in the vibrational analysis, NBO characteristics leading to several intramolecular electronic interactions, NLO properties, the inter charge transfer through the evaluation of HOMO, LUMO, the global chemical quantities and Fukui [illegible] with

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Synthesis of 1, 7-bis (substituted phenyl) 1, 7 -heptadiene-3, 5-diones and their Inhibition of Human Pathogenic Bacteria by Green Technology

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ABSTRACT: *In accordance with the principles of green chemistry, silica-sulfuric acid is used to create curcumin analogues on solid supports without the use of harmful chemicals or organic solvents. Elemental analysis, IR, NMR, and mass spectroscopy are used to determine their structures. Utilizing ciprofloxacin as the reference molecule, the antibacterial properties of the produced curcumin analogues are assessed against three human pathogenic Gram negative bacteria. Most substances have some antibacterial properties, with the effectiveness varying according on the type and position of the phenyl substituents.*

Keyword: Green Synthesis, Solid support, antibacterial

I. INTRODUCTION

Green chemistry, which promotes the development of goods and procedures that reduce the use and production of dangerous compounds, has emerged as an advanced field of chemical engineering and research [1]. Organic, inorganic, biochemical, analytical, and physical chemistry are all included in the term "green chemistry." Green chemistry aims to promote a healthy environment and a sustainable world. These goals are accomplished by concentrating on three key areas: enhanced selectivity, alternate synthetic pathways employing a solvent with reduced environmental impact, and solvent-free synthesis [2]. The new scaffolds were created using a procedure that lessens or completely eliminates the use of hazardous materials. There is zero production of undesirable or dangerous byproducts. Atom economy is primarily emphasised in green chemistry. The major focus of green chemistry is atom economy at every step of design, production, and utility. The goal of solid support organic synthesis is to eliminate or reduce waste byproducts. A fascinating area of research was introduced by R. Bruce Merrifield's Peptide Synthesis [3] in 1963, which used a cross-linked polystyrene support. Since then, numerous new reagent bound, substrate bound, and catalyst binding procedures have been created. It was discovered that the polymer-bound complex performed better than its homogeneous equivalent. Also discovered to be recyclable and reusable. Solid acids, particularly those built on micelle-template silica and other mesoporous high surface area support materials, have started to play a big part in the greening of important and high-quality chemical production processes. A wide range of important organic reactions can be efficiently catalyzed by these materials, which can be designed to provide different types of acidity as well as high degrees of reaction selectivity. The solid acids [4] generally have high turnover numbers and can be easily recovered from the organic components. The combination

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Buffalo Population Change and Composition in Relation to Cattle during After Green Revolution Period in Andhra Pradesh, India

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ABSTRACT: *With a semi-arid tropical climate and three geopolitical regions, Coastal Andhra, Rayalaseema, and Telangana, Andhra Pradesh is a rural state in peninsular India. Regional imbalances in overall development were caused by variations in agroclimatic conditions and irrigation potential. In Andhra Pradesh, small and marginal farmers who use the traditional mixed farming technique predominate in agricultural production. The cattle industry was directly impacted by significant developments that occurred during the green revolution period, including improved irrigation potential, changes in crops and cropping patterns, agricultural mechanisation, and fragmentation of land holding. With the exception of Coastal Andhra, cattle predominated throughout the state during the pre-green revolution period. In cattle, 44% of the animals were male, highlighting their use as draught animals; It was cut in half to 15%. A 20% increase in the proportion of females and young stock among buffaloes indicates a change in farmers' preference for milch buffaloes. Farmers in Telangana prefer to raise cattle for draught and buffaloes for milk production, as seen by the rise in the proportion of male cattle, female cattle, and young buffaloes. The discussion includes changes in composition in cattle and buffaloes as well as spatial and temporal trends.*

Keywords: Milk production, Draft power, Green revolution

I. INTRODUCTION

Andhra Pradesh is an agrarian state in peninsular India with a tropical climate that is semi-arid. Due to the state's three geopolitical zones, which have radically diverse agroclimatic conditions, natural resources, and irrigation capacity, there has been a different level of growth throughout them. The majority of farmers using a mixed agricultural method are small and marginal farmers. The introduction of hybrid types of food grain crops, the expansion of irrigation capacity, and the use of chemical fertilisers and pesticides throughout the 1970s all contributed significantly to India's "green revolution," or rise in food grain production. The green revolution had a greater impact in command areas than in areas that relied on rainfall. Additionally, it had negative impact on the cattle industry, particularly the enormous ruminant populations that are fed on crop leftovers and agricultural byproducts. Bovine population fluctuations in three regions since the green revolution have not, however, been the subject of rigorous analysis. This article makes an effort to analyse how the bovine population changed in the state of Andhra Pradesh following the green revolution (after the 1970s). The introduction of hybrid types of food grain crops, the expansion of irrigation capacity, and the use of chemical fertilisers and pesticides throughout the 1970s all contributed significantly to India's "green revolution," or rise in food grain production. The green revolution had a greater impact in command areas than in areas that relied on rainfall. Additionally, it had negative impact on the cattle industry, particularly the enormous ruminant populations that are fed on crop leftovers and agricultural byproducts.

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A study of Nonanedihydrazide with Manganese (II) and Nickel (II) Complexes in Aqueous Medium

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ABSTRACT: *For the interaction of a ditopic aliphatic ligand, Nonanedihydrazide (AZDH), with five low transition metal ions Mn^{II} and Ni^{II} in an aqueous solution at 30.0 0.1 oC and ionic strength, I = 0.1 mol dm-3, a chemical speciation research was conducted using a Metrohm-877 titrinoplus auto titrator (KCl). There is a possibility of a variety of monometallic and binuclear species with varied protonation states in the solution since the chelating nature is present symmetrically on both sides of the ligand. By using the Bjerrum, Calvin-Wilson potentiometric method of data collecting, followed by chemometric methods of analysis for various metal-ligand ratios, such as 1:1, 1:2, and 2:1 in different titrations, the probable species present in the solution were identified. The species distribution diagrams produced by the HYSS programme were used to analyse the distribution of concentration of all species present in the solution as a function of pH. Using the SOPHD tool, the existence of each species in a specific pH range was compared. Using the Miniquad-75 programme, the stability constants of every possible species were calculated. Values of stability constants obtained are more important in predicting the likely structures of species already present in the solution*

Keywords: *Azelaic acid dihydrazide, ditopic ligand, SCOGS, HYSS.*

I. INTRODUCTION

Ditopic ligands and their complexes are a growing area of coordination chemistry that has potential uses in both biology and industry. In order to effectively sequester metal ions with high atom efficiency, non-toxic ditopic ligands are required. Dihydrazides are among a class of nitrogenous organic chemicals that have numerous uses in chemotherapeutics, synthetic chemistry, agriculture, and chemical elucidation. These substances work well as crosslinkers for acrylic, polyurethane chain extenders, and epoxy resin cure agents. The significance of this family of chemicals expanded with the expansion of their commercial and biological applications. In addition to the mono nuclear complexes, these ligands can accommodate metal ions in various coordination pockets, resulting in the development of binuclear complexes. This process involves several fascinating and significant factors. The formation of supramolecular-like structures to mimic metalloproteins and better understand their structure-reactivity relationship, DNA binding, and specific and selective catalysis is caused by the presence of two metal ions in the same species separated by a flexible portion of the molecule. Dihydrazides were shown not to be genotoxic in both in vitro and in vivo testing. Dihydrazides have been authorised by the Food and Drug Administration (FDA)[3,4] for use as cross linkers for coatings[5] on polymers used for food packaging that are not in direct contact with food.Linear aliphatic dicarboxylic acid dihydrazides such as AZDH are used to produce linear polymers that are used

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Status of Soil Pollution in Visakhapatnam

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ABSTRACT: *Since the last decade of the 20th century, India's industrial sector has grown significantly thanks to the creation of special economic zones and economic policy reforms (SEZ). This rapid industrial expansion has increased the threat to the environment. In India, soil pollution as a threat to human life is mostly ignored at the national level due to a lack of comprehensive knowledge on the issue, despite the fact that remediating it is significantly more challenging than remediating polluted air and water. Although there isn't a focused national effort to examine soil contamination, a variety of studies have amassed sporadic data on the different types of pollution that have an impact on soil quality. In order to assess the threat to the country's agroecosystem, this paper analyses the data. The intentional use of contaminated organics, amendment materials, and irrigation water, as well as air depositions, effluent spills, and other variables, are all said to put soil resources in jeopardy. Salts, dangerous metals, metalloids, persistent chemical compounds, and other substances are among nature's pollutants. Both geogenic and industrial origins are possible for them.*

Keywords: *Soil, Pollution, Heavy Metals, Ground Water*

I. INTRODUCTION

The Indian population's primary source of income over time has been agriculture. The private sector experienced constrained expansion between 1940 and 1970, and the Gross Domestic Product (GDP) increased at a rate of 1.4% annually. The industrial sector experienced a spectacular 8.4% growth rate in 1994–1995 and continued to contribute more to GDP after that. However, a surge in the flow of harmful effluents into the environment, including land and water bodies, was also linked to rapid industrial growth. A large area of soil resources and groundwater bodies have been reported to be contaminated by the entry of pollutants, either directly (by the release of effluents on land) or indirectly (by the use of polluted water as irrigation to crops), affecting crop production as well as human and animal health through contaminated food. According to the most recent estimate, India's water and soil resources were contaminated in 2009 by approximately 33,900 MLD of urban waste water and 23,500 MLD of industrial waste water produced in our nation. Larger polluters than small-scale industries are those with little or no wastewater treatment facilities. Another type of soil contamination involves chemical pollutants that enter the soil through natural processes that landowners have no control over. For instance, airborne contaminants from various industries, power plants, cars, and radioactive and poisonous chemical fallout after disasters penetrate the soil body.

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Soil Analysis for Industrial Special Economic Zone in Rambilli Mandal, Visakhapatnam District, India

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ABSTRACT: *The soil is a natural body composed of different layers of mineral constituents of varying thicknesses, which differ from their parent materials on the basis of morphological, physical, chemical and mineralogical characteristics. Soil which consists of broken rock particles that have been altered by chemical processes. It varies from its parent rock due to interactions between all the lithosphere, hydrosphere, atmosphere and biosphere, it is a mixture of mineral & organic constituents that are solid, gaseous and aqueous. Soil that is loosely packed, forming a soil structure filled with pore spaces.Soil is used in agriculture where it serves as the primary plant nutrient base but is shown to be hydrophonic and not essential for plant growth if the nutrients contained in the soil could be dissolved in solution.. This types of soils used in agriculture vary with respect to the species of plants that are cultivated.*

Keywords: *Mineral Constituents, Mineralogical Characteristics, Hydroponics, Soil Biota, Soil Contamination*

I. INTRODUCTION

An important component of the environment is the soil. We are aware that the rivers, rocks, plants, and animals were engaged. primarily the mining and construction sectors, as well as companies involved in pollution, erosion, or salinization. We can decrease the use of chemical fertilisers and pesticides by applying a variety of bio-fertilizers and manures. We can reduce soil contamination using biological means as well is a reasonable approach, because recyclable materials include glass, some types of plastic, and paper. Land pollution is brought on by an increase of urbanisation, agriculture, industrial activity, and farming. Several companies, industries, or waste disposal processes, coal-fired power stations and other energy industries are the main contributors of pollution. Low-level contamination of the soil frequently has the ability to treat and amend the soil. There may be too many waste treatment procedures, treatment capacity may be exceeded, the soil biota may be old, and the function of the soil may be constrained.

II. AN OUTLINE OF THE STUDY AREA

The project's location is in the Andhra Pradesh district of Vishakhapatnam, in the hamlet of Pudi, Rambilli Mandal. The planned site is located at the intersection of North Latitude 17o31'11.17" and Longitude 82o59'58.26" East of 21 metres above mean sea level (msl). The closest major city to the proposed carbon black unit is Visakhapatnam, which is located around

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Oxidation of Ascorbic Acid Influence by CTAB / $CHCl_3$/ C_6H_{14} / H_2O Micelles with Methylene Blue

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ABSTRACT: *In the presence of CTAB/CHCl3/hexane/water reverse micelles, the kinetics of the ascorbic acid-mediated reduction of methylene blue (MB+) by ascorbic acid (HA-) have been investigated. Without using the reaction follows first order kinetics that is straightforward for both reactants. Under the same experimental settings, it was discovered that the second order rate constant, k(w), (0.0360 mol(-1) dm3 s-1), was roughly sixty times larger than k(o), (5.33 × 10(-4) mol(-1) dm3 s-1), in the presence of reverse micelles. The considerable increase is ascribed to two factors: I the concentration effect generated in the reverse micelles: and (ii) the reverse micelles' decreased micropolarity, which promotes the interaction between ions with different charges. Studies have been done on the effects of W (= [H2O]/[CTAB]) at fixed W and varying [CTAB]. The entrapped water's unique features are used to explain the kinetics at W≤, whereas the ionic strength is used to explain the kinetics at W>10. The absorption spectra of methylene blue and ascorbic acid demonstrate how the influence of [CTAB] on rate .*

Keywords: *Ascorbic acid, Water pool, CTAB revere micell*

I. INTRODUCTION

Surfactants' polar or charged groups are found in the interior or core of the aggregate when they aggregate in nonpolar solvents (forming reverse micelles), while their hydrocarbon tails extend into the bulk solvent. In the polar core, water is thus easily dissolved, generating a water pool, and this solubilized water exhibits unusual properties denoted by a parameter W = ([H2O]/[Surfac-tant])1. The interactions between the polar head groups and counter ions structure the water at low water levels when W 5. Unstructured "free" water arises when W > 12 and a water pool develops. For W 6, all water molecules are trapped in AOT [sodium bis(2-ethylhexyl)sulphosuccinate] reverse micelles, and only for W > 12 does unstructured free water appear2,3. These two phases can be distinguished by their distinct differences in attributes. Because of the counter ion, structured water, for instance, has a high ionic strength, low mobility, and a relatively low dielectric constant. Additionally, a diversity of systems are possible since both hydrophilic and hydrophobic components are present Studies utilising both varieties of drugs are possible. We have previously investigated the aquation of Tris-1,10-phenanthroline iron(II) base hydrolysis, iodide oxidation by V(V) in the presence of tris-2,2 bipyridyl iron(II), and of CTAB reverse micelles 4-6. To further investigate the impact of these distinct water characteristics. As part of our investigation of the kinetics of electron transfer processes, we looked at how ascorbic acid reduced methylene blue in the presence of CTAB reverse micelles.

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Green Synthesis of Silver Nanoparticles and Their Structural and Catalytic Characterization with Application

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ABSTRACT: *The plant extract assisted synthesis has gained significant interest towards the production nanomaterials in a cost-effective and environmentally friendly manner alternative to physical and chemical methods. In this paper, we report the production of silver nanoparticles (Ag-NPs) by means of aqueous extracts of* Sapindus emarginatus *fruit pericarp. The obtained Ag-NPs size ranges from 2-19 nm achieved by the reduction of silver ions with aqueous extract of* Sapindus emarginatus *fruit pericarp. To demonstrate the catalytic applications of these Ag-NPs, the bleaching of carcinogenic material Disperse Blue (DB1) in the presence of ammonia was used as a model reaction. The UV-visible spectroscopy results of the bleaching of DB1 in the presence of ammonia revealed that the present Ag-NPs enhanced the reaction rate of bleaching/fading, which might be attributed by surfactants present on the Ag-NPs and the nitrogen atom of the donor ammonia molecule. Further, photoluminiscence studies of these Ag-NPs were [illegible] suggested that the present particles were suitable for fluorescence emitting probes*

Keywords: Green Synthesis, Catalysis

I. INTRODUCTION

Due to its distinct advantages, such as being environmentally benign, the synthesis of nanoparticles using various microorganisms and plant biomasses has attracted a lot of interest in recent years in the domains of physics, chemistry, and nanotechnology. More focus has been placed on the biosynthetic approach to nanoparticle preparation than on the use of microorganisms. Due to the fact that methods using plant materials as an aid avoid complex processes, such as maintaining cell cultures [1, 2]. Numerous plant species have been used to prepare nanoparticles up to this point[3–13]. Using an aqueous extract from the fruit pericarp of Sapindus emarginatus, silver nanoparticles were created in this line to both catalyse the reaction of Disperse Blue (DB1) degradation and serve as fluorescence emitting probes. An essential industrial substance, the anthraquinone class of DB1 (Figure 1) is extensively employed in several industries, such as textile and leather dyeing. However, because of their toxicity and probable carcinogenic effects, DB1 discharged in wastewater from the textile or leather dying industries not only generated cloured pollution but also harmed human society. A significant environmental issue could arise from the treatment of those coloured wastewaters from the textile or dye industry [14]. A variety of processes, including ozonation, adsorption biodegradation, the Fenton process, and electrochemical coagulation, have been utilised to break down DB1 in wastewater [15-19]. To the best of our knowledge, there are no reports on the DB1 being degraded by nanoparticles derived from fruit pericarp extract of Sapindus emarginatus. As a result, we have investigated how the DB1 degrades in an aqueous ammonia solution.

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Statistical Analysis for Heavy Metals in the Soils of Industrial Zone, Visakhapatnam

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ABSTRACT: *An issue on a global scale is soil pollution, which is brought on by anthropogenic and natural processes. Animals and plants have had health and physiological issues as a result of this. This study looked into the presence of heavy metals in nearby soils. In Visakhapatnam, soil samples were taken from seven APIIC zones and examined for heavy metals and physicochemical traits. The pollution index model and multivariate statistical analysis were applied to the collected data. The data obtained showed that the soils are rich in zinc, and other metals are above trace level with a minor positively skewed distribution. The analysis of pollution index, geoaccumulation index and ecological risk factors in soils in all the locations showed that they are mainly contaminated and polluted by Cd followed by Zn. The ascending order of the mean heavy metal concentrations around APIIC is Cr, Co, Pb, Cu, Cd, and Zn. Strong positive correlation coefficients ("r") for element pairs including Zn-Pb, Zn-Cu, Zn-Cd, Pb-Cu, Pb-Cd, Cu-Cr, Cd-Co, and Cr-Co indicated their relationship with one another in the studied area. Because of the elevated levels of heavy metals found, it is necessary to take action to ensure the adoption of more environmentally friendly practices.*

Keywords: *Heavy metals Pollution index model Soil pollution Anthropogenic activities*

1. INTRODUCTION

Both natural and manmade sources discharge heavy metals into the environment. The primary sources of these metals are chemical weathering of minerals and anthropogenic sources connected to industrial, agricultural, mining, land disposal of waste, waste incineration, etc. The world is increasingly concerned about the heavy metal contamination of soil brought on by these activities. Due to their toxicity, persistence, and recalcitrant nature, heavy metal contamination of topsoil has been a major concern. Toxicity of these compounds has been reported extensively (Momodu & Anyakora 2010, Anyakora et al. 2013). They build up over time in soils, which serve as a sink from which they are released into groundwater and plants and ultimately end up through the food chain, where they have various toxicological effects. For some time, both in the field and in the lab, effects of increased heavy metal concentrations on soil capabilities, soil microbial composition, and microbial development have been taken into account (Tyler et al. 1989). Health effects of elevated levels of Zn are severe vomiting, diarrhoea, bloody urine, liver and kidney failure and anaemia (Fosmire 1990), while excessive Pb causes inhibition of haemoglobin synthesis, dysfunction of the kidneys, reproductive systems and cardiovascular system (Ferner 2001). Other side effects of Pb include gastrointestinal system harm, child mental impairment, infertility, and poor pregnancy outcomes (Dara 2000). According to studies (Dara 2000), too much cadmium can cause kidney damage, anaemia, hypertension, cancer, bone marrow disorders, bronchitis, liver disorders, and brain disorders. Conversely, too much

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PERFORMANCE OF DC-DC CONVERTER WITH MODIFIED VMC FOR MICROGRID

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ABSTRACT: *High gain dc-dc converters are used in several applications which include solar photovoltaic system, switch-mode power supplies and fuel cells. In this paper, an ultra-high gain dc-dc boost converter is proposed and analyzed in detail. The converter has a gain of six times as compared with the boost converter. The high gain is achieved by utilizing switched inductors and switched capacitors. A modified voltage multiplier cell (VMC) with switched inductors is proposed. The converter has a single switch which makes its operation easy. Moreover, the voltage across the switch, diodes and capacitors are less than the output voltage which increases the overall efficiency of the converter.*

Keywords: PIR (proximity Infrared sensors), Arduino, Scores

I. INTRODUCTION

The converter performance in steady-state is analyzed in detail and it is compared with other latest high gain converters. The working of the converter in non-ideal conditions is also discussed in detail. The loss analysis is done using PLECS software by incorporating the real models of switches and diodes from the datasheet. To confirm and validate the working of the proposed converter a hardware prototype of 200 W is developed in the laboratory. The converter achieves high gain at low duty ratio and its performance is found to be good in open and closed loop conditions.

II. VMC FOR MICROGRID

High gain dc-dc converters are used in several applications which include solar photovoltaic systems, switch-mode power supplies and fuel cells. In this paper, an ultra-high gain dc-dc boost converter is proposed and analyzed in detail. The converter has a gain of six times as compared with the boost converter. The high gain is achieved by utilizing switched inductors and switched capacitors. A modified voltage multiplier cell (VMC) with switched inductors is proposed. The converter has a single switch which makes its operation easy. Moreover, the voltage across the switch, diodes and capacitors are less than the output voltage which increases the overall efficiency of the converter. The converter performance in steady state is analyzed in detail as it is compared with other latest high gain converters. . The working of the converter in non-ideal conditions is also discussed in detail. The loss analysis is done using PLECS software by incorporating the real models of switches and diodes from the datasheet. A modified voltage multiplier cell (VMC) with switched inductors is proposed. The

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MINIMIZATION OF ROAD ACCIDENTS BY USING GSM MODULE BASED SMART HELMET

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ABSTRACT: *The idea of developing this paper comes from the social responsibility to prevent the people from the road accidents. This aims the safety and security for the bike rider. The purpose of the paper to encourage the people to wearing helmet. This system ensures that the bike will not start unless the driver does not wear the helmet and has not consumed alcohol. This system alerts the bike rider if any obstacle comes to rear part of bike. If accident occurs then the GSM module sends the message signal to the nearest police station, relatives and other people whose name is registered in module. It is difficult to monitor that each person worn the helmet and consumed alcohol or not, is the main problem. According to National Crime Records Bureau, Ministry of Road Transport and Highway there are top cities with the highest number of road crash deaths in India.*

Keywords: *GPS, GSM, ARDUINO, PIR sensor, BAC, Wireless sensors, PIR (proximity Infrared sensors), Arduino, Sores.*

I. INTRODUCTION

The idea of developing this paper comes from the social responsibility to prevent the people from the road accidents. This aims the safety and security for the bike rider. The purpose of the paper to encourage the people to wearing helmet. This system ensures that the bike will not start unless the driver does not wear the helmet and has not consumed alcohol. This system alerts the bike rider if any obstacle comes to rear part of bike. If accident occurs then the GSM module sends the message signal to the nearest police station, relatives and other people whose name is registered in module.

II. GSM MODULE BASED SMART HELMET

The proposed system for smart helmet is used to verify whether the rider is having helmet or not. The bike will starts only when the rider wears the helmet, If no helmet is available then it is in off state. The smart helmet is used to report the information about the road accident with the help of helmet motion, tilting angle. The smart helmet is used to send the accident information to the rider's family members and emergency contact number [3]. The system also checks the percentage of alcohol from breath of the rider and accordingly if it is greater than the threshold value, the engine will not start. The designed system is connecting all the sensors to STM32 controller. It will read the data from the sensors, and it will react based on the algorithm design. Hence, the proposed system can exclusively reduce the risk of drunk and drive accidents and helps to get the precise information about the whereabouts of the accident, if occurred. The system also checks the percentage of alcohol from breath of the rider and accordingly if it is greater than the threshold value, the engine will not start. This system ensures that the bike will

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SUPPRESSION OF INRUSH CURRENTS USING A SERIES CONNECTED VOLTAGE SOURCE PWM CONVERTER IN A TRANSFORMER

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ABSTRACT: This research suggests a brand new technique for reducing transformer inrush current. A matching transformer connects a small-rated voltage-source PWM converter in series with the transformers. There is no inrush phenomenon since the linked PWM converter acts as a resistor for the source current. In comparison to the main transformers in single-phase circuits, the required ratings of the PWM converter, which performs the damping resistor for the inrush phenomenon, are one-fourth. In circuits with three phases, it is one-nine hundredth.

Key words: Inrush current, re-inrush phenomena, core-saturation, series-connected voltage-source PWM converter, transformer model.

I. INTRODUCTION

The basic principle of the proposed method is discussed. Digital computer simulation is implemented to confirm the validity and excellent practicability of the proposed method using the PSCAD/EMTDC. A prototype experimental-model is constructed and tested. The experimental results demonstrate that the proposed method can perfectly suppress the inrush phenomena.

II. PWM CONVERTER IN A TRANSFORMER

This paper proposes a novel method of suppressing the inrush current of transformers. A small-rated voltage-source PWM converter is connected in series to a transformer through a matching transformer. Since the connected PWM converter serves as a resistor for the source current, no inrush phenomenon occurs. The basic principle of the proposed method is discussed. Digital computer simulation is implemented to confirm the validity and excellent practicability of the proposed method using PSCAD/EMTDC. A prototype experimental model is constructed and tested. The experimental results demonstrate that the proposed method can perfectly suppress the inrush phenomena. The required-rating of the PWM converter, which acts as a damping resistor for the inrush phenomena, is about 0.25% of that of the main transformer in single-phase circuits, in the experimental results. In three-phase circuits, it is less than 0.1%. A prototype experimental-model is constructed and tested. The experimental results demonstrate that the proposed method can perfectly suppress the inrush phenomena. A prototype experimental model is constructed and tested. The experimental results demonstrate that the proposed method can perfectly suppress the inrush phenomena. The required-rating of the PWM converter, which acts as a damping resistor for the inrush phenomena

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AVR MICROCONTROLLER BASED POWER FACTOR CONTROLLING TO MINIMIZE ELECTRICITY BILL

M... ...MA

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ABSTRACT: *In the industrial sector the various machines are continuously running and increasing the inductive load. So the power factor in the system gets poor due to the increase reactive power. But the electricity board has a standard limit regarding the power factor values and if the power factor goes below the specified limit the electricity company charges the penalty to the industrial consumers. AVR device reads power factor from line voltage and line current by detecting the lag between arrival of the current signal with respect to voltage signal from the function generator with ... using an internal timer.*

Keywords: *Power factor, Penalty, AVR microcontroller, capacitor bank, contactors and current transformer, potential transformer*

I. INTRODUCTION

This time values are the calibrated as phase angle and corresponding power factor. Then the values are displayed in Liquid crystal display modules. Then the motherboard calculates the compensation requirement and accordingly switches on different capacitor banks. This is developed by using AVR microcontroller.

II. AVR MICROCONTROLLER BASED P.F CONTROLLING

In an electric power system, a load with a low power factor draws more current than a load with a high power factor for the same amount of useful power transferred. The higher currents increase the energy lost in the distribution system, and require larger wires and other equipment. Because of the costs of larger equipment and wasted energy, electrical utilities will usually charge a higher penalty to industrial or commercial customers where there is a low power factor. In this inductor plays a major role developing the lag condition. Power to the circuit is fed from a step down transformer where a rectifier is used for converting AC-DC and regulated. The time lag between the zero voltage pulse and zero current pulse duly generated by suitable operational amplifier circuits in comparator mode are fed to two interrupt pins of the 8051 microcontroller. The time lag between the current and voltage are displayed on LCD which is interfaced with microcontroller. Depending upon the delay the program which has been dumped in the microcontroller brings appropriate number of relays through relay driver IC from its output to bring shunt capacitor to the load circuit to get the power factor, till it reaches nearest to unity. Power to the circuit is fed from a step down transformer where a rectifier is used for converting AC-DC ... regulated. The time lag between the zero voltage pulse and zero

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PERFORMANCE COMPARISION OF CONVENTIONAL CONTROLLER FOR SPEED CONTROL OF DC- MOTOR

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ABSTRACT: *The aim of this work is to design a speed controller of a DC motor by selection of PID parameters using bio-inspired optimization technique i.e. Particle Swarm Optimization (PSO). Here, model of a DC motor is considered as a second order system for armature voltage control method of speed control. In this work bio-inspired optimization technique in controllers and their advantages over conventional methods is discussed using MATLAB/ Simulink. This proposed optimization methods could be applied for higher order system also to provide better system performance with optimum errors.*

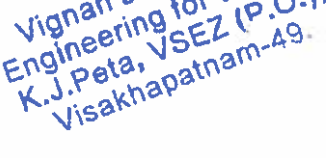
Keywords: *Power factor, Penalty, AVR microcontroller, capacitor bank, contactors and current transformer, potential transformer*

I. INTRODUCTION

The main aim is to apply PSO technique to design and tune parameters of PID controller to get an output with better dynamic and static performance. The application of PSO to the PID controller imparts it the ability of tuning itself automatically in an on-line process while the application of optimization algorithm to the PID controller makes it to give an optimum output by searching for the best set of solutions for the PID parameters.

II. SPEED CONTROL OF DC MOTOR USING P, PD, PID CONTROLLERS

DC motors are widely used in industrial application for its different advantage such us high efficiency, low costs and flexibilities. For controlling the speed of DC motor, conventional controller PI and PID were the most widely used controllers. But due to empirically selected parameters K_p, K_i, K_d and limitation of convention PID controller to achieve ideal control effect for higher order systems. a Fractional order Proportional-Integral- Derivative PID (FOPID) based on optimization techniques was proposed in this paper. The aim of this paper is to study the tuning of a FOPID controller using intelligent soft computing techniques such as Differential Evolution (DE) and Particle Swarm Optimization (PSO) for designing fractional order PID controller. The parameters of FOPID controller are determined by minimizing the Integral Time Absolute Error (ITAE) between the output of reference model and the plant. The performance of DE and PSO were compared with several simulation experiments. The simulation results show that the DE-based FOPID controller tuning approach provides improved performance for the set point tracking, error minimization, and measurement noise attenuation. The main aim is to apply PSO technique to design and tune parameters of PID controller to get an output with better dynamic and static performance. The application of PSO to the PID controller imparts it the ability of tuning itself automatically in an on-line process while the application of



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PERFORMANCE OF THE MC-UPQC AND ADAPTIVE CONTROL ALGORITHM FOR POWER QUALITY IMPROVEMENT

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ABSTRACT: *The innovative unified power-quality conditioning system (MC-UPQC) described in this research can simultaneously compensate for current and voltage in multibus/MultiFinder systems. One shunt voltage-source converter (shunt VSC) and two or more series VSCs are present in this setup. In order to fully correct for supply voltage defects on the other feeders as well as load current and supply-voltage imperfections on the main feeder, the system can be applied to adjacent feeds. In the suggested setup, a single dc-link capacitor is shared by all converters, which are all connected back to back on the dc side. Therefore, to account for sag/swell and interruption, power can be transmitted from one feeder to nearby feeders. Through simulation experiments utilizing MATLAB/simulation on a two-bus/two-feeder system and other simulation methods, the performance of the suggested configuration has been confirmed.*

Keywords: *—Power quality (PQ), MATLAB/SIMILINK, unified power-quality conditioner (UPQC), voltage source converter (VSC), DSTATCOM, capacitor.*

I. INTRODUCTION

With increasing applications of nonlinear and electronically switched devices in distribution systems and industries, power-quality (PQ) problems, such as harmonics, flicker, and imbalance have become serious concerns. In addition, lightning strikes on transmission lines, switching of capacitor banks, and various network faults can also cause PQ problems, such as transients, voltage sag/swell, and interruption. On the other hand, an increase of sensitive loads involving digital electronics and complex process controllers requires a pure sinusoidal supply voltage for proper load operation. In order to meet PQ standard limits, it may be necessary to include some sort of compensation. Modern solutions can be found in the form of active rectification or active filtering. A shunt active power filter is suitable for the suppression of negative load influence on the supply network, but if there are supply voltage imperfections, a series active power filter may be needed to provide full compensation.

II. PERFORMANCE OF MC-UPQC

A new configuration for simultaneous compensation of voltage and current in adjacent [illegible] has been proposed. The new configuration is named multi converter unified power-quality conditioner (MC-UPQC). Compared to a conventional UPQC, the proposed topology is capable of fully protecting critical and sensitive loads against distortions, sags/swell, and such as transients, voltage sag/swell, and interruption. On the other hand, an increase of sensitive loads,

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STATCOM BASED HARMONIC REDUCTION IN TRANSIMISSION LINES

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ABSTRACT: This paper deals with the performance, analysis of, operating principles of a new generation of power electronics based equipment called Distribution Static Compensator (D-STATCOM) aimed at enhancing the reliability, and quality of power flow in low voltage distribution network. The model is based on the Voltage Source Inverter (VSC) principle. The D-STATCOM injects a current into the system to mitigate the voltage sags.LCL Passive Filter was then added to D-STATCOM to improve harmonic distortion and low power factor

Keywords: D-STATCOM, Power quality, Reactive power compensation, Harmonic compensation, Power factor correction

I. INTRODUCTION

With the increased use of power electronic for ac-to-dc converters, electrical distributions systems are experiencing an increased in non-linear loads. These non-linear loads, such as the classical rectifier, draw non-sinusoidal currents which tend to have a deleterious impact on the power quality of the modern AC distribution systems. The interaction of non-sinusoidal currents with the grid impedance leads to distorted system voltage which can adversely impact other devices connected to the grid. The integration of distributed energy resources (DERs) with the distribution power grid can further exacerbate the harmonic power issues.

The traditional methods of compensation are no longer adequate and hence it is necessary to develop a means to provide local reactive and harmonic compensation at the source of the power quality problem within the low-voltage distribution network. This article investigates the use of a transformer-less distribution static synchronous compensator (D-STATCOM) for power quality compensation in low-voltage distribution systems. The proposed topology is based on a three-level converter (3LC), controlled by finite control set model predictive control (FCS-MPC). This makes possible the usage of inductive energy storage rather than electrolytic capacitors, which have been proved to be the most failure-prone components in a power electronic circuit. Simulation and experimental results are presented to validate the effectiveness of the approach.

II. HARMONIC REDUCTION IN TRANSMISSION LINES

The use of power electronic based loads, such as variable speed drives, inverter-based air-conditioning, distributed generation and storage systems, solid-state LED lights, personal The interaction of non-sinusoidal currents with the grid impedance leads to distorted system voltage which can adversely impact other devices connected to the grid. The integration

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MAINTAINING POWER QUALITY FOR SENSITIVE LOAD

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ABSTRACT: *The paper proposed a novel technique to protect domestic home appliances by different types of Power quality problems. The integration of the power system leads to an increase in the variety of distribution generation and integrated power electronics circuits, which causes serious power quality problems. Maintaining clean power in a domestic electrical supply system has always been the first priority of electricity supplier. Power quality includes, some aspects like over voltage, under voltage sag, swell, surge etc. It is last only for a few cycles but it can damage the domestic electrical equipment as well as Industrial electrical equipment's. A surge is a transient wave of voltage and current.*

Keywords: *Power Quality, high voltage, under voltage, spikes, voltage sag, voltage swell, Residential Load*

I. INTRODUCTION

Power distribution systems, ideally, should provide their customers with an uninterrupted flow of energy with a clean sinusoidal voltage at the contracted voltage level (132kV, 66kV, 33kV, 11kV, 415V) and frequency (50Hz in India). However, in practice, power systems face a variety of challenges either from generation, Transmission & Distribution (T&D) or even within a customer facility which impacts the quality of power. These power quality issues can affect the uninterrupted operation of customer loads, but the safety-related issues can reduce the life of the connected loads and electrical equipment. A customer having numerous nonlinear loads can also affect the quality of power supply and the purity of the voltage waveform is lost which can affect other loads within the facility or even outside the customer facility. Apart from nonlinear loads, some system events, both usual (e.g. capacitor switching, motor starting) and unusual (e.g faults) could also inflict power quality (PQ) problems.

II. MAINTAINING POWER QUALITY

It has been observed that most devices in modern home appliances are based on electronic devices such as programmable logic controller and electronics drives. Power electronic devices are very sensitive to disturbances and are less tolerant of power quality problems such as voltage sags, swells and harmonics and all problems associated with voltage dips ,is considered to be one of the most serious disturbances to domestic appliances. Power quality is determines the fitness of electrical power to domestic load. It can be observed that in modern domestic electrical devices most of the electrical device are based on electronic drives. Such as used in controller used like microcontroller, microprocessor (programmable logic controller) & electrical drives and It has been observed that most devices in modern home appliances are based on electronic devices such as programmable logic controller and electronics drives. Power electronic devices are very sensitive to disturbances and are less tolerant of power quality

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GRID TIED WIND ENERGY CONVERSION SYSTEM (WECS)-SIMULINK IMPLEMENTATION USING STATCOM

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ABSTRACT: This paper presents power quality improvement for effective power transfer in a grid-integrated solar photovoltaic-wind energy hybrid system. The hybrid system constitutes a renewable energy farm, based on photovoltaic energy generation system and wind energy conversion system. The system experiences frequent disturbances in AC loads and power output from the renewable farm. This creates reactive power mismatch and raises voltage instability and power quality issues. This gap can be eliminated using an adjustable reactive power source i.e. static synchronous compensator. Three case scenarios of the hybrid system, i.e. hybrid system in (I) standalone mode, (II) grid-integrated mode and (III) grid-integrated mode with STATCOM, are tested to compare their dynamic and transient performances. Results show that scenario III best fulfilled the dynamic compensation requirement among all cases. Under this scenario, Load bus voltage is maintained at around 1.0 p.u. and total harmonic distortion in voltages/currents is maintained at around 2%. Furthermore, this scenario demonstrated superior transient response towards a step change in reactive power load, significantly reducing maximum peak deviation by 73.4% and settling time by 75% in load voltage as compared to the worst case of scenario-I.

Keywords: Solar photovoltaic, Hybrid PV-Wind system, STATCOM, Voltage stability

I. INTRODUCTION

The voltage of wind power generating station generally fluctuates due to nature of wind. When wind power generating station is integrated to the power grid power quality issues arises like injection of harmonics, poor power factor and distortion from pure sine wave of fundamental frequency. The need to integrate the renewable energy like wind energy into power system is to make it possible to minimize the environmental impact on conventional plant. The integration of wind energy into existing power system presents a technical challenges and that requires consideration of voltage regulation, stability, power quality problems.

II. POWER QUALITY IMPROVEMENT USING STATCOM

The injection of the wind power into an electric grid affects the power quality. The influence of the wind turbine in the grid system concerning the power quality. The paper study demonstrates has overall good functional characteristics, better performance and faster response than existing systems. The proposed system of having STATCOM is smaller in size and less costly when compared to the existing system. In this proposed system static compensator (STATCOM) is connected at a point of common coupling with a battery energy storage system

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84 PULSE STATCOM WITH VSC CONFIGURATION FOR SPECIAL APPLICATIONS

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ABSTRACT: *In this, the Static Synchronous Compensator (STATCOM) is one of the most useful FACTS devices; since it can synthesize the reactive power from small storing elements. By regulation of the STATCOM's output voltage magnitude, the reactive power exchange between the device and the transmission system may be controlled to improve the power system voltage profile. Since the StatCom may cause interference on the system's fundamental sine wave at frequencies that are multiples of the fundamental one; special care should be taken to ensure not to pollute the system to prevent further harmonic issues. In general; there are three feasible strategies to assemble a VSC: (i) the multi-pulse; (ii) the multi-level; (iii) and the pulse width modulation. Strong efforts have been made in order to reach minimum harmonic distortion in the VSC's output voltage.*

Keywords: *Multi Pulse Converter, Voltage Source Converter Injection Transformer, Fast Fourier transform FFT*

I. INTRODUCTION

This paper analyzes the structure of an 84-pulse voltage source converter (VSC); assembled by combining one twelve-pulse VSC; in conjunction with an asymmetric single phase seven level converter plus an injection transformer. With this arrangement; the VSC output's total harmonic distortion in voltages is reduced; allowing it to be used in special applications the results found that the proposed strategy allows savings in the number of employed switches.

II. STATCOM WITH VSC CONFIGURATION

This paper describes the strategy to obtain an 84-pulse VSC three-phase voltage with the associated low THD, by combining one twelve-pulse converter plus a seven-level .THD is decreased to 5.5. The exhibited low THD permits the system to be used in FACTS devices. The three phases digital PLL used to detect the phase of the fundamental voltage synchronizes the firing signals. In all switches within a sample cycle. The total harmonic distortion in voltages of the VSC output is decreased with this configuration, allowing it to be used in particular applications. The results showed that the suggested technique enables reductions in the number of switches needed. In general, three viable methods can be used to put together a VSC: pulse width modulation, multi-level, and multi-pulse. A lot of work has been invested into reducing harmonic distortion in the output voltage of the VSC. The exhibited low THD permits the system to be used in FACTS devices. The three phases digital PLL used to detect the phase of the fundamental voltage synchronizes the firing signals. In all switches within a sample cycle. The total harmonic distortion in voltages of the VSC output is decreased with this configuration,

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SIMULATION OF ROBUST CONTROL SCHEME BASED SMC AND ITS APPLICATION TO DYNAMIC VOLTAGE RESTORER

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ABSTRACT: *The simulation and implementation of a sliding mode control strategy for a single-phase dynamic voltage restorer (DVR) to mitigate load voltage sag, swell and harmonics is presented in this work. The control strategy's goal is to compensate for the required voltage by regulating the DVR's voltage via an injection transformer while keeping the load voltage constant. The ability of the DVR to achieve a good performance greatly depends on the control strategy. The controller used in this work is based on SMC theory, which consists of creating a passivity output and storage function to use as a function of Lyapunov. The proposed control scheme of the DVR is initially evaluated in simulations using MATLAB and validated using a laboratory-scale prototype of the entire system, including a source, the DVR circuit, and a load. The control scheme is implemented on a dSPACE 1104 board and the MATLAB real-time toolbox. Both the experimental results have demonstrated the effectiveness the proposed control strategy of DVR in mitigating power qualities issues and therefore enhancing the performance of the network.*

Keywords: *Power factor, Penalty, DVR microcontroller, capacitor bank, contactors, dSPACE 1104.*

I. INTRODUCTION

A DVR is used to compensate the supply voltage disturbances such as sag and swell. The DVR is connected between the supply and sensitive loads so that it can inject a voltage of required magnitude and frequency in the distribution feeder. The DVR is operated such that the load voltage magnitude is regulated to a constant magnitude, while the average real power absorbed/ supplied by it is zero in the steady state.

II. CONTROL SCHEME BASED SMC

A new control strategy based on sliding mode control for Dynamic Voltage Restorer (DVR) has been proposed to mitigate the power quality problems in the terminal voltages. The DVR is controlled indirectly by controlling the supply current. The reference supply currents are estimated using the sensed load terminal voltages and the dc bus voltage of DVR. The control scheme is based on sliding mode theory (SMT) for the operation of a capacitor supported DVR. The proposed control scheme of DVR has been validated the compensation of sag and swell in terminal voltages. The performance of the DVR has been found very good to mitigate the voltage power quality problems. Moreover, it has been found capable to provide self supported dc bus of the DVR through power transfer from line at fundamental frequency. The DVR is controlled indirectly by controlling the supply currents. The reference supply currents are estimated using the sensed load terminal voltages and the dc bus voltage of DVR. The control scheme is based on sliding mode theory (SMT) for the operation of a capacitor supported DVR. The proposed

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OPTIMAL SWITCHING -PULSES TO THE MOTOR INVERTER FOR TORQUE CONTROL OF INDUCTION MOTOR DRIVES

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ABSTRACT: *MATLAB / SIMULINK implementation of the Direct Torque Control Scheme for induction motors is presented in this paper. Direct Torque Control (DTC) is an advanced control technique with fast and dynamic torque response. The scheme is intuitive and easy to understand as a modular approach is followed. A comparison between the computed and the reference values of the stator flux and electromagnetic torque is performed. The error outputs of the comparators are fed to hysteresis type controllers. To limit the flux and torque within a predefined band, the hysteresis controllers generate the necessary control signals.*

Keywords: Voltage Source Inverter (VSI), Direct Torque Control (DTC)

I. INTRODUCTION

The knowledge about the two hysteresis controller outputs along with the location of the stator flux space vector in a two dimensional complex plane determines the state of the Voltage Source Inverter (VSI). The output of the VSI is fed to the induction motor model. A flux optimization algorithm is added to the scheme to achieve maximum efficiency. The output torque and flux of the machine in the two schemes are presented and compared.

II. OPTIMAL SWITCHING -PULSES FOR TORQUE CONTROL OF INDUCTION MOTOR DRIVES

In this paper, several modern improvement techniques of direct torque control for an induction motor are reviewed. The objective of this improvement is to minimize the ripples of the couple and the flux of the IM on the one hand and the decrease of the switching frequency of the power converter on the other hand. A classification and comparison of these strategies in terms of ... reduction, switching speed, switching loss, algorithm complexity and parameter sensitivity is presented.

It is very difficult to conclude which is the best solution to improve the DTC performance. The choice of method depends on the application, cost, hardware availability, reliability and efficiency of the system. The induction motor model receives the VSI's output. The plan is controlled using a flux optimization method to maximize effectiveness. The machine's output torque and flux for the two schemes are shown and contrasted.

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Parabolic Equations: Homotopy Analysis Method

E. GOUTHAMI

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ABSTRACT: Mathematical modeling of many phenomena in applied science leads to parabolic equations. So, the solutions of such equations are of more interest. In this paper the exact solution of parabolic equations is obtained using homotopy analysis method (HAM). HAM contains the auxiliary parameter h that provides a convenient way of controlling the convergent region of series solution. The results obtained by this method are compared with the existing results in literature and are seen in good agreement.

Keywords: Parabolic equations, initial conditions, exact solution, homotopy analysis method

I. INTRODUCTION

Many important phenomena occurring in various fields of engineering and sciences are frequently modeled through linear and nonlinear differential equations. Perturbation method is one of the well known methods to solve linear and nonlinear problems analytically. However, it is well known that perturbation method is strongly dependent on small/large physical parameters and therefore, valid only for weakly nonlinear problems. Some non-perturbation methods, such as artificial small parameter method, δ-expansion method, Adomian decomposition method [5], homotopy perturbation method and so on, are independent of small/large physical parameters. But all of these traditional non-perturbation methods cannot ensure the convergence of the solution series. They are in fact valid for weakly nonlinear problems too.

In 1992 Liao [8] employed the basic idea of homotopy in topology to propose a general analytical method for solving linear and nonlinear problems, namely homotopy analysis method (HAM) [9]. This method does not depend upon any parameter and is valid for most of the nonlinear problems. This method has been successfully applied to solve many types of nonlinear problems [10, 11].

II. BASIC IDEA OF HAM

To describe the basic idea of HAM, we consider the following nonlinear differential equation in an unknown function. For simplicity, we ignore all the boundary and initial conditions, which can be treated in a similar way. By means of generalizing the traditional homotopy method Liao's

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Analysis of an Impatient Customer Queue with Optional Service and Multiple Working Vacations

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ABSTRACT: In this article, we propose a finite buffer impatient customer queue with second optional service (SOS) and working vacations. When the server is busy, an arriving customer either joins the queue or balks on the basis of state-dependent joining/balking probabilities. For each customer, the server provides two phases of service namely, first essential service (FES) and SOS. All the customers demand FES, whereas only few customers opt for SOS after the completion of FES. At a service completion instant, if the system is empty, the server leaves for working vacation. During working vacations, the waiting customers activate an impatient timer which is exponentially distributed. It is assumed that the interarrival times, vacation times, service times during FES, SOS and during working vacations follow exponential distribution. The steady-state probabilities of the model and various performance measures are derived. Numerical results are sketched out to demonstrate the impact of the system and cost parameters.

Keywords: Balking, reneging, second optional service, working vacation

1. INTRODUCTION

Queueing systems are being used in a wide variety of congestion problems encountered in day to day as well as industrial scenario including computer systems, call centers, web services and communication networks, waiting lines at airports, banks, public offices, etc. Numerous queueing models have been developed for nearly a century to study the performance of many systems. In many queueing scenarios, the server may leave for a vacation when there are no customers present in the system. On the other hand, working vacations (WV) is one kind of vacation policy under which the server can serve the customers at a lower speed during the vacation period rather than stopping service completely. This kind of vacation policy was introduced by Servi and Finn [4] in an M/M/1 queue wherein the server leaves for working vacations whenever the system empty. Such type of vacation policy is known as multiple working vacations (MWV). Servi and Finn [4] studied an M/M/1 queue with working vacations and analyzed a WDM optical access network.

Under a single working vacation (SWV) policy the server takes exactly one WV each time the system becomes empty and switches to a regular working level no matter whether or not there are customers at a vacation completion epoch. On the other hand, in multiple working vacation policy the server takes multiple WV each time the system becomes empty and switches to a

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Performance Characterization of Single Vacation Queue with Change over Time

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ABSTRACT: This paper analyzes an infinite buffer single server queue with single vacation and change over time. The inter arrival, service and vacation times are exponentially distributed. The server begins service if there are at least c units in the queue. The service takes place in batches with a minimum of size a and a maximum of size b (a ≤ c ≤ b). We obtained the closed-form expressions for the steady state probabilities and derived the expected length of the busy period, idle period and busy cycle. Some numerical results and effect of important parameters on the performance measures have been presented.

Keywords: Queue, single vacation, change over time

I. INTRODUCTION

Queueing systems with server vacations have been studied extensively over the past two decades and have been found to be applicable in the analysis and modeling of communication networks, manufacturing, production and transportation systems. Vacation models are useful for the systems in which the server wants to utilize the idle time for different purposes. Comprehensive surveys on queueing systems with server vacation can be found in [2], [5], [6] etc.

Batch service models are useful to investigate the performance of various processes in production, manufacturing, traffic control problems without overloading the system. The multiple vacations and change over time batch service queue is considered in [4]. The steady state behavior of a state dependent bulk service queue with delayed delayed vacation has been investigated by [3].

Real-life queueing situations exist where jobs are served with a control policy. For example, manufacturing systems process jobs only when the number of jobs to be processed exceeds a specified level, and once processing starts, it is profitable to continue it even when the queue size is less than the specified level but not less than a secondary limit. An $M/M/1$ queue under the policy (a, c, d) has been investigated by [1].

This paper analyzes a bulk service $M/M(a,c,b)/1$ queueing system with single vacation and change over time. Using the recursive method, the steady state probabilities of the system states have been obtained. The expected length of the busy period, idle period and busy cycle have been derived. Numerical results have been presented in the form of graphs.

At a service completion epoch, if the queue size is $a-1$ then instead of going for a vacation

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A Com... Analysis of Private Sector Banks

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ABSTRACT: Banking sector plays an important role in the development of an economy. Any problem in this sector ... often extend to real sector. Assets quality was not a prime concern of the banks till 1991. Banks mainly focused on expansion, development of rural areas, priority sector lending etc. But now the prime challenge is mounting pressure of NPAs. NPAs engulf the public sector banks as well as private sector also. It not only affects the banking sector but the whole economy as well. Banks often lead into the risk free investment that is not conducive to the growth of economy. This paper studies the trend of NPAs of leading private sector banks and suggests measures to minimize it.

Keywords: Gross NPAs, Net NPAs, Provision, Net profit, Private sector Banks

I. INTRODUCTION

With the introduction of economic reforms on the recommendation of Narasimham Committee the Indian financial and banking sector has undergone a significant conversion and transformation from regulated environment to a deregulated market based economy. The market players are now in a cut throat competition and try to adopt international best practices of all their activities inter alia non- performing assets (NPAs) to restore financial health. The Indian banking sector did not bother about asset quality rather they focused on widening the network / branches, priority sector lending employment generation etc. till 1991. As a result the asset quality has been deteriorating day by day and the mounting pressure of NPAs becomes the major concern of the ...inancial and banking sector.

II. CONCEPTUAL FRAMEWORK OF NPAs

What is NPA:

Non Performing Asset (NPA) refers to an asset when it ceases to generate income for any bank or finance company for more than 90 days. With effect from 31st March, 2004 a non-performing assets (NPAs) shall be a loan or an advance where:

i. Interest and / or installment of principal remain overdue for a period of more than 90 days in respect of a term loan.
ii. 'overdue' if it is not paid on the due date fixed by the bank.

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Marketing Planning & Forecasting

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ABSTRACT: Marketing strategy is a construct that lies at the conceptual heart of the field of strategic marketing and is central to the practice of marketing. It is also the area within which many of the most pressing current challenges identified by marketers and CMOs arise. We develop a new conceptualization of the domain and sub-domains of marketing strategy and use this lens to assess the current state of marketing strategy research by examining the papers in the six most influential marketing journals publishing such papers over the period 1999 through 2017. We uncover important challenges to marketing strategy research—not least the increasingly limited number and focus of studies, and declining use of both theory and primary research designs. However, we also uncover numerous opportunities for developing important and highly relevant new marketing strategy knowledge—the number and importance of unanswered marketing strategy questions and opportunities to impact practice has arguably never been greater. To guide such research, we develop a new research agenda that provides opportunities for researchers to develop new theory, establish clear relevance, and contribute to improving practice.

Keywords : Marketing Strategy, [illegible] Primary Research

I. INTRODUCTION

Developing and executing marketing strategy is central to the practice of marketing. Recent reports regarding the current challenges facing marketers (Table 1) reveal numerous questions within the domain of marketing strategy including: (i) how to create organizational structures that better enable development of marketing strategies that help navigate and adapt to changing customer and firm needs; (ii) how to choose the optimal set of marketing strategies to drive outcomes given competing priorities and myriad internal and external stakeholders; and (iii) how to [illegible] enterprise-wide executives in developing and implementing strategies that [illegible] greater customer centricity and engagement. As a result of its centrality to practice, marketing strategy is also a key area of business school pedagogy, pivotal in marketing theory explanations of firm performance, and a focus of inquiry among academic researchers. However, while there has been a growing research interest in the general field of strategic marketing (i.e. marketing-related phenomena and decisions that are important to understanding the long-term performance of product/brands, SBUs, and firms), it is unclear how much of this research relates to marketing 3 strategy—the central construct within the field of strategic marketing. 1 Since developing and executing marketing strategy is central to what

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A Comparative Study on Liquidity and Profitability Performance on Pharma Companies

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ABSTRACT : *India supplies generic drugs globally and is the largest provider of drugs. it supplies over 50% of global demand of vaccines, 25% [illegible] of medicine in UK and 40% of generic demand in US. In 2018 the Pharmaceutical industry was valued [illegible] billion. The market is expected to expand at a CAGR of 22.4% over 2015-2[illegible] reach $ 55 bn. Pharmaceutical exports in India stood at US$19.4 billion in FY19 as against US$ 17.27bi[illegible] in FY18. Inter firm comparison is a technique by which the voluntary exchange of information on costs, performance, efficiency, prices and profits of undertakings in the similar industries can be studied and [illegible] for better utilisation of resources leading to Improved productivity and profitability. The [illegible]s of pharmaceutical companies in India so a comparative study of the liquidity and profitability aspects needed. Present study is an effort to give an insight into liquidity and profitability measures of [illegible] pharmaceutical companies in India. Top five pharmaceutical companies in India have been selected for study based on the size of their current market capitalization including Sun Pharmaceutical, Dr. Reddy's Laboratories, Aurobindo Pharma, Divis Laboratories, Cipla and Lupin. Further in order to draw a conclusion, liquidity and profitability ratios of these companies has been analyzed and ranked on the basis of their composite performance during the period of study i.e. FY 2006-07 to FY 2018-19*

Keywords: Pharmaceutical Sector, Inter firm Comparison, Liquidity, Profitability

I. INTRODUCTION

Inter firm comparison is a tool used by management to compare its operating performance and to evaluate its financial result. Two or more similar business units can be compared by inter firm comparison with objective to find out competitive position and thus by improving productivity and profitability. Assessing competitive strength is the key for any business unit to survive and [illegible]. Competitive strength is based on the financial position and solvency [illegible]y. Some ratios are calculated to find out the financial position and solvency [illegible]n and weakness of other similar business units are basic factors influencing a business unit to get success. So, inter firm comparison is required. A business unit has to identify its strength in various departments and divisions before competing with other similar business units. India has a prominent place in pharmaceutical industry and is rapidly growing in global industry. It has 20% of global share in terms of volume and 50% of global share for [illegible] India occupies 3rd

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Work life balance: A Comparative study on public sector working women and IT sector working women and challenges faced by them

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ABSTRACT : *The economic pressure, education alongside evolving trends within the value system and lifestyle has confident more number of girls to join the company environment Women are India has always been the one with in the family ... the only correlation ... ages and work-life stability of women employees has always been the research focus for several researchers. Hence the researcher deliberates work-family balance with reference to family, domestic and colleagues among working married and unmarried women in Hyderabad, which is India's largest hub. Motivation of selection of this subject is how social support assists the ladies employees to satisfy out ... roles of labor also as family life in Information technology sector. The scope of the study is restricted to women employees with reference to information technology to explore. Main theme of preparation of this dissertation is to walk around the life of working married and unmarried women who balance work and family tasks and to study impact thereon. The study adopts correlation analysis to spot the impact of social network in harmonizing work and family tasks. The reading considers three variables which include family, domestic and colleague ... observed from the study that family, domestic and colleague support has an impression on married women employees to realize work and family life balance. Whereas family and domestic doesn't impact on unmarried women employees but colleague support does impact to realize work family balance. As a result ... ges in family automatically affects the social network which in turn affects the work and family balance.*

Keywords : *Social Support System, Work-family Balance, Colleague Support*

I. INTRODUCTION

Growth of information technology at present days is making possible by high speed data communication link donated to enhanced interactive ... links bridging the temporary and spatial boundaries and correspondingly broadened ... opportunity for women employees looking for paid work. In the early ... the liberalization and globalization covered the way of developing IT industry in India. ... million workforce of IT industry in India which enjoys natural comparative ... advantages ... in our time-gap with most of the developed countries. Here in order to boost the export economy of the country and to create a new pool of entrepreneur the IT sector has its inherent spill for benefitting ... creative employment potential for large pool of educated unemployed youth that includes ... attractive option for women.

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A Study on Firm's Capital Structure and the Factors Influencing the Firm Value

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ABSTRACT: *Researchers have always made laudable contributions in examining the factors that influence individuals and business firms to adopt and maintain the capital structure decision during a firm's life cycle and the effect of firm age on the relationship between the capital structure determinants and firm value. The research methodology is carried out to examine the financing choices of top 100 firms in terms of market capitalization through a close outlook with the business lifecycle. The determinant of capital structure decision is based on profitability, liquidity, nature of the industry, timing, and timing of the issue. Debt is taken as a fundamental source in an early stage, whereas in the maturity stage; firms re-balance their capital structure gradually substituting debt for internal capital. This study aims to generate an idea of the dynamic evolution of the firm across different stages, investment/disinvestment needs, profitability, cash flow generation and leverages. Moreover, the study is carried out with a comprehensive analysis of the firm's capital structure and the main elements in the classical theories, i.e. Trade-off Theory and Pecking Order Theory.*

Keywords: *Capital Structure, Financial Growth Cycle, Small and Medium-Sized Firms, Sources of Finance.*

I. INTRODUCTION

Capital Structure is the arrangement and procurement of the capital from different means to finance overall operations and growth of an organization as the term "structure" implies arrangement of the various sections. Thus, capital structure refers to the proportions or combinations of share capital either in the form of equity or preference, long term debts and retained earnings. Whereas financial structure consists of short-term debt, long term debt and shareholder's fund i.e. entire left-hand side of the company's balance sheet. According to I.M. Pandey "Capital structure refers to the mix of long-term sources of funds such as debentures, long-term debts, preference share capital and equity share capital including reserves and surplus." The capital structure decision is a significant financial decision as it affects the shareholders return and risk and consequently market value of shares. The combination of both debt and equity is crucial for an

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A COMPREHENSIVE STUDY ON GOVERNMENT SCHEMES FOR WOMEN ENTERPRENUERSHIP IN INDIA

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ABSTRACT : Throughout the decades a little change has occurred in the development of women in the region of entrepreneurship. Entrepreneurship fills in as an impetus of economic development of the nation. It is one of the biggest segments for capital aggregation. Truth be told economic development is the after-effect of the endeavours taken by the entrepreneurs. Also entrepreneurs can manage the economic development by their activities and choices. Presently many have started to understand that for accomplishing the objective of economic development, it is important to advance entrepreneurship both subjectively and quantitatively in the nation. Just dynamic and eager entrepreneurs completely investigate the possibilities of the nation's accessible assets – work, innovation and capital. There is some enhancement in the execution of the women drove endeavours. Be that as it may, they are confronting number of issues for [illegible] their [illegible] because of absence of [illegible] to outside assets and so forth. Women inclusion in [illegible] little [illegible] and [illegible] for [illegible]. Stretching out credit offices to women entrepreneurs is [illegible] expected to support women entrepreneurs in India.

Keywords: Economic Development, Women Entrepreneurs, Women Problems .

I. INTRODUCTION

In the course of the most recent couple of decades there has been a moderate however consistent change occurring in the development of women. The gross enrolment proportion (GER) for women has expanded and women have progressively approached to take an interest in the work part. Not just that, women have approached to build up their very own undertakings and progress toward becoming employment suppliers. Despite the fact that the innovative world is as yet male overwhelmed, women support is on the ascent consistently. Regardless of whether it is miniaturized scale, little or medium scale task, women have approached to build up their [illegible]. Women have dove into the field of entrepreneurship and found success [illegible] financial job. Many are occupied with locally situated little scale [illegible] like moving home-arranged nourishment things, moving [illegible] vegetables, drain distributing, margarine and ghee making by keeping [illegible] couple of milch creatures. Women are likewise occupied with goat rising, [illegible] cash loaning, and pawn handling, and moving materials in the area [illegible]. The cash created through such locally situated entrepreneurship helps [illegible] salary [illegible].

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Evaluating the Industrial Development Banks Performance in India

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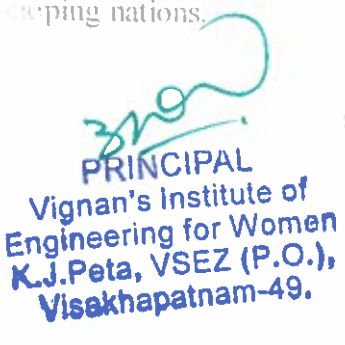
ABSTRACT: *Small Industries Development Bank of India (SIDBI), committed to promoting a thriving environment that enhances the growth and competitiveness of MSMEs. Led by Vision 2.0, it undertaking a slew of initiatives, starting from encouraging budding entrepreneurs to strengthening existing MSMEs. From democratizing credit access to MSMEs through Direct and Indirect financing, to exposing small businesses to the working of large enterprises. This will help the MSMEs to understand the finer nuances of production, quality, technology and scalability. Being a financial institution, SIDBI must have sufficient resources to meet the credit needs of the MSMEs. For growth and survival of bank is depending on confidence of people on the bank. It can be achieved by the profitability of the bank. As profit is an index of performance of the bank. Therefore to get social confidence, every financial institution is required to earn sufficient return on its investment. Financial soundness is very important for the success in whole the business. Finance department efficiency is key aspect to get success in other aspects of business. Hence it is very imperative to evaluate the financial position of SIDBI. In the present study efforts are made to evaluate the financial position of the SIDBI from 2007-08 to 2016-17 by using tools like percentage, ratio analysis.*

Keywords: Commercial Business, MSME, Survival of Bank

I. INTRODUCTION

The financial services industry plays a significant part in the overall growth of an economy by generating employment, providing various investment avenues to the investors and financial services to the customers and the community. Economic growth actually leads to economic development for which capital required is provided through the financial services industry. Capital formation through the mobilization of resources by the financial services industry and accumulation thereof would be the key element of economic growth strategy. The banks in the economy are channeling funds accessible by moving excess funds from depositors (with no immediate requirements of these funds) and channeling those funds as a credit to borrowers who have excellent ideas for generating surplus funds in the economy. The main efficiency of the funds to implement those ideas. This generates income for the borrowers, ensuring profitability. It is enlightening to understand that the banking sector is a prominent one in the financial sector, as it has stood as one of the most extensive means of benefiting many developing nations.



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Analysis And Review on Organizational Commitment by Administrative Staff in Hawasse University

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ABSTRACT: *The question of employee turnover has come to gain greater attention especially in this 21st century when organizations all over the world, in various industries, have faced this problem at some stages of their evolution (Zahra et al 2013). Hitherto, organizational studies suggest that intentions to leave are important for organizations and researchers because once people have actually implemented the behavior to quit; there is little likelihood of gaining access to them to understand their prior situation (Bindi et al 2011). A turnover intention is a mental decision prevailing between an individual's approach with reference to a job whether to continue or leave the job (Jacobs and Roodt, 2007). In other words, it represents conscious and deliberate willingness to leave the organization (Tett and Meyer, 1993). Ongori (2007) contended that the meaning of turnover intention is the plan to leave an organization, and this appears to be the immediate antecedent to actual quitting. Turnover intention is a psychological variable of the tendency to leave that is closely related to turnover (Janseen, 1999). Mobley (1982) describes employee turnover as the cessation of membership in an organization by an individual who received monetary compensation from the organization. Several researchers have pointed out that turnover intention is commonly [illegible] in the literature as a predictor of turnover The changes occured in the theory of management [illegible] so significantly affected the attitude of organizations to their workers. The management paradigm, which until the mid of 20th century was under the influence of the "classical organization theory", considered organizations as "closed-mechanical" systems and its workers as mere elements composing them. This approach tended to see them as parts of a machine rather than socio psychological beings. Any lack of productivity or mistake of a worker was repaired by simply removing this worker and bringing a new one in his place. In this approach workers had no importance as "individuals" at all and their contribution to the organization was limited strictly to their job description. This attitude of the management [illegible] the workers, causing that these were not trying to become more useful for the organization [illegible] they used to quit their organizations to new one and to stay there until they find [illegible].*

Keywords: *The management paradigm, socio-psychological [illegible], Classical organization theory, Turnover intention, psychological variable, monetary compensation, [illegible] productivity*

I. INTRODUCTION

Organizational commitment has a long history, and has been the subject of a great deal of research and empirical attention both as a consequence and an antecedent of other work-related variables of interest. It has also [illegible] place in the study of organizational behavior and evolved as a wide range of [illegible] (e.g. engagement, attachment, commitment, involvement) within a wide spectrum of [illegible] work, job, career, profession/ occupation, organization, [illegible] while studies on commitment varied between the categories of behavioral, [illegible] and [illegible] within three broad

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A STUDY ON BENEFITTED PEOPLE FROM PRADHAN MANTRI JAN DHAN YOJANA SCHEME

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ABSTRACT : Financial inclusion is a key technique to achieve the success of inclusive growth which is very essential for the development of rural India and which is a key to the economic growth of the country. For this various initiatives taken up by the [illegible] and Government of India but these did not seemed to give desired results. The main aim of the Pradhan Mantri Jan DhanYojana(PMJDY) is to offer at least one bank account to each household within country. [illegible], the present study endeavors to examine the status of financial inclusion of households in India, furthermore the study investigate the progress made by PMJDY towards achieving financial inclusion over the period from 28th August 2014 to 13th May 2020. In this article researcher analyzed secondary data which was collected through various sources and explanatory research process has been implemented for analysis. This paper was concluded that the number of accounts opened in rural sector banks were comparatively more than urban sector banks of public sector banks, regional rural banks and private sector banks by the [illegible] of Pradhan Mantri Jan DhanYojana(PMJDY). [illegible] were opened in rural sector, 37.01 percent were opened in urban sector. [illegible] accounts [illegible] opened in PMJDY, mobilized the deposit of [illegible] 2,088 [illegible] and [illegible] issue of 2904 [illegible] rupay debit cards under the scheme as on May 13, 2020. The present study concludes that, by introducing PMJDY scheme, the government and RBI is able to bring a large number of people to formal financial channel and thereby helps in removing financial exclusion.

Keywords: Financial Inclusion, Pradhan Mantri Jan Dhan Yojana, Regional Rural Banks, Public and private sector banks, RRBs

1. INTRODUCTION

Finance is key [illegible] for efficient economic activities and development of Nation. Earlier popular theories revealed that growth and development of economy depends on important inputs like labor, capital and land, etc. these theories barely measured the position of finance in the economic progress and development as they were assuming that all markets are perfect. Joseph stiglitz and George Akerlof explained that the financial markets role in progress of economy. All countries are striving to maintain efficient financial system as finance of the country considered as brain of the economic system. Rangarajan Committee, Government of India (2008) defines financial inclusion as the process of ensuring access to financial services timely and adequate credit where needed by vulnerable groups such as weaker sections and less income groups at reasonable cost.

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Study on Internet Banking in Visakhapatnam with Reference to Consumers Perception

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ABSTRACT: As of late, [illegible] banking has turned into a useful asset to effectively get to banking administrations. The banking business has experienced emotional changes utilizing the idea of internet banking. Internet banking characterized a technique for banking through internet entry in which clients can use various types of banking administrations. The essential goal of this research is to recognize the central point that impacts internet banking discernment in Visakhapatnam District, Andhra Pradesh, India. In this paper we dissect the customers' attributes of internet banking utilizations in Visakhapatnam District and likewise found that internet banking is impacted by its Perceived reliability, Perceived ease of [illegible] and Perceived usefulness. [illegible] We looked the research theories and affirmed that perceived usefulness, Perceived ease of [illegible], Perceived Reliability, all effect mentality towards the goal of internet banking observation in Visakhapatnam district.

Keywords: Customers, Fact[illegible]nternet banking, Perception, Technology acceptance.

I. INTRODUCTION

Technology has [illegible] a fruitful decade in associations. Currently, banks operate in an exceptionally [illegible] evolved, [illegible]d and liberalized environment with extreme competition. [illegible] to exist in this intense environment banks have to use Information [illegible] Technology has introduced different new business dimensions. [illegible] Information Technology assuming more critical role in redesigning the services or items in the banking business in India. Banking industry in India has witnessed of enormous developments because of sweeping changes that are occurring in the IT. E-banking has developed from such a creative environment. Modern technology is recognized as a remedy for the vast majority of the diseases that the banking business faces today.

This paper investigates the factors that influence the customer selection of Internet banking in Visakhapatnam region. The empirical information were collected from a questionnaire survey of 250 [illegible] were sent out haphazardly. This examination examines the relationship between IB perception and the determining factors for customer selection of internet banking in Visakhapatnam area. Hence the results demonstrates that the relevant factors determines the appropriation of IB in Visakhapatnam include the level of the three factors namely PU, PEU and PR.

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Common Strategies to Direct a Mutual-Fund Portfolio

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ABSTRACT: The way to portfolio management is to have at every [illegible] you hold quickly too. The best cash supervisors on the world are powerful in light of the way that they have a request to direct cash and they have a game plan to contribute. What is needed is a sound academic framework for settling on decisions and the ability to keep sentiments from expending that structure." Most people contribute to finishing a target, the most generally perceived being retirement and school. Making a game plan upgrades your conceivable outcomes of [illegible] [illegible] for shorter-term funds destinations like a house in advance portion, excursion [illegible] auto. Right when contributing for [illegible] get, consider these requests. At the point when will I require my speculation, the amount of will I require, what is the best record sort, assessable or cost-advantaged. Answers to these request will help choose the measure of danger you can take, the sum you need to contribute and what kind of record you should consider, after we have manufactured your portfolio of mutual funds, we have to know how to look after it. Here, we discuss how to deal with a mutual-fund portfolio by strolling through four basic techniques.

Keywords: Investment Plan, Mutual Funds, Portfolio, Strategy.

I. INTRODUCTION

Mutual Funds have turned into a broadly mainstream and successful route for investors to take part in monetary markets in a simple, ease design while spreading to quiet danger qualities [illegible] over distinctive sorts of securities, otherwise called enhancement [illegible] focal part in a singular's speculation system. They offer the potential [illegible] salary through speculation execution, profits, and dissemination under the direction of a portfolio administrator who settles on venture choices for the benefit of mutual fund unit holders. Over the previous decade, mutual funds have progressively turned into the financial specialist's vehicle of decision for long haul speculation. It gets to be apropos to concentrate on the execution of the mutual fund. The connection between danger return decides the execution of a mutual fund plan. As danger is proportionate with a return, along these lines, giving [illegible] greatest profit for the speculation made inside of the satisfactory related danger level aides in isolating the better entertainers from the slowpokes [illegible] numerous benefit administration organizations are working in India so it is important to consider the execution of it which [illegible] be helpful for the investors [illegible] the privilege mutual fund. A mutual fund is [illegible] pool of cash into which investors with regular speculation goals put their commitments that are to be contrib[illegible] as per the expressed target of the plan. The venture administrator puts th[illegible] gathered into resources that are characterized by [illegible]

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International ... and Practices in Science, ... and ...
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A Study On The Trends In Banking Industry By The Implementation Of Activity Based Costing

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ABSTRACT : The competitive environment in the banking industry has made it very difficult to increase revenues and market share that is sufficient in growth and maximizing shareholder's wealth. The minimal growth in the area plus the over-saturation of banks, financial institutions and other sectors competing for the traditional banking products has forced banks to look at ways to control their costs to reach the profitability levels that are necessary to appease their stakeholders. Banks are seeking ABC platforms that can meet a wide variety of needs - concurrently and over time. No one ABC approach or model design will fit all parts of an organization. The organization must find tools flexible enough to meet a variety of needs and evolve as those needs change. ABC means Activity based costing is a method used in manufacturing units to define the stock maintenance based on the requirement to avoid cash blocked in form of stock or raw material. In banking sector cash is the core element. And maintenance of cash in liquid form is a must. To maintain this liquid cash is done by ABC model is an attempt by the authors.

Keywords: Banking industry, ABP, Performance Management scorecards, customer profitability

I.INTRODUCTION

Indian financial system is divided basically into two major parts as primary market and secondary market. But if we check in detail they can be broken down into 4 categories each inter linked and depending on each other. Activity-based costing provides a more accurate method of product/service costing, leading to more accurate pricing decisions. It increases understanding of overheads and cost drivers; and makes costly and non-value adding activities visible, allowing managers to reduce or eliminate them. The distinctive feature of ABC is its focus on activities as the fundamental cost objects. In contrast, more traditional approaches to developing the cost numbers used in job or process costing systems rely on general purpose accounting systems not tailored to the activities found in individual organizations.

Performance Assessment of Andhra Pradesh Grameena Vikas Bank

T.LALITHA

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ABSTRACT : Utilizing production variables and running select ... sectors well are ... important characteristics that affect how an economy develops. The banking industry is one of the essential industries that contributes significantly to the economic development of the nation. A reliable instrument and indicator for assessing the success of the banking industry is its contribution to economic growth. One of the enabling industries for the overall development of the nation's rural areas is the rural banking sector. Regional rural banks were recently established by the rural banking industry with the goal of meeting the credit needs of the nation's underprivileged communities. One of India's designated regional rural banks is the Andhra Pradesh Grameena Vikas Bank (APGVB)

Keywords: ... Variations, Economic Growth, Banking Sector

I. INTRODUCTION

As per the directions of the ... Commissioner ... Assessing Officer examined the claim of the assessee for deduction of Rs. ... 93.40,815 on account of provision of bad and doubtful debts Andhra Pradesh Grameena Vikas Bank, Warangal made under S.36(1)(viia) of the Act being 7.5% of the total income of the assessee as computed before making any deduction under S.36(1)(viia) and Chapter VIA. On such examination, he found that the assessee has made another provision for an amount of Rs.22,87,... under the head 'Provisions and Contingencies' without giving any break up or bifurcation of the ... details like category of asset under NPA. In the absence of these details, the Assessing Officer found it difficult to ascertain as to whether deduction under S.36(1)(viia) was claimed by the assessee twice while arriving at the total income for the year under consideration. According to the Assessing Officer the assessee also could not explain as to whether it has debited the write off under the head 'bad debts' in the account of provision for bad and doubtful debts, which has to be maintained by it as per the proviso to S.36(1)(vii). He noted that the deduction under S.36(1)(viia) was not allowable in respect of non-specified assets or in respect of advances categorized as 'standard assets', as per the decision of the Hon'ble Supreme Court reported at (320 ITR 577). He therefore, held that deduction of Rs.9,93,40,...5 claimed by the assessee on account of provision for bad and doubtful debts under S.36(1)(viia) was not admissible in the facts and circumstances involved in the case of

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Overview: Indian Stock Market with reference to FIIs

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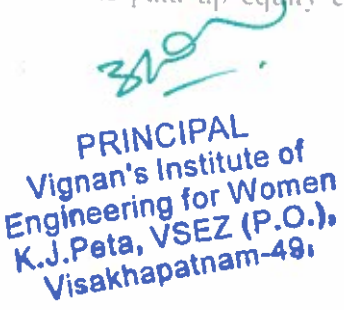
ABSTRACT: Early in the 1990's, India began the process of liberalization, which had a profound impact on how the Indian stock market operates. The Indian stock market became more competitive and efficient in their operation as a result of rising globalisation, deregulation and foreign portfolio investments. Since FII's are the ones who spend their resources, in the markets, their investments must be directed towards the sectors and areas of the economy. If market-guided economics are to succeed. Foreign Institutional Investors are one of the most important investment groups that have emerged to have significant impact on the overall performance of the stock market (FIIs). India a developing country with sizable amount of FDI each year.

Keywords: Liberalization, Globalisation, Deregulation, Foreign Portfolio

1. INTRODUCTION

Foreign Institutional Investors (FIIs), Non-Resident Indians (NRIs), and Persons of Indian Origin (PIOs) are allowed to invest in the primary and secondary capital markets in India through the portfolio investment scheme (PIS). Under this scheme, FIIs/NRIs can acquire shares/debentures of Indian companies through the stock exchanges in India. The ceiling for overall investment for FIIs is 24 per cent of the paid up capital of the Indian company (10 per cent for NRIs/PIOs. The limit is 20 per cent of the paid up capital for the convertible shares of public banks, including the State Bank of India. The ceiling of 24 per cent for overall investment can be raised to the sectoral cap/statutory ceiling, subject to the approval of the board and the general body of the company passing a special resolution to that effect. And the ceiling of 10 per cent for NRIs/PIOs can be raised to 24 per cent subject to the approval of the general body of the company passing a resolution to that effect. The ceiling for FIIs is independent of the ceiling of 10 24 per cent for NRIs/PIOs. The equity shares and convertible debentures of the companies within the prescribed ceilings are available for purchase under PIS subject to:- the total purchase of all NRIs/PIOs both on repatriation and non-repatriation basis, being within an overall ceiling limit of (a) 24 per cent of the company's total paid up equity capital and (b) 24 per cent of the total paid up value of each series of convertible debenture; and- the investment made on repatriation basis by any single NRI/PIO in the equity shares and convertible debentures not exceeding five per cent of the paid up equity capital of the



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Awareness To General Public On Health Insurance And Claim Process System

M. SIRISHA RANI
Assistant Professor, Department of MBA, Vignan's Institute of Engineering for Women, Kapuluppadapeta, Visakhapatnam [illegible]

ABSTRACT: *India is one of the fast growing and developing nation. When we talk to the pace of growth India is achieving it is really doing well [illegible] it is not up to the mark in some fields. In the field of science and technology it is doing at par with other developed nations and mark able achievements are achieved. But in the field of health care most of the population is not clear about the importance of health insurance. Much portion of the population are not aware of what is insurance and how health insurance can become a helping aid during a dooms day. It is the job of the government to create awareness in the general public especially to those people who are in rural areas the importance of health insurance policies. Their benefits and various schemes available to support the poor and needy. According to National Rural Health Mission on the healthcare needs of the poor, an average of Rs. [illegible] while on the rich an average of Rs.3 is being spent. While India celebrates the growth in technology, we [illegible] defensive skill, it is also needed to focus on health insurance sector. This article is a study done to find the awareness of health insurance policies in the general public.*

Keywords : *Medical Insurance, Awareness of Health Insurance, Determinants, Need of Health Insurance*

I. INTRODUCTION

India has [illegible] million population on the whole out of which most of the population come under the category of people below poverty line. They don't have money to meet their day to day requirements and never even think of savings. In such scenario concept of health insurance is a dream come true for them. They have to understand that health insurance will be a blessing in disguise. According to a recent survey, it has been observed that a huge part of our population does not use medi claim policies to funding their medical expenditures. They think it is not worth to invest in medical insurance products as their priority is to meet day to day expenses. Therefore [illegible] buying medical insurance products. As per a conducted report by KPMG and FICCI [illegible] Indians are covered by medical insurance plan which is undoubtedly low compared [illegible] mammoth population. This lack of awareness of medical insurance continues to [illegible] millions of Indians at risk. [illegible] Indians depend on corporate health insurance [illegible] or does not cover critical [illegible] and illness and as a result of which a large section [illegible] medium shocks to huge out-of pocket medical expenses.

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International Conference [illegible] and [illegible] in Science, Technology and M[illegible] for Societal Benefits

ISBN [illegible]30-[illegible]

Social Accounting - A Survey Based on Evidence

M.SATYAVATHI

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ABSTRACT : *The purpose of this study is to analyse social accounting's application, which is supported by practise theory, as well as its contribution to social accounting theory. Stakeholder accounting may be implemented by a variety of businesses. Numerous case studies have been used to exam[illegible] and the findings will allow us to better inform the public about the social values that businesses create for society and how they affect stakeholders and, ult[illegible], societal well-being. Companies will receive feedback on their social impact from the analysis' findings, which will help them improve. This study establishes a framework that could direct businesses' nonfin[illegible] [illegible] and social value. According to popular perception, social accounting is an accounting syst[illegible] to understand Socio emotional accounting*

Keywords : *Sta[illegible] feedback, Social Impac*

1. INTRODUCTION

It is important to note that social accounting is still accounting. It might seem a little more complicated than traditional non profit accounting at first, but it is simply different. And, while there are many definitions available for social accounting, it is essentially the process of evaluating and publicizing the [illegible] measurable parts of an organization's actions--think social and environmental. Think less books and more people, a look at performance as it relates to [illegible] within [illegible] community or population. Perhaps the simplest way to define and describe [illegible] is to say that it looks at the less quantitative values of [illegible] company [illegible] that might make us want to work or purchase from an organization. Measuring [illegible] unmeasurable while it is relatively simply to look at money in versus money out, it [illegible] more difficult to [illegible] an assessment of other factors which [illegible] influence environment. Social accounting seeks to reflect on the actions of a company in [illegible] practice[illegible], but is more inclusive, including things like in-kind donations and volunt[illegible] hours that traditional accounting may leave out. The goals of social accounting are to h[illegible] stakeholders' right to information, balance power and responsibility, increase orga[illegible] and identify the social and environmental costs of traditional (econ[illegible]).

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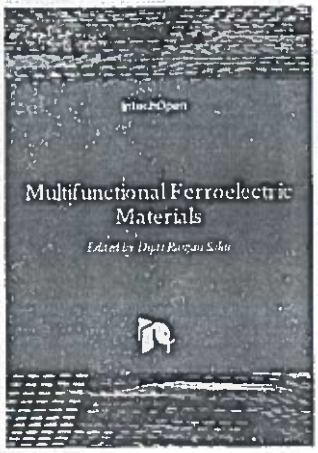

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"Piezoelectricity and Its Applications"

Authored by: B. Chandra Sekhar, B. Dhanalakshmi, B. Srinivasa Rao, S. Ramesh, K. Venkata Prasad, P.S.V. Subba Rao and B. Parvatheeswara Rao

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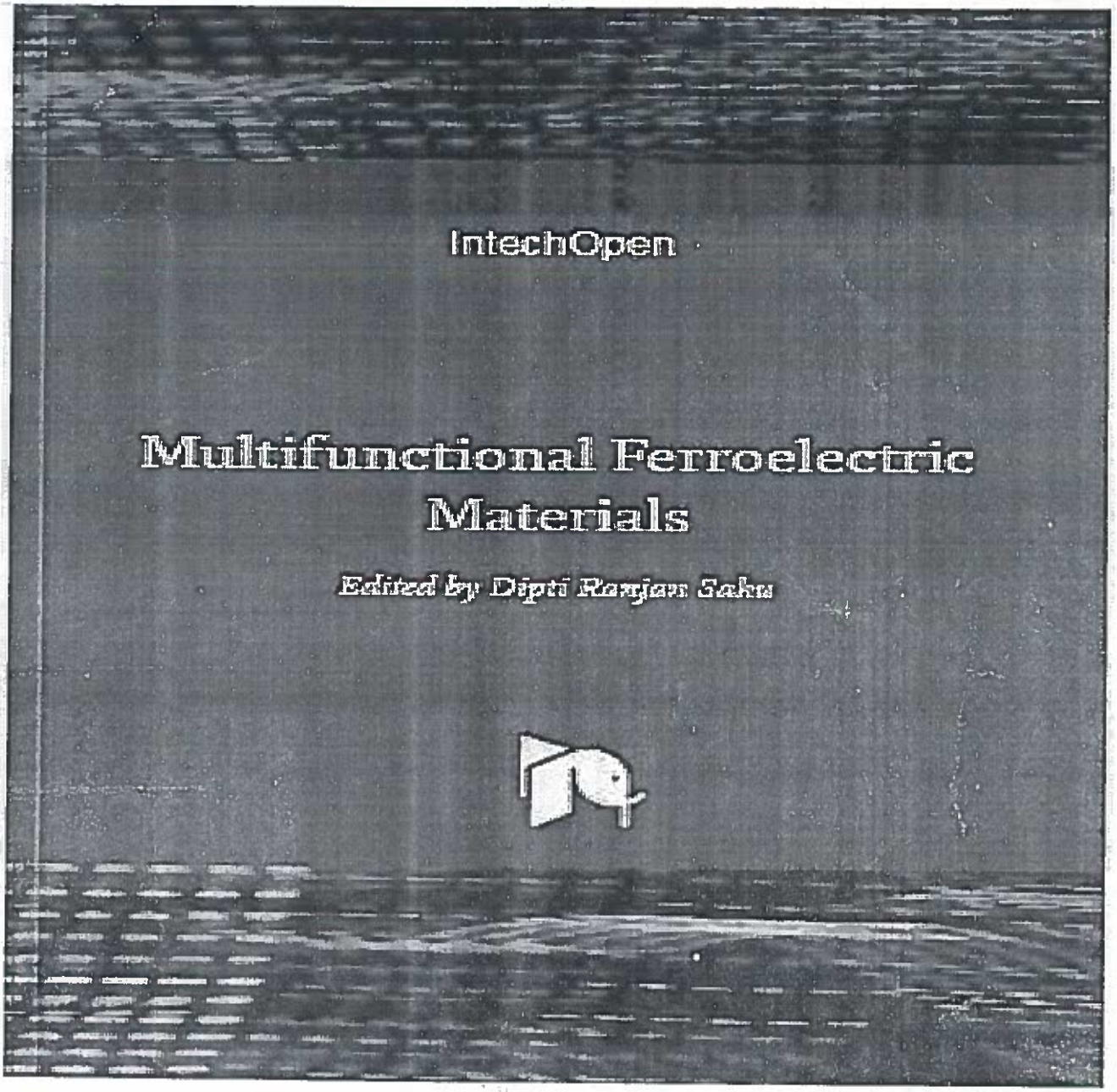

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Chapter

Piezoelectricity and Its Applications

B. Chandra Sekhar, B. Dhanalakshmi, B. Srinivasa Rao, S. Ramesh, K. Venkata Prasad, P.S.V. Subba Rao and B. Parvatheeswara Rao

Abstract

The piezoelectric effect is extensively encountered in nature and many synthetic materials. Piezoelectric materials are capable of transforming mechanical strain and vibration energy into electrical energy. This property allows opportunities for implementing renewable and sustainable energy through power harvesting and self-sustained smart sensing in buildings. As the most common construction material, plain cement paste lacks satisfactory piezoelectricity and is not efficient at harvesting the electrical energy from the ambient vibrations of a building system. In recent years, many techniques have been proposed and applied to improve the piezoelectric capacity of cement-based composite, namely admixture incorporation and physical. The successful application of piezoelectric materials for sustainable building development not only relies on understanding the mechanism of the piezoelectric properties of various building components, but also the latest developments and implementations in the building industry. Therefore, this review systematically illustrates research efforts to develop new construction materials with high piezoelectricity and energy storage capacity. In addition, this article discusses the latest techniques for utilizing the piezoelectric materials in energy harvesters, sensors and actuators for various building systems. With advanced methods for improving the cementations piezoelectricity and applying the material piezoelectricity for different building functions, more renewable and sustainable building systems are anticipated.

Keywords: piezoelectric effect, ferroelectricity, actuators, sensors, buzzers

1. Introduction

Technical application of Piezoelectricity phenomenon first discovered by Pierre and Jacques curie and Jacques curie in 1880 [1] and thereafter soon understood from the crystallographic point of view had a very slow start because for decades only a few suitable materials were available. In spite of their small piezoelectric effect, quartz crystals continue to dominate as components for frequency control since the early days of radio engineering [2], this is due to their extremely sharp resonance curves, which are stable with respect to temperature and aging. The first ferroelectric material, Rochelle Salt [3] was found out to the suitable for broadband applications in the year 1920.Stability problems encountered with these crystals,

which are produced from aqueous solutions, restrict their application to phonograph pick-ups.

Over the past period the spheres of application of piezoelectric materials in modern techniques have been considerably enlarged. In this relation the requirements to their properties are continuously growing. A great number of the piezoelectric materials have been developed in several countries, yet research in this field is still in active. The efforts of researchers are concentrated on the problem of purposeful development of the materials with desirable combination of their properties. The wide spread application of the piezoelectric effect is based on ferroelectric ceramic materials can be attributed to three main facts:

1. The Piezoelectric effect particularly large in the ferroelectrics.

2. Ceramics can be produced cost effectively. Most of these materials are either impossible or at best very difficult to produce in mono crystalline form.

3. Ceramic materials offer a high degree of variation concerning geometrical shaping on the one hand and physical properties on the other hand by virtue of mixed-crystal formation, creation of differing grain structures, and interaction of various ferroelectric or non- ferroelectric phases.

At present piezoelectric materials based on Barium Titanate ($BaTiO_3$). Lend Zirconate-Lead Titanate (PZT) solid solutions and multi component solid solutions relating to the Perovskite type crystal structure and containing, as a rule, lead titanate or lead zirconate, are mainly used [3].

Most of the improvements in the properties for particular application in the piezoceramics have been achieved either by partially replacing the constituent atoms by other atoms or doping with a small quantity of purity additives. Broadly speaking, all these methods may be considered to the control the ceramic characteristic properties by impurity doping.

Piezoelectricity is the additional creation of an electric charge by the applied stress; this is the direct piezoelectric effect. The charge is proportional to the force, and it is therefore of opposite sign for compression and tension. In terms of dielectric displacement D (charge Q per unit area A) and stress T, it may be written as.

$$D = Q/A = dT \tag{1}$$

There is a converse effect. An applied field E produces a proportional strain S, expansion or contraction depending on polarity.

$$S = dE \tag{2}$$

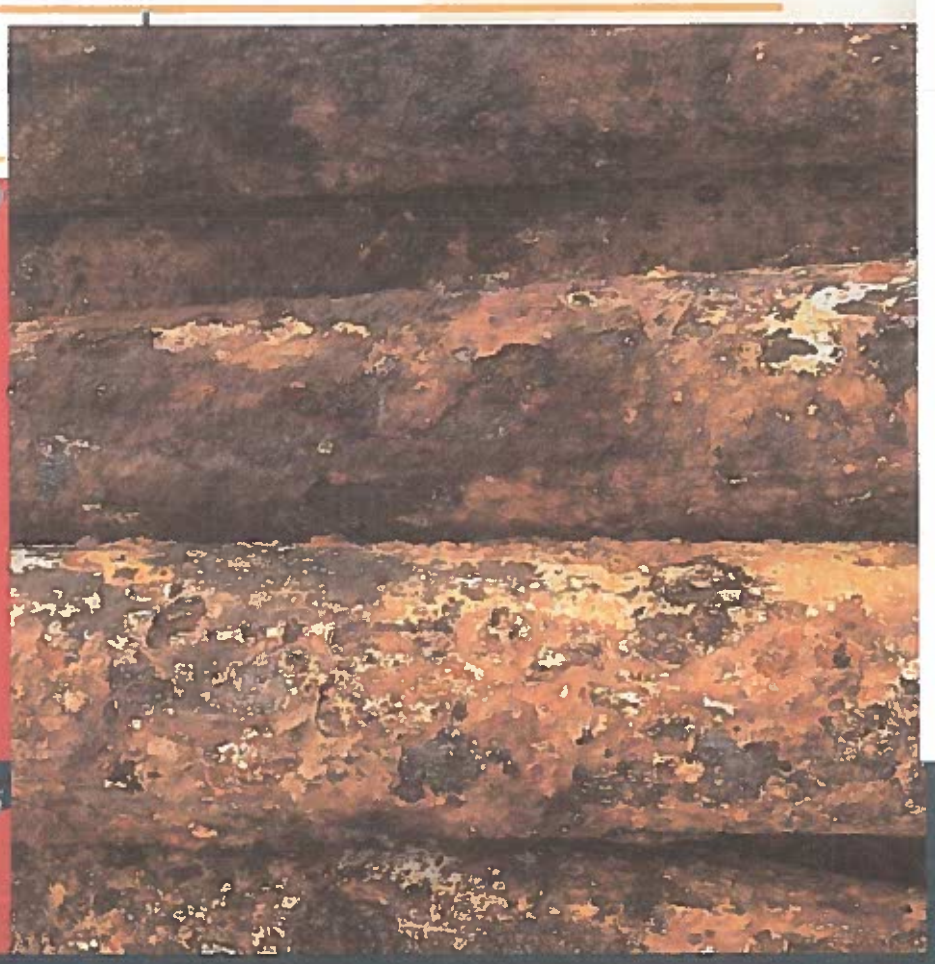
Therefore, the piezoelectric constant 'd' (Piezoelectric strain coefficient) which is numerically identical for both direct and converse effects.

$$d = D/T = S/E \tag{3}$$

Another frequently used piezoelectric constant is g (piezoelectric voltage coefficient), which give the field produced by a stress and is related to the 'd' constant by the permittivity (ε).

$$g = d/\varepsilon \tag{4}$$

CORROSION SCIENCE:
MODERN TRENDS AND APPLICATIONS



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N. Suresh Kumar,
P. Banerjee, H. Manjunatha
& K. Chandra Babu Naidu

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CHAPTER 11

Corrosion in Chemical and Fertilizer Industries

N.V. Krishna Prasad[1,*], S. Ramesh[1], K. Chandra Babu Naidu[1], M.S.S.R.K.N. Sarma[1], K. Venkata Ratnam[2], H. Manjunatha[2] and B. Chandra Sekhar[3]

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Abstract: Any country's economy and its development primarily depend on its infrastructure apart from existing natural resources in that region. The infrastructure mainly refers to irrigation system, buildings, roads, bridges, airports, transport, education and industries located there. Here it is noteworthy that all these mentioned infrastructures will be corrosion affective which may undergo degradation and deterioration processes. Corrosion is an unavoidable problem that mainly impacts industrial environment. Anthropogenic activity worldwide leads to enhancement of atmospheric pollution which indirectly accelerates corrosion in the form of rust, water pollution. Major industries in any country relate to chemical and fertilizers. India is country with dense population and developing industrially at vast rate. Chemical industry includes companies producing industrial chemicals in which raw materials like water, air, oil, natural gas, minerals and metals converted into seventy thousand products of different type. Indian statistics for the year 2018-19 indicate a production of major petrochemicals and chemicals at 27,847 MT whereas 27,735 MT during 2017-18. In this chapter, we mainly focus on corrosion related to chemical and fertilizer industries, impact of corrosion on their efficiency, corrosion controlling methods and their interrelated phenomena if any.

Keywords: Chemicals, Corrosion, Fertilizers, Industry.

1. INTRODUCTION

Deterioration of a given material on reacting with its surrounding environment is known as corrosion which is a process of converting a refined metal naturally into a hydroxide, oxide or sulfide. It gradually destructs metals by undergoing electrochemical or chemical reaction with surrounding environment [1].

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N. Suresh Kumar, P. Banerjee, H. Manjunatha and K. Chandra Babu Naidu (Eds.)

Corrosion Science: Modern Trends and Applications

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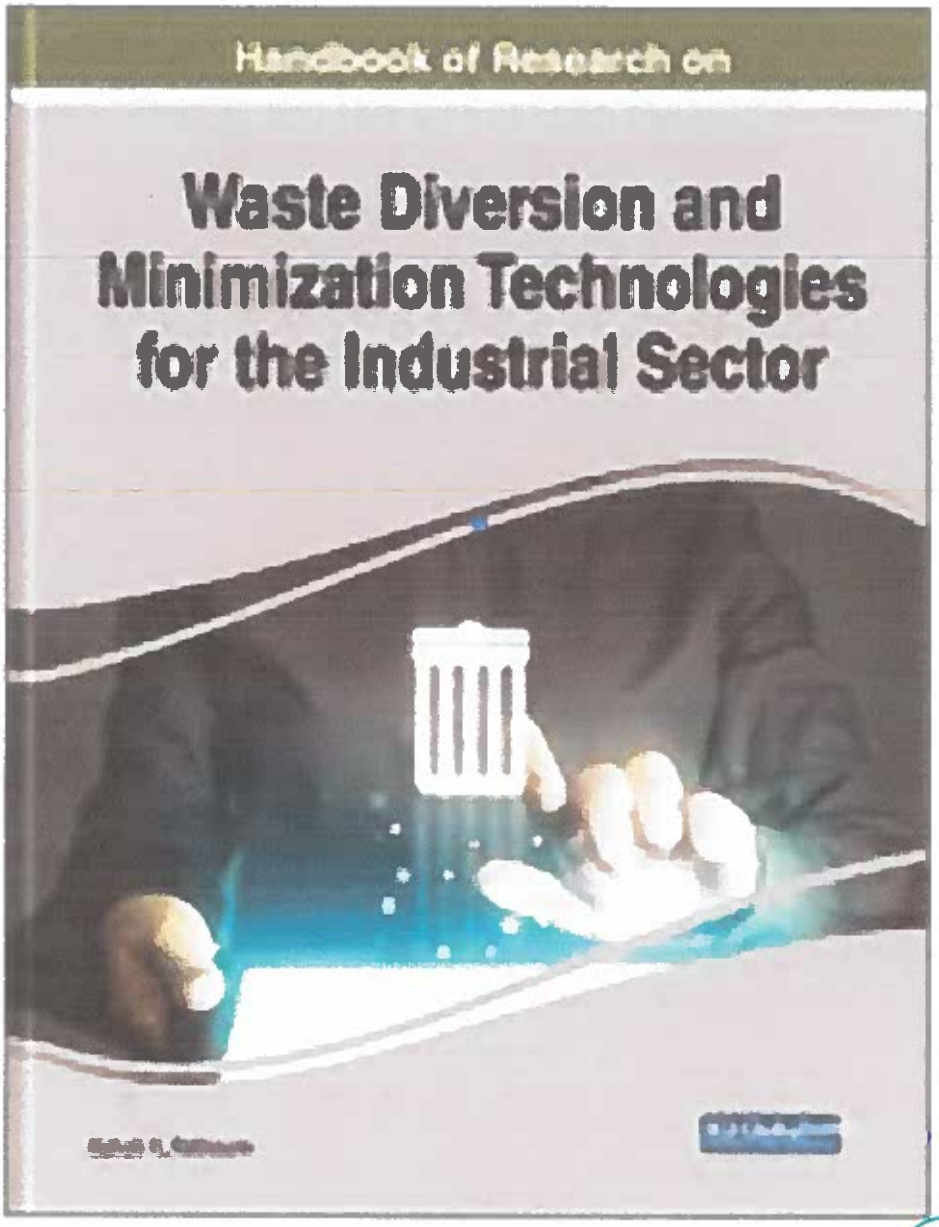

Chapter 5
Previous, Contemporary, and Prospects of E-Waste and Its Management

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ABSTRACT

The contemporary world is driven by electronic gadgets without which the survival of mankind is perceived to be incomplete. The uncontrolled dependence of mankind on electronic gadgets has resulted in enhanced production of these gadgets leading to the accumulation of e-waste. Both technological innovation and market expansion have played an important role in electronic waste (e-waste). Owing to hazardous material composition, electronic waste causes environmental problems during the waste management phase if not properly pre-treated. Growing attention is being given to the impacts of these

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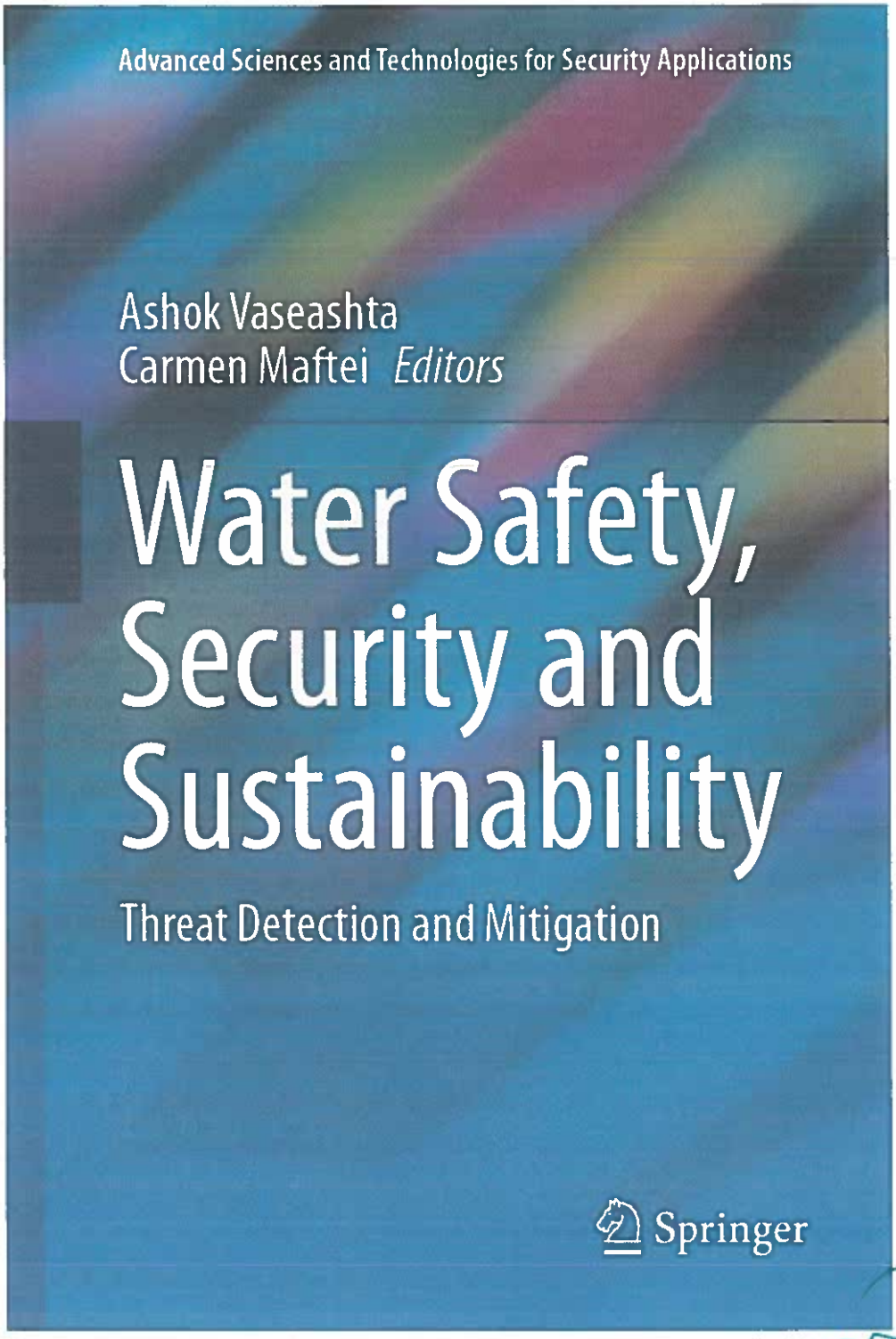

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Sustainable Approaches for the Treatment of Industrial Wastewater Using Metal-Organic Frame Works

Water Safety, Security and Sustainability pp 463-493 | Cite as

- Madhavi Konni (1)
- Saratchandra Babu Mukkamala (2)
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Chapter
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Abstract

In the urban aquatic ecosystem, environmental pollution due to waste disposal and treatment is becoming a significant concern worldwide. Pollution levels are increasing alarmingly in the marine ecosystem, according to the available scientific literature. Hazardous components, such as recalcitrant chemicals that are already present in the environment, will enhance the strength of upcoming contaminants. New technologies have been advanced for water treatment by utilizing material science engineering in the past few decades. However, water treatment technologies have suffered various limitations like more power consumption, high operation cost, and difficulty in operation. Thus, there is a need to develop new water treatment methods, such as composites and components based on Nanomaterials which have shown to be technologically advanced and some are already employed for treating wastewater currently. These resources are operative, cost-effective, and eco-friendly, highly

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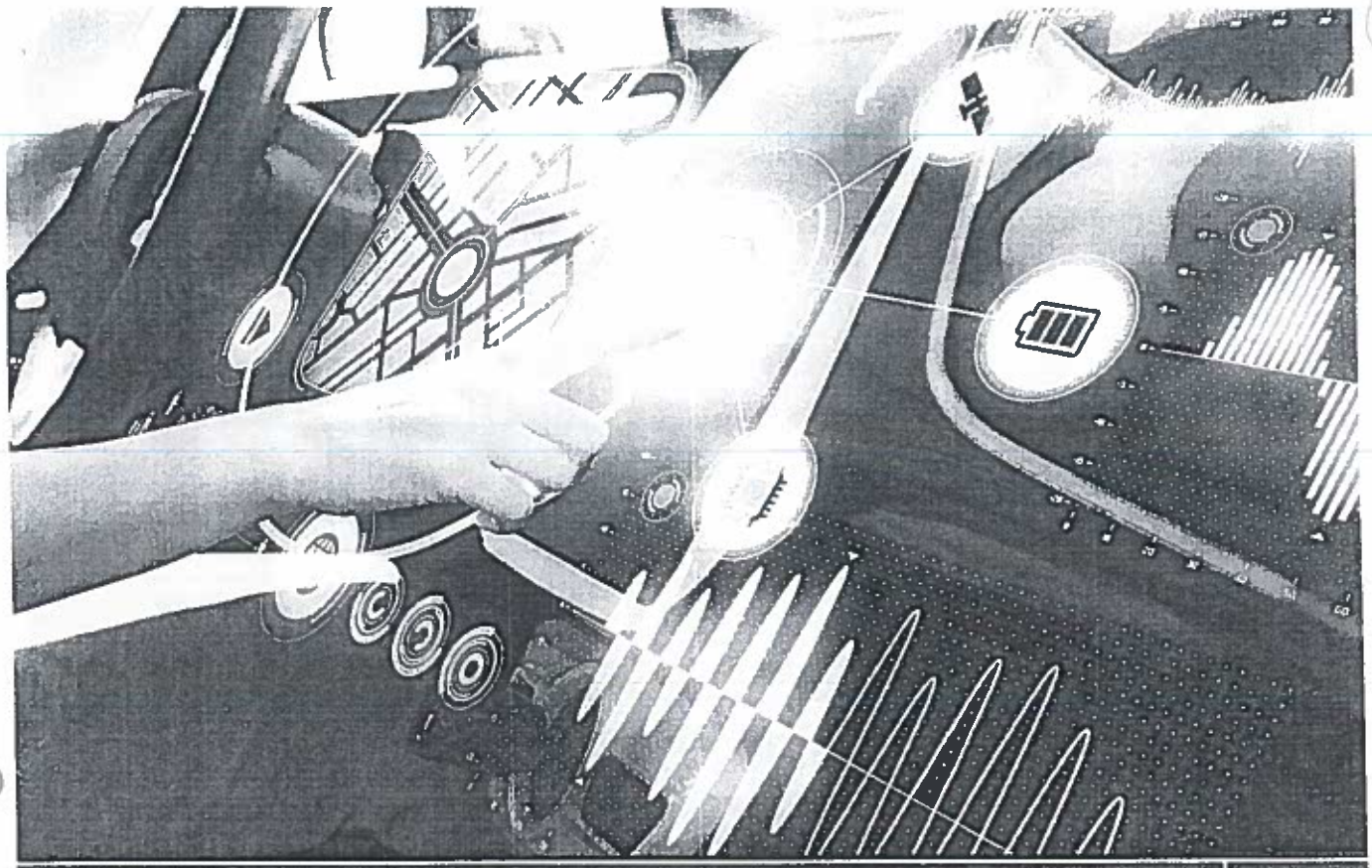

AUGMENTED INTELLIGENCE TOWARD SMART VEHICULAR APPLICATIONS

Edited by
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Joel J. P. C. Rodrigues
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Design and fabrication of POF Couplers/Splitters for Networking and Displacement Sensing(Conference Paper)

Sariki, R.K., Kambavalasa, S.K., Bandari, N.K., Moningi, R.K.

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Abstract

Plastic Optical Fiber (POF) coupler/ Splitter are important tools of Plastic Optical Networks. Design of fabricating these couplers is significant for the growth of communication system Wide applications including displacement sensors and automobile sensors are taken into consideration. Compared to silica glass fiber and copper cables, POF couplers/ splitters are raising ahead in present technology. The fabrication of 2X2 coupler and 1X2 coupler.is done by using heating and gluing. The results of the fabrication have been studied and the values obtained are efficient. © 2021 IEEE.

SciVal Topic Prominence

Topic: Beam Propagation Method | Optics | Plastic Optical Fibers

Prominence percentile: 21.069

Author keywords

coupling ratio | Displacement sensor | excess loss | POF coupler

Indexed keywords

Engineering controlled terms: Automobile manufacture | Optical fiber fabrication | Plastic optical fibers | Silica

Engineering uncontrolled terms: Automobile sensors | Communications systems | Coupling ratios | Displacement sensing | Displacement sensor | Excess loss | Networking sensing | Optical fiber couplers | Plastic optical fiber coupler | Silica glass fibers

Engineering main heading: Fiber optic sensors

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Document details - High frequency Chirp signal generator using multi DDS approach on FPGA

Proceedings of the 5th International Conference on Trends in Electronics and Informatics, ICOEI 2021

3 June 2021, Article number 9453012, Pages 137-142

5th International Conference on Trends in Electronics and Informatics, ICOEI 2021; SCAD College of Engineering and TechnologyTirunelveli, Tamilnadu; India; 3 June 2021 through 5 June 2021; Category numberCFP21J32-ART; Code 170931

High frequency Chirp signal generator using multi DDS approach on FPGA(Conference Paper)

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Abstract

The range resolution and target detection capability in Radar Pulse compression techniques can be improved efficiently by a Linear frequency modulated (LFM) waveform or a chirp signal. As the conventional method of generating Linear frequency modulated waveform causes several limitations like instability and nonlinearity, this paper has proposed a digital technique to generate LFM signal by using a multi-DDS approach. For hardware implementations of any digitally designed module, the Joint Test Action Group (JTAG) plays a vital role in real-time processing. The JTAG standards in Field Programmable gate arrays (FPGA) are allowed to debug any design with the help of Hardware Co-Simulation JTAG block. In this paper, a linear frequency modulated waveform is generated using a Direct Digital Synthesizer (DDS) and System generator Xilinx block set. The Generated chirp signal is further implemented on FPGA-ZYNQ board (ZC7045-2ffg900), by generating a Hardware Co-simulation JTAG block, essentially required for radar signal processing. © 2021 IEEE.

SciVal Topic Prominence

Topic: Binary Phase Shift Keying | Demodulators | Field Programmable Gate Array

Prominence percentile: 63.609

Author keywords

Chirp signal | Direct digital synthesizer | FPGA | Function generator | Hardware Co-Simulation | PulseCompression

Indexed keywords

Engineering controlled terms: Chirp modulation | Field programmable gate arrays (FPGA) | Radar signal processing | Tracking radar

Engineering uncontrolled terms: Conventional methods | Detection capability | Direct digital synthesizer | Hardware Co simulations | Hardware implementations | Joint test action group | Linear frequency modulated waveforms | Realtime processing

Engineering main heading: Frequency modulation

IEEE Xplore Part Number: CFP21K74-ART, ISBN: 978-0-7381-1327-2

Unique Smart Card Verification System for Validating University Degree Certificates

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Abstract: **Nowadays, many fake degree certificates are being produced by students to get admission into the other universities for higher education or to get employment. In order to validate the certificates produced, many companies and universities approaches third parties who physically confirm the correctness of certificates by reaching their universities. This process is time consuming and lot of amount is being wasted by spending on the third parties for verification. In order to overcome this, a LUHN smart card based system is proposed which helps in getting the correctness of certificates which saves the time and also reduces the amount being spent on third parties. Proposed methodology also uses neural network system for automatically sending the UID to the universities based upon the first four digits of smart card. Proposed methodology proves to be the best for validating the certificates when compared to the other approaches.**

Keywords: LUHN, Smart Card, SHA-512,Encryption,Neural Network, Hash-code.

I. Introduction:

In Day to day life, many documents are being carried which are both professional and also personal. Handling these kinds of documents is a tedious job. Emerging of smart cards in daily life is increasing [5]. Smart card system helps in replacing the documents which act as a solution to the problem of using the hard copies of documents. As technology is getting developed in day to day life, it has become necessary to advance the storage of the documents. According to the crime reports, cases related to the fake documents of education certificates are increasing day to day. In order to overcome this smartcard system usage came into the picture. So each student is given with a UID(Unique Identification Number). Education documents are linked to that UID. Any company or any other university wants to cross-check the candidate's certificate, UID can be sent to the respective university and gets validation of candidate's education details. Here LUHN algorithm is used to generate the UID check the validity of students by the university. In this paper section 1 deal with the introduction, section 2 deals with the literature survey, section 3 deals with the proposed work, section 4 deals with applying neural network.

II. Literature Survey:

Just by looking at the wallet in a pocket, a driving license, Identity card, a Credit card can be found. These can be replaced very soon with a single smart card which can be replaced with all these things [1]. Almost many universities are implementing magnetic strips for identity of the student [2]. Many technologies at present don't support these smart cards. As there are a limited number of technologies that support these magnetic strips of students, these strips provided to the students go useless. As magnetic strips are not reliable, secure, versatile nor flexible, reform must be there for this. Researchers who worked on smart card security and smart card proposed the logging system as the best security system for the smart card[3]. Recording data can also be done using a logging system which is proposed by some researchers..In order to protect the data from any physical attacks,[4] proposed and developed a new method for providing authentication. Saved data can also be damaged with the attacked and the saved data may also contain very sensitive data. Secured encryption algorithms like SHA-1, RSA, DES, was proposed [5].

Document details - A Systematic Analysis of Low Power and Low Area Multipliers by Evading Wastage of energy

IEEE 2nd International Conference on Applied Electromagnetics, Signal Processing, and Communication, AESPC 2021 - Proceedings

2021

2nd IEEE International Conference on Applied Electromagnetics, Signal Processing, and Communication, AESPC 2021; Bhubaneswar; India; 26 November 2021 through 28 November 2021; Category numberCFP21Q16-ART; Code 177333

A Systematic Analysis of Low Power and Low Area Multipliers by Evading Wastage of energy(Conference Paper)

Sudhkar, J., Rao, E.J., Sravani, D.

Vignan's Institute of Engineering for Women, Department of Electronics and Communication Engineering, AP, 530049, India

Abstract

Since multiplication is a fundamental mathematical operation for these applications, low power and compact area are now essential in high-performance manufacturing systems and Digital Signal Processing. The number of processes decreased to reduce power usage. The efficient multiplier focuses on four aspects: speed, power consumption, area, and accuracy. This research compares parallel multipliers such as the Array Multiplier (AM), Carry-Save multiplier, Wallace Tree Multiplier (WTM), Baugh-Wooley Multiplier (BWM), Bypassing Multipliers (BM), and Adiabatic Multipliers (AdM) to obtain low power and smaller space. This comparison helps us in selecting the best appropriate multiplier for a specific application. Using these multipliers, Xilinx Vivado 2018.1 simulated power, area, and speed, then evaluated the results. AdM had the lowest space and power consumption of all these multipliers, even though AMs may be utilized for the best applications. © 2021 IEEE.

Topic Prominence

Topic: Field Programmable Gate Array | Multipliers | Floating Point

Prominence percentile: 86.508

Author keywords

Adiabatic | Array | Baugh-Wooley | Booth | Bypassing | Carry-Save | Digital Signal Processing | Multiply and Accumulate | Partial Product | Wallace

Indexed keywords

Engineering controlled terms: Digital signal processing | Energy efficiency | Manufacture

Engineering uncontrolled terms: Adiabatic | Array | Baugh-wooley | Booth | Bypassing | Carry-save | Low Power | Multiply-and-accumulate | Partial product | Wallace

Engineering main heading: Electric power utilization

Document details - Efficient Design of Multiplier using EGDI Technique

IEEE 2nd International Conference on Applied Electromagnetics, Signal Processing, and Communication, AESPC 2021 - Proceedings

2021

2nd IEEE International Conference on Applied Electromagnetics, Signal Processing, and Communication, AESPC 2021; Bhubaneswar; India; 26 November 2021 through 28 November 2021; Category numberCFP21Q16-ART; Code 177333

Efficient Design of Multiplier using EGDI Technique(Conference Paper)

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Abstract

The current tendency is to look at the possibility of using high-speed, low-power arithmetic components for Video, Image, and Voice processing. Vedic Multiplier (VM) can increase the speed of operation three times compared to conventional Wallace Multiplier. The Architecture of Enhanced Gate diffusion Input (EGDI) is more amenable to Vedic Multiplier than the standard Architecture and a power-saving architecture based on Gate Diffusion Input (GDI). This paper has presented various VM-based arithmetic elements utilizing EGDI, GDI, and CMOS through 130 nm CMOS standard Library of Mentor Graphics. The results have been compared with conventional CMOS, GDI and fixed to be a very encouraging process VM-EGDI as a formidable contribution. Finally, design an FIR using VM-EGDI reduces the 7%-37%, 50%-75% of power and delay compared to FIR using VM-GDI and VM-CMOS. © 2021 IEEE.

SciVal Topic Prominence

Topic: Field Programmable Gate Array | Multipliers | Floating Point

Prominence percentile: 86.508

Author keywords

CMOS EGDI GDI Vedic Multiplier

Indexed keywords

Engineering controlled terms: Architecture FIR filters Integrated circuit design

Engineering uncontrolled terms: 'current CMOS Efficient designs Enhanced gate diffusion input Gate diffusion input High-speed low-power Input techniques Low power arithmetic Vedic multiplier Video image

Engineering main heading: CMOS integrated circuits

Document details - Advanced unique smart card verification system for Validation of university certificates with AES and LUHN algorithm

Proceedings of the 5th International Conference on Electronics, Communication and Aerospace Technology, ICECA 2021

2021, Pages 829-833

5th International Conference on Electronics, Communication and Aerospace Technology, ICECA 2021; Coimbatore; India; 2 December 2021 through 4 December 2021; Category numberCFP21J88-ART; Code 176530

Advanced unique smart card verification system for Validation of university certificates with AES and LUHN algorithm(Conference Paper)

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Abstract

As per reports, many fake certificates are being produced by the people for admissions into further studies or getting recruited to any company. Though third party verification system are being availed by the companies, it is very time consuming and also lot of investment is to be done on human resources for this work. In college or university admissions also, fake certificates are troubling a lot for authorities of admission if the certificates produced are identified as fake after giving the admission to the student. This makes ambiguity in the admission process. In present days, digitization of all kinds of transactions is being encouraged. Certificates verification system is also to be digitized in maintaining the integrity of university certificates. In this paper, a hybrid system for securely validating digitized university certificates with combination of an AES (Advanced Encryption Standard), LUHN (Modulus 10 Algorithm) and Shake 128 is proposed which not only digitizes the certificate verification process but also provides more security. © 2021 IEEE.

SciVal Topic Prominence

Topic: Bitcoin | Ethereum | Internet Of Things

Prominence percentile: 99.980

Author keywords

ISBN: 978-1-6654-3524-6

AES | Decryption | Digitization | Documents | Encryption | LUHN | Shake-518

Indexed keywords

Engineering controlled terms: Cryptography | Hybrid systems | Smart cards | Students

Engineering uncontrolled terms: Advanced Encryption Standard | College admissions | Decryption | Digitisation | Document | LUHN | Shake-518 | Third-party verification | University admissions | Verification systems

Engineering main heading: Data privacy

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Experimental investigation on VCR diesel engine fuelled with Al_2O_3 nanoparticles blended cottonseed biodiesel - diesel blends

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Cottonseed methyl ester
Cottonseed oil
BSFC
BTE
Emission

ABSTRACT

The current research work experimentally studied four strokes, single cylinder, eddy current dynamometer water cooled, variable compression ratio, diesel engine. The biodiesel derived from the cottonseed oil by the well-known transesterification process. The biodiesel-diesel blends B20 (0.8%diesel + 0.2% biodiesel), B50 (0.5diesel + 0.5%biodiesel) were mixed with aluminium oxide nanoparticles in different proportions of 50 ppm and 100 ppm by using ultrasonication process. The investigation carried out at constant speed of 1500 rpm and constant compression ratio of 18:1. The brake thermal efficiency (BTE), brake specific fuel consumption (BSFC), CO_2 and NO_x, CO and HC Harmful gases were measured and collated to diesel fuel. It is observed that B20ANP100ppm blend provides desirable results in Emissions and performance characteristics compared to diesel. Improvement in brake thermal efficiency observed with B20ANP100ppm compared to diesel and brake specific fuel consumption of B20ANP100ppm slightly increased compared to diesel. CO, HC&CO_2 emissions reduced by using cottonseed blends compared to diesel and small amount of NO_x increased compared to diesel.

Selection and peer-review under responsibility of the scientific committee of the 2nd International Conference on Manufacturing Material Science and Engineering.

1. Introduction

At Present crisis depletion of Fossil fuels, consumption of renewable sources and global warming are reduced by the use of biodiesel. The biodiesel is methyl esters obtained from the feedstock's viz vegetable oils or animal fat and biodiesel are the best source for overcoming the major problems such as harmful pollutants and greenhouse gases [1]. The biodiesel is prepared by the transesterification in the presence of a catalyst. Many researchers done their experiments on pure biodiesel and blends used as unconventional fuel in diesel engines. The cottonseed methyl ester and its blends proved best sources of reducing emission pollutants and greenhouse pollutants.

The cottonseed methyl ester and its blends proved best sources of reducing emission pollutants and greenhouse pollutants. Jincheng Huang et al. experimental investigated on performance and emissions of POME and JOME biodiesels are used in diesel engine. It is found that stable running with fuels without engine modifications and NO_x and HC emissions decreased than that of diesel at higher loads [2]. Ibidem. Ali et al. has analysed the properties via viscosity, density, acid value and also investigated engine performance of palm oil biodiesel –diesel blends. It is found that BSFC increased by 3% and brake power reduced by 2.6% of blended fuel compared to the diesel. The viscosity, density, acid value increased with the increasing concentration of the blends [3]. H. Reheman et al. recommended the Mahua Methyl esters as substitute fuel in the Ricardo E6 engine with variable compression ratio and injection timing. In this investigation observed that BSFC, BTE, EGT of the blends [4]. Some of the researchers recommended the nanoparticles are enhancers in biodiesel and blends. These are enhancing the properties of fuels and improve the combustion efficiency and reduced the emissions. C. Syed alam et al. studied the alumina nanoparticles used as enhancers in Mahua biodiesel. B20 and B50 with ratios 50 ppm and 100 ppm by using ultrasonicator in the presence of CTAB surfactant. The researchers experiment carry on a Common Rail direct Injection diesel engine with cottonseed blends. The NO_x, CO&HC emissions were lowered and increase the brake thermal efficiency because of Al_2O_3 as Nano additive [5]. Dk Ramesh et al. have investigated on poultry litter biodiesel blends B20&B20 with the addition of Al_2O_3 Nano particles on CRDI diesel engine. It is found that emissions like HC, CO &NO_x were

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Document details - Experimental investigation on mechanical properties of FeCoCrNiMo High Entropy Alloy & B₄C reinforced Al6061 hybrid MMCs

Materials Today: Proceedings

Volume 46, 2021, Pages 752-755

2nd International Conference on Manufacturing Material Science and Engineering, ICMMSE 2020; Hyderabad; India; 7 August 2020 through 8 August 2020; Code 169597

Experimental investigation on mechanical properties of FeCoCrNiMo High Entropy Alloy & B_4C reinforced Al6061 hybrid MMCs(Conference Paper)

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Abstract

Metal matrix composites are the new innovating materials used in daily life for quite some time. In the current research work Al6061 is used as matrix material and FeCoCrNiMo High Entropy Alloy (HEA) and Boron Carbide (B_4C) used as reinforcements. An attempt has been taken to fabricate hybrid MMCs considering aforementioned matrix and reinforcements through manual stir casting method by varying the volumetric concentrations (1%, 2% & 3%) of reinforcements. After fabrication, combined effects of HEA and B_4C reinforcements on mechanical properties (tensile strength, hardness and impact strength) of MMCs have been studied. The results indicate that hybrid composite samples show superior mechanical properties compared to pure Al6061. Mechanical properties are improved with increased vol% of FeCoCrNiMo High Entropy Alloy. The maximum 29%, 11.8% & 25.3% improvement in ultimate tensile strength, toughness & hardness were observed with Al6061+3%HEA+1%B_4C hybrid composite sample compared to pure Al6061.

SciVal Topic Prominence

Topic: High-entropy Alloys | Laves Phases | Entropy

Prominence percentile: 99.948

Author keywords

Hardness | High Entropy Alloy | Hybrid composite | Impact strength | Metal matrix composite | Ultimate tensile strength

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Student Result Prediction Before Attempting Exams Using Machine Learning Algorithm

Sujatha Karimisetty, Surendra Talari, Baratam Renuka, and Baratam Sailaja

Abstract In present scenario, students results are creating drastic problems if they are not as expected. Many parents are upset, and some students are even losing their lives as they feel that they could not face their parents with such results. Faculty usually guess the results based on performance of student which helps in predicting student result and inform parents. However, there is no proper mechanism for communicating this as both faculty and parents have their own busy schedule. Hence, this student result prediction before attempting exams using machine learning algorithm is a well-trained system with the training set adapted by faculty in guessing the student failure. This is usually predicted by the system by attendance and internal assessment of the student. Then, a suitable mechanism is adapted for intimating this to students, parents, faculty, mentors, heads of department. This will help in taking extra care before exams instead of becoming aggressive after exams. The algorithm used for this prediction is Naïve Bayes algorithm. Then, the accuracy is being tested on existing dataset of students.

Keywords Student result prediction · Machine learning algorithm · Naïve Bayes algorithm

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R. P. Mahapatra et al. (eds.), *Proceedings of 6th International Conference on Recent Trends in Computing*, Lecture Notes in Networks and Systems 177.
https://doi.org/10.1007/978-981-33-4501-0_75

Document details - Finite element simulation and experimental investigation of Ti-5Al-2.5Sn titanium alloy during EDM process

Materials Today: Proceedings

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2nd International Conference on Manufacturing Material Science and Engineering, ICMMSE 2020; Hyderabad; India; 7 August 2020 through 8 August 2020; Code 169600

Finite element simulation and experimental investigation of Ti-5Al-2.5Sn titanium alloy during EDM process(Conference Paper)

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Abstract

In this paper, a finite element method (FEM) has been developed for 2D axisymmetric thermal model for the prediction of temperature distribution profile on workpiece during electro discharge machining and for the calculation of material removal rate (MRR) from the temperature isotherm. For MRR prediction, model uses a number of essential features viz. thermal properties of workpiece, shape and size of heat source (Gaussian heat distribution), material flushing efficiency, pulse off/on time, amount of heat division among the tool, dielectric fluid and workpiece etc. For developing the thermal model ANSYS software was used for the single spark simulation. In this investigation, Ti-5Al-2.5Sn titanium alloy and cylindrical copper was chosen as workpiece and electrode respectively. A comparative investigation has been performed considering the influence of process parameters viz. pulse on time, gap voltage, and peak current for experimental and theoretical MRR. Temperature distribution after material killing has been analyzed on the workpiece surface alongside the depth and radial direction. The model validation has been done by comparing the experimental MRR with the theoretical MRR and a good relationship has been found between them.

SciVal Topic Prominence

Topic: Electric Discharge Machining | Wire | Tool Wear

Prominence percentile: 99.296

Author keywords

Electro discharge machining | Finite element method | Gaussian heat distribution | Material removal rate | Temperature distribution

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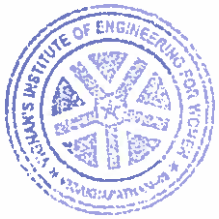
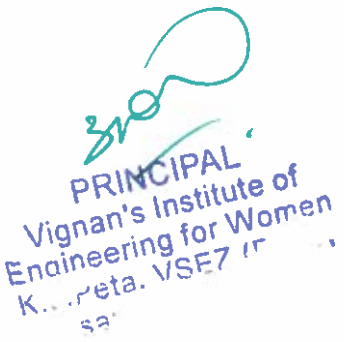
High frequency Chirp signal generator using multi DDS approach on FPGA

Publisher: IEEE Cite This PDF

Anitha Bhavani Chekka ; Naga Jyothi Aggala All Authors

Abstract:
The range resolution and target detection capability in Radar Pulse compression techniques can be improved efficiently by a Linear frequency modulated (LFM) waveform or a chirp signal. As the conventional method of generating Linear frequency modulated waveform





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A Systematic Analysis of Low Power and Low Area Multipliers by Evading Wastage of energy

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ABSTRACT:
Since multiplication is a fundamental mathematical operation for these applications, low power and compact area are now essential in high-performance manufacturing systems and Digital Signal Processing. The number of processes decreased to reduce power usage. The efficient multiplier focuses on four aspects: speed, power consumption, area, and accuracy. This research compares parallel multipliers such as the Array Multiplier (AM), Carry-Save multiplier, Wallace Tree Multiplier (WTM), Baugh-Wooley Multiplier (BWM), Bypassing Multipliers (BM), and Adiabatic Multipliers (AdM) to obtain low power and smaller space. This comparison helps us in selecting the best appropriate multiplier for a specific application. Using these multipliers, Xilinx Vivado 2018.1 simulated power, area, and speed, then evaluated the results. AdM had the lowest space and power consumption of all these multipliers, even though AMs may be utilized for the best applications.

KEYWORDS: Digital Signal Processing, Partial Product, Multiply and Accumulate, Bypassing, Array, Carry-Save, Wallace, Baugh-Wooley, Booth, Adiabatic.

1. INTRODUCTION

In arithmetic operations, the critical function is multiplication. Most commonly, operations involving a high-speed multiplier are commonly utilized in a variety of DSP applications. Due to their complexity, they require a significant amount of silicon to perform their tasks. A high-speed multiplier is necessary to get the most out of a DSP's instruction cycle. Most of the time, it takes a significant amount of time to multiply a string [1].

With the growing need for more processing power on battery-powered mobile devices, the focus has moved from optimizing traditional delay times and area sizes to reducing power waste while retaining good performance. Portable gadgets with low-power designs may run for extended periods with the same amount of battery charge. Different kinds of parallel multipliers are discussed in the following sections. Different kinds of parallel multipliers are discussed in the following sections.

2. LITERATURE REVIEW

The chip size, calculation speed, and power dissipation are 3 essential factors to consider while designing multipliers. Modern digital computers typically have a parallel multiplication unit. Due to the complexity of their calculations, parallel multipliers are commonly used [2].

2.1. Array Multiplier

An AM is a digital circuit that maintains an array of both full adders and half adders to multiple two integers. It has a high degree of repeatability. Instead of creating a Partial Product (PP), this multiplier was developed as a high-speed and efficient area multiplier function utilizing AND of multiplier and multiplicand bits. By interpreting multiplicand and a single bit of multiplier, each period may produce any PP. Carry-save techniques with high throughput enable future addition operations. The final product may be achieved by retaining any faster adder, with the number of PPs varying according to the multiplier bits. The AM has a standard design structure that is based on the idea of the additional shift algorithm [2].

The summation is performed by adding or subtracting PPs from an array using Full Adders and Half Adders. The addition or subtraction of the products is computed by taking advantage of the building blocks of an AM.

Efficient Design of Multiplier using EGDI Technique

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Abstract - **The current tendency is to look at the possibility of using high-speed, low-power arithmetic components for Video, Image, and Voice processing. Vedic Multiplier (VM) can increase the speed of operation three times compared to conventional Wallace Multiplier. The Architecture of Enhanced Gate diffusion Input (EGDI) is more amenable to Vedic Multiplier than the standard Architecture and a power-saving architecture based on Gate Diffusion Input (GDI). This paper has presented various VM-based arithmetic elements utilizing EGDI, GDI, and CMOS through 130 nm CMOS standard Library of Mentor Graphics. The results have been compared with conventional CMOS, GDI and fixed to be a very encouraging process VM-EGDI as a formidable contribution. Finally, design an FIR using VM-EGDI reduces the 18%-37%, 50%-75% of power and delay compared to FIR using VM-GDI and VM-CMOS.**

Index Terms - Vedic Multiplier, CMOS, GDI, EGDI.

I. INTRODUCTION

In arithmetic circuit topology, the multiplier is the essential component. Digital signal processing (DSP), image processing (IP), and neural networking all utilize the multiplier. Most IP and DSP contain multiplier functions like multiplication, Filtering, Multiplier and applications Accumulators (MAC) Multiplier-accumulator convolution, accumulate. Multiplier takes nearly 80% to complete execution time than other operations like addition, subtraction, division, and DSP algorithms. In DSP the multiplier plays a vital function. The multiplier performance determines the overall performance of the DSP algorithm.

Multiplier because the main basic fundamental hardware block within most of the processors. It contributes to the total personal Computer of the system. The multiplier is that the primary important fundamental function in an arithmetic operation. Multiplier operation is predicated on the multiply and accumulates. Computation-sensitive Arithmetic Functions (CIAF) are currently used in various DSP applications, mostly convolutional filters, Fast Fourier Transform (FFT), filtering, and logical arithmetic microprocessors. Since multipliers take up most execution time in most DSP algorithms, high speed power multipliers are required. Presently, multiplier duration is the essential factor in deciding the DSP chip's instruction period.

The signal processing applications demand more for high-speed processing and low power. The results have been expanding within the Computer each day. In several applications, such as real-time image signal and IP, arithmetic operators are crucial to achieving the desired output or efficiency. The multiplier is one of the main arithmetic functions in such applications, so constructing a fast multiplier circuit has piqued interest for decades.

Optimizing each portion of the planning process is part of lowering the Personal Computer in the digital system. This paper involves the technology wont to implement the digital circuit, circuit style, topology, and circuit architecture.

This paper focuses on the multiplier for reducing power and delay methodology for practicing comparative debugging about hardware role play and accurate observations. In addition, we look for the optimistic multiplier for different types of DSP and IP applications [1]-[3]. Finally, the research paper is rearranged as follows: In Section 2, the reported literature is seen in greater detail. The techniques used in this multiplier section 4 are defined in Section 3 of the basic style of VM. Section 5 discusses the essential components used in VM. In contrast, Section 6 discusses the results and discussion, and an efficient filter with a proposed multiplier. Finally, in Section 7, the multiplier design is finished.

II. SYSTEMATIC LITERATURE SURVEY

Mehta et al. [4] have developed VM based on Urdha Tiryakbham, resulting in a 26.45% improvement in speed compared to the existing multipliers, however, area occupancy increased by 10%. Kanchi et al. [5] have reported 23% increases in speed compared to existing multipliers. Kamor et al. [6] proposed VM supported Nikhilam sutra using barrel shifter yielding delay reduction of 45%, including decreased area occupancy by 24% compared with the traditional multiplier. Anjane et al. [7] used Kogge-Stone adder-based VM improving speed by 2%, following conventional

A Systematic Comparison of Approximate 4-2 Compressors for Efficient Approximate Multipliers

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***Abstract* - In a Digital Signal Processing (DSP) system, the multiplier is an essential element. It had given the large design parameters values in DSP systems, and hence efficient multipliers are now in high demand. Approximate Computing (ACG) has been used in exact multiplier design by lowering design parameter values. This paper, first, reviews the eighteen recent proposed 4-2 Approximate Compressors (ACs). Next, develop the Verilog code of eighteen 4-2 ACs and 8-bit Wallace Multiplier (WM) with these 4-2 ACs. Next, these 4-2 ACs and WM were then simulated and synthesized by Cadence RTL Compiler in a 90 nm CMOS standard library file. The results reveal that Liu2 provided the best design parameter values compared to WM with the remaining 4-2 ACs.**

Index Terms* - *Approximate Computing, 4-2 ACs, Digital Arithmetic.

I. INTRODUCTION

Nowadays, ACG plays a significant role in error-tolerant applications such as Machine learning, multimodal DSP, data analysis, and data recognition [1], [2]. ACG is crucial for these applications to meet design metrics [3], [4]. ACG hardware has mainly been studied for arithmetic units like adders and multipliers [5]. In many applications, multiplication is a typical operation that consumes more energy than addition [6]. The three primary stages of the multiplier are Partial Product (PP) generation, PP addition, and final sum. In general, the second multiplier step dominates the design parameters more than the remaining two steps.

ACs have lately become a feasible option for implementing an approximate multiplier. ACs are used to reduce the multi-operand total of the PPs to a two-operand addition using tree-based logarithmic reduction methods as Wallace [7], Dadda [8], and the Three-Dimensional Method. The 3-2 AC turns three inputs into a count expressed in two outputs, which is the most frequent configuration. The half-adder and higher-order ACs (such as 4-2 or 5-3) are also commonly employed in multipliers. Builds hardware-efficient 6-3 and 7-3 accurate compressors using the stacking circuit concept [9].

Because of the simpler wiring and efficient transistor implementation at the transistor level [10], the objective of this project is on 4-2 ACs, which are often utilized in the construction of exact multipliers. Several methods of designing 4-2 ACs and using them to generate approximate multipliers have recently been suggested [11]–[17]. Because there are so many options, a designer who uses 4-2 ACs in a multiplier has difficulty deciding on the best topology. First, this paper reviews the eighteen recent 4-2 ACs and verifies the percentage of Error Rate (ER) and design parameters. Next, verify the design parameters of WM with these 4-2 ACs.

The following is a representation of the paper structure. In Section II, eighteen existing 4-2 ACs are reviewed. Section III deals with the Design and ER Analysis and deliberates the results. Finally, Section IV brings this paper to a conclusion.

II. 4-2 COMPRESSORS

A. Exact 4-2 Compressor

Because it has five equal-weight inputs (denoted as *A, B, C, D, C_{in}*) and three outputs (*Sum, Carry, and C_{out}*), an exact 4-2 compressor is better denoted to as a (5, 3) counter. The *Sum* has the same weight as the inputs, while *Carry* and C_{out} have twice the weight. C_{out} is not reliant on C_{in} in the compressor; this characteristic is used in tree multipliers. C_{out} generated by a 4-2 compressor in the jth column is linked to the C_{in} of a compressor in the $j+1^{th}$ column without delay. Fig. 1 depicts a typical 4-2 compressor implementation, which uses two full adders; more efficient implementations are suggested in [10].

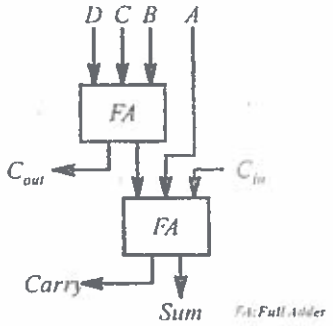

Fig. 1. Exact 4-2 Compressor Circuit diagram

B. 4-2 ACs

To simplify circuit design and wiring, the C_{in} and C_{out} pins are not used in most previously suggested 4-2 ACs (with notable exceptions, [16]). With *Sum* and *Carry* outputs, the maximum value that may be set is three. With four inputs (A, B, C, and D), at least one error (when all inputs are "1") is expected.

Fig. 2(a) depicts the diagram of the 4-2 AC suggested in [11], whereas Fig. 2(b-c) depicts the ACs presented in [12]. To achieve a simpler logic implementation, these circuits (referred to as "CHA", "M1", and "M2" in the following) insert mistakes in the exact 4-2 compressor truth-table. Four Dual-quality 4-2 ACs with the capacity to switch between accurate and approximate working modes are described by Akbari et al.,

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RF Compact Module Design for Short Range Wireless Communication

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ABSTRACT: *There are now many different wireless communication protocols as a result of the development of communications technologies and the popularity of wireless communication. Short range communication Lora modules opens up a large area for research and can be used with IOT for many additional applications. Short-range communication is more advantageous than other types of communication since it uses little power, is inexpensive, and allows peer to peer contact. Many choices, including sensor system monitoring and data, robot navigation, home automation, and many more, are lost while connecting wireless by access to a long distance. No other component performs a better job than the nRF24L01 transceiver module when it comes to offering inexpensive yet effective full-duplex RF solutions. Transceiver modules utilised in these situations are inexpensive and very simple to use. The use of RF transmitter and receiver in this project is essential for corresponding over short distances with a higher transmission data rate.The nRF24L01 2.4GHz transceiver module is a wireless radio frequency module with the capacity for both data transmission and reception. The module. It has an operational range of 100 metres and operates at a nominal operating current of 13.5mA with a 250-2 Mbps transmission data rate.*

Keywords: *Wireless communication; Transceiver module; Microcontroller unit*

I.INTRODUCTION

The method of delivering data between several sites without the requirement for physical connections like wires or cables is referred to as wireless communication. The most widely utilised wireless technology uses radio signals to deliver data over large distances. An antenna is required to order to transfer data without the use of wires. Using an antenna, radio frequency energy can be transferred from one medium, like a waveguide or transmission line, to another (i.e. air). Data transmission requires the use of a transmitter and a receiver, or two systems. Electromagnetic waves serve as the carrier for signal transmission over the channel between the transmitter and receiver in wireless communication. Given that wireless frequency can through solid objects, wireless networks are simple to setup anywhere depending on requirements. This

...Science, Technology and Management

...niques: A Review

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ABSTRACT: *...ical images or ultra sound images ... medical field for many purposes. Many problems occurred in the medical images. ... imaging technique is introduction of speckle noise which blurs or degrades the quality of th... makes the image unclear which is tuff to see clearly. There have been several techniq... speckle noise from the images. This paper presents a case study of some different techniques which reduce the speckle noise from image.*

Keywords: *medical images, speckle noise, speckle filter, image de-noising, wavelet ...sform.*

I. INTRODUCTION

Medical images or ultra sound imaging are inexpensive, real time and non radioactive. Medical images are like x-rays in which you see your fractures and other injuries clearly. If the speckle noise occurs in the image then we will not see the image clearly. Image will be unclear or degraded by the speckle noise. Speckle noise reduces the resolution, contrast and important information. Reducing the speckle noise however still remains a challenge because due to the use of the de-noising techniques it.

multiplicative in the nature: cause the blurring of the medical image[1].So mostly the physicians uses the original noisy image rather than the filtered. Because sometimes the necessary information is lost when de-noising of the image is done. So the original noisy image is preferred. Speckle noise is multiplicative in the nature within each resolution cell a number of elementary scatterers reflect the incident wave towards the sensor. The back scattered wave with different phases undergo constructive or destructive interference in a random manner and then the required image is corrupted by the noise called speckle ... which reduces the interpretation of the image content which occurs not clear.

Speckle noise shows in the following manner because it is multiplicative in the nature:.

$$g(x,y)=f(x,y)*n(x,y)$$

Where ... n(x,y) is the multiplicative in the nature.

...peckle Noise Modeled as Follow: ... {f1, f2, f3, ...fn} is a noisy ... deal image.

... {v1,v2,v3.....vn} is speckle noise

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A Comparative Study of SI 3D Placement for Power Management and Wirelength Reduction

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ABSTRACT: *In these days every application requires power management and area management such physical problems and aspects of VLSI design. Miniaturization of devices and area are highly complex integrated systems in microelectronics have led to the 3 Dimensional requirements in technological innovation. 3 Dimension offers numerous advantages: Size, power consumption, heterogeneous integration etc., various techniques to handle the power management in IC. Power dissipation in a IC is based on power used by the IC and also by heat dissipation. To reduce energy use or to minimize heat dissipation some of the techniques are available. Three dimensional (3D) integration is a viable approach that allows designers to add functionality to the devices while maintaining the same die area without the need for new design process. Stack dies in 3D integrated circuits (ICs) also reduces the die area of designs. In addition, die area reduction helps decrease wire length, thus improving the performance of the designs r.*

Keywords: *DGS (Defected Ground Structure), Corona, ISM band*

I. INTRODUCTION

The task of the very large scale integration (VLSI) placement is to assign exact location to various circuit components within the chip area. It involves number of objectives such as wire length, area of the die, timing, power. Placement treats the shapes of all blocks as fixed; i.e., it only determines the location of each block on the chip. The variables are the xy locations of the blocks; most blocks are standard cells the y-locations of cells are restricted to standardcell rows. Placement instance sizes range in to the tens of millions and will continue to increase. Placement is usually divided into two steps: global placement and detailed placement. Global placement assigns blocks to certain sub regions of the chip without determining the exact location of each component within its sub region. The result of global placement may still overlap. Detailed placement starts from the result of global placement, removes overlaps between blocks, and further optimizes the design. Placement objectives include the estimated total wire length needed to connect blocks in nets, the maximum expected wiring congestion in subsequent routing, and the timing performance of the circuit. To solve such large scale mixed size VLSI placement problem. Many algorithms have been proposed to solve the placement problem in VLSI among these algorithm

The placement algorithms are classified into two categories: constructive and iterative improvement methods. The constructive algorithm starts with the empty set and builds up the solution by adding one element at a time. These algorithms are faster but the quality of result is not good. An iterative algorithm starts with initial placements and repeatedly

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D[illegible]fective ground structures in a single band E-shaped patch antenna for ISM band applications

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*ABS[illegible] single band E-shaped micro strip patch antenna with flawed ground structures is shown in this [illegible]. The antenna's overall dimensions are (32*31.5*1.[illegible]) mm. The antenna's output bandwidth, [illegible] is between (2.3 and 2.5) Ghz. It offers a reflection coefficient of around -32dB. [illegible] dielectric constant of 4.4, was used to design the antenna. It is possible to [illegible] the radiation pattern, VSWR, and reflection coefficient. The EM [illegible]mulator is used [illegible]*

Keywords: [illegible] structure[illegible], Antenna, ISM band.

INTRODUCTION

A imperfection [illegible] the ground [illegible] to as a "defective ground structure." When DGS is incorporated into the ground plane, performance parameters such as bandwidth, return loss, and VSWR improve. Traditional micro strip patch [illegible] limitations [illegible] problems and a narrow bandwidth. [illegible] tactics have been employed to [illegible] their operational range. One of these techniques is known as a defected ground structure (DGS), and [illegible] techniques are frequency selective surfaces, electromagnetic band gap structures (EBG), photonic band gap [illegible] various feeding structures, stacking many layers, etc. These are all used to enhance the performance of an antenna. The performance is enhanced by an antenna that has a [illegible] plane [illegible]

[illegible] in the case [illegible] this reduces mutual coupling and higher mode harmonics [1]. Defected Ground Structure (DGS) [illegible] [2] to improve performance. A portion of a ground plane is also referred to as [illegible]. The DGS [illegible] stop property and can be thought of as a simplified version of the EBG structure [3]. [illegible] applications for DGS. Different DGSs have been presented and are employed in microwave circuit applications. [illegible] evolution of DGS is covered in [4] in great detail. Due to it's simplicity and inexpensive cost [illegible] DGS has many advantages. A transmission line's capacitance and inductance characteristics [illegible] result of the DGS's disruption of the shield current distribution in the ground. [illegible] effect of capacitance and inductance on a micro strip line [illegible] slot or imperfection [illegible] in the ground plane of a micro strip line [illegible] utilised. [illegible] concentric rings, [illegible] as well as [illegible] rectangular [illegible] shapes that have [illegible] unique

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Translating Handwritten Document to Digital Form Using Machine Learning

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ABS... Even though computers and smartphones are more common than ever, many individuals still enjoy the classic writing experience of pen and paper. After all, during the hundreds of years of human history, this technique worked effectively for us. Even though there are numerous technological writing tools available, many people still prefer to take their notes the old-fashioned way: on paper and with a pen. However, the conventional method of writing text has some drawbacks. Physical papers are challenging to share with others, keep and retrieve in an organized way, and search through effectively. Handwriting recognition is the capability to translate understandable handwritten input into digital form from sources including paper documents, touch screens, and other devices. A handwriting recognition system manages formatting, completes accurate character segmentation, and identifies the most likely words. Thus, converting handwritten characters to digital representation is becoming more and more common. The text on a piece of paper will eventually fade away, while a file kept on a computer can only be lost by deletion. It has become crucial to save raw handwritten documents in digital format. It segments each character in the image and recognizes the letter after receiving the handwritten document as input in the form of a high resolution image. Additionally, it recognizes the letters before going on to find the words in the image. Based on the training it received from the training data, this is accomplished with the help of machine learning algorithms. The specified input image will be provided in word document format as the intended output. Large data sets of images that display the various writing styles and shapes can be used to train the system. When training the system with vast amounts of data, machine learning is crucial. This can also be used to businesses and organizations that daily keep critical records in writing form. With such a method at hand, finishing the work is made simpler and faster.

Keywords: Machine Learning, Image Processing, Feature Extraction, Neural Network, Computer Vision, Segmentation.

INTRODUCTION

One flaw in handwritten papers is that they are challenging to "read through." In the field of image processing and pattern recognition[1], handwriting identification has become one of the most difficult research fields in recent years. It makes a significant contribution to the

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Development in Preserving Natural Resources using IOT

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ABSTRACT: *Along with the fast expansion of metropolitan areas, there is a steady increase in the requirement for new offices and resources. The utilisation of natural resources has increased significantly. The world's demand for energy is always growing. Traditional methods of increasing energy production to keep up with this increase pose a major threat to the environment. Smart frameworks and efficient use of the Internet of Things are effective, profitable solutions to problems in urban improvement. The internet-based collaboration and correlation of various IoT devices results in the production of a significant volume of information.. It is a censorious activity to combine the IoT's advantages with the massive information organisation in a systematic way for the expansion of a smart city. In addition to using Big Data analytics, a framework is utilised to limit resource utilisation in the context of IoT in order to solve this issue. In this study, a social system-based framework that incorporates both the physical system and the human element is suggested for usage by citizens. With the suggested approach, participants actively play a key role in the processes. Citizens submit issues to the system directly as they see them. In addition to human interaction, using sensors can maintain processes current.. The system's field teams will assess the issues and assign tasks in accordance with their findings. As a result, work assignment management can be managed optically. Thus, via effective management, the least amount of natural resources are used in relation to the participation of citizens.*

Keywords: *Resources, IoT, Big data, Energy, Environment, Smart city*

I. INTRODUCTION

The Internet of Things (IoT) is a network of networked computing devices that are interconnected in various ways. It is a more recent paradigm of communication in which everyday items will be outfitted with microcontrollers, transceivers, and other devices for digital communication, as well as with appropriate protocols that will enable them to communicate with each other and with users, becoming a vital part of the internet. The IoT breach has a significant impact on how much a person expects from their daily pleasures. Following the completion of key administrative level phases, the majority of countries have moved on with maintaining national systems to implement IoT. Joining the current perilous processing has caused the life pattern to modify day by day.

Numerous studies have been conducted on infrastructure-related problems and cloud-based IoT-based smart city solutions. The cloud computing infrastructure that is beneficial for smart cities is described in the existing

International ... Science, Technology and Management

Image Classification

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ABSTRACT: *The paper gives an overview on the ... of machine ... ing being used in the field of image classification and efficacy. We introduce the ... ... ation efficacy from medicine and pharmacology to overcome the limitations of ... ... baseline classification to derive the metrics of image classification efficacy and ... ... and hypothetical examples to further examine their usefulness. Finally, we detail the procedures of ... efficacy assessment for image classification in the paper.*

Keywords: *Accuracy, classification algorithms, classification assessment, image classification, machine learning, remote sensing*

I. INTRODUCTION

Machine learning, specifically deep learning, has been deployed in every field that involves image classification and arithmetic circuits [1-5]. Deep learning has transformed the way we classify ... at any scale. At the micro scale, biomedical imaging can benefit from deep learning for a better understanding of irregular human body activities and early diagnosis of severe diseases [43–45]; at the macro scale, Earth surface characterization [6]– [8] and seven solid Earth geoscience [9] can be strengthened by applying deep learning. The main advantage of deep learning is that a well-trained neural network facilitates automatic image classification and can be applied to many different image types. It is essential to assess the accuracy of classification outputs with a deep learning classification algorithm for its new applications [10], [11]. As deep-learning classification methods continue to diversify and advance, the rigorous assessment of neural networks becomes increasingly vital. More than a dozen metrics have been invented for evaluating pattern recognition and computer vision [12], [13]. With or without modification, these metrics are extensively applied in image classification and related fields, from molecular imaging to earth observation. The existing accuracy metrics can be divided into three types [14]. Type I: Accuracy metrics are directly derived from error matrices (also known as confusion matrices). These metrics for positive-negative (binary) classification include accuracy (or overall accuracy) at the matrix level and sensitivity, specificity, positive precision, and negative precision

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ABSTRACT: This paper gives an overview of the [illegible] of image classification and efficacy. We introduce the [illegible] pharmacology to overcome the limitations of [illegible] baseline to derive the metrics of image classification efficacy and apply [illegible] mathematical examples to further examine their usefulness. Finally, we detail the procedures of classification efficacy assessment for image classification in the paper.

Keywords: Accuracy, classification algorithms, classification assessment, image classification, machine learning, remote sensing

I. INTRODUCTION

The new age of 4G technology is upon us which is about to reshape our lives. 4G offers us greater bandwidth, higher data rates, efficient spectrum use, and increased interoperability across the globe it supports user friendly, innovative, and secure application environment. These systems will support comprehensive personalized services, providing stable system performance and improved quality of service. During the last few decades, mobile communication has developed rapidly. The 1st Generation deployed in the 1980s was an analog technique. Though Speech chat was the only service available, 1G still laid the basic structure of mobile communications and solved many fundamental problems such as adopting cellular architecture, multiplexing frequency band, roaming across domain, uninterrupted communication etc.2G was based on digital signal processing techniques deployed during 1990s. It is regarded as an evolution from analog to digital technology. The introduction of Subscriber Identity Module SIM card and supporting capabilities for a large number of users were 2G's main contributions. 2.5G emerged with data service and packet switching methods. It brought the Internet into mobile personal communications. This was a revolutionary concept leading to hybrid communications. 3G provided high data rates for broader bandwidth. Based on intelligent DSP techniques, 3G network can transmit various multimedia data communication services 4th Generation of mobile communication standard introduced its first service Long Term Evolution on 14 December [illegible] Stockholm and Oslo. 4G allow seamless mobility which supports un-interrupted file transfer in case of [illegible] moves from one cell (one

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High Blood Pressure Biometric Identification System using Iris, Face and Fingerprint Images

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ABSTRACT: *Biometric frameworks [illegible] characters of people like [illegible], veins, [illegible]. Biometric frameworks doesn't give [illegible] framework are presented, yet the [illegible] example, intra class variation, [illegible] and workings in the exhibition of Multi-[illegible] report using finger impression. This a[illegible] Progressed Encryption Standard (AES) [illegible] AES-MM framework, honing [illegible] to Verification. The Observation [illegible] utilized for include esteem extracti[illegible] extraction. Details extraction method[illegible] Element level combination (FLF) appr[illegible] utilized for coordinating, at last the FIF-AES [illegible] amount, for example, exactness [illegible] Positive (FP), Accuracy (P), Genuine [illegible] better exactness 90%, 90, and 70%*

utilized for person's acknowledgment depends on the organic [illegible] composing styles, scents, walks, and so on the Uni-model [illegible] knowledgment exactness so the multi-model biometric [illegible] framework comprise of certain disadvantages, for [illegible] peculiarity. To conquer the downsides [illegible] future level combination based biometric. In this [illegible] natural characters in view of profoundly gotten (utilizing [illegible] multimodel biometric framework is presented. In this FIF-[illegible] for picture improvement which give effective-information picture [illegible] seemingly trivial details extraction calculations are [illegible] utilized for Face and Irish component esteem [illegible] for unique mark Component esteem extraction. The [illegible] for joining the highlights and Connection philosophy is [illegible] work exhibitions are estimated. The execution parametric [illegible] Blunder rate, Review (R), Bogus negative (FN), Misleading [illegible] and Genuine Negative (TN). The FIF-AES-MM framework gives

Keywords: *Advanced Encryption Standard [illegible] Modification [illegible] Operational Mode Design, Feature level fusion and Multi-[illegible]*

I. INTRODUCTION

Biometric [illegible] work is a biometric recogn[illegible] identification framework for conventional individual confirmation. Presently a [illegible] works are utilized in the different places such as bank, Cell phone, House government [illegible] security regions and so forth. In the [illegible] measurement framework, security of the natural [illegible] set is the significant downside. To further [illegible] the data set security and works on the exhibition of combination based multi-modular [illegible] inspire to accomplish[illegible] this work. Essentially, Biometric recognizable proof

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Palm print Biometric Identification based on Machine Learning Algorithms

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ABSTRACT— Biometrics have acquired fame throughout the past 10 years and palm print have rich and extraordinary highlights which makes it a solid biometric recognizable proof system. There are various low goal palm print and low cognizant calculations have been created. Profound learning assumes a noticeable part in biometrics. This paper centres around the course of plan palm print biometrics framework, from summary of palm print information bases with their portrayals and preprocessing, highlight extraction and preparing the dataset with RFCNN machine learning calculation and furthermore, we present some palm print acknowledgment methods and some examination works connected with palm print purposes.

Keywords— Palm print, feature extraction, RFCNN

I. INTRODUCTION

A shrewd card is a gadget that incorporates an installed coordinated circuit chip(ICC) that can be either a secured installed regulator or identical knowledge with interior memory or a memory chip alone. The card associates with a peruser with direct or with a remote contact-less radio recurrence interface. In current situation understudies cards are either made of attractive strip or normal plastic cards. These card have just restricted space for information capacity or all in all we say these cards don't store data rather they are simply utilized as the method for distinguishing proof. The more extensive benefit of a savvy card over this ... lies in ... security, dependability and usefulness. Savvy cards have the advantage of putting away ... records with the benefit of exactness and dependability at the end of the day ... the shrewd card as a versatile information base. Through the proposed ... an understudy card involving brilliant card innovation for ... understudies. This will improve the ongoing understudy ... that are ... and furthermore abrogate the utilization of ... cards and ... shrewd card is given to the administrator who ... furthermore tops off the card when required. The card is viewed as ... helpful to understudies in homeroom as well as in ... office and ...

Chapter 4
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Vasthu Shastra Using AI Rule Based Expert System (CLIPS)

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ABSTRACT

Throughout the years, individuals have truly developed to utilize Vastu Shastra for better life. They have begun to value the idea a great deal. What is the explanation for individuals utilizing and acknowledging Vastu Shastra to such an extent? What makes this custom so interesting or so fruitful? Indeed, a ton of things. Vastu Shastra can truly improve an individual's life. It is very difficult to bring Vasthu consultant to your place as they charge huge consultation fee and also to rely on single Vasthu consultant report because in market different consultants will give different suggestions and remedies. There are so many tips and FAQ's available online for Free but that doesn't solve the problem that we are facing in real time scenario. This paper presents Virtual Vasthu Pandit where the user can answer several questions raised by Artificial Intelligence Expert Systems before he/she decide to purchase a particular piece of land or not. This virtual vasthu expert systems is developed after consulting several vasthu shastra experts and online resources that also tells several remedies in their existing flat and also whether that particular flat is suitable for him/her based on the owner date of birth. This virtual vasthu consultant will be cost effective and reliable. This paper is implemented using CLIPS (C Language Integrated Production System) which is a public domain software tool for building expert system. The implementation code of this expert system also shared at the end of this chapter.

Keywords: Vastu; shastra; expert systems; artificial intelligence; consultant; consultation; virtual; remedies; CLIPS.

1. INTRODUCTION

This chapter discusses about the system development using the state-of-the-art of expert system technology.

This virtual expert system suggests:

- What to look out for and buy a house or plot/place with good Vasthu fundamentals.
- Provides services as a Vasthu Consultant to maximize the Vasthu of the house and to correct the flawed house.
- To find the favorable direction based on owner date of birth - Numerology

2. DOMAIN - VASTHU SHASTRA

2.1 Vasthu Shastra – The Science of Happiness & Prosperity

Vastu Shastra are the textual part of *Vastu Vidya* - the broader knowledge about architecture and design theories from ancient India [1]. Vastu Vidya is a collection of ideas and concepts, with or without

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PYTHON FOR DATA ANALYTICS

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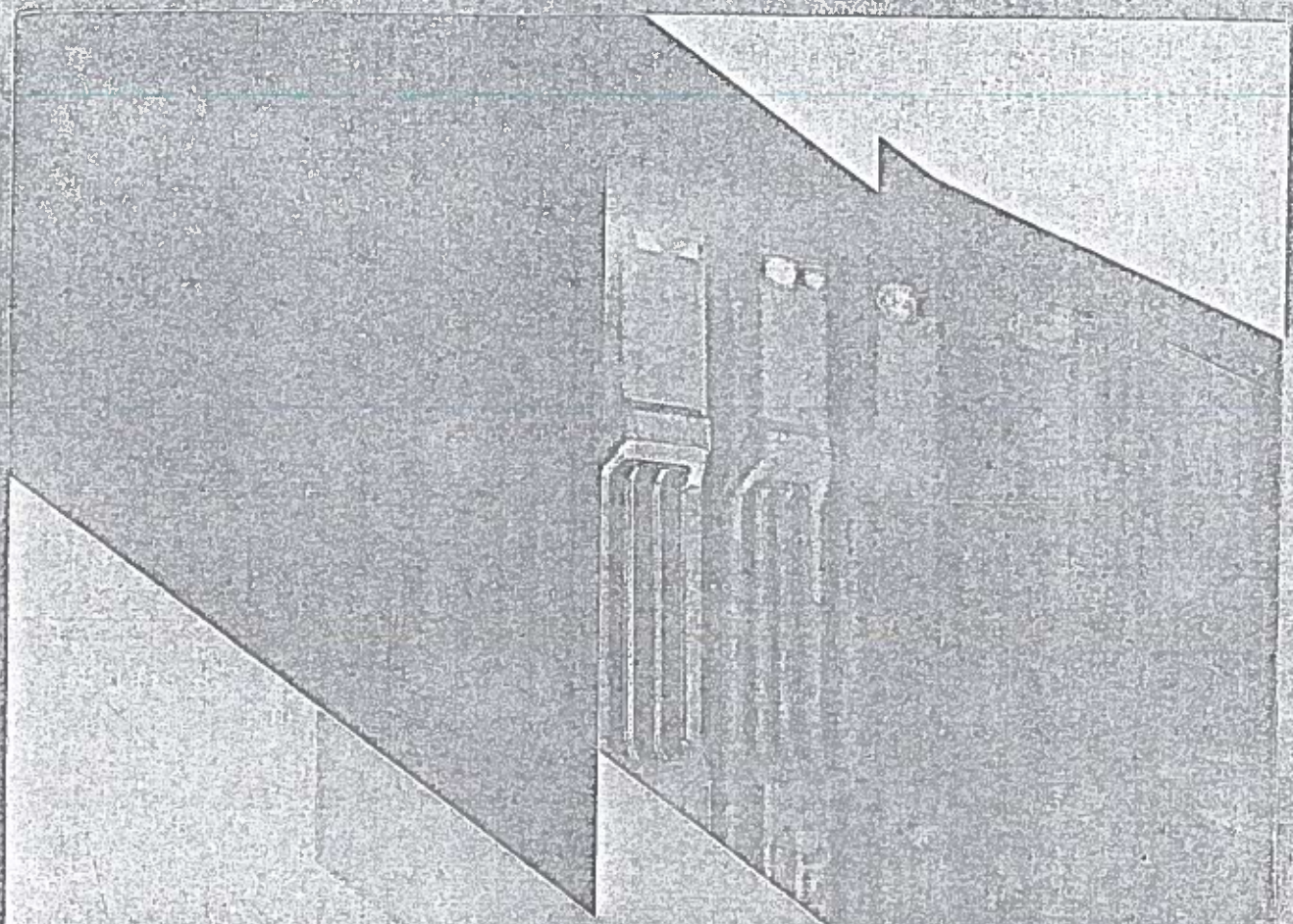

DATABASE MANAGEMENT SYSTEMS

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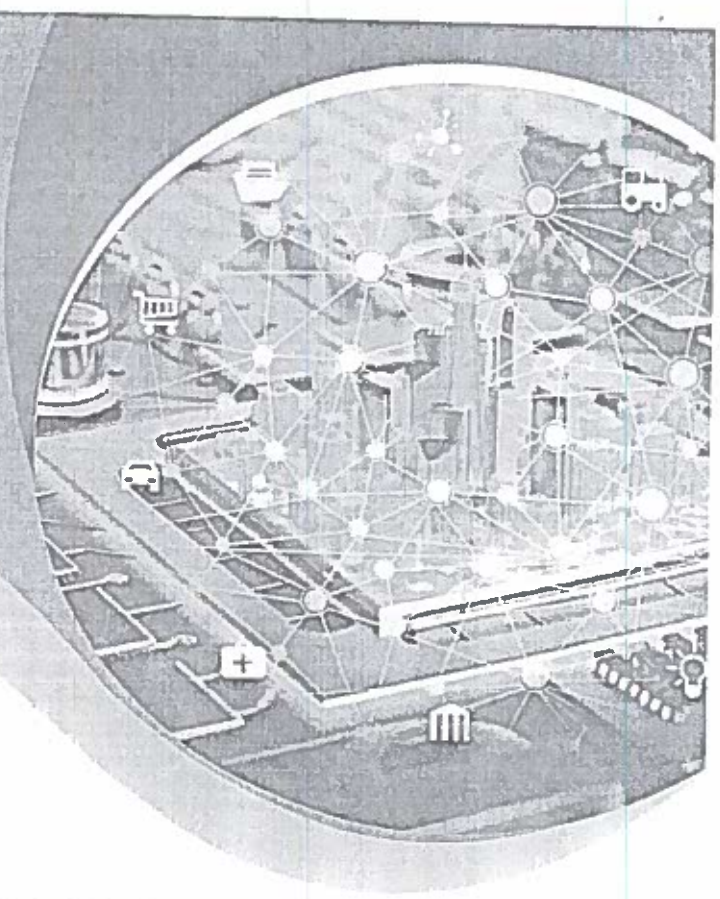

EMBEDDED SYSTEM DESIGN

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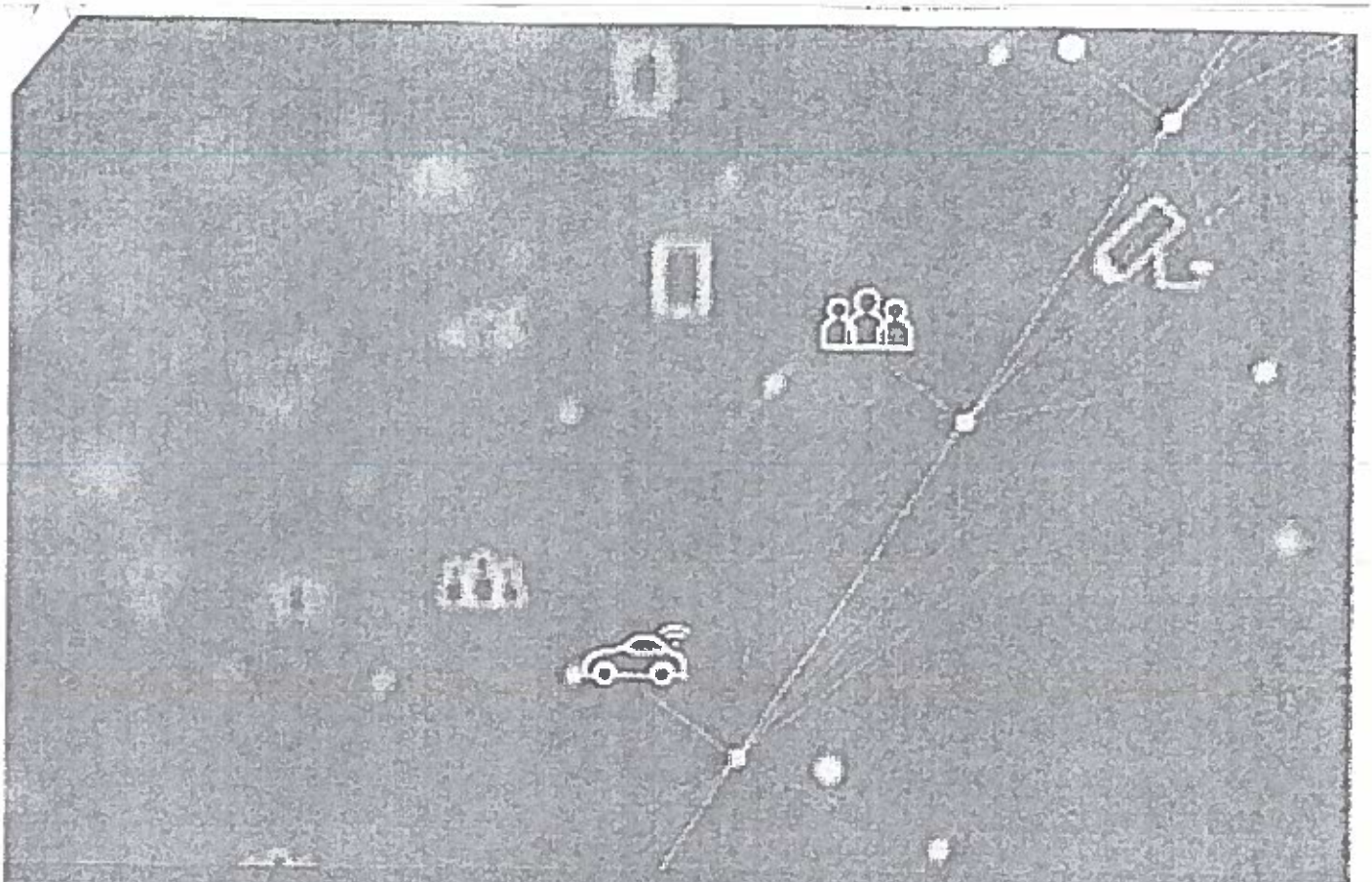

INTERNET OF THINGS (IOT): NETWORKING, CLOUD COMPUTING AND SMART APPLICATIONS

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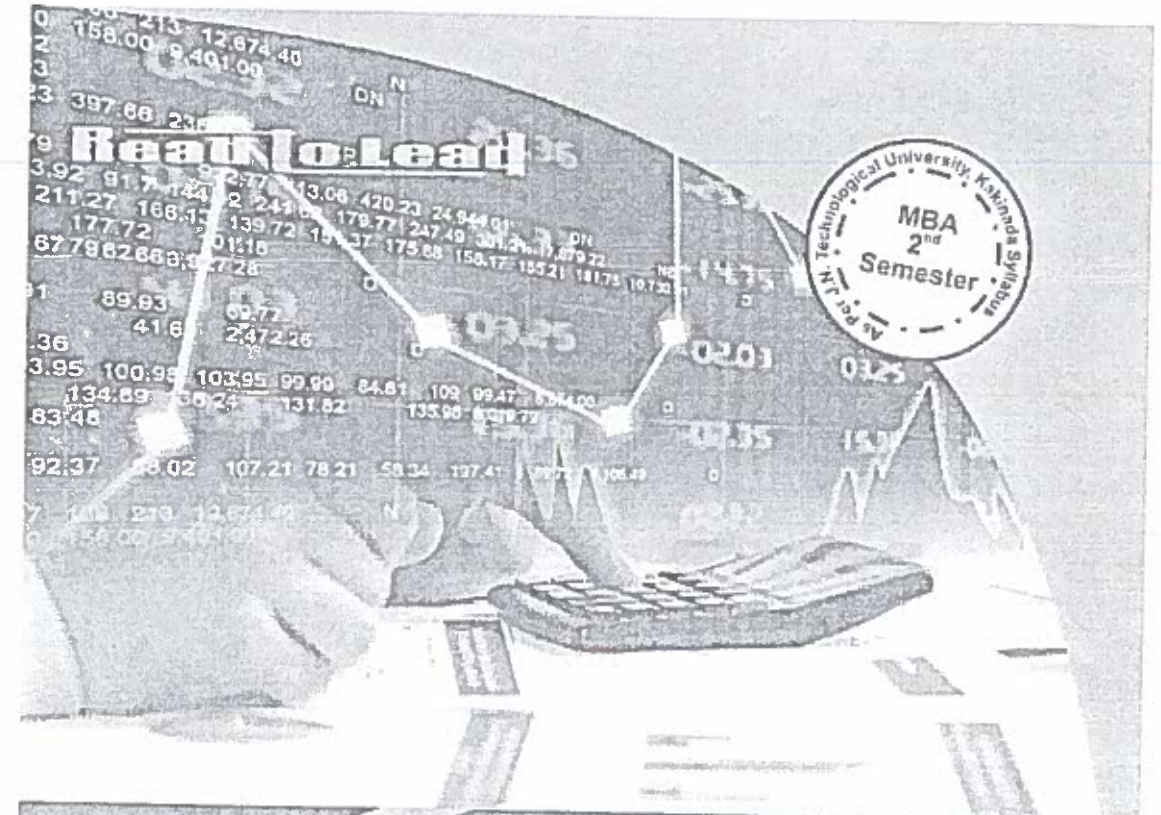

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