3.3.2 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years

3.3.2.1. Total number of books and chapters in edited volumes/books published and papers in national/ international conference proceedings year wise during last five years

HEI input: 28

22-23	21-22	20-21	19-20	18-19
8	6	5	5	4

DVV suggested Input

22-23	21-22	20-21	19-20	18-19
4	2	4	5	4

DVV suggested input is accepted

DVV suggested Supporting Documents:

Sr No	Particulars	Digital Page No
1	Year-wise authenticated list of books and chapters in edited volumes/books published and papers in national/ international conference proceedings along with mention of name of the teacher, title of the book/chapters published, year of publication, ISBN number of the proceeding, Affiliating Institute at the time of publication, name of the publisher and web links of books	2
2	Year-wise cover page, content page and first page of all publications.	

- **Year-wise authenticated list**

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Prof.(Dr.)T. J.Sawant
D.E.E., B.E.(Electrical),Ph.D., MISTE
Founder - Secretary

Prof.(Dr.)M.M.Sardeshmukh
B.Tech (E&TC) M.Tech (E&TC),Ph.D.(Engg.)
DIRECTOR

Sl. 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	Calendar Year of publication	ISBN number of the proceeding	Affiliating Institute at the time of publication	Name of the publisher	web links of books
1	Sumant A. Choudhari		CFD analysis of a butterfly valve to optimize its design	International conference on innovations in science, hybrid materials, and vibration analysis : icishva2022	International conference on innovations in science, hybrid materials, and vibration analysis: icishva2022	International	2023	NA	JSPM Narhe Technical Campus, Pune, Maharashtra, India	AIP Publisher	https://pubs.aip.org/aip/acp/article-abstract/2839/1/020033/2913755/CFD-analysis-of-a-butterfly-valve-to-optimize-its?redirectedFrom=fulltext
2	Mrs S.P. Kurlekar	Artificial Intelligence with deep learning	---	---	---	---	2023	ISBN 978-93-6132-231-0	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Scientific International Publishing House	NA
3	Mrs S.P. Kurlekar	Introduction to Internet Of Things	---	---	---	---	2023	ISBN 978-81-19152-89-6	JSPM Narhe Technical Campus, Pune, Mahar	AG Publising House	https://books.google.co.in/books/about/Introduction_To_Internet_Of_Thin

		And Its Application							ashtra, India		gs_And_I.html?id=u-3OEAAAQBAJ&redir_esc=y
4	Mrs. Manisha Hajare	---	---	Energy Efficient Underwater Sensor Networks Routing Protocol Utilizing Advanced Particle Swarm Optimization	2023 4th International Conference for Emerging Technology (INCET)	International	2023	ISBN: 979-8-3503-3576-7	JSPM Narhe Technical Campus, Pune, Maharashtra, India	IEEE	https://ieeexplore.ieee.org/document/10170464
5	Mrs. Manisha Hajare	---	---	Robust Oportunistic Routing Solutions for Under Water Sensor Networks	2023 4th International Conference for Emerging Technology (INCET)	International	2023	ISBN: 979-8-3503-3576-7	JSPM Narhe Technical Campus, Pune, Maharashtra, India	IEEE	https://ieeexplore.ieee.org/document/10169982

6	Mr. Sajid Shaikh	Fractal traffic with reference to performance analysis of call admission contrl in wireless mobile network	---	---	---	---	2023	ISBN: 978-99949-8-831-0	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Eliva Press	https://www.elivapress.com/en/book/book-9856544628/
7	Ms.T.D.Rane		A Deep learning based regression scheme for Angle Estimation in Image Dataset		5th International Conference, RTIP2R 2022, Kingsville, TX, USA	International	2022	978-3-031-23598-6	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Springer	https://link.springer.com/chapter/10.1007/978-3-031-23599-3_21
8	Alaknanda S. Patil, Dr. G.		STONE: Secret-data Transmission on Novelty		IEEE 7th International conf for Convergence in Technolog	International	2022	978-1-6654-2168-3	JSPM Narhe Technical Campus,	IEEE	https://ieeexplore.ieee.org/document/9824466

	Sundari and V. M. Joshi		Encryption		y (I2CT), 2022				Pune, Maharashtra, India		
9	Dr. M. M. Sardeshmukh		Smart Shopping Trolley Using Raspberry Pi		2021 International Conference in Advances in Power, Signal, and Information Technology (APSIT)	International	2021	978-1-6654-2507-0	JSPM Narhe Technical Campus, Pune, Maharashtra, India	IEEE	https://ieeexplore.ieee.org/document/9641206
10	M. A. Kumbhalkar, D. V. Bhope, A. V. Vanalkar, P. P. Chaoji	Locomotive Suspension				International	2021	978-99949-8-237-0	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Eliva Press	https://www.elivapress.com/en/book/book-7374134653/

11	M. A. Kumbhalkar,	Trends in Mechanical and Biomedical Design, Lecture Notes in Mechanical Engineering	Finite Element Analysis of Knee Joint			International	2021	ISBN: 9789811544873,9789811544880	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Springer Nature Singapore Pte Ltd. 2021	https://www.vitalsource.com/products/trends-in-mechanical-and-biomedical-design-v9789811544880
12	Ravindra K Lad		Accidental Black Spot Analysis by Fuzzy Approach: A Review	Proceedings of the International Conference on IoT Based Control Networks & Intelligent Systems - ICICNIS 2021	ICICNIS 2021	INTERNATIONAL	2021	978-981-16-7330-6	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Springer Singapore	https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3884055

13	Ravindra K Lad		Fuzzy Logic and its Developmental Advances: A Review	Proceedings of the International Conference on IoT Based Control Networks & Intelligent Systems - ICICNIS 2021	ICICNIS 2021	INTERNATIONAL	2021	978-981-16-7330-6	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Springer Singapore	https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3883128
14	D.D. Pradhan		Smart Shopping Trolley Using Raspberry Pi	2021 International Conference in Advances in Power, Signal, and Information Technology (APSIT)	2022 International Conference in Advances in Power, Signal, and Information Technology (APSIT)	International	2021	978-1-6654-2507-0	JSPM Narhe Technical Campus, Pune, Maharashtra, India	IEEE	https://ieeexplore.ieee.org/document/9641206

15	Dr. Sagar Shinde		Feedforward Back Propagation Neural Network (FFBPNN) Based Approach for the Identification of Handwritten Math Equations		Image Processing and Capsule Networks(ICIPCN 2020)	International	2020	978-3-030-51859-2	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Springer	https://link.springer.com/chapter/10.1007/978-3-030-51859-2_69
16	D.D. Pradhan		Design and Implementation of Text and Audio Signal Transmission using Visible Light Communication		2021 Fourth International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud)(I-SMAC)	International	2020	978-1-7281-5465-7	JSPM Narhe Technical Campus, Pune, Maharashtra, India	IEEE	https://www.researchgate.net/publication/346854715_Design_and_Implementation_of_Text_and_Audio_Signal_Transmission_using_Visible_Light_Communication

17	D.D. Pradhan		Parabolic Pulse Generation at 1550 nm Raman Amplifier Utilizing High Power Pump Laser		Lecture Notes in Electrical Engineering	International	2019	978-981-13-6158-6	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Springer	https://link.springer.com/chapter/10.1007/978-981-13-6159-3_27
18	Patil A.N.; Sarje S.H		Additive manufacturing with shape changing/memory materials: A review on 4D printing technology	Materials Today: Proceedings	11th International Conference on Materials Processing and Characterization; Indore; India; 15 December 2020 through 17 December 2020; Code 168673	International	2021	ISSN-22147853 DOI-10.1016/j.matpr.2020.11.907	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Elsevier Ltd	https://www.sciencedirect.com/science/article/abs/pii/S2214785320395833
19	Ravindra K Lad		Rating and Condition Assessment of Flexible Paveme	Advances in Civil Engineering and Infrastructural Development	ICRACEID 2019	INTERNATIONAL	2020	Print ISBN 978-981-15-6462-8	JSPM Narhe Technical Campus, Pune, Mahar	Springer Singapore	https://link.springer.com/chapter/10.1007/978-981-15-6463-5_52

			nts for Maintenance Decision					Online ISBN 978-981-15-6463-5	ashtra, India		
20	Dr. K.S. Rambhad		An experimental investigation of solar assisted solid desiccant dehumidifier fabricated with silica gel and composite desiccant materials,		International conference on advanced in Mechanical and Electrical Engineering ICAMEE-19, G. H. Raisoni College of Engineering Nagpur	International	24-25 August 2019	ISBN-978-93-5361-	JSPM Narhe Technical Campus, Pune, Maharashtra, India	NA	https://link.springer.com/article/10.1007/s42452-023-05505-6
21	S.H. Sarje		Integration of maintenance systems	MATEC Web of Conferences 211, 03010 (2018)	The 14th International Conference on Vibration Engineering and Technology of Machinery	International	10 October 2018	https://doi.org/10.1051/matecconf/201821103010	JSPM Narhe Technical Campus, Pune, Maharashtra, India	EDP Sciences	https://www.researchgate.net/publication/328193277_Integration_of_maintenance_systems

					(VETOMAC XIV)						
22	Dhiraj S. Patil, Manoj A. Kumbhalkar	Alternative Source of Fuel for Future				International	Oct-19	ISBN-978-620-0-31252-5	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Lambert Academic Publishing	https://www.amazon.in/Alternative-Source-Future-Dhiraj-Patil/dp/6200312524
23	D. D. Mohite and S. S. Salimath		Anaerobic Biological Treatment of Distillery Wastewater – Study on Continuous Stirred Tank Reacto	IOP Conf. Series: Materials Science and Engineering	International Conference on Sustainable Innovations in Civil & Mechanical Engineering ICSICME-2020	International	2020	doi:10.1088/1757-899X/814/1/012030	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Purpose-led Publishing	https://iopscience.iop.org/article/10.1088/1757-899X/814/1/012030

24	Vijay V Muthekar		Application of Light Interference Technique for Locating Ground water Veins	IOP Conf. Series: Materials Science and Engineering	International Conference on Sustainable Innovations in Civil & Mechanical Engineering ICSICME-2020	International	2020	doi:10.1088/1757-899X/814/1/012027	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Purpose-led Publishing	https://iopscience.iop.org/article/10.1088/1757-899X/814/1/012027
25	M. A. Kumbhalkar, D. V. Bhope and A. V. Vanalkar	Advanced Manufacturing and Materials Science	Finite Element Analysis of Rail Vehicle Suspension Spring for Its Fatigue Life Improvement			International	2018	978-3-319-76275-3	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Springer	https://link.springer.com/chapter/10.1007/978-3-319-76276-0_5
26	Pradeep Uttam Gaikwad		Experimental Investigation and Performance Parameter Analysis of Biodiesel Blend-Methyl	Proceedings of the 2nd International Conference on Advanced Technologies for Societal Applications -	Techno-Societal 2018	International	Oct-2018	978-3-030-16848-3	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Springer Cham	https://link.springer.com/chapter/10.1007/978-3-030-16848-3_30

			Ester on Single Cylinder Diesel Engine	Volume 1							
27	S. Wadalkar, Ravindra K. Lad, R. K. Jain		Pavement Performance Index for Rating of Flexible Pavements	Proceedings of the 2nd International Conference on Advanced Technologies for Societal Applications	Techno-Societal 2018	International	2019	ISBN 978-3-030-16848-3	JSPM Narhe Technical Campus, Pune, Maharashtra, India	Springer	https://link.springer.com/chapter/10.1007/978-3-030-16848-3_63
28	Alaknanda S. Patil & Dr. G. Sundari		An Embedding of Secret Message in Audio Signal		3rd International Conf for Convergence in Technology (I2CT), 2018	International	2018	978-1-5386-4273-3	JSPM Narhe Technical Campus, Pune, Maharashtra, India	IEEE	https://ieeexplore.ieee.org/document/8529549

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RESEARCH ARTICLE | SEPTEMBER 29 2023

CFD analysis of a butterfly valve to optimize its design

Sudhakar D. Khamankar; Narendra K. Ade; Pramod H. Sahare; Manoj A. Kumbhalkar ✉; Kishor S. Rambhad; Sumant A. Choudhari; Dattatraya V. Bhise; Mhalsakant M. Sardeshmukh

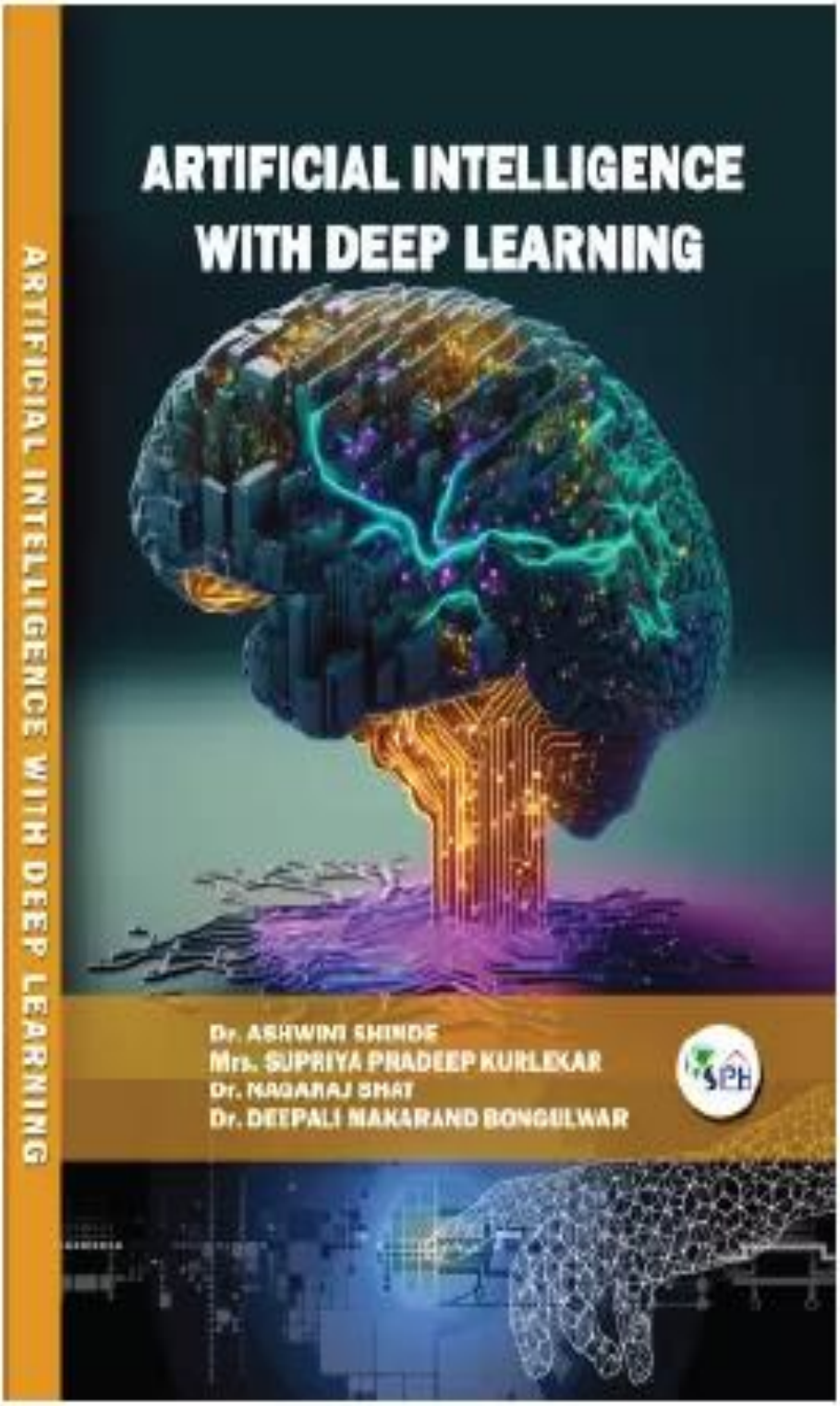
+ Author & Article Information

AIP Conf. Proc. 2839, 020033 (2023)

https://doi.org/10.1063/5.0167691

Butterfly valves are flow control devices that are often used to control fluid flow in a pipe segment. Fluid flow behaviour research in valves has resulted in a continuing effort to improve valve design. The numerical solution of three-dimensional, stable, incompressible, turbulent k-navier stokes equations predicts flow behaviour and flow coefficient. CFD assists in design optimization by enhancing accuracy and drastically lowering design lead time.

The goal of this study is to look at how different valve designs affect pressure drop, flow coefficient, loss coefficient, and flow behaviour. Based on the baseline simulation results, an ideal design is provided. The projected flow coefficient of the improved design is 31.56 percent higher than the baseline configuration. In the event of an ideal design, the hydrodynamic torque coefficient, which determines the opening and closing of the valve disc, seems to be larger. For the final optimized design, the loss coefficient, which is related to head losses, decreases.


ARTIFICIAL INTELLIGENCE WITH DEEP LEARNING
ARTIFICIAL INTELLIGENCE WITH DEEP LEARNING
Dr. ASHWINI SHINDE
Mrs. SUPRIYA PRADEEP KURLEKAR
Dr. NAGARAJ SHAT
Dr. DEEPALI NAKARAND BONGULWAR

First Edition

Introduction To Internet Of Things And Its Application

Dr. Ashim Bora
Mr. Rakshit Kothari
Jigyasha Chandhok
Supriya Pradeep Kurlekar

AG PUBLISHING HOUSE

Introduction To Internet Of Things And Its Application

by

Dr. Ashim Bora
Mr. Rakshit Kothari
Jigyasha Chandhok
&
Supriya Pradeep Kurlekar

AG PH Books

2023

Technologies, Machine Learning, and Deep Learning. She obtained professional certifications in the domains of Cyber Security,Cloud Computing and Blockchain Technologies.

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Introduction To Internet Of Things And Its Application

Dr. Ashim Bora, Mr. Rakshit Kothari, Jigyasha Chandhok and Supriya Pradeep Kurlekar.

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Belgaum, India. May 26-28, 2023

Energy Efficient Underwater Sensor Networks Routing Protocol utilizing Advanced Particle Swarm Optimization

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***Abstract*—The challenges of Underwater Sensor Networks (UWSNs) have been low bandwidth, high propagation delay, & more energy consumption where have been concerning along routing protocol design for underwater data communication process. Under this paper, novel opportunistic routing protocol proposed to reliable data forwarding under UW-ASNs along aim of improving the Quality of Service (QoS) performance & energy efficiency. The problem of energy-efficient data forwarding has been solved through utilizing the optimum opportunistic route construction algorithm utilizing the Advanced Particle Swarm Optimization (APSO) utilizing the local properties of sensor nodes. The proposed protocol called like Opportunistic Underwater Routing utilizing APSO (OUR-APSO). The APSO based next forwarding relay node selected utilizing the two properties such like Energy Consumption Ratio (ECR) & Packet Delivery Probability (PDP) of neighboring relay nodes. Every neighboring node evaluated based on the outcome of ECR & PDR at the current time & next relay along higher probability value through considering the ECR & PDP has been selected like next forwarder node. The experimental results presented justify the effectiveness of proposed opportunistic routing protocol for UWSNs compared to the existing solutions under terms of energy efficiency, packet delivery ratio (PDR), & communication delay.**

Keywords— Acoustic sensor networks, underwater communications, data forwarding, opportunistic routing, relay selection

I. INTRODUCTION

The Underwater Sensor Network (UWSN) has been the empowering innovation for sea applications. Submerged sensor arrange comprises of a variable number of sensors and vehicles that have been conveyed to perform community-oriented checking errands over a given region. To accomplish this goal, sensors and vehicles self-sort out under a self-sufficient system where can adjust to the attributes of the sea condition. Submerged systems can be portrayed through their spatial inclusion and through the thickness of hubs [1] [2]. Like a rising territory, submerged remote sensor arrange has pulled in quickly developing interests under most recent quite a while. From one perspective, UWSNs empower a wide scope of sea-going applications, such like oceanographic information assortment, contamination checking, seaward investigation, catastrophe anticipation and strategic reconnaissance applications [3], sea testing system, submarine recognition, calamity counteraction, and so forth. Then again, the antagonistic submerged conditions present fabulous difficulties for productive correspondence and systems administration. Under submerged situations, in light of the fact that to water retention, radio doesn't function admirably. Along these lines acoustic correspondence has been generally utilized like a reasonable arrangement under submerged remote sensor systems [4]. Be that as it may, in light of the fact that to the physical attributes of sound signs, acoustic channels have been included along low accessible transmission capacity, huge proliferation delay and exceptionally high blunder likelihood. Uniqueness under submerged situations has been that most sensor hubs could be latently portable along water flows.

The underwater communications gained more researchers attentions since from last decade because its importance under human life. The conventional methods exploited for underwater monitoring applications leads to various limitations. Additionally, such unfriendly situations have been not practical for human nearness like flighty submerged exercises, high water pressure and huge zones have been significant purposes behind un-kept an eye on investigation. In this way UWSNs have been pulling in light of a legitimate concern for a few specialists of late, particularly those chipping away at earthbound sensor systems. Sensor systems used for submerged interchanges have been diverse under a few viewpoints from conventional wired either even earthly sensor systems. Right off the bat, vitality utilizations have been distinctive in light of the fact that some fundamental applications require huge measure of information, however rarely. Furthermore, these systems ordinarily chip away at a typical assignment as opposed to speaking to free clients [5] [6]. A definitive objective has been to augment the throughput instead of decency among the hubs. Thirdly, for these systems, there has been a basic connection between the connection separation, number of bounces and dependability. For vitality concerns, bundles over numerous short bounces have been favored rather than long connections, as multi-jump information conveyances have been demonstrated more vitality effective for submerged systems than the single bounce [7] [8]. Simultaneously, it has been seen that parcel directing over increasingly number of bounces at last corrupts the start to finish dependability work particularly for the unforgiving submerged condition.

Through considering above challenges of UWSNs communications, under this research work we proposed the opportunistic routing algorithm OUR-APSO utilizing the optimization algorithms & sensor nodes local information under Enhance network lifetime performance along Quality of Service (QoS). Under section II, literature review presented. Section III presents the design of OUR-APSO

2023 4th International Conference for Emerging Technology (INCET)
Belgaum, India. May 26-28, 2023

Robust Opportunistic Routing Solutions for under water Sensor Networks

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***Abstract*—The Underwater Sensor Networks (UWSNs) consists of several sensor nodes along the ability of sensing the underwater information, processing, & transmitting the sensed data towards the remote station through the underwater communication protocols. The key challenges of UWSNs related to the low bandwidth, high propagation delay, & more energy consumption. Most of such challenges have been concerning along the design of routing protocol for under water data forwarding. Under this paper, novel opportunistic routing protocols proposed to reliable data forwarding under UW-ASNs along aim of improving the Quality of Service (QoS) performance & energy efficiency. The problem of energy-efficient data forwarding has been solved through utilization the optimum opportunistic route construction algorithm utilization the Advanced Particle Swarm Optimization (APSO) & local properties of sensor nodes. The proposed protocol called like Opportunistic under water routing utilization APSO (OUR-APSO). Under OUR-APSO, the functionality of relay node evaluation designed utilization the local information such like Node Degree Probability (NDP) along ratio of Energy Decreased & Packet Delivery Probability to connect next forwarder node to enhance the reliability of the network. NDP means the number of neighbours to forward incoming traffic. If there have been only a few relay nodes & all having the low ECR & PDP, then it can lead to network failure. Thus considering the nodes, the next relay node selected basis on outcome probability utilization for ECR, PDP & NDP properties of all neighbouring sensor nodes. The simulation result proves the efficiency of proposed protocol.**

Keywords— Acoustic sensor networks, underwater communications, data forwarding, opportunistic routing, relay selection

I. INTRODUCTION

Under in several land basis apps WSN has been widely utilized. In under water environment it seen from several past decades that WSN has been extending very fast, as instance, developing under water Wireless Sensor Networks (UWSNs) [1] [2]. Because to the high radio frequency where quickly immersed under water, the WSNs have been being applied under marine applications where have been the main problem & a large antenna has been required through small radio frequency. Moreover, the optical waves have been not efficient under marine environments because they may be speckled. An excellent performance of acoustic waves has been very apt for marine environments, & so these have been utilized like a path loss, low bandwidth & higher energy applications under comparison along radio waves [3]. The flow of water, there exists high & constant movement of sensor nodes where create other demands, has been an added issue to be taken under account for the inaptitude of universal positioning method to this atmosphere. The complexity has been getting raised because to the 3D nature of the marine environment. The networks route the sensing data & deliver it successfully to the sinks, & so it considered like the major issue [4].

Like a result, some routing protocols have been developed for UWSNs. Because of the above demands among different routing methods, the greedy hop-through-hop route has been the most promising method under the marine environment. Instead of end-to-end routing where a path from the source node to the sink has been found under the search mode, the greedy route approaches only to find the next hop nodes at each hop and these nodes possess positive progress toward the sink [5]-[9]. The nodes have been vulnerable to the hidden/exposed because of the wireless mode of communications under UWSNs. Terminal problems integrated of networks pf ad hoc, where can correspond through given medium except any control of centralized. Alleviate problems assigned along hidden/reflected nodes under terrestrial wireless networks.

Like discussed above, UWSNs find potential application under habitat monitoring, pollution monitoring, performing cooperative sampling for oceanographic data collection, & tactical surveillance for intrusion detection. Unmanned either Automotive Under water Vehicles (UUV either AUV) find application under exploring mines, & long period observations along considerable investments. Further, it finds application under disaster prevention through measuring the seismic activity along the sea floor & to alert tsunami approach. Under water sensors navigate & identify harmful rocks that destroy ships. These sensors also help to explore oil wells, identify rich minerals & reservoirs deep under the ocean. They also predict route for laying under water cables for electrical power transmission from offshore renewable sources. These cables support to transport oil, gas between islands, & sensors help to monitor & detect leakage under pipelines. However, to make the above applications viable, there has been a necessity for an appropriate communication protocol among the underwater devices & offshore buoys like data transmission process has been such networks has been suffered from the challenges of excessive energy consumption, transmission delay, & poor packet delivery ratio. Several routing strategies introduced under literature to achieve the energy efficient data transmission under such networks utilization the acoustic signal, however considering the QoS & energy efficient next hop relay sensor node has been yet challenging research problem under water communications.

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Sajid Wajed Shaikh

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ELIVA PRESS

A Deep Learning-Based Regression Scheme for Angle Estimation in Image Dataset

| Conference paper | First Online: 11 January 2023

| pp 282–296 | Cite this conference paper

Recent Trends in Image Processing and Pattern Recognition

(RTIP2R 2022)

Tejal Rane & Abhishek Bhatt

Part of the book series: Communications in Computer and Information Science ((CCIS,volume 1704))

Included in the following conference series: International Conference on Recent Trends in Image Processing and Pattern Recognition

Abstract

A machine needs to recognize orientation in an image to address various rotation related problems. To calculate this rotation, one must require the information about different

STONE: Secret-data Transmission On Novelty Encryption

Publisher: IEEE

Alaknanda S. Patil ; G. Sundari ; Vaishali M. Joshi **All Authors**

Abstract: With the increasing growth of the data innovation area, information security has become a critical concern and significant feature. In several confidential applications, ... **View more**

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Abstract:
With the increasing growth of the data innovation area, information security has become a critical concern and significant feature. In several confidential applications, it is possible to break the security message. As a result, secret message communication technology is required to avoid message breaches. Steganography is the method of embedding any hidden data or information into a cover file, such as a picture, text, audio, or video. The majority of hidden information concealment methods in the current decade make use of multimedia artefacts. With an in-depth literature review, this paper elaborates on two-stage multimedia steganography. In the first stage, the secret message is implanted in the original sound from a multimedia file, resulting in stego-audio. The second stage embeds stego audio with the video frames once more. To incorporate the hidden audio, the audio steganography employs the 3-bit LSB encryption technique. To the recipient side, the processed video with stego-audio is sent. The audio is derived from the video stream in the receiver part. A concealed message is separated from stego audio using the 3-bit LSB decryption technique. PSNR, SSIM, and MSE metrics are used to evaluate the suggested algorithm's performance. This well-thought-out method has yielded encouraging results.

Published in: 2022 IEEE 7t

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ISBN Information:

Smart Shopping Trolley Using Raspberry Pi

Publisher: IEEE Cite This PDF

Dinika D. Pradhan ; Sabita Mali ; Ashwini Ubale ; M.M. Sardeshmukh ; Swapnalini Pattnaik ; Puja Bajirao Sindhe All Authors

Abstract: Regardless of the vicinity of E-business for the fulfillment of needs, individuals purchase numerous items from the markets and different shopping centers. According to o... **View more**

Metadata

Abstract:
Regardless of the vicinity of E-business for the fulfillment of needs, individuals purchase numerous items from the markets and different shopping centers. According to our review, hard cash and normal time spent on every client is high, particularly in packaged grocery stores. The business people are ready to accept any machines which technologize the billing process to abate both labor cost and time spent. The main aim of the smart shopping trolley system is to fulfill the needs of the client as well as reduce the time spent on the billing procedure instead of waiting in a line or queue for a couple of items. The proposed system helps individual customers to get the actual bill after any discount or deduction of their purchase. Customers have to log in to their account for billing and pay the bill using any digital payment method. This system is developed by considering security for avoiding robbery and this system is also user-friendly. It minimizes the time in purchasing and making free to the customer by standing in a long queue by ensuring the customer comfort and minimizing the headache of barcode scanning and eliminating waging of billers, thereby accomplishing both customer and shopkeeper demands.

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Dr. Manoj A. Kumbhalkar received his Ph.D. in Mechanical Engineering from Rashtrasant Tukdoji Maharaj Nagpur University, Nagpur, Maharashtra, India. He is a life member of Indian Society for Technical Education (ISTE). He is serving as an Editor-In-Chief, Conference Chair, Reviewer and Guest Editor for many journals or conferences. His research interests include machine design, failure analysis, computer aided design, finite element analysis, vibration and biomechanics. He has total 14 years of teaching experience and currently working as an Associate Professor and Head of Mechanical Engineering Department in JSPM Narhe Technical Campus, Pune, Maharashtra, India.

Co-authors: **Dr. Deepak V. Bhope, Mr. Prafulla P. Chaoji, Dr. Anil V. Vanalkar.**

The investigation into the failure of a wAG-9 type electric rail vehicle, of Indian Railways' fleet used for goods train hauling and maintenance at Ajani, Nagpur Electric Loco Shed of central railway, is necessary to identify the cause of failure. Failure investigation begins with an experimental spectroscopy analysis to find chemical composition of the failed specimens of springs and it is observed that all parameters are within the recommended range. Static stress analysis is then used to analyze the vibrance response of the actual suspension system and measure the frequency of excitation and natural frequency of the system. Fatigue analysis is done using finite element method to investigate the effect of dynamic loading on the failures of suspension spring. To avoid failures, modifications are suggested in the suspension system, such as those made by Electric Locos Shed, Ajni, Nagpos and other loco sheds, which are shown to reduce failures by 88%. MATLAB Simulink is also used to measure the vibration response of actual suspension systems.

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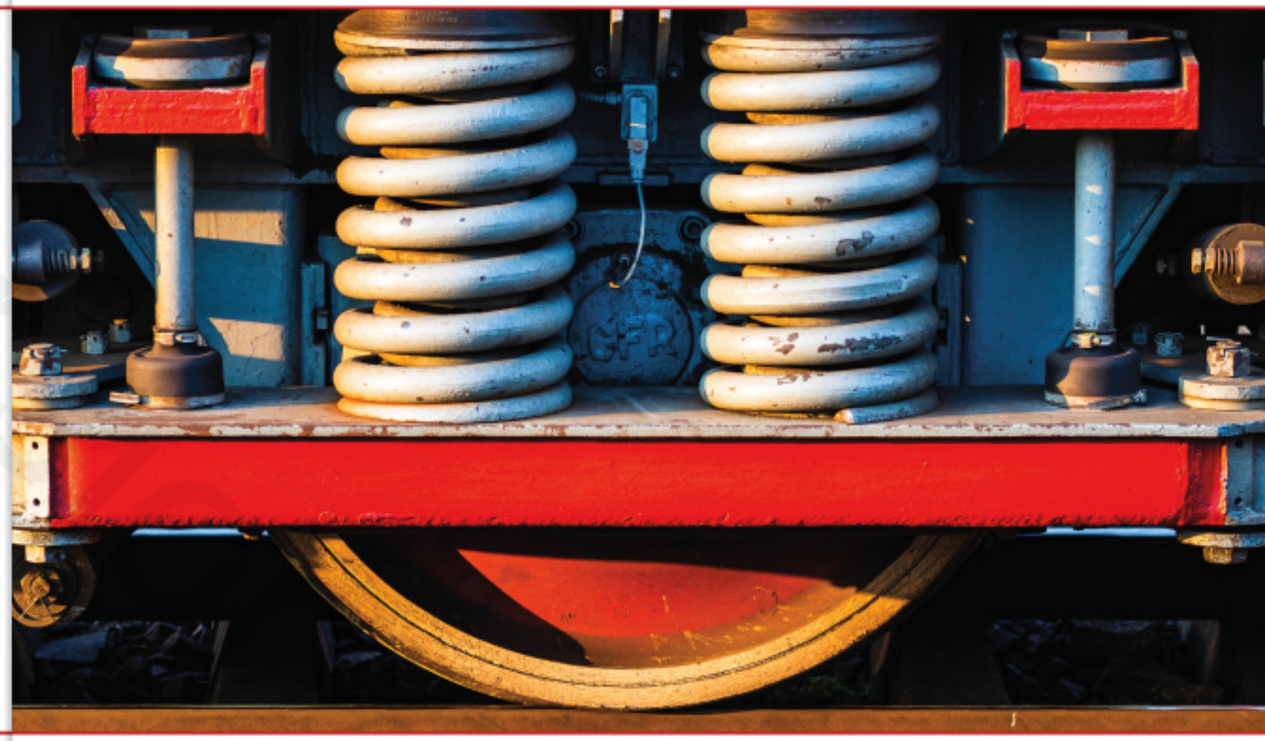
Manoj A. Kumbhalkar et al.

LOCOMOTIVE SUSPENSION

Manoj A. Kumbhalkar

LOCOMOTIVE SUSPENSION

Failure Analysis of Primary Suspension Spring of Rail Road Vehicle



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Finite Element Analysis of Knee Joint with Special Emphasis on Patellar Implant

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Trends in Mechanical and Biomedical Design

M. A. Kumbhalkar, D. T. Rangari, R. D. Pawar, R. A. Phadtare, K. R. Raut & A. N. Nagre

Part of the book series: Lecture Notes in Mechanical Engineering ((LNME))

Abstract

Patella is supporting part of knee and also guide for quadriceps or patellar tendon. Patellar implant is used for proper functioning of patella after injury. For implant, it is required to cut injured portion of host patella and keep remaining part minimum up to 12–14 mm and overstuffing of 2 mm to prevent patellar fractures. The patellar implant makers provide only 8-mm-thick implant to maintain original patellar thickness which is difficult to achieve especially in patients with host bone thickness less than 20 mm. Hence, there is need to analyze for reduction in thickness of patellar implant from 8 to

2nd International Conference onIoT Based Control Networks and Intelligent Systems
(ICICNIS 2021)

Accidental Black Spot Analysis by Fuzzy Approach: A Review

Snehal U Bobade [a], Dr.Ravindra K Lad [b]

[a]*Research Scholar. , Department of Civil Engineering, RSCOE, Tathwade, Pune-411033, Maharashtra, India.*
[b]*Research Guide, Department of Civil Engineering, RSCOE, Tathwade and Director,JSPM Narhe Technical Campus, Pune-411033, Maharashtra, India*

A B S T R A C T

Due to advancement in technology moveability of people increase with increase in number of vehicles. This may lead to occurrence of accidents. Accidents are very crucial problem which damage human lives, infrastructure and economy of nation. . It has been recorded that in road accidents near about 13 peoples are dying per hour. According to road safety management the accidental black spots are those spots were road traffic accidents were happened repeatedly. If we considered the Global Road Safety Report (2015) given by World Health Organisation (WHO), in India more than 2, 00,000 deaths are recorded because of accidents. To overcome this problem fuzzy logic is better solution. The Problems which are complex in nature can be solved by using Fuzzy logic. This study highlights a fuzzy logic would be a best option to identify accidental black spot. By using Fuzzy Multicriteria Decision Making (FMCDM) and Fuzzy Rule Based System (FRBS) approaches we can calculate Accidental Black Spot Severity Index (ABSSI) and Accidental Black Spot Severity Level (ABSSL) of that particular spot respectively. The Accidental Black Spots can be further ranked on the basis of their severity index and can be classified like highly severe, severe, just severe and not severe on the basis of level of Severity.

Keywords: Black spot, Fuzzy logic, Fuzzy Multicriteria Decision Making (FMCDM), Fuzzy Rule Based System (FRBS), Accidental Black Spot Severity Index (ABSSI), Accidental Black Spot Severity Level (ABSSL).

1. Introduction

In Fuzzy logic by using same variable multiple values are processed and the set of such processing variables is called Fuzzy logic sets. It has true value of variable in between 0 and 1 both inclusive where 0 representing no membership and 1 representing complete membership in a set. Human knowledge which is imprecise by nature is represented by fuzzy logic. It was applied successfully to wide range transportation problems. Generally, it has been observed that the solution of complex problem can be resolved by using Multicriteria decision making theory of fuzzy logic. Basic terms in fuzzy logic are crisp set, fuzzy sets, fuzzification, defuzzification, fuzzy interface system. Fuzzy interface is used to transform input crisp values into linguistic fuzzy values. Fuzzification is always necessary in fuzzy logic system since input values are always crisp numerical. Fuzzy interface generates fuzzy output by taking fuzzy inputs and fuzzy rule base as inputs. Fuzzy rule base system consists of IF-THEN rule which involves linguistic variables [9]. Producing crisp output actions by defuzzification is the last task of fuzzy logic system. This paper covers a review of research papers related to road accidents and other work using multi criteria decision making and fuzzy rule-based system.**.**

2. Fuzzy Logic

In day-to-day life most of the problems arise are very imprecise and uncertain in nature to deals with such kind of problem, the conventional methods of set theory and numbers are not enough. So, there is need to provide some other relevant method which is significant for such kind of problem and fuzzy logic is one of the best suited methods for this purpose.Lotfi A. Zadeh is the pioneer of fuzzy logic, fuzzy sets was first introduce by him through research paper in the year 1965 . Fuzzy logic is specifically used in various domains such as engineering, mathematical, computer software development and research, natural science, medical research, social science, public policy analysis and business analysis [19]. Basically, fuzzy logic is very simple method

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2nd International Conference on IoT Based Control Networks and Intelligent Systems
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Fuzzy Logic and its Developmental Advances: A Review

Kalyani N Kulkarni[a], *Ravindra K Lad*[b]

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[b] *Research Guide, Department of Civil Engineering, RSCOE, Tathawade, Pune,411033, Maharashtra, India*
Savitribai Phule Pune University, Pune, Maharashtra, India

A B S T R A C T

To date, a lot of research has been done on definition, assumptions, foundation growth, and various theories relevant to the concept of "Fuzzy Logic." Various implementations of the same have been tried and tested in all fields of science, as well as in other fields. The purpose of this paper is to present a condensed version for the developmental approach, journey of Fuzzy logic as a philosophy, as well as all advancements recorded since Lotfi A Zadeh proposed the theory in 1965. “Conventional computer logic couldn't manipulate data that represented subjective or vague ideas, so he created fuzzy logic to allow computers to determine the distinctions among data with shades of grey, similar to the process of human reasoning,” he said when introducing his concept of fuzzy logic.

Keywords-Fuzzy sets, Set theory, linguistic terms, fuzzy data analysis, vagueness.

Introduction

The term "fuzzy logic" refers to a type of logic that is a type logical reasoning based on the idea of a "fuzzy set" in mathematics. The word "fuzzy logic" refers to a method of approximate reasoning in a more precise context, but its broadest definition is generally associated with a mathematical theory of classes with undefined, or "fuzzy," boundaries. In Natural Language Processing, fuzzy logic is used in a variety of Artificial Intelligence applications. Expert systems, for example, are modern control systems, make heavy use of fuzzy logic. It is used in Neural Networks because it simulates how people make decisions, but much faster. In a nutshell, fuzzy logic is a variable processing technique that allows many values to be processed by the same variable. Fuzzy logic tries to solve problems using a free, imprecise range of data that allows for a variety of accurate conclusions to be reached. The definition of fuzzy logic is that it focuses on the observation that people make decisions based on inexact and non-numeral evidence. Sets or fuzzy models are mathematical constructs which represent ambiguity and vague data (hence the term fuzzy). It can also be seen in previous research papers that questioned this principle by contrasting it with the concept of "probability." However, further research has shown that it is a logic with parts of a degree of fact. Probability, on the other hand, reflects clear concepts and propositions that are either true or false; a proposition's probability is the degree to which it is true or false defines confidence in its validity. The distinction between fuzzy logic and traditional Boolean algebra has been illustrated in some theories. Fuzzy logic differs from Boolean logic in that it is founded on possibility theory, while Boolean logic is based on probability theory. Fuzzy reasoning has the advantage of being able to reflect the continuous existence of the soil's spatial distribution and attribute distinctness.

Studies and Developments:

Many negative reactions to Lotfi A Zadeh's The fact that the publications represented the reality that the term "fuzzy" has a negative meaning, according to Lotfi A Zadeh, (2015) [12]. Aristotelian bivalent logic underpins much of science, which is based on classical logic. Binarization is a profoundly ingrained Cartesian tradition of establishing a clear distinction between two groups. This practise has outlived its usefulness, which is not commonly known. One of fuzzy logic's most important from black and white to greyscale. This paper is a succinct summary of his main inputs to the advancement of fuzzy set theory and fuzzy logic, as he saw them. The notion of a fuzzy set, FL-generalization, and the idea of a linguistic variable are all introduced, knowledge particulation, precision of definition, and generalised uncertainty theory are among the contributions discussed (GTU). The knowledge principle, the idea of a restriction, and concepts based on similarity of possibility and probability are all examples of restriction-centered theories of reality

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Smart Shopping Trolley Using Raspberry Pi

Publisher: IEEE Cite This PDF

Dinika D. Pradhan ; Sabita Mali ; Ashwini Ubale ; M.M. Sardeshmukh ; Swapnalini Pattnaik ; Puja Bajirao Sindhe All Authors

Abstract: Regardless of the vicinity of E-business for the fulfillment of needs, individuals purchase numerous items from the markets and different shopping centers. According to o... **View more**

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Abstract:
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Feedforward Back Propagation Neural Network (FFBPNN) Based Approach for the Identification of Handwritten Math Equations

| Conference paper | First Online: 24 July 2020

| pp 757–775 | Cite this conference paper

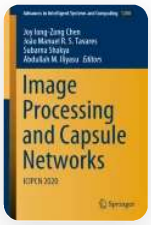

Image Processing and Capsule Networks

(ICIPCN 2020)

Sagar Shinde, Lalit Wadhwa & Daulappa Bhalke

Part of the book series: Advances in Intelligent Systems and Computing ((AISC,volume 1200))

Included in the following conference series: International Conference on Image Processing and Capsule Networks

Abstract

The demand for the identification of manually written mathematical equations is increasing day by day. Despite the hype, due to the increasing ambiguity in recognition,

Design and Implementation of Text and Audio Signal Transmission using Visible Light Communication

Publisher: IEEE

Sabita Mali ; Arun Agarwal ; Sourav Kumar Singh ; Dipika D. Pradhan All Authors

Abstract: As the demand for high-speed data in wireless communications increases day by day with the significant increase of the number of users, Radio Frequency (RF) spectrum beco... **View more**

Metadata

Abstract:
As the demand for high-speed data in wireless communications increases day by day with the significant increase of the number of users, Radio Frequency (RF) spectrum become one of the scantest resources in the world. RF technologies have limitations of the regulated spectrum, spectrum congestion, expensive licensing, low bandwidth and low-speed broadband connection. The available huge visible light communication (VLC) spectrum band ranges from 428 THz to 750 THz. So the new wireless technology known as light fidelity (Li-Fi) has become a new source for communication of data and it has been identified as a powerful and promising complementary and/or alternative to the existing radio frequency(RF) wireless communication technology which uses visible light as a medium to deliver high-speed data communication. Li-fi is an optical wireless communication technology which utilizes light emitted from light-emitting diode bulb for simultaneous transmission of text and audio signals which is discussed in this paper.

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Parabolic Pulse Generation at 1550 nm Raman Amplifier Utilizing High Power Pump Laser

| Conference paper | First Online: 10 April 2019

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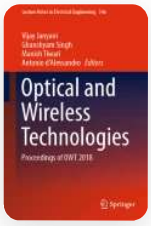

Optical and Wireless Technologies

Dipika D. Pradhan & Abhilash Mandloi

Part of the book series: Lecture Notes in Electrical Engineering ((LNEE,volume 546))

Abstract

To increase the range of 1550 nm signal transmission, Raman amplifier can be used. We demonstrate the design and performance of 1550 nm Raman amplifier utilizing single pump laser 1450 nm. The both codirectional and counter-directional pumping Raman amplifier is compared. The maximum gain for counter pumping is 45.87 dB and minimum noise figure is 7 dB. The 1550 nm Raman amplifier gain is function of wavelength corresponds to 8–25 nm amplification bandwidth. The saturation input power of Raman amplifier is from 10 to 15 dBm as the pump wavelength increases from

Rating and Condition Assessment of Flexible Pavements for Maintenance Decision

| Conference paper | First Online: 14 November 2020

| pp 541–546 | Cite this conference paper

Advances in Civil Engineering and Infrastructural Development

Shruti S. Wadalkar, R. K. Lad & R. K. Jain

Part of the book series: Lecture Notes in Civil Engineering ((LNCE,volume 87))

Abstract

Pavement Management System (PMS) deals with the planning of maintenance, repair, and rehabilitation activities of road structure. Physical condition assessment is a critical step in pavement maintenance decisions. This decision made by identifying and measuring various distresses like cracking, potholes, raveling, depression, etc. In this work rating of flexible

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General Chair

Dr. Abhay Khalatkar
General Chair

Dr. Preeti Bajaj
Director

Integration of maintenance systems

S H Sarje
Department of Mechanical Engineering, JSPM's Imperial College of Engineering and Research, Pune,India.

Abstract. Excellence in maintenance is imperative in highly competitive market because it resulted into minimum maintenance cost, high equipment effectiveness, maximum reliability of the system, high quality of the products, low delivery time, high flexibility, safety etc. Any maintenance system such as Total Productive Maintenance (TPM) or Reliability Centered Maintenance (RCM) or Condition Based Maintenance (CBM) alone cannot achieve the excellence in maintenance but its integration may do. In this paper, an integration of TPM, RCM and CBM is proposed with a maintenance policy to take advantage of their respective strengths. A continuously monitored system subject to degradation due to the imperfect maintenance, where a hybrid hazard rate based on the concept of age reduction factor and hazard rate increase factor to predict the evolution of the system reliability in different maintenance cycles has been assumed.A quantitative decision making model for an integrated maintenance system is derived in order to assess the performance of the proposed maintenance policy. Numerical examples of calculation of optimal preventive maintenance age x and preventive maintenance number N* for the given cost ratio of corrective replacement and predictive preventive maintenance are given.

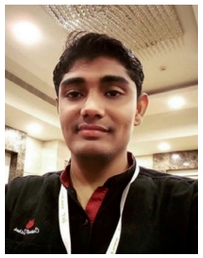
1. Introduction

Cost effective maintenance along with quality of products, flexibility, maximum reliability of the system, delivery times, safety and equipment effectiveness are also needed to the companies of world class category and above mentioned benefits cannot be achieved by practising merely single maintenance system but their integration may do.

Lot of investigations have been carried out on individual maintenance system which determined the optimum cost of maintenance, threshold value where preventive maintenance must be carried out, optimum inspection schedule etc. [1-3] but very few literature is reported in the area of integration of various maintenance systems [4-6].

G. Niu et al. [4] has proposed a novel condition-based maintenance system that uses reliability-centered maintenance mechanism to optimize maintenance cost, and employs data fusion strategy for improving condition monitoring, health assessment, and prognostics. X. Zhou et al. [5] has proposed a reliability centered predictive maintenance policy for a system subject to degradation due to the imperfect maintenance effect and where a hybrid hazard rate recursion rule based on the concept of age reduction factor and hazard rate increase factor is assumed. In some papers, a reliability centered maintenance

The fossil fuel resources are limited along with the need to reduce emission which is major impulse to the development of alternative fuel; biodiesel has been developed as an alternative fuel for C.I. engine but it shows slightly lower performance and reduction in SOx, CO, HC, CO2 emissions as compared with diesel. But due to higher oxygen content in biodiesel the formation of NOx was observed higher. Nano-fuels have shown better improvement in combustion, performance and emission characteristics of the CI engine. The blending of biodiesel increases the thermal efficiency near to that of diesel and also a significantly large reduction in NOx is observed. Nano fuels were prepared by adding the cerium oxide nanoparticles to the cottonseed biodiesel. Biodiesel was manufactured from cottonseed oil using the trans-esterification process. Nano fuels were prepared with high-speed ultra-sonication and agitation process to increase stability.



Prof. Dhiraj S. Patil completed his bachelor's degree in Mechanical Engineering & master degree in Thermal Engineering. He has 6 years of working experience in the field of Mechanical Engineering research and has published most of his research papers in International Journals like ASME, MAYFEB Etc.

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Dhiraj S. Patil
Manoj A. Kumbhalkar

Alternative Source of Fuel for Future

The Effects of Cerium Oxide Nano-particle as Fuel Additives in Diesel and Biodiesel Blend

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Alternative Source of Fuel for Future

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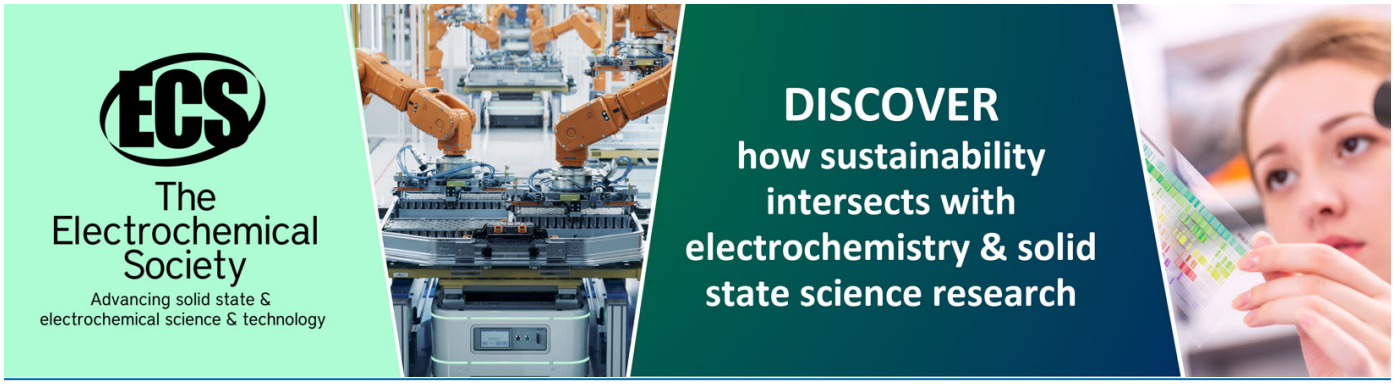
List of Abbreviations

Abbreviation	Illustration
ASTM	American society of testing and Petroleum
BMEP	Brake mean effective pressure
BP	Brake power
BSFC	Brake specific fuel consumption
BTE	Brake thermal efficiency
BTDC	Before top dead centre
CI	Compression ignition
CNT	Carbon Nanotubes
CO	Carbon monoxide
CO_2	Carbon dioxide
CR	Compression ratio
DI	Direct injection
EGT	Exhaust gas temperature
HC	Hydrocarbon
IC	Internal combustion
NO, NO_2 and NOx	Oxide of nitrogen
PM	Particulate Matter
PPM	Parts per million
RPM	Revolution per minute
SFC	Specific fuel consumption
TDC	Top dead centre
100D	0% biodiesel + 100% diesel (% by vol.)
10CSB	10% Cottonseed biodiesel + 90% diesel (% by vol.)
20CSB	20% Cottonseed biodiesel + 80% diesel (% by vol.)
10CSBCeO_2 50	10% Cottonseed biodiesel + 90% diesel + 50 PPM CeO_2 (% by vol.)
20CSBCeO_2 50	20%Cottonseed biodiesel + 90% diesel + 50 PPM CeO_2(% by vol.)
CeO_2	Cerium oxide nanoparticles

Anaerobic Biological Treatment of Distillery Wastewater – Study on Continuous Stirred Tank Reactor



IOP Conf. Series: Materials Science and Engineering **814** (2020) 012030 doi:10.1088/1757-899X/814/1/012030

Anaerobic Biological Treatment of Distillery Wastewater – Study on Continuous Stirred Tank Reactor

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Abstract. Various studies have verified that anaerobic treatment with the recovery of biogas appears to be the most promising technology for the treatment of distillery wastewater. The technologies currently used by distilleries for treatment of wastewater are bio-methanation followed by two-stage biological treatment and disposal in watercourses or for utilization on land for irrigation and composting with or without bio-methanation. These technologies treat the wastewater up to a certain extent. However, there are limitations posed by these technologies for full compliance with prescribed pollution control standards. For the better understand the performance of continuous stirred tank reactor (CSTR), anaerobic treatment of distillery effluent having very high chemical oxygen demand (COD) (110000–140000 mg/L) and biochemical oxygen demand (BOD) (55000–65000mg/L) was studied on CSTR. Under various organic loading rates (OLR), optimum conditions for maximum COD removal and biogas generation was found and are observed to be 0.09 kg COD/d to 0.12 kg COD/d OLR hydraulic retention time (HRT) of 14d and volatile fatty acids (VFA) to alkalinity ratio of around 0.2. Maximum COD removal efficiency was found to be around 72%. These performance figures are significant when operating the anaerobic bio digesters for the treatment of distillery effluent. Anaerobic CSTR can effectively be employed for the treatment of distillery effluent, but post-bio-methanation effluent still contains high organic concentration and needs to be treated further to meet the safe and acceptable pollution control limits for disposal into surface water or on land.

1. Introduction

The generation of wastewater from distillery is in the order of 12-15 times of the generation of alcohol [1]. The distillery effluent has very high values of biochemical oxygen demand (BOD) (40000-50000 mg per L) and chemical oxygen demand (COD) (100000-125000 mg per L) [2]. The distillery effluent is highly acidic (pH 4.0–4.3) with high suspended solids (2.0–2.5 kg per m^3) [3]. This effluent is toxic to surrounding environment [4]. Besides high organic content, distillery wastewater also contains nutrients in the form of nitrogen (1660–4200 mg per L), phosphorus (225–3038 mg per L) and potassium (9600–17475 mg per L) [5].

The distillery industry is one of the heavily polluting industries identified by Ministry of Environment and Forests, Govt. of India [6]. There are around 400 distilleries are operating at present in different parts of the country, average generation of distillery effluent is up to 15L per litre of alcohol produced, depending on continuous or batch process and quality of molasses used, etc [7].

The secondary and tertiary treatments on their own are not technically and economically viable options for mitigating the problems associated with treatment and disposal of high strength distillery effluent.

Application of Light Interference Technique for Locating Groundwater Veins

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Application of Light Interference Technique for Locating Groundwater Veins

Vijay V Muthekar[1], Pratik S Sasane[2], Rupam R Phalak[2], Shivani S Gour[2] and Avinash G Kharat[3]

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[2]UG Students, Civil Engineering Department, JSPM NTC, Pune, MH, India
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Abstract. Water is one of the most needful resources on Earth. The increasing population, growing urbanization, and enhanced industrialization over the years have led to increased demand for water all over the world, causing a scarcity of resources and thereby made the world dependent on other sources of water than surface water. Among all, a majorly available and reliable source is groundwater. With diminishing groundwater levels, it endures the need for precise groundwater exploration. The groundwater investigation has been a more significant issue during the last few years due to intolerable distraction, depreciating water quality, and emerging pollution threats to potable resources. To overcome limitations of contemporary groundwater exploration methods present study proposes a new technique utilizing the 'Light Interference Technique,' a concept from fundamental Physics. An instrument, NaAvmeter, developed based on Light Interference Technique, was used for groundwater exploration in the current study. A literature survey shows that earth radiations are much dominant over groundwater locations. Empirical investigations were carried out in the Pune city under various site conditions to check the feasibility of application of 'Light Interference Technique' for groundwater exploration in the Deccan trap flood basalt terrain. An attempt is also made in the current study to propose a simplified groundwater exploration method using NaAvmeter; an instrument developed based on the 'Light Interference Technique.'

1. Introduction

There is a growing concern over freshwater all over the world. It is unavoidable that the pressure is and will be on the detection of subsurface water storage [1]. From the literature, it has observed that most groundwater (GW) exploration work that has been carried out from ancient times involves fieldwork and the use of knowledge gained from ancestors, limited to the local area. However, from the starting of the 19th century, significant updating in utilizing the various GW exploration methods has been observed [2]. As the cost of water exploration through modern methods is invariably unaffordable for the average person, traditional knowledge of exploring water sources is still in vogue among many rural and urban communities. In the recent past, science and technology have taken long strides in exploring GW as a result of which many techniques are available now to identify the GW [3]. The main focus of current research is to develop a GW exploration method that utilizes modern

Finite Element Analysis of Rail Vehicle Suspension Spring for Its Fatigue Life Improvement

M. A. Kumbhalkar, D. V. Bhope and A. V. Vanalkar

1 Introduction

The paper represents a case study over an investigation for fatigue failure response of primary inner suspension spring of a high-speed main line locomotive for goods hauling trains which has three motor on individual axle and is referred to as Co-Co frame assemblies, is main part of the locomotive. Total weight of the rail road vehicle is supported by the bogie frames and provides a means for transmission of the tractive effort to the rails. To absorb and isolate the superstructure from the shocks is an important function of frame caused by variations in the trackbed and hence suspension system minimizes the transmission of these shocks to the locomotive under frame [1].

The helical spring is the simplest element which is found in many mechanical systems. It makes it conceivable to maintain a tension or a force in a suspension system [2] of railway vehicle, to assimilate the shocks and to diminish the vibrations. Fatigue is the most well-known reason for failure in springs. Fatigue breakage by and large starts at the surface and the settled tensile stresses bring on additional development of the created cracks and prompt premature failure of the springs.

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Experimental Investigation and Performance Parameter Analysis of Biodiesel Blend- Methyl Ester on Single Cylinder Diesel Engine

Pradeep Uttam Gaikwad, G. Senthilkumar, and Supriya Bobade

Keywords Biodiesel · Argemone mexicana · VCR · Catalyst · Blends · etc.

1 Introduction

Globally, increasing uncertainty drank energy production and supply, environmental concerns due to the uses of fossil fuel oil, and the high prices of petroleum products are the reasons to search for alternatives to petroleum diesel. In this perspective, considerable attention has been given towards the production of biodiesel as a diesel substitute. Moreover, biodiesel fuel oil has become more attractive because of its environmental benefits, owed to the fact that plants and vegetable.

1.1 Problem Statement

The rapid depletion of petroleum on the earth is resulting in the increasing fuel prices, other effects as global warming which is indirectly impacting on human health. So considering all these factors, there is a need for an alternative.

1.2 Objectives

The objective is to reduce dependency on conventional fuel by introducing biodiesel derived from argomonemaxicana as an alternative fuel and also check its performance on any available IC engine with emission analysis.

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Pavement Performance Index for Rating of Flexible Pavements

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Techno-Societal 2018

Shruti S. Wadalkar, R. K. Lad & R. K. Jain

Abstract

In this paper author has made an attempt to develop a Pavement Performance Index (PPI) for a rating of flexible pavements. For the development of the PPI model, normalized method of fuzzy multiple criteria decision making method has been used. Total sixteen parameters have been considered as structural and functional indicators. Expert's opinion was taken from the field of transportation engineering in the form of linguistic terms. These terms were then converted into fuzzy numbers and a model has been developed to determine pavement performance index. The evaluation of the model has been shown in the paper by

An Embedding of Secret Message in Audio Signal

Alaknanda S. Patil ; G. Sundari All Authors

Abstract: The steganography is the embedding process of the secret message in the other carrier message. It carries the security, transparency and authenticity. The type of stegano... **View more**

Metadata

Abstract:
The steganography is the embedding process of the secret message in the other carrier message. It carries the security, transparency and authenticity. The type of steganography is depends on the cover message used, if cover message used is audio to hide any type of data, it is audio steganography. The secret data hidden behind the audio can be image, audio or text. Audio steganography is more preferable because of the lots of redundancy. The different domains and methodologies are in exist for secret data embedding in audio signal. This paper gives the variety of algorithms to study the Audio Steganography.

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