

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

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	SSN number	Link to the recognition in UGC		
						Link to website of the Journal	Link to article / paper / abstract of the article	Is it listed in UGC Care list/Scopus/Web of Science/other, mention
A New Approach For Transmission Expansion Planning For IEEE 24 Bus RTS Using BFOA	Prakash S	EEE	ARNP Journal of Engineering and Applied Sciences	2017-2018	1819-6608	https://www.arnpjournals.org/	http://www.arnpjournals.org/jeas/research_papers/rp_2018/j	Yes
A Novel Approach for Transmission Expansion Planning by Using Different Algorithms Like GA, BFOA, AIS	Prakash S	EEE	Journal of Advanced Research in Dynamical and Control Systems	2017-2018	1943-023X	https://www.jardcs.org/backissues/	https://www.jardcs.org/backissues/	Yes
Transmission Expansion Planning For 133 Bus Tamil Nadu Test System Using Bacterial Foraging Optimization Algorithm (BFOA)	Prakash S	EEE	International Journal of Engineering and Technology	2017-2018	2227-524X		https://www.sciencepubco.com/index.php/ijet/article/view/22838	Yes

NOVEL REAL TIME TRANSMISSION EXPANSION PLANNING FOR 6-BUS RBTS USING GA AND BFOA IN DEREGULATED POWER SYSTEMS	Prakash S	EEE	International Journal of Pure and Applied Mathematics	2017-2018	1314-3395	https://acadpubl.eu/jsj/2017-116-23-24/articles/23/37.pdf	Yes
Combustion Performance and Exhaust Emission Analysis of Thurayi and Cuban Royal Palm Seed Biodiesel Blends on CI Engines	Mr.M.Suresh	ME	International Journal of Engineering Science Invention (IJESI)	2017-2018	2319 – 6726	http://ijesi.org/papers/Vol(7)i1/Version-4/J0701046677.pdf	Yes
Experimental Investigations on the Effect of Piston Geometry on CI Engine performance with Alternate Fuels	Mr.M.Suresh	ME	International journal of Advance Research in science and Engineering	2017-2018	2319-8354	http://ijarse.com/images/fullpdf/1516863430_J1015.pdf	Yes
Effect of Additives To Thurayi Seed Oil On Combustion And Emission In CI Engine With Toroidal Combustion Chamber	Mr.M.Suresh	ME	International journal of advent technology	2017-2018	2321-9637	http://www.ijrat.org/downloads/Conference_Proceedings/ICA_DMMES-2018/ADMES18T09.pdf	Yes

An Experimental Analysis on the Effects of Additives with Blends of Alternative Fuels on CI Engine Performance Using Modified Piston Geometry	Mr.M.Suresh	ME	IOSR Journal of Engineering	2017-2018	2278-8719	http://iosrjen.org/Papers/vol8_issue3/Version-1/J0803016775.pdf	Yes
<i>Transmission Expansion Planning</i> Using Artificial Immune System Algorithm	Prakash S.	EEE	International Journal of Pure and Applied Mathematics	2018-2019	1314-3396	https://www.wacadpubl.eu/jsi/2018-118-5/articles/5/	Yes
Congestion Control and Optimal Size of a Photovoltaic Device Using Multiverse Optimization Technique	Rajasekhar Vatambeti	EEE	Mathematical Modelling of Engineering Problems	2020-2021	2369-0747	https://www.iieta.org/Journals/MMEP/paper/10.18280/mmep.080409	Yes
A Successive Double Layer Wideband Antenna Using TDF Around 20 GHz	M. Gnanapriya, T. Prasanana	ECE	Journal of Engineering Sciences	2020-2021	0377-9254	https://jespublication.com/upload/2020-110804.pdf	Yes
Design of Fault tolerant and high speed TCAMS in FPGA	K.Vineetha and E.Sasikala	ECE	Journal of Engineering sciences	2020-2021	0377-9254	https://jespublication.com/upload/2020-110803.pdf	Yes

Improving thermal efficiency of optimised solar air heater for home applications	Dr.Muchakala Suresh	ME	Wutan Huatan Jisuan Jishu	2021-2022	1001-1749	https://htjsjs.cn/VOLUME-XVII-ISSUE-XII-DECEMBER-2021/	google.com/file/d/1ypggpLugFmRWJSwdepN1mq8cuqVoNnR	Yes
IoT for Vibration measurement in engineering	Dr.P.Sreenivasulu	ME	Materials to day proceedings	2021-2022	ISSN 2214-7853	https://www.researchgate.net/	researchgate.net/profile/Sri-Ram-Vikas-Kodamasimham/publication/360130744_IoT_for_vibration_measurement_in_engineering_research/links/626393468cb84a40ac831e71/IoT-for-	Yes
SecDedup: Providing data security and checking Deduplication with Dynamic Ownership Updating	Manandrasekhar, Ms T.S	CSE	JES(Journal of Engineering Sciences)	2021-2022	0377-9254	ion.com/issue.php	ion.com/issue.php	Yes
DATA MIGRATION USING MUTUAL AUTHENTICATION SCHEME IN PEER-TO-PEER CLOUDS	T.Sujilatha, K.Linu Joy	CSE	The International journal of analytical and experimental modal analysis	2021-2022	0886-9367	h/VOLUME-XIII-ISSUE-1	1YcZ4VYo-663	Yes
A SECURE DATA SHARING SCHEME USING BIOMETRIC IN CLOUD ENVIRONMENTS	T.Sujilatha, K. Ooha R	CSE	The International journal of analytical and experimental modal analysis	2021-2022	0886-9367	h/VOLUME-XIII-ISSUE-1	d/1yixSM-iZP9	Yes

BANK LOAN PREDICTION USING MACHINE LEARNING	Ramesh, MsT. Sujilat	CSE	International Research Journal of Engineering and Technology (IRJET)	2021-2022	2395-0056	https://www.irjet.net/archives/V9/i2/IRJET-V9I269.pdf	https://www.irjet.net/archives/V9/i2/IRJET-V9I269.pdf	Yes
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A NEW APPROACH FOR TRANSMISSION EXPANSION PLANNING FOR IEEE 24 BUS RTS USING BFOA

S. Prakash, Joseph Henry and P. Chandrasekar

Department of Electrical and Electronics Engineering, Vel Tech University, Avadi, Chennai, India

E-Mail: prk216@gmail.com

ABSTRACT

Socio Economic development of any country depends on Availability of Electric Power and Per capita energy consumption of that country. Availability of Electric Power depends on one of the factor is pumping capacity of the power to the end users i.e. transmission capacity. Hence it shows the importance of transmission lines in any country. Therefore, planning of transmission lines plays key role in maintaining sufficient power in any country and also planning of transmission lines plays vital role in having stable and reliable power supply. Transmission Expansion Planning (TEP) has to be prepared by analyzing various scenarios and contingencies. TEP is prepared in this paper by considering load growth as well as generation growth. It is required to consider both economical and technical criteria's for better TEP. TEP is prepared in this paper for IEEE 24 bus Reliability Test System (RTS) using Genetic Algorithm (GA) and Bacterial Foraging Optimization Algorithm (BFOA). The Results obtained for TEP using above said methods are compared.

Keywords: TEP, GA, BFOA, load growth, generation growth, RTS.

INTRODUCTION

In view of Industrial and Commercial growth in the country, it was observed that India's GDP has up-sprung by 6.3% [1] during 2011-2012 and 5% during 2012-2014. During this period Non-refundable income has been increased by 19.1% and population growth was by 15 million [1]. Due to this escalation in economy, it has witnessed hike in power demand during this period was 7% [2]. Even though India has power generation capacity of 225 GW and energy requirement of 135 GW, country has witnessed peak energy deficit of 9% [2]. It was due to imbalance in power generation and power pumping capacity in the country i.e. due to insufficient transmission capacity [2]. Chhattisgarh was Energy rich state during that period but it is unable to pump the power due to insufficient transmission capacity during that period in that state [2]. It was planned to enhance power generation capacity to 388 GW by 2022, hence transmission capacity has to be enhanced along with generation capacity to match it [2].

To supply reliable and quality power to the consumers, it is required to have sufficient transmission capability in planning of transmission lines. It is required to have proper TEP in maintaining stable and reliable power infrastructure. TEP for the upcoming events is a very intricate job which needs a synchronized and systematic analysis of different situations and incidents. Therefore best possible plan of transmission system expansion is a significant element of the overall planning job of electrical power system. The TEP crisis of electrical power system comprises in identifying the transmission network lines and transformers. TEP should lessen investment price and operational price along with satisfying different limits during regular and unforeseen events. TEP should not breach the fundamental limits i.e. the thermal capacity of Transmission lines. The TEP should be prepared in such a way that it has to satisfy load as well as different constraints. In this paper, it is focused to prepare suitable assessment technique to identify a

fruitful among various TEP options based on economic and technical criteria. In this paper it is classified TEP into two criterions like economic and technical criteria. Different options are assessed for TEP with less cost by satisfying all constraints. In this paper, we have executed a method for TEP which considers load growth as well as generation growth. The optimization of the TEP is prepared with GA and BFOA for a 24 bus RTS. The TEP mentioned by GA and BFOA are compared in terms of number of new lines, length of new lines and the total cost of expansion.

Literature Survey is explained as follows: The TEP is considered as an optimization issue with an objective function constrained to so many power system constraints. The TEP has to be prepared by considering the different power system constraints. Different techniques like LP [3], DP [4], NLP [5] and MIP [6] are explained for TEP. Benders decomposition for TEP is explained in the paper [7] and BBA for TEP is also explained in [7]. Two mathematical models for TEP considering uncertainty in load is explained in [8]. We present a bilevel model for TEP is presented in [9]. Taguchi's orthogonal Method for TEP is explained in [10]. Ordinal optimization for multilayer TEP is explained in [11]. TEP is explained for hike in laod and generation using various methods is explained in [12].

PROBLEM DEFINITION

Different problems are affecting Transmission Expansion Planning in Deregulated Power Systems in our country. TEP has to suggest a plan such a way that it has to satisfy the limits at the same time produce minimum cost plan. The Principal cost plays vital role in identifying a new transmission line using TEP techniques. Various cost effective factors to be considered in this work are Principal cost, cost owing to Maintenance, cost owing to Operation, cost incurred owing to Project Delay, cost incurred owing to Inflation and cost incurred owing to

A Noval Approach Transmission expansion planning By Using Different Algorithms like GA, BFOA and AIS

¹S Prakash, , Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology,
Avadi, Chennai- 600 062.

Email Id: prk216@gmail.com

²Dr. K Karunanithi, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology,
Avadi, Chennai- 600 062.

Abstract : In a developing country like India, necessary power infra structure has to be ramped up to meet the growing demand for power. Expansion of Transmission Network is an integral element in supplying power to the needy regions. In this paper, a multi objective cost function is incorporated which includes economic criteria as well as technical and adequacy criteria. Usually Economic criteria include the investment cost, the maintenance cost and the operation cost but due to market conditions it also includes cost escalation due to project delay, cost escalation due to inflation and cost escalation due to Right of Way. Transmission Expansion Planning (TEP) is prepared using Genetic Algorithms (GA), Bacterial Foraging Optimization Algorithm (BFOA) and Artificial Immune System Algorithm (AISA). The proposed approach is validated by performing TEP for 6 bus Roy Billinton Test System (RBTS) and IEEE 24 Bus Reliability Test System (RTS). TEP results are compared for proposed three methods.

Keywords - Transmission Expansion Planning, GA, BFOA, AISA, cost of line addition, cost escalation due to project delay, Right of Way and Inflation.

I. Introduction

Electricity has become an essential commodity which defines the economic prosperity of a nation. Availability of electric power has influenced the development of a society and has served as an index for its growth. Evacuation of generated power has turned out to be a much bigger problem than generation of power in country like India. According to the Central Electricity Authority (CEA) load generation balance report, various power producers lost around 1.93 billion units of generation due to transmission capacity non availability or transmission bottlenecks [1]. The loss to the nation's GDP owing to power shortages during the period 2012-13 alone is around 68 billion \$, which is roughly around 0.4% of nation's GDP [1]. Between 10th and 11th five year plan period the generation capacity of the nation has grown by around 51% where the transmission capacity has increased by approximately 27% [1]. On one hand there is a rapid growth of generation capacity while the transmission capacity could not be augmented to cope up with the increase in generation. From the above figure it can be observed that the growth in generation and expansion are not proportional. It can be inferred from the figure that the during the 11th Plan period the gap is around 24 %. While the generation capacity has seen an increase of 51 % the transmission capacity has been augmented only by 27%.So, Transmission Expansion Planning can no longer be a centralized and a coordinated activity. Also adaptation of open access will allow the user to choose from all available transmission lines. Under such a scenario there will be a rapid rise in the demand side capacity leading to further aggravation of the problem, if the transmission capacity is not increased adequately. All these facts points to the necessity of having Transmission Expansion Planning that is comprehensive in its approach accounting for various stakeholders, the needs and system limitations.

Infrastructure plays a paramount role in the economic growth of a country. Infrastructure investments in India have been growing on a consistent basis [2]. In each five year plan the government sets an ambitious target which is higher than the previous one. Although the sector is

Considered to be a key driver of economic growth, time and cost overruns threaten to limit the sector's potential to help achieve the desired growth and ensure efficient capital expenditure [3]. Reasons for project time overruns across project lifecycle in country like India are due to Pre-planning, Planning and design, execution and Monitoring and Closure and handover [3].

The reasons for project time overruns due to preplanning are [3]:

- Delay in regulatory approvals.
- Unavailability/delayed availability of funds.
- Land/site handover.
- Lack of project managers/commercial managers with
- Adequate planning skills.
- Lack of cost managers.

**Corresponding Author: S Prakash , Email Id: prk216@gmail.com*

TRANSMISSION EXPANSION PLANNING FOR 133 BUS TAMILNADU TEST SYSTEM USING BACTERIAL FORAGING OPTIMIZATION ALGORITHM (BFOA)

S Prakash¹, Joseph Henry²

^{1,2}, Department of Electrical & Electronics Engineering

¹prk216@gmail.com,

²joseph_henry@rediffmail.com

Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology,
Avadi, Chennai- 600 062.

Abstract- In a creating nation like Indian, necessary energy infra framework has to be ramped up to fulfill the increasing requirement for energy. Development of Transmitting System is a vital factor in providing ability to the desperate areas. Lack of transmission potential in Tamilnadu in some areas, it is not able to leave wind energy to its full level. In this document, a multiple purpose operate is integrated which contains financial requirements as well as technological and adequacy requirements. Usually Economic requirements include the investment price, the servicing price and the function price but due to market circumstances it comes with price escalation due to venture wait, price escalation due to rising prices and price escalation due to Right of Way. In this document an method for Transmitting Expansion Planning (TEP) is developed by presenting a Transmitting Preparing Index (TPI). TPI is developed as a multi-objective operate and enhanced using different methods like Genetic Algorithms (GA) and Bacterial Foraging Optimization Algorithm (BFOA). The suggested strategy is verified by executing TEP for 133 Bus TNS (Tamil Nadu System). Blockage price also analyzed for the different circumstances in this paper

Keywords- Transmission Expansion Planning, GA, BFOA, TPI.

I. Introduction:

Power has become an essential product which describes the economic success of a country. Accessibility to electrical energy has affected the growth and development of a community and has provided as an catalog for its development. Evacuation of produced energy has been found to be a much larger issue than creation of energy in country like Indian. According to the Central power Authority (CEA) fill creation balance review, various energy manufacturers lost around 1.93 billion units models of creation due to transmitting potential non accessibility or transmitting bottlenecks [1]. The loss to the nation's GDP due to energy shortages during the time interval 2012-13 alone is around 68 billion dollars \$, which is roughly around 0.4 percentage of nation's GDP [1]. Between Tenth and Eleventh 5 year strategy interval the creation potential of the united states has expanded by around by 51% where the transmitting potential has improved by roughly 27% [1]. On one hand there is a fast growth and development of creation potential while the transmitting potential could not be enhanced to deal with the surge in creation. From the above determine it can make sure that the development in creation and development are not proportionate. It can be deduced from the determine that the during the Eleventh Plan interval the gap is around 24 %. While the creation potential has seen a greater of 51 % the transmitting potential has been enhanced only by 27%. So, Transmission Expansion Preparing can no longer be a central and a synchronized action. Also variation of open access will allow the user to choose from all available transmitting lines. Under such a situation there will be a fast increase in the demand side potential major to further frustration of the issue, if the transmitting potential is not improved effectively. All these information points to the requirement of having

Transmission Expansion Preparing that is extensive in its strategy comprising various stakeholders, the needs and system restrictions.

Facilities perform a vital part in the economical development of a nation. Facilities investment strategies in Indian have been growing regularly [2]. In each five year plan government entities sets an committed focus on which is higher than the first one. Although the industry is considered to be a key car owner of financial development, efforts and cost overruns endanger to limit the sector's potential to help achieve the development and ensure efficient capital expenses [3]. Reasons for venture time overruns across venture lifecycle in nation like Indian are due to Pre-planning, Preparing and design, performance and Tracking and Closing and handover [3]. The reasons for project time overruns due to preplanning are [3]:

- Delay in regulating mortgage approvals.
- Unavailability/delayed accessibility to resources.
- Land/site handover.
- Lack of venture managers/commercial supervisors with
- Adequate preparing abilities.
- Lack of price supervisors.
- Lack of protection officers/environmental experts.

The factors for venture time overruns due to Planning and style are [3]:

- Lack of powerful R&R guidelines.
- Ineffective purchasing preparing.
- Design/scope modify.

NOVEL REAL TIME TRANSMISSION EXPANSION PLANNING FOR 6-BUS RBTS USING GA AND BFOA IN DEREGULATED POWER SYSTEMS

¹P Chandrasekar, ²S Prakash, ³Joseph Henry, ⁴S.Harshavardhan

^{1,2,3}Research Scholar Department of Electrical & Electronics Engineering

VelTech Dr.RR & Dr.SR University, Avadi, Chennai, India.

⁴Veltech Multitech Engineering College, Avadi, Chennai, India.

¹Prk216@gmail.com, ²hodeee@veltechuniv.edu.in, ³Joseph_henry@rediffmail.com

Abstract: Electricity has turn out to be the basic component for a Nation's growth. The availability of electricity is considered to be a basic right of the citizen. In this paper, Transmission Expansion Plan is made that, it is comprehensive and economically feasible. Transmission Systems are inherently complex and consume much time to be installed and operated. So, planning a Transmission Network is very essential to maintain the crucial link in the Power Systems. Restructuring and Deregulation of Power Industry in developing Countries have changed the objectives of Transmission Expansion Planning (TEP) and increased the uncertainties. The main motto of this paper is to develop a novel method for real time system's Transmission Expansion Planning (TEP) that must be precise and accurate for deregulated power systems. In this paper a new cost function is proposed for real time environment which includes cost of new transmission lines, cost due to project delay, cost due to inflation, cost due to right of way and congestion cost. The objective function is optimized for 6-bus Roy Billinton Test System (RBTS) using Genetic Algorithm (GA) and Bacterial Foraging Optimization Algorithm (BFOA).

Keywords: TEP, RBTS, GA, BFOA, Congestion cost, Cost due to project delay.

1. Introduction

Electricity has turn out to be vital commodity which defines the economic affluence of a Nation. The quantum of Electric Power available is influencing the growth of a society and has served as manifestation for its development. Nowadays Power System is one of the biggest man-made System consists massive number of elements. These elements may be as simple as a small lamp or as a compound generator [1]. Generally, these elements can be visualized into:

1. Generation services

2. Transmission services (Substations, Network lines and Cables)

3. Loads

Operations and planning of each and every element is significant and vital to supply sustained and stable Electric Power to consumers. In Power Systems, The operation of Power System is usually termed as running the current situation and the term Planning referred as actions to be required for the future [1]. In a broad prospective, Power System Planning is the primary feature to have a reliable infrastructure. The Planning of Power System can be elucidated as a procedure which is undertook with an intention to suitably convince the load for estimated future through accumulation of new elements combined with up-gradation of existing System elements [1]. Deregulation and restructuring have carried challenges and occasions alike [2]. Different Stakeholders having multiple requirements, commitments and necessities are involved in Deregulated Power Systems. Therefore, Transmission Network Expansion Planning can no longer be a centralized and a co-ordinated action. Some of the issues to be checked for considering the goals of various Stakeholders include minimizing the impact on environment, lessening the risk of investment, minimizing the Cost of investment and operation, reducing the Network charges, offering non-discriminatory access and enhancing the reliability of a Network [3]. These factors have different degrees of preferences connected to them and vary with the awareness and the role of Stakeholder. Various Stakeholders have their own decisions and exercising their options frequently to maximize their benefits [3]. Since the Transmission Network Expansion Planning is no longer co-ordinated with the Generation Expansion Planning, a precise model cannot be provided for load and supplied Power. It can be defined as Transmission Network Expansion Planning in deregulated environment is a complex tactical procedure. Transmission Expansion Planning should be developed after considering the

Combustion Performance and Exhaust Emission Analysis of Thurayi and Cuban Royal Palm Seed Biodiesel Blends on CI Engines

M Suresh¹, R. Hari Prakash², B. Durga Prasad³

¹Asso. Prof. & HOD, Dept. of ME, Gokula Krishna College of Engineering, Sullurpet

²Principal, Brahmaiah College of Engineering, Nellore

³Professor & Head, Dept. of ME, JNTUA College of Engineering, Ananthapuramu

Corresponding Author: M Suresh

Abstract: Increasing demand for fossil fuels due to the luxurious lifestyle, significant growth of population, transportation and the basic industry sectors are causing serious environmental problems. Moreover, a rapid decline in the fossil fuels has led scientists and researchers to look for new alternatives. In this regard, alternative fuels such as biofuels are becoming important increasingly due to environmental and energy concerns. Biofuels are commonly referred to as first generations, which are produced primarily from food crops. However, the use of edible oil to produce biodiesel in many countries is not feasible in view of a big gap in the demand and supply of such oils for dietary consumption. This paper is concerned about the extraction and usage of two biofuel and its blends on a Kirloskar TV-1, single cylinder, four-stroke, water cooled DI diesel engine with a displacement of 661cc. The rated power of the engine is 5.2 kW at 1500 rpm with constant speed. The fuels are extracted from Thurayi (*Delonix Regia*) and Cuban Royal Palm (*Roystonea Regia*) seeds which are nonedible. Then prepared their methyl esters through transesterification process to produce biodiesel. Different blends with diesel are also considered and the combustion and emission performance is analysed.

Keywords: Biofuels, Thurayi Seed, *Delonix Regia*, Cuban Royal Palm Seed, *Roystonea Regia*

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I. Introduction

A biofuel is defined as any fuel whose energy is obtained through a process of biological carbon fixation. That definition serves to make our understanding of biofuels as clear as mud, so let's unpack it a bit. Carbon fixation is a process that takes inorganic carbon (in the form of things like CO₂) and converts it into organic compounds. In other words, any process that converts carbon dioxide into a molecule that would be found in a living organism is carbon fixation. If this process occurs in a living organism, it is referred to as 'biological carbon fixation'. The next part of the definition of a biofuel involves fuel. A fuel is nothing more than something from which we humans can get energy. Carbon fixation can lead to a number of different compounds, like proteins, fats, and alcohols (just to name a few). If any of those molecules can be used to provide energy in a mechanical setting, we call it a fuel [1][2].

A biofuel is a hydrocarbon that is made by or from a living organism that we humans can use to power something. This definition of a biofuel is rather formal. In practical consideration, any hydrocarbon fuel that is produced from organic matter (living or once living material) in a short period of time (days, weeks, or even months) is considered a biofuel [3]. This contrasts with fossil fuels, which take millions of years to form and with other types of fuel which are not based on hydrocarbons (nuclear fission, for instance). What makes biofuels tricky to understand is that they need not be made by a living organism, though they can be. Biofuels can also be made through chemical reactions, carried out in a laboratory or industrial setting, that use organic matter (called biomass) to make fuel.

The only real requirements for a biofuel are that the starting material must be CO₂ that was fixed (turned into another molecule) by a living organism and the final fuel product must be produced quickly and not over millions of years. Biomass is simply organic matter. In other words, it is dead material that was once living. Kernels of corn, mats of algae, and stalks of sugar cane are all biomass. This leads to one of the major separating factors between a biofuel and a fossil fuel – renewability [4].

Experimental Investigations on the Effect of Piston Geometry on CI Engine performance with Alternate Fuels

M Suresh¹, R. Hari Prakash², B. Durga Prasad³

¹Asso. Prof. & HOD, Dept. of ME, Gokula Krishna College of Engineering, Sullurpet

²Pincipal, Brahmaiah College of Engineering, Nellore

³Professor & Head, Dept. of ME, JNTUA College of Engineering, Ananthapuramu

ABSTRACT

Bio-diesels have received a lot of attention as an alternate vehicular fuel. But the properties of bio-diesels are not the same as diesel fuels especially their higher viscosity and low volatility. Also the bio-diesels have very poor atomization characteristics due to decreased cone angle during fuel injection. Hence there is a need to customize the engine properties to adjust the limitations of these bio-diesels. Towards this end, in this paper two different piston geometries are considered along with standard one. The biofuels considered are Cuban royal seed oil, Thurayi seed oil and their blends with diesel. Parameters like Brake thermal efficiency, Specific Fuel consumption, Smoke density, CO emissions, HC emissions, NOx emissions, cylinder pressure and Heat release rate are measured and plotted.

Keywords: *Emission parameters, Piston geometry, Royal palm seed oil, Thurayi seed oil*

I INTRODUCTION

As engines have evolved over the years, pistons have evolved with them. They're getting shorter and lighter, and use smaller skirts – the cylindrical "body" of the piston. Newer pistons are often made of aluminum alloys comprised of more silicon than in the past. This improves resistance to heat and reduces thermal expansion. One of the biggest advancements in piston technology is the use of different piston "tops" or "crowns," the part that enters the combustion chamber and is subjected to combustion [1]. While older piston tops were mostly flat, many now feature bowls on top that have different effects on the combustion process. The piston bowl is primarily used in diesel engines. Direct Injection Diesel engines don't have an ignition phase, so the piston crown itself may form the combustion chamber [2].

These engines often use pistons with differently shaped crowns, although with direct injection becoming increasingly popular, gasoline engines are starting to use them as well. The shape of the piston bowl controls the movement of air and fuel as the piston comes up for the compression stroke (before the mix is ignited and the piston

Effect of Additives To Thurayi Seed Oil On Combustion And Emission In CI Engine With Toroidal Combustion Chamber

M. Suresh¹, Sreeramulu. M, ²R. Hari Prakash³, B. Durga Prasad⁴,

¹Asso. Prof. & HOD, Dept. of ME, Gokula Krishna College of Engineering, Sullurpet, A.P, INDIA

²Associate Professor, Mechanical Engineering Dept., KIoT, WOLLO University, Dessie, ETHIOPIA,

³Principal, Brahmaiah College of Engineering, Nellore, A.P, INDIA

⁴Professor & Head, Dept. of ME, JNTUA College of Engineering, Ananthapuramu, A.P, INDIA

¹Email: mvenkat225@gmail.com ; ²Email: sreerammunagala77@gmail.com,

Abstract: In this paper, to achieve better combustion performance and lower engine emissions, different additives are introduced along with the Thurayi biodiesel (DR25) blends with Toroidal combustion chamber configuration. The Direct Injection diesel engine achieved the significant improvement with some of the additives. The experimental investigations show that when the diesel engine is operated with DR25 biodiesel using isopropyl nitrate as additive, there is slight improvement of 1.5% in Brake thermal efficiency and also with further decline in exhaust emissions. Finally, it is concluded that the biodiesel blend DR25 with isopropyl nitrate is regarded as the ideal choice for the operation of Direct Injection diesel engine.

Keywords: Thurayi; Toroidal piston; Additives; Isopropyl; Emissions

1. INTRODUCTION

Fuel additives which are dissolvable in fuel are natural substances. By adding fuel additives in slight amount of specific chemicals, around 25 new beneficial properties of fuels can be improved. These fuel additives are comprised to few 1000 ppm at a level from a few ppm. It is imperious that it improves few properties which do not ruin altered other fuel quality and other properties. Most of these additives can help to sustain fuel quality as stabilizers, biocides antioxidants, inhibitors and corrosion [1][2].

The improvement of fuel dispersion into the vehicle tank may cause by others. For example antifoams, pipeline drag reduces, flow improves and demulsifiers. It may be involved for lawful reasons like markers and colors, or engine manufactures may discoursed particular concerns like lubricity improves and deposit control additives. 103 fuel additives are used in diesel, biodiesel and their blends to develop the fuel characteristics [3][4].

The benefits of additives are:

- Removal of catastrophic wear in the CI engine.
- Development of icy flow in central distillates, improving consumption of biofuel [5].
- Stability changes are placed to increase long time storage of fuels.
- Upgraded vehicle recital and budget.
- Lower pumping costs and less power usage in lengthy fuel pipelines [6].

- Removal of corrosion of channel lines and fuel tanks.
- Development in CI octane and cetane parameters.
- Fluid constancy will improve above more kind of circumstances [7].
- Expansion of viscosity number and lessening of the amount of change of viscosity with temperature.
- Noxious emissions will decreases [8].
- Superior ignition by decreasing flash point and delay time etc.

2. LITERATURE SURVEY

In 2015, H. K. Imdadul et al. presented a broad review on the effect of additives on the performance as well as emission characteristics of CI engine [9]. The review on a contrary of that time when the purpose of additives are questioned. A large group of biodiesel manufacturers criticized the effect of additives. This review has touched many aspects of the effect of additives on both performance and emissions was presented. The effect of additives was investigated by applying the additive to pure diesel, biodiesels and more importantly the blends of biodiesel. It was concluded that the performance of CI engine will be improved by the use of additives and also the emission can be controlled.

In 2016, K. Prasada Rao et al. performed experimentation with Mahua biodiesel with Di-Ethyl Ether (DEE) additive [1]. In addition to pure Mahua biodiesel, few blends are prepared. To these blends, the

An Experimental Analysis on the Effects of Additives with Blends of Alternative Fuels on CI Engine Performance Using Modified Piston Geometry

M. Suresh¹, R. Hari Prakash², B. Durga Prasad³

¹Asso. Prof. & HOD, Dept. of ME, Gokula Krishna College of Engineering, Sullurpet.

²Principal, Brahmaiah College of Engineering, Nellore

³Professor & Head, Dept. of ME, JNTUA College of Engineering, Ananthapuramu.

Corresponding Author: M. Suresh

Abstract: Around the world, there is a growing increase in biofuels consumption, mainly ethanol and biodiesel as well as their blends with diesel that reduce the cost impact of biofuels while retaining some of the advantages of the biofuels. The usage of additive is also predominant in the current era of auto motives. The inclusion of small amounts of chemical lead to improvement of many engine, combustion and emission characteristics. In this paper, the improvement in performance of engine is experimentally analyzed by considering four additives. These are 2-Ethylhexyl Nitrate, Octyl Nitrate, Isopropyl Nitrate and Di-Tert-Butyl Peroxide. These additives are added to two alternate fuel blends, one from Thurayi seed oil and other from Cuban royal palm seed oil. In addition to the investigation of these fuels in standard piston, two modified of piston configurations are considered the effect of additives is also inspected.

Keywords: Additives, CI engine, Emission analysis, Nitrate additives, Piston geometry.

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I. INTRODUCTION

Fuel additives are natural substances dissolvable in fuels. Around 20 properties of fuels can be enhanced, retained or bestowed new advantageous attributes by the inclusion of small amounts of specific chemicals denoted as fuel additives. Fuel additives are included at a level from a few ppm to a few thousand ppm. It is imperative that additives which improve some properties do not impair different other properties and fuel quality. Some of these additives may help to maintain fuel quality (e.g., antioxidants, stabilizers, corrosion inhibitors, and biocides). Others may help the development of fuel through the dispersion into the vehicle tank (e.g., flow improvers, pipeline drag reducers, demulsifiers and antifoams); may be included for legal reasons (e.g., colors and markers) or can address particular concerns from engine manufactures (e.g., deposit control additives and lubricity improvers). Fuel additives in diesel, biodiesel and their blends improves the fuel characteristics of hence show the following benefits [1].

- Suppression of corrosion of fuel tanks, channel lines etc.
- Suppression of catastrophic wear of fuel system equipment in the diesel engine.
- Diminished pumping expenses and energy use in long distance fuel pipelines.
- Improvement in diesel cetane, octane parameters.
- Improvement of cold flow in middle distillates, boosting utilization of biofuel.
- Changes of stability to enhance long time storage of fuels.
- Improved vehicle performance and economy.
- Decrease in noxious emissions.
- Enhanced fluid stability over a more extensive range of conditions.
- Improvement of viscosity number and reduction of the rate of change of viscosity with temperature.
- Enhanced ignition by decreasing delay time, flash point, etc.
- Reduction of wear with agents that adsorb onto metal surfaces and provide chemical to-chemical contact as opposed to metal-to-metal contact under high-load condition.

However, as fuel additives comprise of several chemicals, some of them are harmful for the environment. Then there are certain bio-elements within additives which can cause potential harm to the engine if not used properly. Higher proportion of alcohol causes extra release of rust, debris, sediment and gunk and further clogging and damage to engine components and filters [2]. For instance, it is very difficult to use ethanol

Transmission Expansion Planning Using Artificial Immune System Algorithm

¹S. Prakash and ²Joseph Henry

¹Department of Electrical & Electronics Engineering,

Vel Tech Rangarajan Dr.Sagunthala R&D

Institute of Science and Technology,

Avadi, Chennai.

prk216@gmail.com

²Department of Electrical & Electronics Engineering,

Vel Tech Rangarajan Dr.Sagunthala R&D

Institute of Science and Technology,

Avadi, Chennai.

Joseph_henry@rediff.com

Abstract

In a developing country like India, necessary power infra structure has to be ramped up to meet the growing demand for power. Expansion of Transmission Network is an integral element in supplying power to the needy regions. In this paper, a multi objective cost function is incorporated which includes economic criteria as well as technical and adequacy criteria. Usually Economic criteria include the investment cost, the maintenance cost and the operation cost but due to market conditions it also includes cost escalation due to project delay, cost escalation due to inflation and cost escalation due to Right of Way. Transmission Expansion Planning (TEP) is prepared using Genetic Algorithms (GA), Bacterial Foraging Optimization Algorithm (BFOA) and Artificial Immune System Algorithm (AISA). The proposed approach is validated by performing TEP for 6 bus Roy Billinton Test System (RBTS) and IEEE 24 Bus Reliability Test System (RTS). TEP results are compared for proposed three methods.

Key Words:Transmission expansion planning, GA, BFOA, AISA, cost of line addition, cost escalation due to project delay, Right of Way and Inflation.



Congestion Control and Optimal Size of a Photovoltaic Device Using Multiverse Optimization Technique

Rajasekhar Vatambeti, P.K. Dhal*

Department of Electrical and Electronics Engineering, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Chennai 62, India

Corresponding Author Email: pradyumna.dhal@rediffmail.com

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ABSTRACT

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Keywords:

photovoltaic (PV), voltage stability, continuation power flow (CPF), multiverse optimization (MVO), IEEE 30 bus, real power, reactive power, load capability

Congestion management plays an important role in the operation, control, and safety of the grid. This paper proposes the multiverse optimization (MVO) algorithm for the congestion management of the IEEE 30 bus system, aiming to identify line congestion, and eliminate it at the minimum congestion price (i.e., the minimum loss). The continuation power flow (CPF) mechanism is adopted to analyze the voltage stability and maximum load capacity of the grid. The MVO algorithm helps to boost the voltage with a photovoltaic (PV) device, whenever the grid became unstable. The optimal position of the device is found through six iterations, and the fitness function is found capable of maximizing loading parameters, while minimizing power loss. The new approach is evaluated under different operating conditions, namely, in the presence of an MVO-tuned PV grid, and in the absence of a PV grid. The results show that the MVO-tuned PV grid performed much better than the grid without a PV.

1. INTRODUCTION

For the safety of the power network, each grid needs to operate within stability limits. The grid might be congested, due to the lack of compatible generators and transmitters. Congestion could be triggered by unexpected events like power outage, sudden increase of load demand, and tool failure. The incidence of congestion in the energy program disturbs the grid, and causes more outages to interconnected systems. Frequent outages pose a serious threat to the power system: the tools will be damaged, and the power quality will be undermined. To cope with the threat, the energy program for the grid must be able to rectify congestion instantly.

The voltage of the congested grid can be stabilized with many compensation devices, or distribution generation (DG) unit. Focusing on bus sensitivity and wind availability, Suganthi et al. [1] discussed how to control congestion in the grid of wind farms: a differential evolution (DE)-based strategy was proposed to reduce transmission line congestion by rescheduling generators and constructing additional wind farms, and an updated mutation operator was introduced to improve the performance of the strategy. Remha et al. [2] examined the ideal location and size of DG units in radial distribution networks, and optimized the two parameters through three latest techniques: injecting active power, injecting reactive power, and injecting both powers. To choose the best site for DG units, Arief and Nappu [3] defined the tangent vector of the continuation power flow (CPF) method as the differential change ratio of voltage to load, and iteratively estimated the DG size in each place until the grid reaches the stable state.

Inspired by cosmological concepts like white hole, blackhole, and wormhole [4], Mirjalili et al. [5] tried to reduce grid voltage by integrating a wind turbine with a squirrel cage

induction generator, and adopted the CPF method to locate wind farms and stabilize static voltage. Based on the 24h power demand, Sharma et al. [6] tested the reliability of the hourly load shapes of IEEE-30 and IEEE-57 bus systems, compared the results of flower pollination algorithm (FPA)-DE hybrid optimization with those of DE optimization, and confirmed the excellence of both strategies in congestion reduction. Using a modified IEEE-39 bus New England test system, Gope et al. [7] attempted to minimize congestion cost and enhance system safety through congestion management with and without a pump storage hydro unit (PSHU), and proposed a congestion management method based on bus sensitivity and generator sensitivity; the former was adopted to determine the location of wind farms [8]. Focusing on the optimal power flow (OPF) problem, Hooshmand et al. [9] established an objective function to minimize generator fuel and emission penalty cost, combined the bacterial foraging (BF) algorithm with the Nelder-Mead (NM) approach to solve the OPF problem, and optimized the size and position of thyristor-controlled series capacitor (TCSC) by minimizing the cost of generation, emissions, and the device.

Kashyap and Kansal [10] hybridized the firefly algorithm with DE optimization, and proved that the hybrid approach can efficiently handle congestion in a deregulated market by rescheduling generators, while satisfying both technical and economic constraints. Nappu et al. [11] discussed the concepts, technical challenges, and methods for alternate redispatch mechanism, formulated a locational management price scheme based on an optimization strategy for congestion control. Thangalakshmi and Valsalal [12] suggested that, in a deregulated power system, the independent system operator (ISO) faces the difficult task of managing transmission line congestion, and took account of the economic factors of most congestion management solutions. Verma and Mukherjee [13]

A Successive Double Layer Wideband Antenna Using TDF Around 20 GHz

T.Prasanna¹, M. Gnanapriya²

**#1PG Scholar, Dept Of ECE, Gokula Krishna College of Engineering,
Nellore, AP, India.**

**#2Associate Professor & HOD, Dept Of ECE, Gokula Krishna College of
Engineering, Nellore, AP, India.**

ABSTRACT_

A double layer wideband transmit exhibit receiving wire utilizing two degrees of opportunity components is introduced. The twofold layer transmit exhibit receiving wire is made out of 441 components. Every component incorporates four metal vias and two patches with two degrees of opportunity (TDF) imprinted on the two sides of the dielectric substrate. Four metal vias are utilized to accomplish the most extreme transmission greatness and two patches with TDF are embraced to acquire an adequately huge variety scope of stage move. A square transmit exhibit is structured, manufactured, and estimated to approve the proposed plan. Reenactment and estimation results have great understanding. Trial results show that the proposed receiving wire has high increase of 30.0 dBi at 21GHz, gap effectiveness of 40% and 1-dB gain data transmission of 9.6% (20.1GHz-22.2GHz). The proposed twofold layer transmit cluster reception apparatus incredibly disentangles the structure multifaceted nature and lessens the thickness, the mass, and the expense as for existing transmit exhibit radio wires.

Index Terms— Transmit array antenna, two degrees of freedom (TDF), double-layer, wideband.

1.INTRODUCTION

Recently, transmit array antennas get more and more attention. The idea for transmit array antennas originates from the lens and microstrip array, which has the advantages of high efficiency, high gain, low profile and light weight. Transmit arrays are generally composed of four-layer dielectric substrates. The horn antenna is placed as the feed behind the array. When the feed illuminates the array, different elements achieve different phase shifts and uniform transmission magnitude. By arranging

Design of Fault tolerant and high speed TCAMS in FPGA

K.Vineetha¹, E.SASIKALA²

#1PG Scholar ,Dept Of ECE, Gokula Krishna College of Engineering,
Sullurpet,AP,India.

#2 Assistant Professor ,Dept Of ECE, Gokula Krishna College of Engineering,
Sullurpet,AP,India.

ABSTRACT:

Memories are in general protected with error correction codes per word in order to improve its reliability. The FPGA has been involved in many safety and mission-critical applications in the last few decades. FPGA designs are also critical to errors and failures due to radiations. Fault-tolerant systems should be designed to overcome the effect of faults or failure during the operation of the systems. Fault tolerant techniques can detect the faults and correct them, or mask the faults. The overview of the most standard techniques used for FPGA designs is described in the paper. Hence for detecting and correcting the consecutive errors as well as for reducing the redundant bits, we propose here VLSI architecture based on a simple XOR operation over the least significant bits. It is understood from the simulation analysis that the proposed architecture achieves low area, power, and delay with an improved capability of error correction and detection.

Index Terms— Field-programmable gate arrays (FPGA), soft errors, ternary content addressable memories (TCAM).

I. INTRODUCTION

As CMOS technology scales down to nano scale and memories are combined with an

increasing number of electronic systems, the soft error rate in memory cells is rapidly increasing, especially when memories operate in space environments due to ionizing effects of atmospheric neutron, alpha-particle, and cosmic rays. In order to make memory cells as fault-tolerant as possible, some error correction codes (ECCs) have been widely used to protect memories against soft errors for years. For example, the Bose–Chaudhuri–Hocquenghem codes, Reed–Solomon codes, and punctured difference set (PDS) codes have been used to deal with MCUs in memories. But these codes require more area, power, and delay overheads since the encoding and decoding circuits are more complex in these complicated codes.

The general idea for achieving error detection and correction is to add some redundancy (i.e., some extra data) to a message, which receiver can use to check consistency of the delivered message and to picks up data determined to be corrupt. Error detection and correction scheme can be either systematic or non-systematic. In a systematic scheme, the transmitter sends the unique data, and attaches a fixed number of check bits (or parity data), which are derived from the data bits by some deterministic algorithm. If only the error detection is required, a receiver can simply apply the same algorithm to the

IMPROVING THERMAL EFFICIENCY OF OPTIMIZED SOLAR AIR HEATER FOR HOME APPLICATIONS

B. Nataraju¹Dr.Muchakala Suresh²

¹M.Tech (Machine design)Dept of Mechanical engineering, Gokula Krishna College of Engineering, Andhra Pradesh

²Associate professor in the Dept of Mechanical engineering, & Principal of Gokula Krishna College of Engineering, Andhra Pradesh

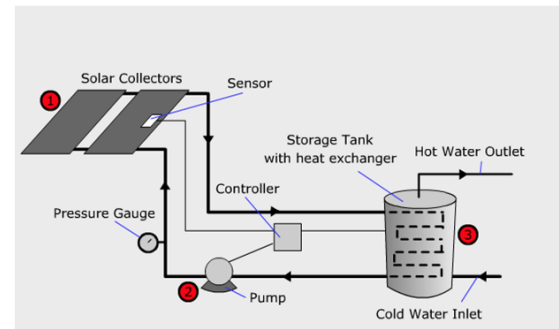
ABSTRACT-Solar energy is the new way of energy thinking which focused on developing altering energy resources which would be renewable and environmentally friendly. Solar energy resources are being harnessed for various applications such as power generation in Power Plant, air-conditioning (commercial building), space heating (home applications) etc.

Solar air heater is a type of system driving outdoor air through a sealed, sun-heated collector mounted on an exterior wall or roof, returning the warmed air back to the living space. Air collectors heat air through circulation. A fan moves cold air from the home to the collector. After passing through the collector, the heated air is ducted back to the home. SAH device has simple design, easy to fabricate and maintain and its low cost. Here problem found in solar air heater that outlet air temperature of solar air heater depends upon design of air heater tube (collectors) along with inclination. If accurate design of air heater collector is not approach, it may cause to reduce air temperature quality.

The main aim of this project was to develop the solar air heater for home application with accurate design and high thermal efficiency. Previously researchers worked out on thermal analysis of solar air heater with different orientations. In this project different geometries of solar air heater with different orientations at high temperature climate with high air flow velocity are studied briefly. Design of different geometries of solar air heaters were developed by using Unigraphics CAD software. And thermal analysis of solar air heater with different orientations at high air flow velocity is done using Ansys CFD software.

I. INTRODUCTION SOLAR AIR HEATER

Solar air heating technologies use only free, renewable, and clean energy, and can help defray the rising cost of conventional energy. Solar air heating systems absorb thermal energy from direct sunlight to heat air; this heated air can then be circulated through buildings to provide heat.



1.2 Passive Solar Heating

Passive solar collection can be as simple as allowing sunlight into a heated space through south facing windows. The heat energy is then stored in the building materials inside the space. Passive solar collectors use the natural convective movement of heated air to transfer heat from the solar collector into the building. When the sunlight is sufficiently intense, the air between the clear glazing and the dark metal absorber is warmed and rises. This hot air exits into the building through a slot at the top of the wall into the building. A slot near the bottom of the wall allows cool building air into the solar collector to start its cycle again.

CFD ANALYSIS

Computational fluid dynamics (CFD) is a computer-based simulation method for analysing fluid flow, heat transfer, and related phenomena such as chemical reactions. This project uses CFD for analysis of flow and heat transfer (not for analysis of chemical reactions). Some examples of application areas are: aerodynamic lift and drag (i.e. airplanes or windmill wings), power plant combustion, chemical processes, heating/ventilation, and even biomedical engineering (simulating blood flow through arteries and veins). CFD analyses carried out in the various industries are used in R&D and manufacture of aircraft, combustion engines, as well as many other industrial products.

THERMOSYPHON PRINCIPLE

Thermosiphon (or thermosyphon) is a method of passive heat exchange, based on natural



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IoT for vibration measurement in engineering research

N.V.S. Shankar^{a,*}, V.S.N. Venkata Ramana^b, A. Sravani^c, P. Sreenivasulu^d, K. Sriram Vikas^e^a Department of Mechanical Engineering, Vignan's Institute of Information Technology, Visakhapatnam^b Department of Mechanical Engineering, GIT, GITAM (Deemed to be University), Visakhapatnam^c Department of Computer Science and Engineering, GIT, GITAM (Deemed to be University)^d Department of Mechanical Engineering, GKCE, Sullurpet, AP, INDIA^e Department of Mechanical Engineering, PVPSIT, Vijayawada, AP, INDIA

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ABSTRACT

Study of vibrations gives an insight into mechanical behavior of the system or process. This is because vibrations are a direct effect of unbalance force. Higher the magnitude of vibrations, higher is the unbalance force. IoT has made instrumentation cheaper because of the availability of low-cost off-the-shelf sensors and opensource codes to use them. Accelerometers like ADXL335, ADXL345 and Gyro sensors like MPU6050 can be used for measurement of vibrations. IoT development boards like Arduino or Raspberry Pi has facilitated the implementation of this low-cost instrumentation with great ease. In this scenario, the current paper aims at providing an insight into use of these sensors for vibration measurement and their calibration techniques. Two case studies were done, where the authors have implemented these sensors and have been summarized. Also, an experimentation was conducted to study the vibration characteristics of SMA particulate Epoxy composite with increasing moisture content. During this process, pure epoxy as well as the particulate composite is exposed to pure water and sea water separately. Vibration Excitation is done by using DC motors with eccentric loading and frequency response is measured using ADXL345 and the results were discussed in this article. Accelerometers measure the variation of g-force and a test rig is designed and fabricated to measure the variation in g-force for different frequencies of excitation. A detailed discussion on the experimentation procedure and results are presented. Copyright © 2022 Elsevier Ltd. All rights reserved.

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1. Introduction

Vibrations are a direct measure of unbalance in a system [1,2]. They are also the cheapest way of monitoring the condition of a system [3]. Thus vibrations are used for conditional monitoring of various systems like IC Engines [4], in nuclear reactors where the vibrations may be mechanically induced or flow induced [5], plant commissioning and maintenance [6], damage assessment in structures [3] etc. Carden and Fanning [7] categorized vibration based conditional monitoring methods and summarized them. The frequency components that can be used for predicting various faults are summarized in [8].

Steve Hanly [9] summarized 6 ways of measuring vibrations with each of their advantages and disadvantages. Cost of each system along with their sampling rates are summarized in his blog.

Whatever be the way of measuring vibrations, three basic quantities are measured in vibrations. They are Displacement, Velocity and Acceleration. Accelerometers can measure accelerations while gyro sensors can measure velocities as well as accelerations. The use of accelerometers in measuring vibrations for structural health monitoring is demonstrated in [3]. Acceleration measurement is mostly done when monitoring condition of the systems like indicating change in pressure in cylinder during combustion [10], prediction of damages in car engines [11], unbalance in rotor systems like turbines [12] etc. Jun Chen [13] detailed how MEMS accelerometer can be used for vibration measurement.

Advent of low-cost accelerometers like ADXL335, ADXL345, Gyrosensors like MPU6050 as well as other low-cost vibration sensors which can be interfaced using development boards like Arduino Uno, Pi etc as well as PLCs have made the vibration measurement cheap. Ivar Koene, et al [13] described ADXL335 based IoT system Memsio for vibration measurement. In the current paper, different cases for measuring vibrations using ADXL335

* Corresponding author.

E-mail address: shankar.publications@gmail.com (N.V.S. Shankar).<https://doi.org/10.1016/j.matpr.2022.04.380>

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SecDedup: Providing data security and checking Deduplication With Dynamic Ownership Updating

Mr.V.Chandrasekhar¹, PG Scholar¹, Ms T.Sujilatha² Associate Professor & HOD²,

Gokula Krishna College of Engineering¹², Dept of CSE, Sullurpet.

Abstract

For public cloud environments, security and privacy are important considerations to keep in mind. The growing volume of data is one of the biggest challenges facing cloud storage services. This puts a strain on the cloud storage, which is limited in size. Using deduplication, cloud service providers can eliminate duplicate data copies and reduce storage costs for their customers. Encrypted data deduplication, on the other hand, is a challenge. Security and efficiency are not satisfactory because current solutions rely heavily on trusted third parties, and they do not take into account the popularity of data. On the basis of data popularity, a secure encrypted deduplication scheme is proposed. It is possible to determine whether different encrypted data originate from the same plaintext using bilinear mapping. To protect the tags, ciphertext policy attribute-based encryption is applied. Through the use of an offline cloud server, a data encryption key can be passed between uploaders via a secure key delivery scheme.

1. INTRODUCTION

Logic pools are used in cloud computing, which is a traditional model of storage. As data volumes increase, cloud storage is growing rapidly. As examples, Amazon S3, Oracle Cloud Storage, and Microsoft Azure are all cloud storage services that allow for storage to be hosted and deployed in the cloud. Companies and users have found that cloud computing, including cloud storage, is a convenient and cost-effective method of outsourcing data while using remote, shared servers located in the "cloud." There are, however, some barriers or weaknesses that impede the

development of cloud storage, even though cloud computing has many advantages [8]. Massive duplication of data is one of the most striking weaknesses. Data like this is generated when different users upload identical data in groups, which increases the cost of cloud storage significantly. Duplicate data is a problem that cloud service providers are eager to address. There is a proposal for deduplication, which is considered to be an effective solution because it dictates that any duplicated data copy should be logically stored for only one time and shared by multiple users. The four categories that we are aware of for current

DATA MIGRATION USING MUTUAL AUTHENTICATION SCHEME IN PEER-TO-PEER CLOUDS

¹T.SUJILATHA, ²K. LINU JOYOUS

¹M.Tech, (Ph.D), Assoc. Professor, Dept. of CSE, Gokula Krishna College of Engineering,
Sullurupet.

¹M.Tech, Dept. of CSE, Gokula Krishna College of Engineering, Sullurupet.

Abstract – Cross-cloud data improvement is one of the common troubles looked by supportive customers, which is a central collaboration when customers change their PDAs to a substitute provider. Regardless, on account of the lacking district amassing and computational requirements of the incredible level cells, it is dependably inconceivably difficult for customers to help all data from the rule cloud laborers to their phones to also move the downloaded data to the new cloud provider. To manage this issue, we propose a capable data migration model between cloud providers and support a commonplace demand and key strategy plan reliant upon elliptic turn articulation free cryptography for streamed cloud. The proposed plot helps with making trust between different cloud providers and sets up a system for the affirmation of cross-cloud data improvement.

Index terms – elliptic curve, authentication, key agreement.

I. INTRODUCTION

With the quick progression of the PDA and versatile terminal endeavors, PDAs have gotten essential for people. China housed an evaluation of 847 million flexible Internet customers in December 2018, with 99.1 percent of them using phones to ride the Internet [1]. Due to the weak amassing and taking care of limits of the adaptable terminals, progressed cell phone customers oftentimes truly prefer to store largescale data records (video and sound archives and electronic media reports) in the cloud laborer. This has accelerated assessment of various perspectives in the appropriated figuring perspective [2], [3]. Wireless creators are logically dispatching and passing on their own dispersed processing organizations to outfit customers with accommodating data accumulating organizations [4], [5].

People are at present continuously depending accessible held contraptions like PDAs, tablet, etc, in an unprecedented number. It is meriting note that one individual may guarantee and use

A SECURE DATA SHARING SCHEME USING BIOMETRIC IN CLOUD ENVIRONMENTS

¹T.SUJILATHA, ²K. OOHAREDDY

¹M.Tech, (Ph.D), Assoc. Professor, Dept. of CSE, Gokula Krishna College of Engineering, Sullurupet.

¹M.Tech, Dept. of CSE, Gokula Krishna College of Engineering, Sullurupet.

Abstract – The interest for far off information stockpiling and calculation administration is expanding dramatically in our information driven society; consequently, the requirement for secure admittance to such information and administrations. In this paper, we plan a new biometric-based confirmation convention to give secure admittance to a remote (cloud) worker. In the proposed approach, we consider biometric information of a client as a mysterious qualification. We then, at that point, get an interesting character from the client's biometric information, which is additionally used to create the client's private key. Moreover, we propose an effective way to deal with create a meeting key between two conveying parties utilizing two biometric formats for a safe message transmission. At the end of the day, there is no compelling reason to store the client's private key anyplace and the meeting key is produced without sharing any earlier data. A point by point Real-Or-Random (ROR) model based conventional security investigation, casual (non-numerical) security examination and furthermore formal security confirmation utilizing the extensively

acknowledged Automated Validation of Internet Security Protocols and Applications (AVISPA) instrument uncover that the proposed approach can oppose a few known assaults against (uninvolved/dynamic) foe.

Index terms – Fingerprint authentication, Security, Cloud Computing, Access Control.

I. INTRODUCTION

Cloud services are a norm in our society. However, providing secure access to cloud services is not a trivial task, and designing robust authentication, authorization and accounting for access is an ongoing challenge, both operationally and research-wise. A number of authentication mechanisms have been proposed in the literature, such as those based on Kerberos [1], OAuth [2] and OpenID [3]. Generally, these protocols seek to establish a secure delegated access mechanism among two communicating entities connected in a distributed system. These protocols are based on the underlying assumption that the remote server responsible for authentication is a trusted entity in the network. Specifically, a user first registers with

BANK LOAN PREDICTION USING MACHINE LEARNING

CH Ramesh¹, Ms. T. Sujilatha²

¹M.tech- CSE Department, Gokula Krishna College of Engineering (F8) Sullurpeta.

²Assistant Professor, Department of CSE, Gokula Krishna College of Engineering (F8) Sullurpeta.

ABSTRACT: Innovation has worked on individuals' lives. We intend to venture out and diverse consistently. We have the response to any remaining inquiries, we have machines that help our lives, and the bank up-and-comer gets the choice prior to endorsing the advance sum. Whether or not a solicitation is made relies upon the up-and-comer's set of experiences from the framework. At the financial level, the vast majority apply for a loan consistently, yet the bank's help is restricted. For this situation, it will be exceptionally helpful to anticipate precisely utilizing a specific calculation. For instance, coordinated factors withdraws, exceptional woodland logging, vector machine backing, and that's just the beginning. The premium or loss of the bank relies upon the size of the advance, for instance, on the off chance that the client or the client is reimbursing the loan. Loan reimbursement is vital in the financial area. The course of progress assumes a significant part in the financial area. Up-and-comers of chronicled foundation have been utilized in the development of AI machines utilizing different calculations. The primary motivation behind this report is to decide if the new candidate has gotten an advance and regardless of whether the machine prepared machine has not been utilized in the set-up history.

KEYWORDS: Decision tree, Naive Bayes, Random forest, AdaBoost, SVM

I. INTRODUCTION

AI is a PC algorithmic framework that can be learned by fostering a software engineer without legitimate enrollment. AI is essential for computerized reasoning, which joins data with factual apparatuses to distinguish entryways that can be utilized in functional insight. Improvement suggests that machines can gain from data (for instance) and offer genuine responses. AI is firmly identified with information mining and Bayesian attributes. The machine utilizes calculations to get and enter data and set up the outcomes.

Customary machine preparing machine is to offer. For Netflix supporters, any film or series demand depends on client history. Innovation organizations are utilizing unaided preparing to foster their clients and explicit requirements. AI is utilized in an assortment of exercises, including extortion discovery, resource the board, portfolio improvement, and new businesses.

II. LITERATURE SURVEY

1) Prediction for Loan Approval using Machine Learning Algorithm

AUTHORS: Ashwini S. Kadam, Shraddha R Nikam, Ankita A. Aher, Gayatri V. Shelke, Amar S. Chandgude

Our financial framework has a ton of merchandise to offer to banks, yet the principle kind of revenue for all banks is using a loan lines. So, you can get the interest on the advance. The bank's financing cost or misfortune is exceptionally reliant upon the loan, for instance, regardless of whether the client is reimbursing the advance. By prompting non-moneylenders, banks can lessen non-performing resources. This makes learning

these things vital. Momentum research shows that there are numerous ways of concentrating on repayment. In any case, it is essential to concentrate on the construction in a manner that is not quite the same as contrasting, similarly as evident prediction is vital for benefit. Loan Assumptions (i) Data assortment, (ii) Data cleaning, (iii) Basic element examination strategies are utilized to concentrate on execution evaluation issues. Research tests have shown that the Naive Bayes model performs best in loan arranging.

2) An Approach for Prediction of Loan Approval using Machine Learning Algorithm

AUTHORS: Mohammad Ahmad Sheikh, Amit Kumar Goel, Tapas Kumar

Our financial framework has a ton of merchandise to offer to banks, yet the principle kind of revenue for all banks is using a loan lines. So, you can get the interest on the loan. The bank's financing cost or misfortune relies to a great extent upon the loan, for instance, regardless of whether the customer is reimbursing the advance. By exhorting non-moneylenders, banks can lessen non-performing resources. This makes learning these things vital. Flow research shows that there are numerous ways of concentrating on reimbursement. Notwithstanding, it is essential to concentrate on the construction in a manner that is unique in relation to contrasting, similarly as obvious prediction is vital for benefit. The main scientific strategies are utilized to concentrate on the indicators of banks: Logistic relapse techniques. Data gathered for exploration and prediction in Kaggle. A coordinated factors relapse model is being created and different techniques are being thought of. The model was thought about dependent on execution measures like

OPERATIONS RESEARCH

Second Edition



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Dr. B. Durga Prasad,

Professor and vice Prinicipal,
JNTUA College of Engineering,
Ananthapur.

Dr. P. Sreenivasulu

Professor,
Department of Mechanical Engineering,
Gokula Krishna College of Engineering,
Sullurpet, Nellore Dist.

Dr. R. Hari Prakash

Retired Professor,
N.B.K.R. Institute of Science and Technology,
Vidyanagar, Kota (Mandal),
Nellore Dist.



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Preface

It has been a long felt need for a simple book with lucid presentation on Operations Research covering the syllabus of almost all the Indian Universities.

This book caters to the needs of the students of B.Tech, MCA, MBA, M.Sc., and M.Com. courses. This book has grown out of long experience and interest of the authors in teaching Operations Research.

The salient features of the book are that each chapter includes many solved problems explained in a simple way to make the reader understand and comprehend the subject. Learned authors have accommodated various related concepts, solved problems and exercises for the benefit of students as well as the teachers.

This book is meticulously designed to keep in view the Jawaharlal Nehru Technological University, Andhra Pradesh curriculum and syllabus content.

Operations Research is the study of optimization techniques. It is applied to decision theory. The existence of optimization techniques can be traced at least to the days of Newton and Lagrange.

All the chapters presented in the textbook are conformed to most of the Indian Universities and wherever possible a number of problems are solved and effort has been made that the students/teachers should be able to grasp the topic in easy way and we made corrections and added some examples.

However further suggestions in improvement are invited from every corner of the readers. The authors are grateful to their colleagues for their support and suggestions encountered during preparation of this book. The authors would like to express their thanks and good will to Scitech Publications, Hyderabad for their encouragement and efforts in bringing out this book in the present dignified manner and on time.

Dr. B. Durga prasad

Dr. P. Sreenivasulu

Dr. R. Hari Prakash

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Dr. B. Durgaprasad
Dr. P. Sreenivasulu
Dr. R. Hari Prakash

Brief Profile of Authors

Dr. B. Durga Prasad, Head of Department of Mechanical Engineering, JNTU Anantapur and Vice-Principal, is an Alumni of JNTU Anantapur. He has obtained his B.Tech, M.Tech and PhD from the same University. With a brilliant academic profile Dr. B. Durga Prasad has over twenty five years of Research/teaching experience and has been working on Engineering Management, Alternate fuel, Refrigeration and Air condition, solar energy utilization and operation Research, guided a number of PhDs and published a large number of technical Research papers in various National/International Journals of repute. He has discharged his duties at various level of University administration and at present a Member of governing body of a few Engineering colleges in Andhra Pradesh. A highly acclaimed Researcher/Academician Dr. B. Durga Prasad is a well known and celebrity in his area of specialization. He has been chief superintendent of examination section in Saytha Bhama University, Chennai and at present a senior member of the Doctoral committee in Satya Bhama, Anna University.

Dr. P. Sreenivasulu has B.Tech, Mechanical Engineering, from Sri Venkateswara University, Tirupathi, M.Tech Manufacturing Engineering, from National Institute of Foundry and Forge Technology, RANCHI, a Deemed University under government of India. He has also obtained M.Tech., in Thermal Engineering from Sathya Bhama University, Chennai. He has also obtained Ph.D from JNTUA Ananthapuramu. He has over sixteen years of Teaching experience. At present he is a professor, Department of Mechanical Engineering, Gokula Krishna College of Engineering Sullurpeta Nellore dist.A.P., affiliated to J.N.T.U.A Ananthapuramu. He has assisted the other Authors in the publication of a number of Technical papers in the journals.

Dr. R. Hari Prakash has obtained his B.Tech degree, Mechanical Engineering, from Bihar Institute of Technology, Sindri, Dhanbad, M.Tech, Thermal Engineering from Birla Institute of Technology, RANCHI, Deemed University, PhD from Indian Institute of Technology, Madras. He has more than thirty five years of Research/teaching experience, guided a number of PhDs and a large number of Technical publications in the national/International journals to his credit. An Ardent Administrator and acclaimed Academician. Dr. R. Hari Prakash has been highly initiative and Instrumental in the establishment of a few new Technical Institutions in Andhrapradesh. He has discharged his duties at various levels of University Administration. With a renowned and distinguished career profile he is the life member of a number of Societies and Organizations. Dr. R. Hari Prakash is a retired Professor from N.B.K.R Engineering College, Vakadu Nellore Dist.