Books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during academic year 2018-19

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	Mrs. P. Prasanna Kumari	NA	A study of natural convection by using rectangular cavities	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://www.vignan.ac.in/recentevents18/ipeics19.pdf	10
2	Mrs. Sharon Rose	NA	Heat transfer enhancement with different fluids in double pipe heat exchange by ansys fluient	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://www.vignan.ac.in/recentevents18/ipeics19.pdf	11
3	Ms. Ch. Lakshmi Anusha Ms. Maheswari Ganga	NA	Effect of surface treatment on continuous and aligned palf reinforced epoxy composite	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://www.vignan.ac.in/recentevents18/ipeics19.pdf	12
4	Mr. V. Ananda Babu	NA	Unconventional exploration jute/snake grass/kenaf fiber reinforced novel hybrid composites with annona reticulata seed filler addition	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://www.vignan.ac.in/recentevents18/ipeics19.pdf	13
5	Mr. N. Sudhakar Babu	NA	Analysis of heat transfer coefficient and thermal conductivity of mwcnt-oh / deionised water-ethylene glycol based nanofluids	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://www.vignan.ac.in/recentevents18/ipeics19.pdf	14

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. V. Satya Prasad	NA	Ionospheric earthquake precursor using global positioning System (gps) data	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://www.vignan.ac.in/recentevents18/ipeics19.pdf	15
7	Ms. K. Vahini	NA	Estimation Of The Effeciency Of Receiver Autonomous Integrity Monitoring (Raim) In Global Positioning System (Gps) Receivers	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://www.vignan.ac.in/recentevents18/ipeics19.pdf	16
8	Ms. B. Swathi	NA	Autodyne For Air Detonations for Military and Commercial Detonators	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://www.vignan.ac.in/recentevents18/ipeics19.pdf	17
9	Mr. A. Dhanunjay Kumar	NA	Ballistic Conflict Of Magnesium Alloy, Az31b Reinforced With Carbon Nanotube And Lead Under Gas Gun Method	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://www.vignan.ac.in/recentevents18/ipeics19.pdf	18
10	Mrs. P. Kiranmayi	NA	A Review Of Ship Magnetic Signature And Silencing Methodologies	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://www.vignan.ac.in/recentevents18/ipeics19.pdf	19
11	Ms. U. Ramya Sri	NA	Kenaf fiber reinforced acrylonitrile butadiene styrene composites' thermal and melt flow performance for fused filament fabrication	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://www.vignan.ac.in/recentevents18/ipeics19.pdf	20

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12	Mr. Ch. Suresh	NA	Evaluation of the performance of cotton seed and rice bran biodiesel blends in the vcr diesel engine on a comparative basis	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://www.vignan.ac.in/recentevents18/ipeics19.pdf	21
13	Ms. Ch. Swetha	NA	Jute/carbon epoxy hybrid composites: experimental investigation of the mechanical and water absorption properties on fiber stacking sequence and	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://www.vignan.ac.in/recentevents18/ipeics19.pdf	22
14	Dr K Vijaya Kumar M Krishnam Raju M Sailaja	NA	Classification of plastic variants using deep learning	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	23
15	Dr N Tirupathi Rao V Sri Lahari G Sandhya	NA	Identification of forensic photo using deep learning techniques	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	24
16	P Viajaya Bharathi N Sowjanya Kumari G Pavani Latha	NA	Smart gathering using face identification	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	25
17	D Kamala Kumari D Rajendra Dev T Hari Babu	NA	A study on cloud computing	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	26

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18	M Mamatha Lakshmi Rita Roy P Praveen Kumar	NA	A study on 'wireless network structure'	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	27
19	B Venkatesh R Ravi B Madhavai	NA	Cast your vote online using block chain	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	28
20	Ch Sudhakar Ch Sekhar Mohan Mahanthy	NA	Sustainable development in agritech	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	29
21	I Raju M Srinivas Rao D Chandra Mouli	NA	Estimation of personality data details from social networking website	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	30
22	Y V Sravya G Vinay Reddy S Venkatesh	NA	Natural Language Processing for Resume Screening	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	31
23	R Pravalika Dr B Prasad S Raju Chintalapati	NA	Proximity Estimation for Human Faces	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	32

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24	M Sailaja Dr K Vijaya Kumar M Krishnam Raju	NA	Application for Unencrypted and Encrypted data security	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	33
25	G Sandhya Dr N Tirupathi Rao V Sri Lahari	NA	Application for Producing Word Photo Caption	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	34
26	G Pavani Latha P Vijaya Bharathi N Sowjanya Kumari	NA	Generation of Word Photo Caption	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	35
27	T Hari Babu D Kamala Kumari D Rajendra Dev	NA	Application for Customary Rate Prediction	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	36
28	P Praveen Kumar M Mamatha Lakshmi Rita Roy	NA	Secured data communication using Cryptography	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	37
29	B Madhavi B Venkatesh R Ravi	NA	Instrumental music classification using machine learning	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	38

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30	Mohan Mahanthy Ch Sudhakar Ch Sekhar	NA	Detection of Employee Pressure levels Using Machine Learning	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	39
31	D Chandra Mouli I Raju M Srinivas Rao	NA	Trnscribed password for contact screen for biometric	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	40
32	S Venkatesh Y V Sravya G Vinay Reddy	NA	Monitoring social distance using opencv	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	41
33	Mrs.K.Therissa	NA	Air quality monitoring system by measuring particles in the air	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	42
34	Mr.K.Chiranjeevi	NA	Simulation implementation for 5-level cascaded h-bridge multi-level inverter for harmonic reduction	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	43
35	Mr.A.Chandraiah	NA	Performance comparison of speed control strategies of brushless DC (BLDC) motor	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	44

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36	Dr.K.Durga Syam Prasad	NA	Unified power quality controller system based on multi converter for harmonic reduction	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	45
37	Ms.V.V.Sai Santoshi	NA	Simulation of maximum constant boost-control with third harmonic injection method for 3-phase z source inverter using different PWM	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	46
38	Mr.G.Ravi Kumar	NA	Particle swarm optimization (PSO) based technique for the optimal allocation of distributed generation(dg) units in the power system	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	47
39	Mr.K.Vamsi	NA	Comparative study between incremental conductance algorithm and perturb and observe algorithm for solar PV system	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	48
40	Mr.V.Avinash	NA	Implementation of DTC based speed drive governing system for induction motor	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	49
41	Mrs.T.Sushma	NA	Stability analysis for solar energy applications based on TLBB converter	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	50

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42	Mr.M.Suresh	NA	Matlab/simulink implementation for non-isolated boost DC-DC converter	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	51
43	Mr. P.V Sarath	NA	Implementation of Arduino based water level monitoring system	Proceedings of 3rd International Conference on Emerging Trends in Power Energy and Control (ETPEC 18)	International Conference on Emerging Trends in Power Energy and Control ETPEC 18)	International	978-81-949297-5-8	https://vignan.ac.in/recentevents18/etpec.pdf	52
44	Sudhakar Jyothula	Self time null convetion logic approaches	NA	NA	NA	International	978-630-9-88-119-2	https://ieeexplore.ieee.org/document/9708537	53
45	V.Srikanth	NA	Structural, photocatalytic and optical applications of biologically synthesized silver nanopartilces	Materials Today: Proceedings	International conference on applied sciencesand technology	International	2214-7853	https://www.sciencedirect.com/science/article/pii/S2214785318317085	54
46	B.Chandra Sekhar et al.,	NA	Preparation, characterization and PTCR behavior of calcium barium niobate ferroelectric ceramics	AIP Conference Proceedings	International Workshop on Advanced Materails	International	1551-7616	https://aip.scitation.org/doi/abs/10.1063/1.5050753?cookieSet=1	55
47	T. Radhakrishna Murthy	NA	Anchrored Visions of Indian Presidents	NA	NA	International	978-3-659-291234	https://www.lap-publishing.com/catalog/details/store/gb/book/978-3-659-29123-4/anchored-visions-of-indian-presidents-a-diplomat-and-a-scientist?search=Anchrored%20Visions%20of	57

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A STUDY OF NATURAL CONVECTION BY USING RECTANGULAR CAVITIES

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Abstract:

The main goal of the current work is to use Ansys Fluent to simulate natural convection inside a three-dimensional enclosure and to identify the temperature and velocity distributions for a [illegible] laminar natural convection inside a three-dimensional enclosure vertical plate with a constant temperature. The air moving into the enclosure from the ventilated front wall will be the major emphasis in order to cool the hot isothermal back wall. The purpose of the study is to examine the effects of cooling with various aspect ratios, ventilator placements, and Rayleigh numbers. In a two-dimensional analysis, variation is then to be seen by adding radiation to the inner wall surface while adjusting Rayleigh numbers, ventilator width, and aspect ratio with two distinct

Key words: *Convection, rectangular cavities.*

I. INTRODUCTION

The natural convection heat transfer is a field of acute research due to its [illegible] variety of engineering applications which include cooling of electronic chips, solar power panels and double pane insulation panels. Characteristics of natural convection strongly depend on the orientation of temperature gradient with respect to gravity. Many researchers have studied the different shapes of enclosure with various boundary conditions. Authenticity of the electronic data processing systems is a notable issue and it depends on the parameters such as semi-conductor devices, packaging and cooling system. The thermal design of components and the equipment must assure that the component temperatures are maintained below a threshold limit. Different cooling schemata are available for perpetuating the safest operating environment for the semi-conductor devices. Characteristics of natural convection strongly depend on the orientation oftemperature gradient with respect to gravity. Many researchers have studied the different shapes of enclosure with various boundary conditions.The thermal design of components and the equipment must assure that the component temperatures are maintained below a threshold limit. The convolutions of the cooling techniques applied to an electronic system depend on factors such as cost, working environment, and space available. Nevertheless, the key design parameters is the level of integrated packing Natural convection in open cavities and slots is encountered in many engineering applications, such as solar thermal receivers, convection from extended surfaces in heat exchangers, and insulated ribbon solar collectors. Side-slit cavities and an internal heat source can be seen in many electronic devices, as the slots facilitate cooling of the device's internal components.

We provide a few of the research that have been described in the literature and evaluated the behavior of fluids inside cavities. Natural convection in cavities brought on by a difference in temperature between vertical

The situation [illegible] horizontal) walls has received a lot of attention (Mezrhab, 2006). In those investigations, [illegible] researchers assessed the impact of [illegible] temperature, [illegible] opening, and location on the thermal characteristics of the cavity (Kaluri, 2009). (Mezrhab, 2006).In Kaluri et al study's three different states—a uniformly

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HEAT TRANSFER ENHANCEMENT WITH DIFFERENT FLUID IN DOUBLE PIPE HEAT EXCHANGE BY ANSYS FLUENT

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Abstract:

The design of heat exchangers is greatly improved by considering their hydraulic properties in a straightforward double pipe layout. In experiments for 60 Re 240, the hot fluid's input temperature was varied between 50°C and 70°C while the cold fluid's inlet temperature remained fixed at 31°C. Comparisons were made between temperature gradients taken from ANSYS Fluent. The thermal properties of the double pipe heat exchanger are compared using experimental data and numerical calculations in this research. A CAD design was created, and the Realizable k-epsilon mathematical combination with increased wall treatment produced the results that were the most accurate.In experiments for 60 ≤Re ≤240, the hot fluid's input temperature was varied between 50°C and 70°C while the cold fluid's inlet temperature remained fixed at 31°C. Temperature gradients taken from ANSYS Fluent and experimental data were compared. In order to examine the performance characteristics, pressure and temperature contours for the hot and cold streams were also analyzed.

Keywords: *Double pipe heat exchanger, ANSYS FLUENT,CAD design, Thermo hydraulic.*

I. INTRODUCTION

Heat exchangers allow thermal energy to be transferred between two or more fluids of differing temperatures. They are used in the production of electricity, the food and chemical industries, environmental engineering, and waste heat recovery. The double pipe heat exchanger is maybe the simplest of these heat exchangers. Benefits include simplicity of maintenance and cleaning as well as use in highly fouling environments.

It is also possible to use high-pressure fluids. Limitations include the difficulty of cleaning fouled tubes, and the superiority of a shell and tube heat exchanger in terms of heat transfer. The objective of the current study is to compare numerical results with double pipe heat experiment data. They are used in the production of electricity, the food and chemical industries, environmental engineering, and waste heat recovery. The double pipe heat exchanger is maybe the simplest of these heat exchangers. The objective of the current study is to compare numerical results with double pipe heat experiment data.

Nanofluids are now commonly used since they have a greater thermal conductivity than conventional fluids. Abu Nada [15] reported laminar nanofluid flow over a backward-facing step with volume fractions between 0.05 and 0.2 and Reynolds numbers ranging from 200 to 600 for Cu, Ag, Al2O3, CuO, and TiO2 nanofluid.

The results showed that as volume fraction and Reynolds number rose, so did the Nusselt number. A numerical analysis of heat transfer and laminar nanofluid flow over a microscale backward-facing step was carried out by Kherbeet et al. [16]. The volume percentage used from 1% to 4%, Reynolds numbers ranging from 100 to 1000, three types of nanoparticles comprised Al2O3, CuO, SiO2, and ZnO, and the expansion ratio was 2.

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EFFECT OF SURFACE TREATMENT ON CONTINUOUS AND ALIGNED PALF REINFORCED EPOXY COMPOSITE

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Abstract:

Graphenenano platelets (GNPs), are new nanofillers retaining excellent qualities, including vigorous compatibility with majority polymers, high mechanical, thermal, and electrical properties. In this study, the epoxy matrix and carbon fabric/epoxy hybrid composite planks were reinforced with the superior GNPs filler to improve their mechanical properties. In order to examine the physico-mechanical (microstructure, density, tensile, flexural, and impact strength) properties of the epoxy, graphenenanoplatelets of 0.5, 1, 1.5, and 2 weight percentages were added.Additionally, the mechanical characteristics of carbon fabric/epoxy hybrid composite slabs with and without 1% GNPs filler were examined. The carbon fabric/epoxy hybrid composites then achieved a substantial improvement in the mechanical characteristics.

Keywords: *Carbon Fabric/ Epoxy Hybrid Composite, Graphene Nanoplatelets, Impact Strength, Physico-Mechanical Properties.*

I. INTRODUCTION

Recent years have seen a significant increase in research into polymer-based composites, particularly thermoset epoxy matrix materials strengthened with synthetic fibres and nanofillers. This is primarily because filled and micron-sized epoxy/fiber hybrid composites exhibit notable enrichment of mechanical, thermo-mechanical, and electrical properties at very low loadings of nanoparticles (3 wt%).

The significant aspect ratio and big specific surface area of nano-dimensioned fillers combined with the enhanced dispersed structure and better interface of nanoparticles with the polymer matrix material usually achieve the pragmatic improvements. One of the primary phases in a composite that is most frequently utilised is an epoxy matrix material because of its lower shrinkage, exceptional adhesion and improved solvent resistance.

Aerospace, automotive, maritime, sporting goods, construction, constructions, electrical and electronic systems, biomedical devices, power plants, adhesives, paints and coatings, industrial tools, and other general consumer goods are some of the industries that use epoxy-based nanocomposites.Natural fibre composites have a lot of attention and are considered to be a superior alternative to artificial and synthetic fibre composites in civil, automotive, marine, and aerospace applications because of their common characteristics, such as low cost, low density, pollution-free, and adequate mechanical properties, despite the obstacle of poor interfacial layer bonding with polymeric materials because the hydrophilic nature of the materials makes them incompatible with hydrophilic adhesives[3].

The results of the viscoelastic behaviour of the composites have shown that the interfacial bonding is increased, and surface modification of natural organic fibres is required to improve compatibility [4-6].Dynamicmechanical analysis (DMA) was used to examine the viscoelastic behaviour and structural characteristics of polymeric and metal matrix composite materials. [illegible] of determining their performance [illegible] stiffness [illegible] in our previous publications [7–10]. [illegible] mechanical characteristics of hybrid [illegible] composites were found to be influenced by the stacking order and fiber orientation of fiber

UNCONVENTIONAL EXPLORATION JUTE/SNAKE GRASS/KENAF FIBER REINFORCED NOVEL HYBRID COMPOSITES WITH ANNONA RETICULATA SEED FILLER ADDITION

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Abstract:

Nowadays, natural fibre composites are hybridised to examine the synergistic effect of using more fibres in the composites' qualities. The hybrid composite of natural fibres and filler material exhibits high wear resistance.The tensile, flexural, interlaminar shear, impact, and hardness of the natural fibre reinforced hybrid composite, which combines jute, snake grass, and kenaffibres as reinforcement with varying fibre volumes, were evaluated in this research work. Additionally, by adding Annona reticulate (custard apple) seed powder as a filler, the hybrid composites' wear behaviour was improved. This analysis showed that the sample which contains kenaffibre (without filler) and snake grass in similar amounts (12.5% of each), had excellent mechanical properties.In this study, the mechanical properties---specifically, the tensile, flexural, interlaminar shear, and impact strengths---were studied. The sample with a 5wt% filler exhibits a lower wear rate than other samples in terms of wear behavior.

Keywords: *Fibre Composites, KenafFibres, Snake Grass*

I. INTRODUCTION

Due to the wide range of their properties, natural fiber-reinforced composites (NFRCs) are gaining the attention of scientists and researchers. By substituting metal structures, NFRCs found use in the automotive, aerospace, and defence industries. High strength-to-weight ratio, prolonged fatigue life, corrosion resistance, and eco-friendliness are all characteristics of NFRCs [1].However, because to the difference in their qualities caused by the manufacturing processes, origin, and quality of natural fibres, as well as a lack of knowledge in machinability and parameter settings, the mass production of NFRCs is a difficulty [2].

The weak bond between lingo-cellulosic fibres and the resin matrix is caused by their hydrophilicity and incompatibility with thermoplastics. In order to reduce the fibres' hydrophilicity, the fibre surface is chemically altered [3].Alkalization, the process of cleansing the surface and changing the structure of the cellulosic fibre, was carried out using the alkaline chemical agent NaOH [4].Sisal, jute, kapok, and hemp fibres were chemically treated with NaOH at 20 °C for two days, and the surface morphology, thermal characteristics, and crystallinity index of the treated fibres were compared to those of the untreated fibres. This study established that chemically treated fibre bonds to resin more effectively, improving its mechanical and thermal properties [5].Lignin and hemicellulose were eliminated after 60 minutes of lingo-cellulosic fibres being alkalized with 5% NaOH [6].The compressed mould technique, in which a split mould holds the arrangement of matrix and reinforcement at high pressure for a set period of time with or without heat, can be used to create NFRCs. The size and shape of the constructed composite determines the range of pressure and heat [4]. The composite made from jute fabric and a bio polymer showed good adhesion characteristics, which [illegible] mechanical properties [illegible] comparisons [illegible] the effects of kenaffibre [illegible] alkalises (NaOH and KOH) and [illegible] untreated when used as reinforcement for epoxy composites, and it was found that 40% of the weight of fibre was the ideal

ANALYSISOFHEAT TRANSFER COEFFICIENT AND THERMAL CONDUCTIVITY OF MWCNT-OH / DEIONISED WATER-ETHYLENE GLYCOL BASED NANOFLUIDS

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Abstract:

A nanoparticle called a carbon nanotube (CNT) has enhanced thermal conductivity and heat transfer coefficient. This article aims to investigate the thermal conductivity and heat transfer coefficient of nanofluids made of deionized water, ethylene glycol, and hydroxyl multiwalled carbon nanotubes (MWCNT-OH). The MWCNT-OH nanoparticles (0.1 to 1.0 wt%), polyvinylpyrrolidone (PVP) surfactant (10% of the wt% of nanoparticles), and base fluid (deionized water (DI): ethylene glycol (EG)) are homogenised and sonicated in a two-step process to create nanofluids. Three different temperature ranges (6, 25, and 40 °C) were used to test the nano fluids. The increase in thermal conductivity was observed to range from 0.3024 to 6.536%, with the highest increment at 1.0 wt% at the improvement in the heat transfer coefficient ranged from 2.951 to 26.49%, with a higher Nusselt number being associated with a better heat transfer coefficient. The relationship between thermal conductivity and heat transfer coefficient and nanoparticles Concentration. When temperature and nanoparticles increased, the thermal characteristics also increased. Additionally, the properties of nanoparticles, particle size, particle interface, PVP surfactant, dispersion method, and particle activity in nanofluids all had an impact on the increment of thermal conductivity performance. In the meantime, elements like the functionalized group (-OH) on the MWCNT surface led to a greater heat transfer coefficient than the typical base fluid. Additionally, the collision, interaction, and enhancement of the heat transfer coefficient are all effects of the particles.Thus, it can be inferred from this study that adding MWCNT-OH nanoparticles to base fluids improves their thermal conductivity and heat transfer coefficient.

Keywords:*Hydroxyl multiwalled carbon nanotube (MWCNT-OH) nanoparticles, Nano fluids, Polyvinylpyrrolidone (PVP), thermal conductivity, heat transfer coefficient.*

I. INTRODUCTION

Through research on carbon nanotubes (CNTs), the nanoparticles were discovered. There are numerous varieties of Single-walled carbon nanotubes (SWCNT) and multiwalled carbon nanotubes are examples of CNT (MWCNT).The high thermal physical characteristics of CNT have piqued researchers' curiosity recently.

According to Marquis &Chibante (2005), the thermal conductivity of CNT nanoparticles is between 1,800 and 2,000 W/m.K. Since of this, CNT nanoparticles have been utilised in automobile radiators as a coolant because nanofluids have better thermal conductivity and heat transfer than pure fluids (such as ethylene glycol, deionized water, or oil). The radiator's superior thermal performance and enhanced cooling systems are made possible by the nanofluids (Rahul &Basavaraj, 2014). Therefore, according to Chung et al. (2014), nanofluids are [illegible] in thermal engineering electronics, biological, andThe use of nanoparticles in base fluids, such as deionized water and ethylene glycol, can solve the issue of base fluids with the

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IONOSPHERIC EARTHQUAKE PRECURSOR USING GLOBAL POSITIONING SYSTEM (GPS) DATA

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Abstract:

The area of the Earth's atmosphere that is ionized by solar radiation is known as the ionosphere. It causes a delay for a radiowave that moves through it that changes with the frequency of the transmission. While travelling through the ionosphere, the radio signals from the Global Positioning System (GPS) on L1 (1,575.42MHz) and L2 (1,227.6MHz) will undergo various delays. It is possible to determine the total electron content (TEC) by comparing the ionospheric delay between the L1 and L2 signals. In this study, the ionospheric TEC as an earthquake precursor was examined using data from Japan's national dual frequency GPS network. The L1 and L2 data were used to calculate the TEC with a 15 s interval. Three Mw > 6.0 earthquakes were chosen, and ionospheric TEC anomalies were examined. The findings indicate that TEC began to deviate two weeks before each of the three seismic occurrences.

Keywords: *Global Positioning System (GPS), total electron content (TEC), anomaly, Ionosphere, earthquake precursor.*

I. INTRODUCTION

Earth is composed of numerous, irregularly shaped parts that have been steadily moving and interacting with one another to make it. The fragments that are shifting are referred to as tectonic plates, and the plate boundaries—which are composed of numerous faults—are the margins of the plates.When the cracks collide and break as a result of increased pressure, an earthquake is created. Before major earthquakes, the earth will occasionally emit strong but more frequently weak and brief signs (Pulinets, 2007). The activation of the electrical charged carriers known as positive holes by the earthquake's source causes the crust to bend, producing proxy. It is far better to use a wired camera than a wireless one. Please bear that in mind. This article's goal is to make you aware that while it is possible to hack a connected camera, doing so is more difficult and unlikely. Investigation of the fluctuations in the foE parameter before the Tashkent earthquake in 1966 and study of ionosphere electron variations before the same Tashkent quake were the first articles addressing ionospheric parameter variations as seismic precursors [1-2].Case study papers consequently began to appear frequently. Although the first articles utilising satellite data also started to appear, these were primarily based on ground-based ionosonde data [3].The ionospheric anomaly is one of many potential causes of Taiwan's earthquakes that researchers are looking for the investigation[4].The simulation-based tests and reasonable criteria under study [5] indicate that the 1–5 day alarms preceding the occurrence of earthquakes with magnitudes greater or equal to 5 in the Taiwan area between 1994 and 1999, based on the foF2 anomalies reported in [6], are not the result of random chance. The sensitivities of vertical TEC to changes in [illegible] which We can utilise TEC data to assess [illegible] spatial, seasonal, and temporal dynamics of [illegible] earthquake ionospheric effects [illegible] statistically [illegible] since the electron concentration [illegible] maximum of the F2 ionospheric layer is one of the most sensitive

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ESTIMATION OF THE EFFECIENCY OF RECEIVER AUTONOMOUS INTEGRITY MONITORING (RAIM) IN GLOBAL POSITIONING SYSTEM (GPS)RECEIVERS

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Abstract:

A recipient independent honesty checking (RAIM) replica of the Worldwide Situating Framework (GPS) is used in this study to evaluate the practicality of RAIM among GPS beneficiaries. Two GPS recipients are the focus of the review: A GM1-86UB beneficiary that uses a u-blox 6 GPS chipset is a collector that upholds RAIM. A Garmin GPSmap 60CSx beneficiary, on the other hand, does not. When a GPS beneficiary does not support RAIM, it is unable to recognise the pseudorange error in the GPS signal, leading to expanding positional error as a result of expanding error in the GPS beneficiary's calculated directions.Low positional mistake values are produced by the GPS collector that supports RAIM because it can recognise the pseudorange error in the GPS signal and exclude the related satellite from the position arrangement. Keeping up with this display is possible as long as there are at least five apparent satellites. However, when only five satellites are visible after the broken satellite has been banned, the position honesty isn't ensured because the recipient lacks the needed overt repetitiveness to figure the arrangement with different estimations and confirm that the arrangement is unquestionably correct. When there are only four satellites visible, the recipient stops supporting RAIM, which forces the malfunctioning satellite to move out of position.The reliability of the signals transmitted from GNSS satellites is a requirement for location calculations using the Global Navigation Satellite System (GNSS). This credibility is especially important for safety-related basic GNSS applications, such as in aviation.

Keywords:*Global Positioning System (GPS) Simulation, receiver autonomous integrity monitoring (RAIM), pseudo range error, positional error, redundancy measurement.*

I. INTRODUCTION

It is far safer to utilise a wired camera than a wireless one. Please bear that in mind. This article's goal is to make you aware that while it is possible to hack a connected camera, doing so is more difficult and unlikely. If you don't want anyone to view your activities, security cameras that can be accessed via the Internet or mobile devices are a far bigger problem.

Your system will become more secure and difficult to hack using automated technologies. Use the recommended methods to safeguard your automated authentication; avoid using your grandmother's phone number.

The accuracy of the signals transmitted by GNSS satellites is necessary for position calculations in the Global Navigation Satellite System (GNSS). This reliability is especially important for GNSS applications that require fundamental security, as those in aviation or maritime navigation.However, the GNSS contains no internal information regarding the reliability of its signals. A GNSS satellite may transmit inaccurate data, such as incorrect route data due to a simple satellite clock error, but the GNSS recipient [illegible] using the [illegible] [illegible] an [illegible] Yang [illegible]. As an [illegible], on January [illegible] the GPS satellite system may transmit

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AUTODYN [illegible] FOR MILITARY AND COMMERCIAL EXPLOSIVES

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Abstract:

Engineering professionals must forecast how the structure will be loaded in order to create any structural system. The engineer must foresee the blast peak overpressure brought on by the explosion of the explosive while constructing structures to sustain one. For the creation of blast-resistant structure designs, these data are necessary. The goal of this study is to simulate and anticipate the air blast pressure caused by both commercial and military explosives. Trinitrotoluene (TNT) and Composition 4 (C-4), two types of military explosives, and ammonium nitrate/fuel oil (ANFO), a type of commercial explosive, have all been used in this study. The ANSYS AUTODYN modelingprogramme was used to model these explosives, and they were detonated at1 metre away from the explosive's core. According to the modelling results, compared to TNT and ANFO, the explosion of the military explosive C-4 created the largest peak over pressure.

Keywords: Trinitrotoluene (TNT); Composition 4 (C-4); Ammonium nitrate / fuel oil (ANFO); ANSYS AUTODYN; peak overpressure.

I. INTRODUCTION

A pressure wave with a finite amplitude is produced when an explosion rapidly releases energy into the atmosphere. The pressure and temperature of hot gases range from 100 to 300 Kbar and 300^0 to 4000^0 C, respectively. These heated gases expand with an initial speed that ranges from 1800 to 9100 m/s, which causes the surrounding atmosphere to move. This results in the formation of a layer of compressed air in front of heated gases. Blast wave is the name of this stratum. The length, impulse, and maximum overpressure of a blast wave are all significant characteristics [5; 6]. Knowing these factors is crucial since they have a significant impact on the design of structures.The blast wave's emphasis was put equalizes with atmospheric pressure as it travels away from the detonation source. At a distance of 40 to 50 times the diameter of the charge from the detonation point, the blast wave loses its initial heat and initial velocity [5]. Figure 1 depicts changes in pressure with respect to time at a position a set distance from the explosive. The blast wave that is created has two phases: a positive phase known as pressure and a negative phase referred as suction [7]. Overpressure, which is bigger and more important than the suction phase, is the absolute difference between the pressure that is produced and the pressure in the surrounding atmosphere the structures' loading Figure 1 depicts how the overpressure will reduce after it reaches its maximum. A Friedlander curve is an exponential function that can be used to approximate the rate of overpressure decrease with respect to time.P is the overpressure in time t, Ppos is the highest overpressure, tpos is the length of the positive phase, and b is a coefficient that depicts the curve's decline. To measure the blast parameters, numerous scientists have created analytical equations. The first scientist to create an analytical equation for the calculation of seismic waves is Brode.A semi-analytical equation for maximum overpressure [7] was proposed by other scholars [7] modified this equation later. The following equations were presented by Kinney and [illegible] for calculating the maximum overpressure, duration, and impulse.In structural design, SOM is used to determine.

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BALLISTIC CONTACT OF MAGNESIUM ALLOY, AZ31B REINFORCED WITH CARBON NANOTUBE AND LEAD UNDER GAS GUN METHOD

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Abstract:

In this investigation, leads and carbon nanotubes (CNT) are employed to increase the ballistic resistance of the magnesium alloy AZ31B. (Pb). Aluminum alloys cannot absorb significant shocks to the same extent as magnesium alloys, which can. However, the need for better impact energy absorption properties must grow.

The nanoparticles can mix with the structure of the magnesium alloy to increase ballistic resistance. Ballistic resistance was calculated using a simulation of a magnesium alloy under gas cannon impact. The Cowper-Symonds model was used to increase the simulation's impact. The simulation and Retch-Ipson model were used to determine the ballistic limit. The results of the simulation showed a 40% increase in the ballistic resistance of the magnesium alloy. The ballistic threshold was also increased, from 600 to 680 m/s. It illustrates how a magnesium alloy and nanomaterial combination can increase and restrict ballistic resistance.

Keywords: Ballistic limit, magnesium alloy, carbon-nanotube (CNT), lead (Pb); gas gun simulation.

I. INTRODUCTION

Technology for armoured vehicles has advanced alongside material technology. Currently, steel is not entirely used in armoured vehicle bodywork to prevent ballistic penetration. Instead, for the body of armoured vehicles, lightweight materials like magnesium alloy have been used with steel (Mertz et al., 2000).The lighter materials improve the armoured vehicle's strength-to-weight ratio, which enhances the manoeuvrability of the vehicle (Rahman et al., 2018). Herbert Kolsky updated the Split Hopkinson Pressure Bar (SHPB) in 1949 [10, 11]; it can be used for high velocity impact for high strain rate testing [2, 4, 5]. The SHPB was utilised by Amanda et al. [12] to investigate the mechanical reaction of CNT in fabric composite. The endurance of the magnesium alloy AZ31B at a high strain rate had been studied in studies on SHPB [13, 14]. Nguyen and Gupta [15] claim that the addition of reinforced Pb and CNT reinforcement under high velocity impact led to the observation of the material behaviour in terms of energy absorption. It demonstrated that support.

II. EXPERIMENTAL SET UP

The flow diagram in Figure 1 was followed in carrying out this study. For this work, three distinct materials—AZ31B, AZ31B + 5% Pb, and AZ31B + 0.1% CNT + 5% Pb—were chosen. In order to determine how the materials would behave under impacts with high velocities, these materials were evaluated utilising SHPB.

Sample preparation

With the help of an induction burner, a magnesium alloy ingot of AZ31B was combined with CNT, Pb, and AZ31B was mixed with these materials based on the weight percentage of Pb and CNT. AZ31B was combined with CNT sample prepared and then mixed with Pb, and

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A REVIEW OF SHIP MAGNETIC SIGNATURE AND SILENCING METHODOLOGIES

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Abstract:

An overview of ship magnetic signature and silencing technologies is given in paragraph 176. Science & Technology Research Institute for Defence (STRIDE), Malaysia: mahdicheisa, hasrilnain, nikhassanudinnikyusoff, abdulraufabdulmanap, roslanslamatt, and mohdhambalianuarMagnetic Research & Treatment Center. The signatures emitted by ships come from a variety of sources, including magnetic, acoustic, radar, pressure, electric, seismic, and optical. The focus of the international community's work in recent years has primarily been on reducing magnetic signature in order to lessen a ship's detectability by lowering the levels of the Earth's magnetic distortion caused in the water. The necessity to address the magnetic risk is now more evident than ever in both the military and civilian sectors due to requirements for the world's naval forces. Many nations, including the United States, Germany, the Netherlands, Sweden, and Norway in Europe, as well as Malaysia, have given this issue a lot of thought. This paper's objective is to establish a framework for comprehending underwater ship magnetic signature. An overview of natural magnetism, sources of ship magnetic signatures, features ofthose nagnetisms, signature detection, and current technologies for decreasing the resulting magnetic signature are covered in this study.

Keywords:Ship signature: degaussing (DG); deparing magnetism; magnetic measuring.

I. INTRODUCTION

The Earth has a strong magnetic field that produces intricate forces that have a huge impact on everyday life for both humans and animals. Because of the composition of the Earth, particularly because of its core, the magnetic field is present. The core is composed of disordered, highly compressed, superheated molten metals or alloys with variable magnetic moments. Due to the electrical contact that the molten metals have with one another, current flows between them, producing a magnetic field and the magnetosphere. The Earth's magnetic field depends on the Earth's core's electrical and thermal transport capabilities (Drchal et al., 2019).Both the North and South poles of this field, which can be utilised for navigation, are dynamic (Chulliat et al., 2015). The poles have moved up to 16 km every year as a result of variations in the electric current (US DoE, 2019). Electrical currents and spinning in the planet's core interact to produce the Earth's magnetic field. Despite the general symmetry seen in Figure 1, the Earth's magnetic field's intensity is actually highly erratic.Indeed, depending on the place at the Earth's surface the field intensity slowly changes at various speeds. The magnetosphere is then produced by the field, which is crucial for the survival of life on Earth since it shields the globe from solar radiation. Without it, charged particles streaming from the sun would attack the surface of the pla eventually destroying Earth's atmosphere (Phillips& Abdullah, 2006).Over the past 400 years or so that humans have been measuring the Earth's magnetic field, it has drifted inexorably to the west. Figure 2 show the map of predicted annual rate of change in the total i Earth's field for the period to 12Gen Internat Geomagnetic Reference (IGRF) model (BGS, 2019) Now, a new hypothesis suggests that we d waves in the

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KENAF FIBER REINFORCED ACRYLONITRILE BUTADIENE STYRENE COMPOSITES' THERMAL AND MELT FLOW PERFORMANCE FOR FUSED FILAMENT FABRICATION

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Abstract:

The production of filaments for fused filament fabrication (FFF), particularly for bespoke composite materials, depends heavily on the temperature and melts flow behavior of polymer and fibre materials. Thermo gravimetric analysis (TGA) and differential scanning calorimeter (DSC) were used to investigate the degradation temperature and melting temperature of commercialized acrylonitrile butadiene styrene (ABS) filament, neat ABS polymer, and various loadings of kenaf fibre (KF) reinforced ABS composites. After that, a melt flow indexer was used at 230 °C with a 5 kg weight loading to explore the melt flow index (MFI) in light of the materials' viscosity. At 180 °C, an internal mixer was used to create the kenaf fibre reinforced ABS composites, which were then crushed into granules. The inclusion of kenaf fibre was proven to reduce the Compared to the neat ABS polymer (0 KF - ABS), the melting temperature of composites increased and the decomposition temperature decreased. In contrast to commercial ABS filament, the tidy ABS polymer exhibited a higher MFI value. As kenaf fibre loading increased, MFI value increased. Because commercial ABS filament has a low viscosity and can be printed on open-source 3D printers, plain ABS polymer and kenaf fibre reinforced polymer composites are appropriate as feedstock filament material for FFF.

Keywords: Fused filament fabrication (FFF), natural fibre composites; melt flow behavior thermal properties; kenaf fibre.

I. INTRODUCTION

Fused filament fabrication (FFF) is the one of the most significant techniques for additivemanufacturing (AM), and recently, has been widely used in aerospace (Kumar &Nair, 2017),AM is used in defence support services to enable platforms to maintain their systems, recover their functionality after damage, and save supply chain costs (Busachi et al., 2015). Additionally, AM produces gear for military troops, including body amour kits and specialized tools for certain missions (Busachi et al., 2016). AM has also made contributions to the platforms' defense support services (Busachi et al., 2017). FFF is frequently utilised to create conceptual models and prototypes.Unique tools for the needs of the task (Busachi et al., 2016). AM has also made contributions to the platforms' defence support services (Busachi et al., 2017). In the creation of conceptual models, prototypes, and engineering components, FFF is frequently employed (Mohan et al., 2017). Successive layers of materials can be used to create three-dimensional objects.

A filament is melted inside a liquefier at a temperature above its melting point and is pushed at the nozzle die by solid material.upstream filament (Carneiro et al., 2015). The schematic set up of FFF is shown in Figure 1. It is used for its simple fabrication process (Ahn et al., 2004), ability to fabricate geometrically complex shapes (Mazzoli, 2013; & Wickes, 2016), less expensive machining (Song & Hamade, 2013) and cost-effectiveness (Mohan et al., 2017), especially for defence industries in producing weapons (Busachi et al., 2016). Besides that, FFF produces less waste material (Grujovic et al., 2017).

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EVALUATION OF THE PERFORMANCE OF COTTON SEED AND RICE BRAN BIODIESEL BLENDS IN THE VCR DIESEL ENGINE ON A COMPARATIVE BASIS

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Abstract:

In the country like India, it is very advantageous to use the cotton seed oil and rice bran oil as the primary source for producing the biodiesel, as India is known as the larger producer of these seeds in the universe. This current research mainly focusses on the emission and performance of the cotton seed oil and rice bran oil for the effective utilization of biodiesel. The chemical properties of rice bran, cotton seed methyl ester were established and the properties of 5%, 10%, 15% and 20% blends known as B5, B10, B15 and B20 are measured. The blends of biodiesel were evaluated at 0, 3, 6, 9 and 12 kg of load and at a compression ratio of 15, 16, 17 and 18. Engine performance test results shows that the B20 blends of MECSO (Methyl ester cotton seed oil) and MERBO (Methyl ester rice brown oil) produce slightly less BP and more BSFC values compared to diesel. B20 (MFCSO and MERBO) reduces carbon monoxide emission by 18.4% and 17.5% and also hydrocarbon emission by 3.86% and 3.13% compared to diesel. B20 blends of MECSO and MERBO produce less emissions than diesel, thus these fuel blends be the replacement of diesel in the standard diesel engine to cut down the worldwide energy demand and to reduce the environmental pollution hazards.

Keywords:*Cotton seed oil; Rice bran oil; Variable compression ratio; Cetane number*

I. INTRODUCTION

Petroleum fuels play a significant role in these changes, contributing to the expansion of important businesses like agriculture, transportation, and manufacturing as well as to the satisfaction of other important human needs. Nearly 11,000 million tonnes of fossil fuels are consumed annually around the world. The resources will quickly run out as a result of this consumption [1]. As the need for energy rises, so does the impact its generation has on the environment. The main cause of the risks to human health and other types of atmospheric pollution is the combustion and ignition of these fuels [2]production also increases.

II. LITERATURE REVIEW

According to Gopinath [3]'s tests, using cotton seed biodiesel in a diesel engine results in increased NO_x, lower HC, and lower CO. Kassaby [4] reports a rise in BTHE (Brake thermal efficiency), CO2, NOx, and a decrease in HC and CO in an experiment on a VCR engine using used cooking oil, and claims that this is due to an increase in compression ratio. The reduction in BTHE, CO, and HC was discovered by Saravanan [5] and his team after studying the CI engine with crude rice bran methyl ester. Banapurmath [6] observed that BTHE is decreased after testing a CI diesel engine with rice bran, neem, and honge biodiesel and producer gas. Murugan [7] has carried out theIn the VCR engine's investigation of the waste cooking oil's emissions. It was found that NOx emissions were higher, while HC, CO, and CO2 emissions were lower. In a test on a diesel engine using biodiesel made from pongamia, palm, and rice bran combined with biogas, Bora [8] found that

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JUTE/CARBON EPOXY HYBRID COMPOSITES: STUDY OF THE MECHANICAL AND WATER ABSORPTION PROPERTIES ON SEQUENCE OF FIBER STACKING AND THEIR ORIENTATION

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Abstract:

The use of natural fibres can be significantly expanded by combining natural and synthetic fibres, potentially lowering the cost of hybrid composites. In this study, composites were built using woven jute fibres (six layers) and carbon fibres (four layers) with four different stacking sequences and three different fibre orientations. Tensile, flexural, impact, and water absorption tests are carried out in accordance with ASTM standards to evaluate the effect of stacking order and fibre orientation on hybrid composites.

According to experimental results, the fibre orientation and layer stacking order of the fibres have a significant impact on the mechanical properties of composite materials. According to the results, the configuration with three layers of unidirectional jute fibre on both sides and four layers of carbon fibre in the centre (J3C4J3) had the highest tensile strength (571 MPa).Flexural strength (435 MPa), impact strength (30 kJ/m2), and water absorption rate (3.8%) were all highest for the C2J6C2 composite. On each side, it had two layers of unidirectional carbon fibre and six layers of jute fibre in the centre. Unidirectional hybrid composites have superior properties when compared to angle-ply and cross-ply hybrid composites. The stacking order influences the tensile strength and water absorption percentage of hybrid composites, but not the flexural and impact properties.

Keywords:*Flexural, water Absorption*

I. INTRODUCTION

Much research has been conducted in recent years on polymer-based composites, particularly the thermoset epoxy matrix material reinforced with synthetic fibres and Nano fillers. This is primarily due to the fact that the mechanical, thermomechanical, and electrical properties of these materials are noticeably enhanced even at very low loading (3 wt.%). Nanoparticle Micron-sized, unfilled epoxy/fiber composites are superior to other materials. The high aspect ratio and large specific surface area of nano-dimensioned fillers, combined with a better dispersed structure and better contact of nanoparticles with the polymer matrix material, usually result in pragmatic improvements

Because of its low shrinkage, excellent adhesion, and improved solvent resistance, epoxy matrix material is one of the most commonly used primary phases in a composite. Aerospace, automotive, maritime, sporting goods, construction, constructions, electrical and electronic systems, biomedical devices, power plants, adhesives, paints and coatings, industrial tools, and other general consumer goods are all examples of products that are manufactured. Carbon fibre (CF) is a popular reinforcing material due to its exceptional properties such as high mechanical properties, flexibility, low density, and high [illegible] [1], [2]. As a result of these factors, CF is increasingly used in a wide range of engineering technologies, including automotive, aviation, shipbuilding, construction, sporting goods, marine, and offshore [4], [5]. The functional application of

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CLASSIFICATION OF PLASTIC VARIANTS USING DEEP LEARNING

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Abstract:

Plastic waste management is a challenge for the whole world. Manual sorting of garbage is a difficult and expensive process, which is why scientists create and study automated sorting methods that increase the efficiency of the recycling process. The plastic waste may be automatically chosen on a transmission belt for waste removal by using methods of image processing and artificial intelligence, especially deep learning, to improve the recycling process. Waste segregation techniques and procedures are applied to major groups of materials such as paper, plastic, metal, and glass. Though, the biggest challenge is separating different material types in a group, for example, sorting different colors of glass or plastic types. The decentralized nature of wireless ad hoc networks makes them suitable for a variety of applications where central nodes can't be relied on and may improve the scalability of networks compared to wireless managed networks, though theoretical and practical limits to the overall capacity of such networks have been identified. Minimal configuration and quick deployment The decentralized nature of wireless ad hoc networks makes them suitable for a variety of applications where central nodes can't be relied on and may improve the scalability of networks compared to wireless managed networks, though theoretical and practical limits to the overall capacity of such networks have been identified. Minimal configuration and quick deployment Therefore, we should look for ways to separate this waste. One of the opportunities is the use of deep learning and convolutional neural network. In household waste, the most problematic are plastic components, and the main types are polyethylene, polypropylene, and polystyrene. The main problem considered in this article is creating an automatic plastic waste segregation method, which can separate garbage into four mentioned categories, PS, PP, PE-HD, and PET, and could be applicable on a sorting plant or home by citizens. We proposed a technique that can apply in portable devices for waste recognizing which would be helpful in solving urban waste problems

Keywords: PE-HD, polystyren, segregation

I. INTRODUCTION

The decentralized nature of wireless ad hoc networks makes them suitable for a variety of applications where central nodes can't be relied on and may improve the scalability of networks compared to wireless managed networks, though theoretical and practical limits to the overall capacity of such networks have been identified. Minimal configuration and quick deployment make ad hoc networks suitable for emergency situations like natural disasters or military conflicts. The decentralized nature of wireless ad hoc networks makes them suitable for a variety of applications where central nodes can't be relied on and may improve the scalability of networks compared to wireless managed networks., natural disasters or military conflicts. The decentralized nature of wireless ad hoc networks makes them suitable for a

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IDENTIFICATION OF FORENSIC PHOTO USING DEEP LEARNING TECHNIQUES

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Abstract:

Numerous methods that automatically identify subjects depicted in sketches as described by eyewitnesses have been implemented, but their performance often degrades when using real-world forensic sketches and extended galleries that mimic law enforcement mug-shot galleries. Moreover, little work has been done to apply deep learning for face photo-sketch recognition despite its success in numerous application domains including traditional face recognition. This is primarily due to the limited number of sketch images available, which are insufficient to robustly train large networks. Also performed using publicly available datasets,thereby serving as a benchmark for future algorithms. Compared to a leading method, the proposed framework is shown to reduce the error rate by 80.7% for viewed sketches and lowers the mean retrieval rank by 32.5% for real-world forensic sketches. Index Terms—Augmentation, convolutional neural network, deep learning, fusion, hand-drawn sketch, morphological model. also performed using publicly available datasets, thereby serving as a benchmark for future algorithms. Compared to a leading method, the proposed framework is shown to reduce the error rateby 80.7% for viewed sketches and lowers the mean retrieval rank by 32.5% for real-world forensic sketches. Index Terms—Augmentation, convolutional neural network, deep learning, fusion, hand-drawn sketch, morphological model. also performed using publicly available datasets, thereby serving as a benchmark for future algorithms. Compared to a leading method, the proposed framework is shown to reduce the error rate by 80.7% for viewed sketches and lowers the mean retrieval rank by 32.5% for real-world forensic sketches. Index Terms—Augmentation, convolutional neural network, deep learning, fusion, hand-drawn sketch, morphological model. This letter aims to tackle these issues with the following contributions: 1) a state-of-the-art model pre-trained for face photo recognition is tuned for face photo- sketch recognition by applying transfer learning, 2) a three-dimensional morphable model is used to synthesis new images and artificially expand the training data, allowing the network to prevent over- fitting and learn better features, 3) multiple synthetic sketches are also used in the testing stage to improve performance, and 4) fusion of the proposed method with a state-of-the-art algorithm is shown to further boost performance. An extensive evaluation of several popular and state-of-the-art algorithm.

Keywords: Morphable, Augmentation, hand-drawn

I. INTRODUCTION

The analysis of the security of machine learning-based techniques in the presence of an adversary attempting to impede the forensic analysis, and the development of new solutions capable to improve the security of such techniques is then of primary importance, and, recently, has marked the birth of a new discipline, named Adversarial Machine Learning. By focusing on Image Forensics and image manipulation detection in particular, this thesis contributes to the above mission by

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SMART GATHERING USING FACE IDENTIFICATION

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Abstract

Identity management system in most academic and office environments is presently achieved primarily by a manual method where the user must input their attendance into the system. The manual method sometimes results in human error and makes the processless efficient and time-consuming. The proposed system highlights the implementation and design of a smart face identification-based management system while considering both the background luminosity and distance. This system detects and recognizes the person and marks their attendance with the assistance of the methodology, the faces initially resized to 3 different sizes of 256, 384, and 512 pixels for multiscale testing. The overall outcome is the description of the overall mean for these characteristic vectors, and the deep convolutional neural network identifies 32 facial features in 128 distinct ... deep network layers.

Keywords: RFID, ... Haar, ... Convolutional Neural ...

1. INTRODUCTION

In many public and educational sectors, the management system is mandatory for analyzing the performance of candidates. When there is a large list of individuals in an organization or institute, it becomes significantly more difficult to mark their presence through the manual procedure and it is also time-consuming. The conventional marking method is obsolete, and in such systems, identification is recorded with traditional approaches that include registers and sheets whereas more advanced methods like RFID and biometric encounter the difficulty of time wastage and are significantly more complicated where you have to wait in line to swipe the RFID card or put your thumb on a scanner which can be a quick way of spreading unwanted diseases. It is also prone to manipulation where individuals can mark the presence of others without any oversight if they possess the RFID card. Sorting and calculating the attendance of every enrolled person is not only tiresome but humans can easily make mistakes while conducting repetitive tasks. Therefore, a smart system is required for marking and recording. To do that, we will save an authentic and proper record of persons that can also be analyzed later if needed.

In addition to reducing errors, the proposed system for management is also more feasible than other methods. For example, the biometric system needs more hardware, and its maintenance is also difficult. The automatic system can resolve a crucial issue within the manual one that occurs when a person transfers the information from the sheet into the system. The face identification method has many steps which include capture, extraction, comparison, and matchmaking. An automated and computerized face image information and management system with enhanced face identification has been proposed. The initial steps include database creation, face identification, feature engineering and categorization

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A STUDY ON CLOUD COMPUTING

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Abstract:

Cloud computing is a computing platform for the next generation of the Internet. Cloud computing refers to the use and access of multiple server-based computational resources through a digital network. Inject is a futuristic project which uses cloud computing's SaaS in the domain of Healthcare and Medicine.

Key words: *Inject, cloud's, SaaS scalability.*

I. INTRODUCTION

Clouds can primarily be defined as platform that allow execution in various forms of multiple resources. To be more specific, a cloud is a platform or infrastructure that enables execution of codes (services, applications etc.). In cloud computing applications are provided and managed by the cloud server and data is also stored remotely in the cloud configuration. Users do not download and install applications on their own device or computer all processing and storage is maintained by the cloud server. Cloud computing applications are provided and managed by the cloud server and data is also stored remotely in the cloud configuration. Users do not download and install applications on their own device or computer all processing and storage is maintained by the cloud server.

The general architecture of a cloud consists of **Front-end platform:** The front end includes the client's computer (or computer network) and application required to access the cloud computing system. The application required to access the cloud computing system

back end platform: On the back end of the system are the various computers, servers and data storage systems that create the "cloud" of computing services. application required to access the cloud computing system

A central server: A central server administers the system; monitoring traffic and client demands to ensure everything runs smoothly. The services that cloud generally provide are.

SaaS: is a complete operating environment with provisioned. Applications, management, and the user interfaces. In cloud computing, applications are provided and managed by the cloud server and data is also stored remotely in the cloud configuration. Through SaaS companies can access applications and large amounts of virtual computing power without buying it

IaaS: Infrastructure as a service: Infrastructure as a Service is a provision model in which an organization outsources the equipment used to support operations, including storage, hardware, servers, and networking components. applications are provided and managed by the cloud server and data is also stored remotely in the cloud configuration.

PaaS: Platform as a service: PaaS provides virtual machines, operating systems, applications, services, development frameworks, transactions, and

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...TY ON 'WIRELESS NETWORK STRUCTURE'

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Abstract:

Mobile ad-hoc network (MANET) has got tremendous success and attention due to its self- maintenance and self-configuration properties of behavior. Based on wired and wireless networks, the network topology of MANETs changes rapidly by means of routing attacks. Hence, providing security to this infrastructureless network is a major issue. The routing protocols for ad-hoc networks cope well with the dynamically changing topology but are not designed to accommodate defense against malicious attacker. Malicious nodes have opportunities to modify or discard routing information or advertise fake routes to attract user data to go through themselves. In this article, we discuss a hybrid technique using anonymity, one-way trapdoor protocol, hash functions, and eliptic curve cryptographic to mitigate attacks in the MANET. The simulation is carried on NS-2 and the simulation results are dissected on different system execution measurements, for example, packet send and received, packet dropped, average network throughput, end-to-end delay, and packet delivery ratio.

Keywords: Asymmetric Authentication, Attacks, Key Exchange, Routing, Security, Wireless Network.

I. INTRODUCTION

Mobile unplanned networks (MANETs) square measure a gesture assortment of wireless mobile devices with restricted bandwidth, battery life and resources. Communication is achieved by relaying knowledge on applicable routes that square measure dynamically discovered and maintained through collaboration between the nodes. Discovery of such routes could be a major task, each from potency and security purpose of read. This paper presents a adept and secure routing supported uneven authentication victimization key exchange approach (KEA).

The proposed mechanism ensures secure routing and quality of service in MANETs and minimizes the network overhead. The KEA mechanism can be effectively used to develop a new routing protocol for Mobile Ad-hoc Networks which will provide maximum security against all kinds of attacks. In this paper, KEA is compared with other secure routing protocols like EEACK, AODV, and ARIADANE, to evaluate the efficiency of KEA in Ad Hoc Networks. The empirical results shows that there's a rise of 2 hundredth packet delivery quantitative relation and a discount of 100% routing overhead. Communication is achieved by relaying knowledge on applicable routes that square measure dynamically discovered and maintained through collaboration between the nodes. Discovery of such routes could be a major task, each from potency and security purpose of read. This paper presents a adept and secure routing, supported uneven authentication victimization key exchange approach (KEA).

The proposed mechanism ensures secure routing and quality of service in MANETs and minimizes the network overhead. The KEA mechanism can be effectively used to develop a new routing protocol

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[illegible] YOUR VOTE ONLINE USING BLOCK CHAIN

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Abstract:

When using our blockchain voting system, the voter would download and install the Follow My Vote voting booth on the personal device of their choice (i.e., desktop computer, laptop computer, smartphone, or tablet). From there, the voter would submit the appropriate identity information to have their identity verified by an Identity Verifier, which would be approved by the organization hosting the election ahead of time. Once their identity is verified, the voter would be able to request their ballot, at which point they are issued their correct ballot type by the Registrar. The voter would then complete their ballot and securely submit their vote(s) to the blockchain-based ballot box. To obtain proof of casting their ballot, the voter would have the option to print out a receipt. If allowed by the organization hosting the election, the voter may vote early and could even re-enter the Follow My Vote voting booth to change their vote if they change their mind in the days leading up to the election. When the polls close on Election Day. The voter would then complete their ballot and securely submit their vote(s) to the blockchain-based ballot box. To obtain proof of casting their ballot, the voter would have the option to print out a receipt. If allowed by the organization hosting the election the voter may vote early and could even re-enter the Follow My Vote voting booth to change their vote if they change their mind in the days leading up to the electionThe voter would then complete their ballot and securely submit their vote(s) to the blockchain-based ballot box. To obtain proof of casting their ballot, the voter would have the option to print out a receipt. If allowed by the organization hosting the election, the voter may vote early and could even re-enter the Follow My Vote voting booth to change their vote if they change their mind in the days leading up to the election the most current vote submitted by each voter would be considered the official votes, and voters would be allowed to follow their vote into the ballot box to ensure that their vote was cast as intended and counted as cast. If they choose to do so, each voter would also be allowed to audit each ballot in the ballot box to confirm the vote totals being reported by our blockchain voting system are accurate, without revealing the identity of each voter.

Keywords: Agri-tech, Agri Entrepreneur, Big Data, Artificial Intelligence, Supply Chain Management

I. INTRODUCTION

At Follow My Vote, we want every voter to have faith in the democratic process, trust in their government, and feel like their voice matters. To this end, our blockchain voting solution provides voters with a way to confirm that their voice has been heard and that election results are truly accurate. To learn more about the ID Verification and Registration steps of our process and how it ensures each voter's right to privacy within our online voting system, please visit our page on Cryptographically Secure Voting. This end, our blockchain voting solution provides voters with a way to confirm that their voice has been heard and that election results are truly accurate. To learn more about the ID Verification and Registration

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SUSTAINABLE DEVELOPMENT IN AGRITECH

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Abstract

Agriculture is the heart of India's Economy and Livelihood. More than 60% of its population depends on Agriculture to earn their bread and butter. Therefore, an agriculture practice must be treated as agri entrepreneurship and not merely a way of life. Except if innovation is mixed with Agri-enterprise, the profitability would keep on staying low as in the conventional strategies for cultivating and agribusiness. Some farmers are rapid adopters of technology, some of them are slow-going, and the rest are not even likely to use modern technology at all. The current government has promised to put agriculture and development of farmers in spotlight. This paper aims at describing the different technological developments of agricultural sector for the sustainable development of the agri entrepreneurs. The utility of Big Data, Artificial Intelligence, Supply Chain Management, and many other technologies have been discussed in this paper.

Keywords: *Agri-tech, Agri Entrepreneur, Big Data, Artificial Intelligence, Supply Chain Management*

1. INTRODUCTION

1.1-Agri-entrepreneurship:

Agri-entrepreneurship is defined as generally, sustainable, community orientated, directly marketed agriculture. Sustainable agriculture denotes a holistic, systems-oriented approach to farming that focuses on the interrelationships of social, economic, and environmental processes (Healthy).These entrepreneurs play a significant role in the development of the economic condition and lifestyle of the people at a large. Agri-tech or agriculture technology is the term referring to the use of technological innovations in agriculture to increase its yield, efficiency, and profitability. This includes using technology to achieve faster planting, modified crops that grow well in different environments, and harvesting.

It can also be referring to the use of technological innovations in agriculture efficiency, and profit. Some farmers are rapid adopters of technology, some of them are slow-going, and the rest are not even likely to use modern technology at all. The current government has promised to put agriculture and development of farmers in spotlight. This paper aims at describing the different technological developments of agricultural sector for the sustainable development of the agri entrepreneurs. This is a conceptual paper and gives emphasis on modern innovations in agriculture. Some farmers are rapid adopters of technology, some of them are slow-going, and the rest are not even likely to use modern technology at all. The current government has promised to put agriculture and development of farmers in spotlight.

This paper aims at describing the different technological developments of agricultural sector the profitability would keep on staying low as in

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ESTIMATION OF PERSONALITY DATA BETA IS FROM SOCIAL NETWORKING WEB SITES

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Abstract:
Today's world is witnessing great increase in the use of social media. People use them as platform to share their feelings, emotions, and experiences along with lot of personal information. All such information could be used in advantageous ways to help increase the Business and understand the user needs. Personality has gained lot of focus these days. It studies the behavior of users. In Personal System, Myers- Briggs Type Indicator (MBTI) is used. MBTI defines the personality of a person as a set of attributes that describes a likelihood on the uniqueness of behavior, feeling and thoughts of a person. our system, an intelligent personality prediction system is proposed to predict the personality based on socio media posts. This system uses machine learning to mine user characteristics and learn patterns from large amounts of personal behavior data and it can automatically extract and infer personality traits by processing user attributes.

Keywords—Machine Learning, Myers-Briggs Type Indicator, Social-Media, Personality Prediction.

I. INTRODUCTION

With advent of technology the use of Social Networking sites has increased. People use platform to express and share their feelings, expectations, experiences etc. Along with this user often share their personal information such as profession, likes and dislikes etc. This information can be extracted. This extracted data can give businesses opportunity to connect with their customers, understand their needs and thus improve the quality of service or product accordingly. It reflects the differences in persons thinking, behavior and feelings.

Personality is defined as set of different characteristics such as behavior or emotions because of environment or biological factors. Personality is a way person respond to a particular situation. It reflects the differences in persons thinking, behavior and feelings. Facebook provides users a communication network consisting of people with whom they have acquaintance in their real social life. LinkedIn focuses on Business. Personality traits are continuous in nature as they reflect high and low of specific traits in a person on continuous trait rather than showcasing distinct personality.

Social networking sites are introduced and have become highly popular in worldwide. These networking sites are Facebook, Twitter, LinkedIn, and Instagram etc. Each of them has different objectives to persuade people to share their experiences, ideas, or moments of their life solicitously. Facebook provides users a communication network consisting of people with whom they have acquaintance in their real social life. LinkedIn focuses on Business life and serves as a business networking platform to business people to social networking sites are introduced and have become highly popular in

NATURAL LANGUAGE PROCESSING FOR RESUME SCREENING

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Abstract:

Now a days for applying any job through the consultancy, who are having large no of data, it is very important to screen the resumes. In case of organized data, we can form a table and store the data whatever we want. But consultancy peoples having resumes of their candidates, who are, designed themselves and they are not alike. A typical job posting on the Internet receives a massive number of applications within a short window of time. In general, these consultancy organizations cannot be able to cluster the resumes manually hence it takes a lot of time and effort for screening the resumes manually. This manual screening may result in missing out on the right candidates or selection of unsuitable applicants for the job. In this project, we describe a solution that aims to solve these issues by automatically selecting the most appropriate candidates according to the given job description. Our system uses Natural Language Processing to extract relevant information like skills, education, experience, phone number, email, name etc. from the unstructured resumes and hence creates a summarized form of each application.

Keywords: Natural Language, Security cameras, distributed on-line social networks

I. INTRODUCTION

To use a wired network is much safer than a wireless version. So, keep that in mind. The purpose of this article is to make you aware that a wired camera can be hacked, but it is harder to do so and less likely. Security cameras that can be accessed through the Internet or mobile devices are a significantly larger problem if you don't want anyone seeing your activities.

Automated tools will make your system secure and less easy to access. Make your automated authentication secure in the prescribed way (don't use grandma's phone number). Automated tools will help stop any hackers from breaking your authentication. The image is captured, and each frame is processed. The image is stored, and an email is sent if human is detected, different online social networks are enforced as overlay networks.

Social Network has gradually expanded the idea of social graph to so-called Open Graph as it launches new services such as photos and places and includes these in the graph over time [5]. For instance, the graph formed by people who exchange email, or the graph formed by a network user who include each other in their friends list can be viewed as another social network on top of the Internet. Security cameras that can be accessed through the Internet or mobile devices are a significantly larger problem. Understanding the structure of on-line social networks is not only critical to understanding the behavior and security of distributed on-line social networks, however, additionally understanding

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PROXIMITY ESTIMATION FOR HUMAN FACES

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Abstract:

One young age face and one adult face are of same person or not. In general there are lots of classifications algorithms present in the literature which failed to achieve high level of accuracy to find out the propinquity. So, in this proposed application we try to overcome that limitation by considering this problem as a main task that can be addressed: perform a comparative study on face descriptors that include classic descriptors as well as deep descriptors. Facial image analysis has been an important subject of study in the communities of pattern recognition and computer vision. Facial images contain much information about the The technique then enjoyed a resurgence in the 1980s, fell into eclipse again in the first decade of the new century, and has returned like gangbusters in the second, fueled largely by the increased processing power of graphics chips. Facial image analysis has been an important subject of study in the communities of pattern recognition and computer vision. Facial images contain much information about the technique then enjoyed a resurgence in the 1980s, fell into eclipse again in the first decade of the new century, and has returned like gangbusters in the second, fueled largely by the increased processing power of graphics chips.

***Keywords:** [illegible]sequences, gangbusters, eclipse.*

1. INTRODUCTION

Facial image analysis has been an important subject of study in the communities of pattern recognition and computer vision. Facial images contain much information about the technique then enjoyed a resurgence in the 1980s, fell into eclipse again in the first decade of the new century, and has returned like gangbusters in the second, fueled largely by the increased processing power of graphics chips. images contain much information about the The technique then enjoyed a resurgence in the 1980s, fell into eclipse again in the first decade of the new century, and has returned like gangbusters in the second, fueled largely by the increased processing power of graphics chips. images contain much information about the The technique then enjoyed a resurgence in the 1980s, fell into eclipse again in the first decade of the new century, and has returned like gangbusters in the second, fueled largely by the increased processing power of graphics chips. images contain much information about the The technique.

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APPLICATION FOR UNENCRYPTED AND ENCRYPTED DATA SECURITY

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Abstract:

Securing data encryption and decryption, using Cryptography and Steganography techniques. This paper introduces a new kind of approach for covert communications between two private parties. The approach introduced in this paper makes use of both steganographic as well as cryptographic techniques. In Cryptography we are using Rivest-Shamir-Adleman (RSA). In Steganography we are using Image Steganography for hiding the data. And we also use Mutual Authentication process to satisfy all services in Cryptography i.e., Access Control, Confidentiality, Integrity, Authentication. In this way we can maintain the data more securely. We are using RSA for encryption of data and Steganography concept to hide the data in an image. Such that any other person in the network cannot access the data. Only the sender and receiver can retrieve the message from the data.

Keywords :Rivest-Shamir-Adleman(RSA), Cryptography, Steganography.

I. INTRODUCTION

The brain is a highly complex, nonlinear, and parallel information processing system. It has the capability to organize its structural constituents, known as neurons, to perform certain computations many times faster than the human brain computes in an entirely different way from the conventional digital computer.

The brain is a highly complex, nonlinear and parallel information processing system. It has the capability to organize its structural constituents fastest digital computer in existence today. Work on artificial neural network has been motivated right from its inception by the recognition that the human brain computes in an entirely different way from the conventional digital computer. The brain is a highly complex, nonlinear, and parallel information processing system. It has the capability to organize its structural constituents, known as neurons, to perform certain computations many times faster than the fastest digital computer in existence today.

The brain routinely accomplishes perceptual recognition tasks, e.g. recognizing a familiar face embedded in an unfamiliar scene, in approximately 100-200 ms, whereas tasks of much lesser complexity may take days on a conventional computer. A neural network is a machine that is designed to model the way in which the brain performs a particular task. The network is implemented by using electronic components or is simulated in software on adigital computer. A neural network is a massively parallel distributed processor made up of simple processing units, which has a natural propensity for storing experimental.

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APPLICATION FOR PRODUCING WORD FROM CAPTION

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ABSTRACT

In current days Convolutional Neural Network (CNN) has gained a lot of users' attention towards several applications such as disease predictions, analytics, image processing, facial recognition, pattern matching and so on. As we all know that the problem of generating descriptive sentences automatically for images is becoming very complicated task. From many years, this has garnered a rising interest in natural language processing and computer vision research. Image captioning is a primary task which requires semantic understanding of images and the ability of generating description sentences with proper and correct structure. In this current application, we try to design a hybrid system employing the use of multilayer Convolutional Neural Networks (CNN) to generate vocabulary describing the images and We showcase the efficiency of our proposed model using the Flickr8k and Flickr30K datasets. The performance of the proposed model is evaluated using standard evaluation matrices, which outperform previous benchmark models

Keywords: *CNN, LSTM, Image Captioning,*

I INTRODUCTION

Neural networks with their remarkable ability to derive meaning from complicated or imprecise data can be used to Understanding the structure of on-line social networks is not only critical to understanding the strength and security of distributed on-line social networks, however additionally understanding their impact on the long run Internet, extract patterns and detect trends that are too complex to be noticed by either humans or other computer techniques. It has been widely applied to organizational networks to classify the influence or popularity of individuals and to detect collusion and fraud [2]. Most Social networking users share large amount of private information in their Social Network space. This information ranges from contact details, images, comments etc. understanding the strength and security of distributed on-line social networks, however additionally understanding their impact on the long run Internet, extract patterns and detect trends that are too complex to be noticed by either humans or other computer techniques.

it has been widely applied to organizational networks to classify the influence or popularity of individuals and to detect collusion and fraud [2]. Most Social networking users share large amount of private information in their Social Network space. This information ranges from contact details, images, comments etc. Hence Social Networks contains a large pool of sensitive data however additionally understanding their impact on the long run Internet, extract patterns and detect trends that are too complex to be noticed by either

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GENERATION OF AMONG PHOTO CAPTION

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Abstract:

The main aim of the Image Caption Generator is to generate a language description of the given image. It deals with image understanding and a language description for that image. Experimental results show that the embedded image caption generator generates captions for the selected images. Image caption generation has emerged as a challenging and important research area following advances in statistical language modelling and image recognition. We will build a working model of the Image caption generator by using CNN (Convolutional Neural Network) and LSTM (Long short-term memory) units. We use a deep convolutional neural network to generate a vectorized representation of an image that we then feed into a Long-Short-Term Memory (LSTM) network, which then generates captions. Image Captioning is the process of generating a textual description for given images.

Keywords: Image Captioning, CNN, LSTM.

I. INTRODUCTION

Image caption generation has emerged as a challenging and important research area following advances in statistical language modelling and image recognition. We will build a working model of the image caption generator by using a deep convolutional network for images. The two sub-networks interact with each other in a multimodal layer to form the whole m-RNN model CNN (Convolutional Neural Networks) and LSTM (Long short-term memory) units. We use a deep convolutional neural network to generate a vectorized representation of an image that we then feed into a Long-Short-Term Memory (LSTM) network, which then generates captions sampling from this distribution. The model consists of two sub-networks: a deep recurrent neural network for sentences. Image Captioning is the process of generating a textual description for given images. It has been a very important and fundamental task in the Deep Learning domain.The existing system is a multimodal Recurrent Neural Network (m-RNN) model for generating novel image captions. It directly models the probability distribution of generating a word given previous words and an image. Image captions are generated by sampling from this distribution. The model consists of two sub-networks: a deep recurrent neural network for sentences and a deep convolutional network for images. These two sub-networks interact with each other in a multimodal layer to form the whole m-RNN model.This model generate captions from a fixed vocabulary that describe the contents of images in the Flickr8k Dataset. Encoder-Decoder model is used in this experiment.

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APPLICATION FOR CUSTOMARY RATE PREDICTION

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Abstract:

The prediction of stock value is a complex task which needs a robust algorithm background to compute the longer-term share prices. Stock prices are correlated within the nature of market; hence it will be difficult to predict the costs. The proposed algorithm using the market data to predict the share price using machine learning techniques like recurrent neural network named as Long Short-Term Memory, in that process weights are corrected for each data points using stochastic gradient descent. This system will provide accurate outcomes in comparison to currently available stock price predictor algorithms. The network is trained and evaluated with various sizes of input data to urge the graphical outcomes. The paper focuses on the use of Regression and LSTM based Machine learning to predict stock values. Factors considered are open, close, low, high and volume.

Keywords: *close, open, high, low, volume, LSTM model and regression .*

I. INTRODUCTION

Stock price is the price of a single stock among the number of stocks sold by a company listed in public offering. Having stocks of a public company allows you to own a portion of it. Suppose if many people are willing to buy a stock, then the price goes up as there is more demand. If more people are willing to sell the stock, the price goes down as there is more supply than the demand. Though understanding supply and the demand is relatively easy, it is hard to derive what factors exactly contribute to the increase in demand or supply. These factors would generally boil down to socioeconomic factors like mark. inflation, trends and more importantly, Millions of dollars- worth of trading happens every single day original owners of the company initially sell the stocks to get additional investment to help the company grow.

This initial offering of stocks to the public is called Initial Public Offering (IPO). Stock prices change because of the supply and demand. Suppose if many people are willing to buy a stock, then the price goes up as there is more demand. If more people are willing to sell the stock, the price goes down as there is more supply than the demand. Though understanding supply and the demand is relatively easy, it is hard to derive what factors exactly contribute to the increase in demand or supply. These factors would generally boil down to socioeconomic factors like mark. inflation, trends and more importantly, Millions of dollars- worth of trading happens every single day, and every trader hopes investors ever since the beginning of the stock market.

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SECURED DATA COMMUNICATION USING CRYPTOGRAPHY

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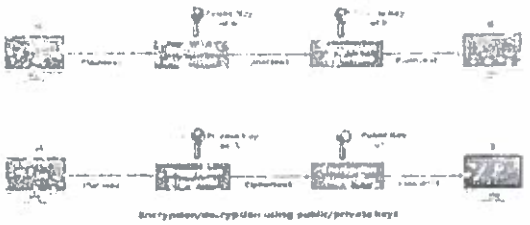
Abstract:

As large amount of data is transmitted over the network, it is preliminary to secure all types of data before sending them. This is achieved through security controls. Protecting the information transmitted over the network is a difficult task and the data security issues become increasingly important. To improve the data transmission over the public network is very essential aspect. Cryptography provides some methods for securing the data. It is important to prevent the data from being infected by an intruder. To transmit the data efficiently, speed and security play a vital role. In this project, Hybrid cryptography has been used in which it makes use of two algorithms they are RSA and AES. The RSA algorithm provides the security for the data and the AES algorithm provides fast encryption speed. By combining these two algorithms we can achieve both security and fast encryption speed.

Keywords: *HybridCryptography, RSA(Rivest,Shamir,Adleman)Algorithm, AES(Advanced EncryptionStandard)Algorithm.*

I. INTRODUCTION

Public Key encryption algorithm is also called the Asymmetric algorithm. Asymmetric algorithms are those algorithm in which sender and receiver use different keys for encryption and decryption. Each sender is assigned a pair of keys: public key & private. The Public key is used for encryption and the Private Key is used for decryption. keys are linked, but the private key cannot be derived from the public key. The public key is well known, but the private key is secret, and it is known only to the user who owns the key. It means that everybody can send a message to the user using user's public key. Decryption cannot be done using a public key. The two keys are linked, but the private key cannot be derived from the public key. The public key is well known, but the private key is secret, and it is known only to the user who owns the key. It means that everybody can send a message to the user using user's public



Key The Public key is used for encryption, and the Private Key is used for decryption. Decryption cannot be done using a public key. The two keys are linked, but the private key cannot be derived from the public key. The public key is well known, but the private key is secret, and it is known only to the user who owns the key. It means that everybody can send a message to the user using user's public key. But only the user can decrypt the message using his private key.

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INSTRUMENTAL MUSIC CLASSIFICATION USING MACHINE LEARNING

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Abstract:

Digital music processing is involved in many subjects, including music genre prediction. Machine learning techniques were used to classify music genres in this research. Deep neural networks have recently been shown to be successful in a variety of classification tasks, including the classification of music genres. In recent years, deep neural networks have been shown to be effective in many classification tasks, including music genre classification. In this paper, we proposed two ways to improve music genre classification with convolutional neural networks: 1) combining max- and average pooling to provide more statistic information to higher level neural networks; 2) using shortcut connections to skip one or more layers, a method inspired by residual learning method. The input of the CNN is simply the short time Fourier transforms of the audio signal

Keywords: *KNN, Machine Learning Classification, Deep neuralnetwork.*

I.INTRODUCTION

With day by day increasing internet penetration, huge amount of useful data is available at proximity to people. Although it seems that there is easy access to data, but this exponentially increasing amount of data brings to table a new problem most of this data is unclassified. We will create a deep learning project to automatically distinguish various musical genres from audio files in this project. We'll categories these audio files based on their low-level frequency and time domain characteristics. We'll need a dataset of audio tracks of identical lengths and frequency ranges for this project. The KNN classification dataset is the most recommended dataset for music genre classification projects, and it was collected specifically for this purpose. With the rise in popularity of personal multimedia devices in recent years, a vast amount of music has become available on a variety of platforms. Humans are finding it difficult to structure and organize such a vast volume of music. One of the current methods for structuring music content is genre grouping. To allow automated structuring and organizing of large music archives, an efficient and precise music genre classification system is urgently required. The musical genre is a kind of high- level mark. The standard phase of an automated genre classification system consists of three steps as a classification problem: 1) From the original audio signal, timbre, Spectro-temporal, and statistical features are extracted; 2) To increase classification accuracy, several techniques are used to pick a meaningful subset of features or aggregate features.3) To automatically classify the input music into different genres, a machine learning-based

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DETECTION OF EMPLOYEE PRESSURE LEVELS USING MACHINE LEARNING

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Abstract:

The aspiration of the "Employee Stress Management System" is to identify the employees under stress within companies of various work environments and embedded remote work adaptations to help raise the balance in their work, life, and health. Since the COVID-19 epidemic, most companies transformed their working styles into unusual spaces such as working from home leaving employees with ambiguity and stress in managing their working goals. So, it is need of the hour for the company executives to undertake this prediction as assistance to conduct appropriate remediation to help employees balance their work and manage performance outcomes. Thus, this project is pivotal in the work-life which uses machine learning algorithms to analyze the database and to perform prediction analysis in determining stressed employees. The main framework of the project relies on python with the Graphical User Interface including visual graphs and heat map for scrutiny by the company's management along with prediction results. The need for a safe and secure system is desired by everyone in the society is being implemented everywhere such as in hospitals, warehouses, parking lots, buildings etc... However this very system though effective has its downside when it comes to cost. Thus, the need for a cost effective system is required. The existing system for surveillance is using camera with the right vision capabilities using raspberry pi and OpenCV.

Keywords – *Data Science, Random Forest Classifier, Stress Management, Machine Learning.*

I. INTRODUCTION

Stress has a constant and continuous pattern in the [illegible] of every company because of boundaries [illegible] for the representation of employees' work [illegible] deadlines, on time deployments, etc. As this not only affects the employees professional life but also into [illegible] his personal life which in turn deviates from their performance. In order to help employees, sustain the inevitably changing work environments within a company, the management of the company is expected to take pre-emptive measures to support and provide employees with stress-free work life. This approach needs a real-time analysis of data that can be used by the executives to take actions to balance the workforce by conducting stress remediation.

use a wired camera is much safer than a wireless version. So, keep that in mind. The purpose of this article is to make you aware that a wired camera can be hacked, but it is harder to do so and less likely. Security cameras that can be accessed through the Internet or mobile devices are a significantly larger problem if you don't want anyone seeing your activities.

Automated tools will make your system secure and less easy to access. Make your automated authentication secure in the prescribed way (don't use grandma's phone number). Automated tools will help stop any hackers from breaking your authentication. The image is captured, and each frame is processed. The image is stored, and an email is sent if human is detected, different online social networks are enforced as overlay networks. Social Network has gradually expanded the idea of social graph to so-called OpenGraph as it launches new services such as photos and places and

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TRANSCRIBED PASSWORD FOR CONTACT SCREEN FOR BIOMETRICS

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Abstract:

Humans can see and visually sense the world around them by using their eyes and brains. Computer vision works on enabling computers to see and process images in the same way that human vision does. Several algorithms developed in the area of computer vision to recognize images The goal of our work will be to create a model that will be able to identify and determine the handwritten digit from its image with better accuracy. The aim to complete it is by using the concepts of Convolution Neural Network and MNIST dataset. Though the goal is to create a model which can recognize the digits and can extend it for letters and then a person's handwriting. Through this work, the aim is to learn and practically apply the concepts of Convolution Neural Networks.

Keywords: Convolution Neural Network, MNIST Dataset

I. INTRODUCTION

Recently Convolution Neural Networks becomes one of the most appealing approaches and has been an ultimate factor in a variety of recent success and challenging machine learning applications such as challenge ImageNet object detection, image segmentation and face recognition. Therefore, CNN can be helpful for this challenging task of image classification. Can be used for handwriting recognition which is one of high academic and business transactions. There are many applications of handwriting digit recognition in our real-life purposes.

MNIST dataset

The MNIST database (Modified National Institute of Standards and Technology database) is a handwritten digits dataset. Can use it for training various image processing systems. The database is also widely used for training and testing in the field of machine learning. It has 60,000 for training and 10,000 testing examples. Each image has fixed size. The images are of size 28*28 pixels. It is a database for people who want to try learning techniques and pattern recognition methods on real-world data while spending minimal efforts on preprocessing and formatting. This can be used as dataset in this project

Convolutional Neural Networks

Convolutional neural networks are deep artificial neural networks. It can be used to classify images (e.g., name what they see), cluster them by similarity (photo search) and perform object recognition within scenes. It can be used to identify faces, individuals, street signs, tumors, platypuses and many other aspects of visual data. During the forward pass, each filter is convolved across the width and height of the input volume, computing the dot product, and producing a 2-dimensional activation map of that filter. As a result, the network learns when they see some specific type of feature at some spatial position in the input. Then the activation maps are fed into a down sampling layer, and like convolutions, constant and continuous pattern in the workspace of every company because of boundaries drawn for the representation of employees' work including deadlines, on-time deployments, etc. As this not only affects the employee's professional life but also interrupts his personal life which in turn deviates from their performance. To help employees, sustain the inevitably changing work environments within a company, the management of the company is expected to take pre-emptive measures to support and provide employees with stress-free work life. This approach needs a real-time analysis of data that can

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CONITORING SOCIAL DISTANCE USING OPENCV

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Abstract:

The ongoing COVID-19 Corona virus outbreak has caused a global disaster with its deadly spreading. Social distancing is thought to be an adequate precaution (norm) against the spread of the pandemic virus. The risks of virus spread can be minimized exponentially by avoiding physical contact among people. The framework uses the YOLOv3 object recognition pattern to identify humans in video sequences. This method can predict the type and location of an object by looking only once at the image. A tracking algorithm is used to detect individuals in video sequences such that the person who violates/crosses the social distance threshold is also being tracked and thus the number of violations is displayed. This could help the officials downsize the breaking of norms to a large extent.

Humans can see and visualize the world around them by using their eyes and brains. Computer vision works on enabling computers to see and process images in the same way that human vision does. Several algorithms developed around computer vision to recognize images. The goal of our work will be to create a model that will be able to identify and determine the handwritten digit from its image with better accuracy. The aim to complete this by using the concepts of Convolution Neural Network and MNIST dataset. Through the goal is to create a model which can recognize the digits and can extend it for letters and then a person's handwriting. Through this work, the aim is to learn and practically apply the concepts of Convolution Neural Networks.

Keywords: COVID-19, Yolov3, Social Distance

I. INTRODUCTION

The present COVID-19 pandemic, also known as the Coronavirus, is a global viral disease which we are facing since 2019 and to as of date. Social distancing will help maintain distance between everyone to cut down the increase of COVID-19 spread. It helps in various crowded places like (function halls, shopping malls, airports, schools, etc.). Social distancing mainly benefits the people those are at higher risks with premedical conditions. YOLO algorithm is an algorithm based on regression, instead of selecting the interesting part of an image; it predicts classes and bounding boxes for the whole image in one run of the Algorithm. It's all Python, open-source, and free once you've created an app you can use free sharing platform to deploy manage, with the world.

II. LITERATURE SURVEY

Machine learning is the study of computer algorithms that improve automatically through experience and using data. It is seen as a part of artificial intelligence. Deep learning is an artificial intelligence (AI) function and a sub part of Machine Learning that imitates the workings of the human brain in processing data and creating patterns for use in decision making. Also known as deep neural learning or deep neural network. Deep learning is a class of machine learning algorithms that uses multiple layers to progressively extract higher-level features from the raw input. We use DL as it has neural networks containing several nested layers with each layer trying to extract features from the previous layers. In the existing system, we are going to use the COCO dataset for images to classify the objects like vehicles

AIR QUALITY MONITORING SYSTEM BY MEASURING PARTICLES IN THE AIR

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Abstract:

This paper shows non-contact water level monitoring system implemented using Lab VIEW and arduino. Water depth of the tank is measured by Ultrasonic sensor. Hence the water level present in the tank is known. Depending on the sensor reading Lab VIEW program sends the data to arduino and through arduino board the pump is switched ON if the water level in the upper tank is low and pump is switched OFF if the water level is completely filled in the upper tank. The input to arduino board is from ultrasonic sensor. Arduino read the height and reports the water depth of the tank and the same is displayed in LabVIEW front panel. Advantage of this over other existing automatic system is it provides non-contact water level measurement using ultrasonic sensor, but existing automatic system using ss(stainless steel) sensor which is a contact type water level sensor and also these sensors quickly corroded by some chemicals. The same is present in Lab VIEW using the graphical user interface for visualization, Lab VIEW communicate with add on devices like arduino, ultrasonic sensor, pump through power hub.

Keywords: Ultrasonic sensor, arduino, motor, Lab, LabVIEW

I.INTRODUCTION

As everyone knows water is most valuable resource and used for many purposes. Many people depends on supplementary or secondary water tank to store water that is collected from rain water or water pumped from well or underground. But how to measure the overhead tank is completely filled or what? To avoid algae growth tanks are made up of non-transparent material and also in order to protect water from mosquito's tanks always closed. Due to this it is difficult to see water in the tank from outside. So to know water depth in the tank and to fill the tank when water level goes low, here is a system which automatically controls the pump to fill water. In this method Ultrasonic sensor measures depth of the water. If water level in the tank is low pump is automatically switches ON due to ultrasonic sensor. Then water is continuously flows to upper tank from lower tank. When water level in the tank goes high pump get switches During these days it is essential to keep overhead tanks in apartments, industries, high rise flats in order to store water and use. Here, from ground level water is pumped to overhead tanks according to water level requirement in the tank. It is difficult to manually switch ON and OFF pump to monitor water level in both upper and lower tanks. Also it leads to overflow and wastage of water [1]. Some more disadvantages of manually [2] controlling water level in the tank given as: 1) Human may made mistake 2) less accuracy 3)To see water level in the tank it needs to opening and closing of tank where time get waste.

II.RELATED WORK

During these days it is essential to keep overhead tanks in apartments, industries, high rise flats in order to store water and use. Here, from ground level water is pumped to overhead tanks according to water level requirement in the tank.

SIMULATION IMPLEMENTATION FOR 5- LEVEL CASCADED H-BRIDGE MULTI LEVEL INVERTERFOR HARMONIC REDUCTION

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Abstract:

In this paper, a new structure for a non isolated boost dc–dc converter is proposed. The proposed converter generates higher voltage gain than some conventional non isolated boost dc–dc converters. In this paper, the voltage and current equations of the elements and voltage gain in continuous conduction mode and discontinuous conduction mode are extracted. Then, the critical inductance conversion is extracted and the current stresses in the switches are calculated. To achieve high voltage gain, a generalized structure based on the proposed structure generates for dc–dc converters. Meanwhile, the root mean square current relations of diodes are obtained for an extended structure. Finally, the results of PSCAD/EMTDC software and laboratory prototype are used to reconfirm theoretical concept.

Keywords: PSCAD/EMTDC, boost dc–dc converters, PFC, CCM, PWM

I. INTRODUCTION

DC–DC converters are used in many ways such as hybrid electric vehicles, renewable energy sources such as wind turbines generators, solar cells and fuel cells, medical equipment and switched mode power supplies and power factor correction (PFC), telecommunication systems and air and space industry, and portable electrical equipment such as portable computers and mobile phones [1], [2]. The converter switching control is done by pulse width modulation (PWM) and switching frequency change [1], [2]. The positive and negative output voltages with respect to input ground can be generated by both of these switching methods. Converters in which switching control is performed by PWM are classified in non isolated dc–dc converters such as buck, boost, buck–boost, CUK, and SEPIC converters, and isolated dc–dc Converters such as flyback, forward, half-bridge, full-bridge, and push–pull [3], [4]. Non isolated converters do not include a high-frequency transformer in their structure. As a result, they have less size and low cost and are easier to control. Among non isolated converters, those that have greater fixed output voltage than the input voltage are acceptable. Direct connection of an inductor at the input and lower output capacitance and size of output filter, switch protection against overvoltage and electromagnetic interference, lower stress on the elements, more transient response, efficiency, and high power density are features of these. In this paper, a new structure for non isolated dc–dc boost converters using the VL technique has been proposed in which the higher voltage is achieved. The output voltage of the proposed converter is negative with respect to input ground. In this paper, performance of the non isolated boost converter was analyzed in detail in continuous conduction mode (CCM) and discontinuous conduction mode (DCM) and the voltage gain in CCM are compared with non isolated conventional dc–dc converters. Furthermore, the critical inductance between CCM and DCM is calculated and stresses of switches are extracted. Then, a generalized structure is proposed for achieving higher voltage gain. Finally, the

PERFORMANCE COMPARISON OF SPEED CONTROL STRATEGIES OF BRUSHLESS DC (BLDC) MOTOR

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Abstract:

Due to its practicality, high efficiency, high power density, and dependability, BLDC motors are the preferred motors in EVs today. Different speed control strategies are used to provide superior driving characteristics. PWM, sensor less speed control, and sensor-based speed control are some of the different control systems used to regulate the speed of BLDC motors. For the control of speed of BLDC motors, PI and PID controller are widely accepted. PI and PID are common controllers that have been used to assess BLDC motor performances. Traditional PI and PID controllers can be replaced with intelligent fuzzy-PID controllers to improve dynamic characteristics and get smooth, rapid responses. The purpose of this research is to compare traditional PID and evaluate the response of a BLDC motor with an intelligent fuzzy-PID controller.

Keywords: PID, BLDC, IMC controller, PI and PID

I. INTRODUCTION

Since 1980's new arc[illegible]e concept of permanent magnet brushless dc motors has been built to eliminate sparking, high maintenance, high cost. BLDC motor rapidly growing to satisfy the demand of household appliances in the market. Common household appliances which use electric motors include air conditioners, refrigerators, vacuum cleaners, washers and dryers. However, consumers now demand better performance, reduced acoustic noise [1] and higher efficient motor for their appliances. Hence, BLDC have been introduced in order to fulfil Comparison of Different Control Strategies for BLDC Motor Drive http://iaeme.com/Home/journal/IJEET 25 editor@iaeme.com these requirements. In the event of replacing the function of alternators and brushes, the BLDC motor requires a six pulse inverter and a hall sensor which detects rotor position for appropriate alternation of current. BLDC motor generally adopts three hall sensors for deciding the commutation sequence [2]. Some of the benefits are more desirable in speed versus torque characteristics, high dynamic response, high efficiency, long operating life, noiseless operation; higher speed ranges [2]. The BLDC are typically permanent synchronous motor, they are well driven by dc voltage. However, there are drawbacks in a BLDC motor because of variable speed, and therefore various controllers are used to overcome these problems. In this paper, we propose to observe and compare the performance of BLDC motor by Speed Torque characteristics of the BLDC motor by using PID controller [5] and IMC controller [7]. PID controller basically used to obtain stability of a system to reduce steady state error and to get better performance of a system. IMC controller [7] which states that control can be achieved only if the control system contain either implicitly or explicit then some representation of the process to be controlled.

II. RELATED WORK

In this paper, we propose to observe and compare the performance of BLDC motor by Speed Torque characteristics of the BLDC motor by using PID controller [5] and IMC controller [7]. PID controller basically used to obtain stability of a system to reduce steady state error and to get better

UNIFIED POWER QUALITY CONTROLLER SYSTEM BASED ON MULTI CONVERTER FOR HARMONIC REDUCTION

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Abstract:

This study describes a revolutionary three phase four wire (3P4W) distribution system construction that makes use of a multi converter unified power quality conditioner (MC-UPQC). The neutral of the series transformer utilized in series component MC-UPQC is regarded as the fourth wire for the 3P4W system, which is realized from a three-phase, three-wire system. This research also presents a new control method to balance the unbalanced load currents. The use of a four-leg voltage source inverter design for the shunt section mitigates any neutral current that may flow toward the neutral point of the transformer. As a result, under all operating circumstances, the series transformer neutral will have virtually zero potential. The efficiency of the suggested MC-UPQC-based 3P4W distribution is demonstrated using simulation results based on MATLAB/SIMULINK.

Keywords: MC-UPQC, Reactive power, Harmonics, VI technique.

I. INTRODUCTION

Due to their innate non-linearity, power electronics-based devices consume reactive and harmonic power from the supply. They might also lead to an imbalance and draw excessive neutral currents in three-phase systems. Low system efficiency and inadequate power are caused by the injected harmonics, reactive power burden, imbalance, and excessive neutral currents. As a result, they have less size and low cost and are easier to control. Among non isolated converters, power electronics-based devices consume reactive and harmonic power from the supply. They might also lead to an imbalance and draw excessive neutral these that have greater fixed output voltage than the input voltage are acceptable. Direct connection of an inductor at the input and lower output capacitance and size of output filter, switch protection against overvoltage and electromagnetic interference, lower stress on the elements, more transient response, efficiency and high power density are features of these . In this paper, a new structure for non isolated d –dc boost converters using the VL technique has been proposed in which the higher voltage is achieved. The output voltage of the proposed converter is negative with respect to input ground. In this paper, performance is emphasized. The power system is also subjected to other transients, such as voltage sags, swells, flickers, etc. The voltage at distribution levels would be impacted by these transients. Reactive power that is too high would increase transmission losses in the lines and the generating capacity of the generating stations. Reactive power supply at the ends of the load becomes crucial as a result. Low system efficiency and inadequate power are caused by the injected harmonics, reactive power burden, imbalance, and excessive neutral currents. As a result, they have less size and low cost and are easier to control. Among non isolated converters, those that have greater fixed output voltage than the input voltage are acceptable.

II. RELATED WORK

As a result, they have less size and low cost

SIMULATION OF MAXIMUM CONSTANT BOOST-CONTROL WITH THIRD HARMONIC INJECTION METHOD FOR 3- PHASE Z SOURCE INVERTER USING DIFFERENT PWM TECHNIQUES

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Abstract:

Z – source inverters have been recently proposed as an alternative power conversion concept as they have both voltage buck and boost capabilities. These inverters use a unique impedance network, coupled between the power source and converter circuit, to provide both voltage buck and boost properties which cannot be achieved with conventional voltage source and current source inverters. To facilitate understanding of Z – source inverter, this paper presents a detailed analysis, showing design of impedance network, implementation of Maximum Boost control (MBC) PWM technique and simulation of Z – source inverter.

Keywords: Z – source, Maximum Boost control (MBC), (CCM), Z-network

I. INTRODUCTION

Two switches are used in a conventional voltage source inverter gates on at the same moment since doing so would result in a short circuit for the same phase leg (shoot-through) that would wreck the inverter to happen. Additionally, the dc bus voltage is the upper limit of the allowable maximum output voltage. The innovative Z-source inverter [1], depicted in Fig. 1, can get beyond these restrictions by switching out the conventional dc link for an impedance network (Z-network). By gating on both the upper and lower switches of a phase leg, the Z-source inverter effectively makes use of the shoot-through states to increase the dc bus voltage.

Consequently, the Z-source inverter may boost and buck voltage to get the necessary output voltage of higher than structure. As a result, they have less size and low cost and are easier to control. Among non isolated converters, those that have greater fixed output voltage than the input voltage are acceptable. Direct connection of an inductor at the input and lower output capacitance and size of output filter, switch protection against overvoltage and electromagnetic interference, lower stress on the elements, more transient response, efficiency, and high power density are features of these . In this paper, a new structure for non isolated dc–dc boost converters using the VL technique has been proposed in which the higher voltage is achieved. The output voltage of the proposed converter is negative with respect to input ground. In this paper, performance of the non isolated boost converter was analyzed in detail in continuous conduction mode (CCM) and discontinuous conduction mode (DCM) and the voltage gain in CCM are compared with non isolated conventional dc–dc converters. Furthermore, the critical inductance between CCM and DCM is calculated and stresses of switches are extracted. Then, a generalized structure is proposed for achieving higher voltage gain. Finally, the accuracy of the offered theory is reaffirmed by simulation results in PSCAD/EMTDC software and experimental results by using laboratory

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PARTICLE SWARM OPTIMIZATION (PSO) BASED TECHNIQUE FOR THE OPTIMAL ALLOCATION OF DISTRIBUTED GENERATION (DG) UNITS IN THE POWER SYSTEM

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Abstract:

The size and placement of distributed generation have been optimized using a PSO-based optimization approach in this paper (DG). The DG units that are being investigated for insertion in this study article are able to inject both active and reactive power. The primary goals of optimal DG unit installation and capacity estimation are to increase bus voltage and decrease active power system loss. As a result of its higher R/X ratio, the distribution network is known to experience greater power loss. Therefore, it is evident that placing DG in a location that is not suitable results in increased system losses and voltage instability. Consequently, it is crucial to maximize the placement and size of the DG unit.

Keywords: PSO-based optimization, operation and planning, environment pollution, utilization of DG.

I. INTRODUCTION

The management of power system has been facing the major changes during the past decades. The willing to create a competitive environment has caused to develop various sectors such as generation, transmission and distribution. These developments and the other issues such as the environmental pollution, construction problems of the new transmission lines, and technology development to the construction of small generation units has caused the increase in the utilization of Distributed Generation (DG). Researches of Electric Power Research Institute (EPRI) has figured out that more than 25 present capacities of DGs installed until 2010. DGs are able to connect to distribution network in most of the cases without transmission lines. Accordingly, the impacts of DGs on losses and voltages of networks should be investigated comprehensively on distribution networks operation and planning [1, 2]. The optimal operation of distribution networks applies to optimum use of resources and equipment's control such as the ability of transformers tap gauging based on loads, AVRs and capacitors. The optimization of DG allocation has applied to minimize of the objective function with considering the technical problem constraint. In the past, distribution networks were not able to connect the DG resources into the main utility grid. While present networks are able to simply connect DGs into the utility grid. More utilization of DG into the network may cause serious impacts on conventional distribution networks. The problem formulation of optimal utilization of DG aims to reduce grid losses based on active power resources control pattern[3, 4]. In recent years, researchers have been developed the optimum allocation of the DG in distribution networks. Several methodologies based on analytical tools and optimization programming methods have been executed [5–8].

RELATED WORK

During these days it is essential to keep overhead tanks in apartments, industries, high rise flats in order to store water and use. Here, from ground level water is pumped to overhead tanks according to water level requirement in the tank. It is difficult to manually switch ON and OFF pump to monitor water level in both upper and lower tanks. Also it leads to overflow and wastage of The management of power system has been facing the major changes during the past decades. The willing to create a competitive environment has caused to develop various sectors such as generation, transmission and

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COMPARATIVE STUDY BETWEEN INCREMENTAL CONDUCTANCE ALGORITHM AND PERTURB AND OBSERVE ALGORITHM

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Abstract

The International Solar Alliance seeks to effectively utilise solar energy in Suryaputra, a region between the tropics that receives plenty of sunshine. To achieve the goals outlined in the UNFCCC, similar commitments have been made to boost the contribution from other non-conventional sources, such as Sustainable Development Goal 7 (cheap and clean energy). However, because the availability of renewable energy is a transient phenomenon, the methods utilised to capture it must be both efficient and effective. In order to optimise the solar energy tapped, two MPPT approaches are applied globally. The current work compares these two strategies. P&O and IC are the two methods. The methods have been examined using a PV module that includes an inverter, MPPT controller, DC-DC boost converter, and more. An integrated two-level voltage source inverter.

Keywords: Solar Alliance, UNFCCC, electromagnetic interference, achieving higher voltage gain.

I. INTRODUCTION

Increase in energy demand is obvious, with the growth in world's population. It is expected that world primary energy demand will increase by 69% from 2002 to 2030, globally[1]. Fig.1, shows the energy mix of Pakistan, which reflects a dominant portion contributed by thermal sources and fractional contribution of renewables i.e. wind power [2]. PV is considered one of the most important resources of energy for future[1, 3]. By 2011, almost 30 GW of electricity had been produced by PV solar cell globally [4]. Currently Pakistan lags the capability of harnessing solar energy, though it has a great potential of generating energy through it [4, 5]. In this regard, several projects are initiated that could utilize solar and other renewable energy resources available in Pakistan [5-7]. Efficiency of PV cell plays important role for the feasibility evaluation of power generation with PV. The efficiency of solar panel is low and its capital cost is high when compared with other power generating techniques [9, 10]. Feasibility evaluation is based on a standard testing condition (STC), in which PV cell efficiency is observed by applying 1000 Watt/m^2 irradiance, at 25^0C Temperature and air mass of 1.5 [10-12]. [10], summarizes highest confirmed efficiency of commercially employed solar cell. Converters such as flyback, forward, half-bridge, full-bridge, and push–pull [3], [4]. Non isolated converters do not include a high-frequency transformer in their structure. As a result, they have less size and low cost and are easier to control. Among non isolated converters, those that have greater fixed output voltage than the input voltage are acceptable. Direct connection of an inductor at the input and lower output capacitance and size of output filter, switch protection against overvoltage and electromagnetic interference, lower stress on the elements, more transient response, efficiency, and high power density are features of these.

In this paper, a new structure for non isolated dc–dc boost converters using the VL technique has been proposed in which the higher voltage is achieved. The output voltage of the proposed converter is negative with respect to input ground. In this paper, performance of the non isolated boost converter was analyzed in detail in continuous conduction mode (CCM) and discontinuous conduction mode (DCM) and the voltage gain in CCM are compared with non isolated conventional dc–dc converters. Furthermore, the critical inductance between CCM and DCM is calculated and

IMPLEMENTATION OF DTC BASED SPEED DRIVE GOVERNING SYSTEM FOR INDUCTION MOTOR

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Abstract:

Induction Motors (IM) has always been preferred for its reliability, ruggedness and easier in maintenance. The IM drives controlled with the vector control method has found wide acceptance in the industry. However, this control technique requires complex coordinate transformation, inner current control loop and accurate system parameters. The direct torque control (DTC) method gives more robust and fast torque response without such coordinate transformations, PWM pulse generation and current regulators. Moreover, DTC minimizes the use of motor parameters. This paper presents a study of DTC technique for voltage source inverter fed induction motor drives using MATLAB. The Simulink model and results that validates the DTC principle has been presented. This paper proves that DTC technique is easier to implement and keeps the variable within the range. The Induction Motor (IM), thanks to its well known advantages of simple construction, reliability, ruggedness, and low cost, and has found wide spread industrial application. In contrast to the commutation dc motor, the IM can be operated in an aggressive or volatile environment since there are no problems with spark and commutation. These advantages however are suppressed due to requirement of complex control circuit and nonlinear characteristics of the IM

Keywords: *IM drives, DTC technique, transient response, high power density.*

I.INTRODUCTION

Electric motors in industry use more than half of the total electrical energy generated [1]. Three-phase induction machines (IMs) are one of many different kinds of electric motors, and they hold a major position. Induction motors are actually used in at least 80% of industrial control systems [2], gradually replacing DC machines due to their superior performance in terms of dependability, simplicity of construction, low cost, and ease of maintenance [3, 4]. These many benefits, however, are not without drawbacks, as the machine's dynamic behaviour is frequently exceedingly complicated [5, 6] due to a system of strongly coupled, multivariable, nonlinear equations that come from its modelling. Furthermore, a few of its state variables, including flow, are not measurably constant [7]. Due to these restrictions, more sophisticated control algorithms are needed to dc–dc converters such as buck, boost, buck–boost, CUK, and SEPIC converters, and isolated dc–dc converters such as flyback, forward, half-bridge, full-bridge, and push–pull [3], [4]. Non isolated converters do not include a high-frequency transformer in their structure. As a result, they have less size and low cost and are easier to control. Among non isolated converters, those that have greater fixed output voltage than the input voltage are acceptable. Direct connection of an inductor at the input and lower output capacitance and size of output filter, switch protection against overvoltage and electromagnetic interference, lower stress on the elements, more transient response, efficiency, and high power density are features of these

In this paper, a new structure for non isolated dc–dc boost converters using the VL technique has been proposed in which the higher voltage is achieved. The output voltage of the proposed converter is negative with respect to input ground. In this paper, performance of the non isolated boost converter was analyzed in detail in continuous conduction mode (CCM) and Induction motors are actually used in at least 80% of industrial control systems [2], gradually replacing DC machines due to their superior performance in terms of dependability, simplicity of construction, low cost, and

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STABILITY ANALYSIS FOR SOLAR ENERGY APPLICATIONS BASED ON TLBB CONVERTER

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Abstract:

Although many parts of the fundamental flare process are still poorly understood, solar flares are generally acknowledged as a key source of disruptions that affect space weather. This dissertation seeks to advance knowledge of the various characteristics of flares and related phenomena, including their origin, precursors, and evolution of morphology in solar atmosphere. The purpose of the current work has been to investigate the small and large-scale magnetic structures and their evolution associated with flares in the context of magnetic reconnection. The research described in this dissertation was based on observations of flares at multiple wavelengths, ranging from hard X-rays to radio wavelengths, made by both ground- and space-based sensors. Micro flares and evolution caused by flares are among the subjects being researched in the flare core regions.

Keywords: Microflares and evolution, fundamental flare process, electromagnetic interference, higher voltage gain.

I. INTRODUCTION

DC–DC converters are used in many ways such as hybrid electric vehicles, renewable energy sources such as wind turbines generators, solar cells, and fuel cells, medical equipment and servo-motors, industrial circuits and power factor correction (PFC), telecommunication systems and air and space industry, and portable electrical equipment such as portable computers and mobile phones [1], [2]. The converter switching control is done by pulsewidth modulation (PWM) and switching frequency change [1], [2]. The positive and negative output voltages with respect to input ground can be generated by both of these switching methods. Converters in which switching control is performed by PWM are classified in non isolated

dc–dc converters such as buck, boost, buck–boost, CUK, and SEPIC converters, and isolated dc–dc converters such as flyback, forward, half-bridge, Full bridge, and push–pull [3], [4]. Non isolated converters do not include a high-frequency transformer in their structure. As a result, they have less size and low cost and are easier to control. Among non isolated converters, those that have greater fixed output voltage than the input voltage are acceptable. Direct connection of an inductor at the input and lower output capacitance and size of output filter, switch protection against overvoltage and electromagnetic interference, lower stress on the elements, more transient response, efficiency, and high power density . In this paper, a new structure for non isolated [illegible] boost converters using [illegible] VL technique has been proposed in which the higher voltage is achieved. The output voltage of the proposed converter is negative with respect to input ground. In this paper, performance of the non isolated boost converter [illegible] analyzed in detail in continuous conduction mode (CCM) and discontinuous conduction mode (DCM) and the voltage gain in CCM are compared with non isolated conventional dc–dc converters. Furthermore, the critical inductance between CCM and DCM is calculated and stresses of switches are extracted. Then, a generalized structure is proposed for achieving higher voltage gain. Finally, the accuracy of the offered theory is reaffirmed by simulation results in PSCAD/EMTDC software and experimental results by using laboratory prototype.

II. RELATED WORK

During these days it is essential to keep overhead tanks in apartments, industries, high rise flats in order to store

MATLAB SIMULINK IMPLIMENTATION OF NON-ISOLATED BOOST DC-DC CONVERTER

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Abstract:

It is suggested to use an unique non-isolated high gain DC-DC converter. The basic two-phase interleaved boost converter (IBC), which makes use of linked inductors (CIs) and a voltage lift capacitor, serves as the foundation for the high gain converter that is being described. In order to increase the voltage obtained at the primary side of the CIs, voltage multiplier cells (VMCs) are connected. Using a voltage doubler on the secondary side. The outputs from the primary and secondary side of the CIs are cascaded to provide the total voltage gain. Switches and diodes are not subjected to as much voltage stress since hybrid combinations of gain extension techniques are used to increase voltage gain. Additionally, the current ripple content at the input side is decreased as a result of the IBC in Stage 1.

Keywords: transformer less buck–boost converter, high-voltage gain ratio, renewable energy system, steady-state analysis.

I. INTRODUCTION

With the significant progress made in the manufacturing processes in the last decades, piezoelectric materials have shown increased performance and are widely used [1]. Indeed, piezoelectric direct and reverse effects are used in numerous and various applications such as sonar systems, energy harvesting, ultrasound scanner for health care, and power electronics converters [2]–[5]. In power electronics, the piezoelectric elements enable a high-power density, thin and planar geometry, low electromagnetic interference radiations, and excellent efficiency. Moreover, they can be integrated on silicon more easily than popular wire-wound magnetic components. Therefore, the piezoelectric converters are quite useful for compact and planar low-power conversions (from milli watts to dozens of watts), and are thus particularly well adapted to energy harvesting, medical applications, and autonomous devices. dc– dc converters such as buck, boost, buck–boost, CUK, and SEPIC converters, and isolated dc–dc converters such as fly back, forward, half-bridge, full-bridge, and push–pull [3], [4]. Non isolated converters do not include a high-frequency transformer in their structure. As a result, they have less size and low cost and are easier to control. Among non isolated converters, those that have greater fixed output voltage than the input voltage are acceptable. Direct connection of an inductor at the input and lower output capacitance and size of output filter provide protection against overvoltage and electromagnetic interference, lower stress on the elements, more transient response, efficiency, and high power density.

In this paper, a new structure for non isolated dc–dc boost converters using the VL technique has been proposed in which the higher voltage is achieved. The output voltage of the proposed converter is negative with respect to input ground. In this paper, performance of the non isolated boost converter was analyzed in detail in continuous conduction mode (CCM) and discontinuous conduction mode (DCM) and the voltage gain in CCM are compared with non isolated conventional dc–dc converters. Furthermore, the critical inductance between CCM and DCM is calculated and stresses of switches are extracted. Then, a generalized structure is proposed for achieving higher voltage gain. Finally, the accuracy of the offered theory is reaffirmed by simulation results in PSCAD/EMTDC software and experimental results by using laboratory prototype.

II . RELATED WORK

During these days it is essential to keep overhead tanks in apartments, industries, high rise flats in order to store water and use. Here, from ground level water is pumped to overhead tanks according to water level

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IMPLEMENTATION OF ARDUINO BASED WATER LEVEL MONITORING SYSTEM

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Abstract:

In this research, we design a wireless water level monitoring system based on microcontrollers. It is made up of a Bluetooth module and an Arduino. The Arduino is provided with level data from the sensors and keeps track of the water level using level indicators that have been predetermined. The Bluetooth module receives the Arduino command, which is then transmitted via Bluetooth to the registered mobile device. We also include a buzzer to serve as an additional indicator. Last but not least, we show pre-current water level settings, tracking, and SMS over longer distances. Thus, the suggested system reduces power usage while automating and controlling the water flow in a tank.

Keywords: Ultrasonic sensor, water level monitoring system, wastage of energy, various water level indicator

I. INTRODUCTION

As everyone knows water is most valuable resource and used for many purposes. Many people depends on supplementary or secondary water tank to store water that is collected from rain water or water pumped from well or underground. But how to measure the overhead tank is completely filled or what? To avoid algae growth tanks are made up of non-transparent material and also in order to protect water from mosquito's tanks are always closed. Due to this it is difficult to see water in the tank from outside. So to know water depth in the tank and to fill the tank when water level goes low, here is a system which automatically controls the pump to fill water. In this method Ultrasonic sensor measures depth of the water. If water level in the tank is low pump is automatically switches ON due to ultrasonic sensor. Then water is continuously flows to upper tank from lower tank. When water level in the tank goes high pump get switches During these days it is essential to keep overhead tanks in apartments, industries, high rise flats in order to store water and use. Here, from ground level water is pumped to overhead tanks according to water level requirement in the tank. It is difficult to manually switch ON and OFF pump to monitor water level in both upper and lower tanks. Also it leads to overflow and wastage of water [1]. Some more disadvantages of manually [2] controlling water level in the tank given as: 1) Human may made mistake 2) less accuracy 3)To see water level in the tank it needs to opening and closing of tank where time get waste.

II. RELATED WORK

During these days it is essential to keep overhead tanks in apartments, industries, high rise flats in order to store water and use. Here, from ground level water is pumped to overhead tanks according to water level requirement in the tank. It is difficult to manually switch ON and OFF pump to monitor water level in both upper and lower tanks. Also it leads to overflow and wastage Then water is continuously flows to upper tank from lower tank. When water level in the tank goes high pump get switches During these days it is essential to keep overhead tanks in apartments,

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Nowadays, the design of low power compact designs grabs higher attention. Hence, Low power gadgets finds more demand. Clock is the main source for power consumption. Lot of research is going on in the design of clock less architectures. Self timed approaches are the best choice in this aspect. Glitches will contribute significantly for the total power consumption. With the aid of self timed Delay Insensitive approaches, differential path delays can be eliminated and hence glitch power can be nullified.

Self Timed NCL

Dr. Sudhakar Jyothula
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Self timed Null Convention Logic Approaches

Sudhakar Jyothula was born in Andhra Pradesh, India in 1981 and received Ph.D in Low Power VLSI area from the department of Electronics & Communication Engineering, JNTU Kakinada in 2016. Dr. Sudhakar is a life member in Institution of Electronics and Telecommunication Engineers (IETE) and Institution of Engineers, India.

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Structural, photocatalytic and optical applications of biologically synthesized silver nanoparticles

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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 recorded and suggested that the present particles were suitable for fluorescence emitting probes.

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Preparation, Characterization and PTCR Behavior of Calcium Barium Niobate Ferroelectric Ceramics

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Abstract. $Ca_xBa_{1-x}Nb_2O_6$ (CBN) ceramics with tetragonal tungsten bronze (TTB) structures are very attractive from academic and technological fronts due to their outstanding ferroelectric properties. Hence, CBN ceramics were prepared by high temperature solid state reaction technique in this work. The phase formation, microstructure and dielectric properties of the prepared samples were investigated by X-ray diffraction, scanning electron microscope and impedance analyzer, respectively. The X-ray analysis confirms the partially filled tetragonal tungsten bronze (TTB) structure. The scanning electron micrographs provide information related to the morphology and grain size distribution of the samples. The dielectric and ferroelectric properties of $Ca_xBa_{1-x}Nb_2O_6$ (x= 0, 0.1, 0.15, 0.2, 0.25, 0.3, 0.35, 0.4) ceramics were also measured, and they have been found to be strongly processing-dependent. The frequency dependence of the dielectric constant (ε) of the samples have been discussed. Detailed analysis of the structural and dielectric properties suggests that these samples have undergone a phase transition well above the room temperature. DC resistivity studies on the samples are marked by a response of positive temperature coefficient of resistivity (PTCR) in all the compositions.

INTRODUCTION

Tetragonal tungsten bronzes (TTBs) are an important structural family of ferroelectric materials that have been widely investigated because of their outstanding pyroelectric, piezoelectric and nonlinear optical properties [1-3].The TB structure has a general chemical formula $(A1)_2(A2)_4C_4(B1)_2(B2)_8O_{30}$ where the A site usually filled by di-or trivalent cations, and the B sites by penta-valent ion (Nb^{+5}, Ta^{+5} or V^{+5}). This structure consists of three different interstitial sites. Generally, the interstice C site is small (0.5-0.7A^0) often remains vacant or may be filled by mono or divalent cations, and hence a general formula $A_6B_{10}O_{30}$ for filled TB structure. There is a large scope to develop many new material sites by substituting a variety of cations at different interstitial sites (i.e., A_1, A_2, B_1, and B_2) and that can tailor the physical properties of the materials significantly for applications. The ferroelectric properties of CBN were first detected by Smolenskii et al. [4] on ceramic samples in 1959. Recently, some of the compounds of this family have been found useful for device applications because of their high dielectric constant and low loss tangent. [5]. A lot of work has been done reported on TB structure compounds [6]. Recently, large single crystals of calcium barium niobate, $Ca_xBa_{1-x}Nb_2O_6$, (CBN100x) with x= 0.28 have been successfully grown by the Czochralske method [7]. CBN28 also belongs to TTB structure and possesses quite similar optical properties with SBN, and it experiences much higher ferroelectric phase transition temperature (around 265 °C) than SBN61 does (around 79 °C) [7-11]. If Curie temperature can be increased, the material would be more useful for practical applications. Compared with SBN, CBN-28 is better suited to potential applications because it has a much higher phase transition temperature (around 260^{0}C) [8–10]. The PTCR effect has many technological applications as thermal fuses, thermistors, soft circuits and other overload protection devices.

Several models behave been developed to explain the PTCR characteristics. One of the most recognized theories

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Preparation, characterization and PTCR behavior of calcium barium niobate ferroelectric ceramics

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President of India is the first citizen who presides over the affairs of the State. When a President decides to broadcast his discourse of life and office, it becomes a vision. Indian Presidents are all magnanimous personalities drawn from diverse and versatile backgrounds. This treasure chest of their ideas and ideals is deposited at the precincts of India's Rashtrapati Bhavan (Presidential Palace). Two Presidents, Dr. K.R. Narayan and Dr. A.P.J. Abdul Kalam, an outstanding diplomat and a scientist respectively, have served as Presidents of India 1997 to 2007 successively. Their discourses of rationalism and scientific temper, fore-sights for caste-free and poverty-free India and insights into the Indian psyche and nation are incisively captured here.

Dr. Radhakrishna Murty Tatavarty

Anchored Visions of Indian Presidents - A Diplomat and a Scientist

Dr. T. Radhakrishna Murty is a Professor of English with two decades of experience in the area of Language Communications Skills. He has been researching on the writings of Indian Presidents, a pioneering effort in Indian Writing in English. He has been a frequent contributor to literary journals

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