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3RD INTERNATIONAL CONFERENCE ON INTELLECTUAL RESEARCH IN SCIENCE, ENGINEERING AND MANAGEMENT (ICIRSEM 2023)

Certificate of Participation

This is to certify that Dr. / ~~Mr.~~ / ~~Ms.~~ THANSEKHAR, M.R., PROFF / MECHANICAL

of K.L.N. COLLEGE OF ENGINEERING has presented a paper entitled

NUMERICAL INVESTIGATION OF MIXED CONVECTION IN A PARTIALLY HEATED SQUARE ENCLOSURE USING Al_2O_3 / WATER NANOFLUID

in the 3rd **International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023)** held on 21st April 2023.

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Convener

21/4/23
Prof. Dr. D. Shanmugasundaram
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This is to certify that Dr. / ~~Mr.~~ / ~~Ms.~~ NAGASUBRAMANIAN, PROFF / MECH

of K.L.N. COLLEGE OF ENGINEERING has presented a paper entitled

NUMERICAL INVESTIGATION OF MIXED CONVECTION IN A PARTIALLY HEATED SQUARE ENCLOSURE USING Al_2O_3 / WATER NANOFLUID

in the 3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21st April 2023.

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This is to certify that ~~Dr.~~ / Mr. / ~~Ms.~~ T. SAMYNATHAN, AP/MECH

of KLN. COLLEGE OF ENGINEERING has presented a paper entitled

NUMERICAL INVESTIGATION OF MIXED CONVECTION IN A PARTIALLY HEATED SQUARE ENCLOSURE USING Al_2O_3 / WATER NANOFLUID

in the 3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21st April 2023.

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Certificate of Participation

This is to certify that ~~Dr.~~ / ~~Mr.~~ / ~~Ms.~~ SANTHOSH K

of K.L.N. COLLEGE OF ENGINEERING has presented a paper entitled

NUMERICAL INVESTIGATION OF MIXED CONVECTION IN A PARTIALLY HEATED SQUARE ENCLOSURE USING Al_2O_3/Water Nanofluid

in the 3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21st April 2023.

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of K.L.N. COLLEGE OF ENGINEERING

NUMERICAL INVESTIGATION OF MIXED CONVECTION IN A PARTIALLY HEATED SQUARE ENCLOSURE USING Al_2O_3/WATER NANOFLUID

in the 3rd International Conference on Intellectual Research in Science, Engineering & Management (ICIRSEM 2023) held on 21st April 2023.

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Mrs. N. Srividhya
Convener

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Principal

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This is to certify that ~~Dr.~~ / Mr. / Ms. BHARATH YUGHA . VR.

of K.L.N. COLLEGE OF ENGINEERING has presented a paper entitled

NUMERICAL INVESTIGATION OF MIXED CONVECTION IN A PARTIALLY HEATED SQUARE ENCLOSURE USING Al_2O_3 / WATER NANOFLUID

in the 3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21st April 2023.

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Convener

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Certificate of Appreciation

This is to certify that Dr. / ~~Mr.~~ / ~~Ms.~~ M.R. THANSEKHAR, PROFF / MECHANICAL

of KLN COLLEGE OF ENGINEERING has presented a paper entitled

SQUARE ENCLOSURE - COMBINED EFFECT OF BAFFLE AND NANOFLUID

and won **"BEST PAPER AWARD"** in the **3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023)** held on 21st April 2023.

Dr. G Mercy
Convenor

Prof. Dr. D. Shanmugasundaram
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Rev. Sr. K. Nambika Mary, DMI
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This is to certify that Dr. / ~~Mr.~~ / ~~Ms.~~ N. NAGASUBRAMANIAN, AP / MECHANICAL of KLN COLLEGE OF ENGINEERING has presented a paper entitled SQUARE ENCLOSURE - COMBINED EFFECT OF BAFFLE AND NANO FLUID and won "**BEST PAPER AWARD**" in the 3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21st April 2023.

Dr. G. Mercy Convener	Prof. Dr. D. Shanmugasundaram Principal	Rev. Sr. K. Nambikkai Mary, DMI Administrator	in association with ICT ACADEMY

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Certificate of Participation

This is to certify that Dr. / Mr. / Ms. Sreevalatha K

of [illegible] College of Engineering has presented a paper entitled

[illegible] Enclosure - Combined Effect of Baffle and Nanofluid

in the 3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21st April 2023.

Prof. Dr. D. Shanmugasundaram, Principal

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This is to certify that ~~Dr.~~ / Mr. / ~~Ms.~~ VENKATESH TR

of KPR COLLEGE OF ENGINEERING has presented a paper entitled

SOLAR ENCLOSURE - COMBINED EFFECT OF BAFFLE AND NANO FLUID

in 3rd International Conference on Intellectual Research in Science Engineering and Management **(ICIRSEM 2023)** held on 21st April 2023.

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Prof. Dr. D. Shanmugasundaram
Principal

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Rev. Sr. K. Nambikai Mary DM
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This is to certify that Dr. / Mr. / Ms. YOGESHWARAN M

of K.E.N. COLLEGE OF ENGINEERING has presented a paper entitled

SQUARE ENCLOSURE - COMBINED EFFECT OF BAFFLE AND NANOFLUID

in the 3rd International Conference on Intellectual Research in Science, Engineering and Management **(ICIRSEM 2023)** held on 21st April 2023.

Dr. D. Mercy
Convener

Prof. Dr. D. Shanmugasundaram
Principal

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Certificate of Participation

This is to certify that Dr. / ~~Mr.~~ / ~~Ms.~~ M.R. THANSEKHAR, PROFF / MECH

of KLN COLLEGE OF ENGINEERING has presented a paper entitled

CONJUGATE MIXED CONVECTION IN AN OPEN SQUARE ENCLOSURE - EFFECT OF BAFFLE AND Al_2O_3 / WATER NANO FLUID

in the 3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21st April 2023.

Dr. D. Manoj
Convenor

Prof. Dr. D. Shanmugasundaram
Principal

Rev. Sr. K. Nambikai Mary, OMI
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This is to certify that Dr. / Mr. / Ms. N. NAGASUBRAMANIAN, AP/MECH of KLN COLLEGE OF ENGINEERING has presented a paper entitled CONJUGATE MIXED CONVECTION IN AN OPEN SQUARE ENCLOSURE - EFFECT OF BAFFLE AND Al_2O_3 / WATER NANOFLUID in the 3rd **International Conference on Intellectual Research in Science**, Engineering and Management **(ICIRSEM 2023)** held on 21st April 2023.

Dr. C. Mercy Convener	Prof. Dr. D. Shanmugasundaram Principal	Rev. Sr. K. Nambikai Mary, DMI Administrator	in association with ICT ACADEMY

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CONJUGATE MIXED CONVECTION IN AN OPEN SQUARE ENCLOSURE - EFFECT OF BRINKMAN AND Al_2O_3 / WATER NANOFLUID

in the 3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21st April 2023.

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... MIXED CONVECTION IN AN OPEN SQUARE ENCLOSURE - EFFECT OF ... WATER ...

in the 3rd International Conference on Intellectual Research in S...

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This is to certify that Dr. / Mr. / Ms. [illegible]

of [illegible] COLLEGE OF ENGINEERING has presented a paper entitled

[illegible] MIXED CONVECTION IN AN OPEN SQUARE ENCLOSURE - EFFECT [illegible] WATER [illegible]

in the 3[rd] International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21[st] April 2023

Convener — Prof. Dr. D. Shanmugasundaram, Principal — Rev. Sr. K. [illegible]

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of K.L.N. COLLEGE OF ENGINEERING has presented a paper entitled

[illegible] MIXED CONVECTION IN AN OPEN SQUARE ENCLOSURE : EFFECT OF [illegible] WATER [illegible]

in the 3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21st April 2023.

Dr. D. [illegible] Convener	Prof. Dr. D. [illegible]anmugasundaram Principal	Rev. Dr. K. Nambikai Mary, DM Administrator	[illegible]

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Certificate of Participation

This is to certify that Dr. / ~~Mr.~~ / ~~Ms.~~ M.R. THANSEKHAR. PROFF / MECH

of KLN COLLEGE OF ENGINEERING has presented a paper entitled

HEAT TRANSFER IN AN OPEN SQUARE ENCLOSURE - EFFECT OF PARTIALLY HEATING

in the 3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21st April 2023.

Mrs. N. Sridevya
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of KLN COLLEGE OF ENGINEERING has presented a paper entitled

HEAT TRANSFER IN AN OPEN SQUARE ENCLOSURE - EFFECT OF PARTIAL HEATING

in the 3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21st April 2023.

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[illegible] TRANSFER IN AN OPEN SQUARE ENCLOSURE - EFFECT OF PARTIALLY HEATING

in the 3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21st April 2023.

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of [illegible] College of Engineering has presented a paper entitled

Heat Transfer in an Open Square Enclosure - Effect of Partially [illegible]

in the 3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21st April 2023.

Dr. D. [illegible] — Convener

Prof. Dr. D. Sha[illegible]gasundaram — Principal

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... College of Engineering has presented a paper entitled

... in an Open Square Enclosure - Effect of ...

in the 3rd International Conference on Intellectual Research in Science, Engineering and Management (ICIRSEM 2023) held on 21st April 2023.

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... K. ..., Administrator

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This is to certify that Mr/Ms/Dr SABARINATH of K.L.N College of Engg has presented the technical paper entitled Structural Analysis of Gas Turbine Blade in the ISTE sponsored two days National Level Conference on "**Emerging Trends in Engineering Science & Technology "ETEST-23"** during 19th - 20th April 2023

Prof.M.Viswanath
Coordinator

Dr.K.M.Arunraja
Organizing Secretary

Dr.S.R.RajaBalayaaan
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Coordinator

Dr.K.M.Arunraja
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Prof.M.Viswanath
Co-ordinator

Dr.K.M.Arunraja
Organizing Secretary

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This is to certify that Mr/Ms/Dr BHARATH G.H of K.L.N College of Engg has presented the technical paper entitled Structural Analysis of Gas Turbine Blade in the **ISTE** sponsored two days National Level Conference on **"Emerging Trends in Engineering Science & Technology "ETEST-23"** during 19th- 20th April 2023

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Dr.S.R.RajaBalayaan
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This is to certify that Mr/Ms/Dr SABARINATH. P of V.L.N College of Engg has presented the technical paper entitled Design And Analysis of Alloy Wheel With Different Materials in the **ISTE** sponsored two days National Level Conference on **"Emerging Trends in Engineering Science & Technology "ETEST-23"** during 19th - 20th April 2023

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Coordinator

Dr.K.M.Arunraja
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This is to certify that Mr/Ms/Dr PRAKASH . K

of K.I.N. College of Engg has presented the technical paper entitled Design And Analysis of Alloy Wheel With Different Materials in the ISTE sponsored two days National Level Conference on **"Emerging Trends in Engineering Science & Technology "ETEST-23"** during 19th - 20th April 2023

Prof.M.Viswanath
Coordinator

Dr.K.M.Arunraja
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Dr.S.R.RajaBalayaaan
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This is to certify that Mr/Ms/Dr PRAVIN KUMAR.S.T

of K.L.N College of Engg has presented the technical paper entitled Design And Analysis of Alloy Wheel With Different Materials in the **ISTE** sponsored two days National Level Conference on **"Emerging Trends in Engineering Science & Technology "ETEST-23"** during 19th- 20th April 2023

Prof.M.Viswanath
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This is to certify that Mr/Ms/Dr ABDUL KADHAR . A
of K . I . N College of Engg has presented the technical paper entitled Design And Analysis of Alloy Wheel With Different Materials.
in the ISTE sponsored two days National Level Conference on "**Emerging Trends in Engineering Science & Technology "ETEST-23"** during 19th - 20th April 2023

Prof.M.Viswanath
Coordinator

Dr.K.M.Arunraja
Organizing Secretary

Dr.S.R.RajaBalayanan
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This is to certify that Mr/Ms/Dr A.HEMALATHA, M.E., PhD
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in the **ISTE** sponsored two days National Level Conference on **"Emerging Trends in Engineering Science & Technology "ETEST-23"** during 19th - 20th April 2023

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This is to certify that Mr/Ms/Dr ANBUMEENAKSHI. C
of K.L.N. College of Engg has presented the technical paper entitled Effect of Header Shape On Flow Distribution Study in Microchannels in the **ISTE** sponsored two days National Level Conference on **"Emerging Trends in Engineering Science & Technology "ETEST-23"** during 19th - 20th April 2023

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This is to certify that Mr/Ms/Dr ARIKESAVAN. M

of K.I.N College Of Engg has presented the technical paper entitled Effect of Header Shape to Flow Distribution Study in Microchannels in the ISTE sponsored two days National Level Conference on "Emerging Trends in Engineering Science & Technology "ETEST-23" during 19th- 20th April 2023

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K.I.T College of Engg has presented the technical paper entitled Auto Head Lamp Alignment And DIM/BRIGHT control for Automobile in the **ISTE** sponsored two days National Level Conference on "**Emerging Trends in Engineering Science & Technology "ETEST-23"** during 19th - 20th April 2023

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for presenting paper entitled,

Additive Manufacturing Transforms Foot Care - An Experimental Study of Custom Insoles

in the 4th International Conference on **Recent Innovations in Engineering and Technology** (ICRIET 2023) held on 5th & 6th April 2023.

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in the 4th International Conference on **Recent Innovations in Engineering and Technology** (ICRIET 2023) held on 5th & 6th April 2023.

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2021-2022

2021-2022

International Journal of Advances in Engineering and Management (IJAEM)
Volume 4, Issue 11 Nov. 2022, pp: 498-502 www.ijaem.net ISSN: 2395-5252

Experimental Investigation of Pentagonal Shaped Solar Drier

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Submitted: 05-11-2022 Accepted: 15-11-2022

ABSTRACT: Drying is one of the traditional methods for preserving agricultural products. About 20-25 percent people does not have enough food to eat. It has been estimated that world as a whole more than 25-30 percent food grains and 30-50 percent vegetables, fruits etc. are lost before it reaches to the consumers. Many of our food crops are 80-90% water and most of this needs to be removed for long term .To overcoming spoiling problems of vegetables, and fruit; various preserving methods are used and renewable sources are best for this purpose by which we can save energy for preservation and keeping the product in their natural flavor. Thus in this experimental study a pentagonal shaped solar drier was designed and fabricated and solar drying was adopted to preserve the vegetables and it was identified it reduces the moisture content and it is highly efficient.

Keywords: direct method, moisture, vegetables, pentagonal

I. INTRODUCTION

Most of the agricultural products have moisture content which makes them vulnerable to microbial and other spoilages due to biochemical reactions. Therefore drying has to be carried out to preserve the agriculture products from spoiling. Solar drying technique is a suitable method to preserve the agricultural products. Solar dryers are devices that use solar energy to dry substances, especially food. Solar dryers use the heat from sun to remove the moisture content of food substances.. Solar driers are fully sealed so that air does not enter. Air flow in the drier must be avoided, because the fluctuation in air flow causes increase in moisture content inside the drier. There are two general types of solar dryers: Direct Solar Drying and Indirect Solar Drying. Direct solar drying method is one which the substances are dried under a solar drier with sunlight only. This does not require any electrical or electronical components or solar panels for drying. This method is one of the oldest methods for drying. The drying process takes place between the solar period i.e 10AM – 3PM.

- In this method of drying, there is a fluctuation in temperature and humidity inside the drier
- This method is cheaper when compared to Indirect Drying method.
- The output and efficiency depends on the varying temperature in the environment.

In many parts of the world there is a growing awareness that renewable energy has an important role to play in extending technology to the farmer in developing countries to increase their productivity (Waewsak, et al., 2006). Solar thermal technology is a technology that is rapidly gaining acceptance as an energy saving measure in agriculture application.

The simplest design for a solar dryer was developed by the Brace Research Institute, Canada, (1975). It is essentially a hot box where fruits, vegetables or other materials can be dehydrated on a small scale The construction of such a dryer can take many forms. Nevertheless, certain specifications were recommended. The experimental results at Kanpur, India (Chantawanasri, 1978) for the drying of fruits and vegetables showed that solar-drying saved considerable time compared. With sun-drying in the open. Also, the product obtained from the solar dryer was found to be superior in taste and odour to sun-dried produce and was not contaminated by dust or infested by insects.

proposed for the selected crops. The empirical constants of Henderson's equation were obtained for all the materials from investigation, which are not available in the literature. The proposed

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Testing of Materials

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ISBN 978-93-953310-2-9

Intelligent Automation & Soft Computing
DOI: 10.32604/iasc.2023.028552
Article

Tech Science Press

An Efficient Honey Badger Optimization Based Solar MPPT Under Partial Shading Conditions

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Abstract: Due to the enormous utilization of solar energy, the photovoltaic (PV) system is used. The PV system is functioned based on a maximum power point (MPP). Due to the climatic change, the Partial shading conditions have occurred under non-uniform irradiance conditions. In the PV system, the global maximum power point (GMPP) is complex to track in the *P-V* curve due to the Partial shading. Therefore, several tracking processes are performed using various methods like perturb and observe (P & O), hill climbing (HC), incremental conductance (INC), Fuzzy Logic, Whale Optimization Algorithm (WOA), Grey Wolf Optimization (GWO) and Flying Squirrel Search Optimization (FSSO) etc. Though, the MPPT is not so efficient when the partial shading is increased. To increase the efficiency and convergences in MMPT, the Honey Badger optimization (HBO) algorithm is presented. This HBO model is motivated by the excellent foraging behaviour of honey badgers. This HBO model is used to achieve the best solution in GMPP tracking and speed convergence. The HBO methodology is also compared with prior P&O, WOA and FSSO methods using MATLAB. Therefore, the experiment shows that the HBO method is performed a higher tracking than all prior methods.

Keywords: PV system; gmpp tracking; convergence; honey badger optimization; digging and honey phase

1 Introduction

Solar energy is the most essential source to provide a clean environment and a better gain in economic. Nowadays photovoltaic (PV) systems are acted as a main solar source for electricity generation. But in the PV system, the conversion of insolation into electricity is more difficult and has minimum efficiency [1]. Solar radiation and atmospheric temperature are the environmental factors that are used for power generation in a PV system. The characteristics of power–voltage (P-V) and current-voltage (I-V) are affected by these environmental factors.

Individual Incremental Loading Factor Based Maximum Loadability Limit Prediction Using Modern Optimization Tools

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Submitted **:** 01-09-2020

Revised **:** 24-05-2021

Accepted **:** 27-06-2021

ABSTRACT

Infrastructure innovation in the power system industry encourages more partakers to participate in the electricity market which improvises the load utilization level. So, the maintenance of power system's agility with respect to any dynamic update in terms of load level is necessary. Precise prediction of maximum allowable loading point helps to enhance the power system agility and also improvises the total allowable power transfer capability which in turn helps to supply continuous eminent power supply at the minimal cost to the customers by means of encouraging more contracts. Considering the above potential benefits, in this papear by using individual incremental loading factor (IILF) the precise prediction of total loadability limit (TLL) of the system is manipulated with the help of newly evolved meta-heuristic optimization algorithm such as Grey Wolf (GRW) optimizer and Flower Pollination Algorithm (FPA). The allowable single line contingency scenario is considering along with base case scenario to extract the more realistic TLL which helps to maintain the power system balance with respect to the dynamic nature of the load. The proposed maximum loading point extraction manipulation solution problem is tested with the help of three standard IEEE systems such as 30 Bus, 57 Bus and 118 bus systems. The extracted test results show that the predicted maximum allowable loading point enhances the load utilization level without affecting the system securities. The statistical performance measures of GRW and FPA confirmed the better balance of exploration and exploitation in extracting the optimal results.

Keywords: Individual Incremental Loading Factor (IILF); Total Loadability Limit (TLL); Grey Wolf (GRW) Optimizer; Flower Pollination Algorithm (FPA); Reapeted Power Flow (RPF)

1. INTRODUCTION

The healthiness of any power system is to a large extent dependent on the balanced power supply with respect to any dynamic load utilization and with the restoration rate level in case of any contingency. So, the essential roles of any power system operation and control is to pre-determine the maximum allowable demand at each existing load bus as well as in pre-categorizing the critical load buses and transmission lines in a power system. The function of determining maximum allowable demand of each load bus in a power system helps to extract the maximum allowable Total Loadability Limit (TLL) of a power system. TLL extraction process not only resolves the operation-based problems, but also provides constructive information for the distribution expansion planning, distributed generation sizing, tie-line capacity, FACTS device placements, etc., [1–5]. According to power system operational stance, the allowable TLL is the maximum load limit that a power system can serve the customers without violating any security constraints. Maximum loadability limit (MLL) based analysis is one of the best approach to appraise a power system in a steady state and also pre-determine the practical intellect of a security margin [6]. In the restructuring based

ATC calculation in Deregulated Power System Using Power World Simulator

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Abstract: A fair competition needs open access and non-discriminatory operation of the transmission network. Available Transfer Capability (ATC) is a measure of the remaining power transfer capability of the transmission network for further transactions. Available transfer capability in the transmission network has become essential quantity to be declared well in advance for its commercial use in a competitive electricity market. The ATC values are estimated for DC power flow model and AC power flow model using Power transfer distribution factors (PTDFs) at different transactions. We predicted the PTDF is different for different transactions and ATC is also different for the transactions. Single transactions between one buyer bus and one seller bus have been carried out using Power World simulator tool on IEEE 14 bus test system for both AC and DC load flow model. The solutions obtained are quite encouraging and useful in the present restructuring environment.

Keywords**: *Available Transfer Capability (ATC), Power Transfer Distribution Factor (PTDF), Power World simulator***

I. INTRODUCTION

Available transfer capability in the transmission network has become essential quantity to be declared well in advance for its commercial use in a competitive electricitymarket. Electric power industries throughout the world have been restructured to introduce competition among the market participants and bring several competitive opportunities. A fair competition needs open access and non-discriminatory operation of the transmission network. Open access to the transmission system places an emphasis on the intensive use of the interconnected network reliably, which requires knowledge of the network capability. Available Transfer Capability (ATC) is a measure of the remaining power transfer capability of the transmission network for further transactions.[1]

Its fast computation using DC load flow based approach is used worldwide for on line implementation. Many authors have proposed the ATC calculation based on DC/AC load flow approach. AC PTDF based approach has been proposed for multi-transaction cases using power transfer sensitivity and Jacobian calculated with three different methods. The methods can be implemented for any number of transactions occurring simultaneously.

The linear dc power transfer distribution factors (DC PTDF) based on dc power flow method, is possibly the only allocation technique presently in widespread use to allocate MW flows on the lines for a transaction in the system. However, this has a poor accuracy due to the assumptions involved in the dc power flow model.

In a fast decoupled power flow model for transmission allocation has been suggested, which is based on linearizing ac power flow equations and using incremental steps based on current power flow state. However, it does not allocate losses to individual transactions. In a physical flow-based transmission loss allocation scheme based on expressing loss explicitly in terms of all transactions in a power system network was proposed. However, error between the system losses evaluated by ac load flow (ACLF) and the losses using the methodology based on were relatively high. The ac power transfer distribution factors, computed at a base case, have been used to find various transmission system quantities for a change in MW transactions at different operating conditions.

This paper explains the calculation of ATC values using Power world simulator tool. The time consumption for determining ATC values are reduced by applying this tool. The transactions are considered as single transactions. The ATC value for both DC and AC load flow model is found. The proposed method is illustrated on IEEE- 14 bus system.

eISSN 1303-5150

Design and Development of Onboard Charger with Smart Monitoring System for Battery Electric Vehicles

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***Abstract*— The widespread use of electric vehicles and battery-powered equipment has led to the development of various battery chargers. To charge the batteries in an electric vehicle, an AC-to-DC charger is designed with a 230 V AC input, which is stepped down to 24 V AC using a transformer. The bridge rectifier then converts the stepped-down AC to an output voltage of 24 V DC, which is the desired voltage for the battery. To meet the charging requirements, the circuit is designed to deliver a voltage and current of 24 V and 5 A, respectively. Once the battery is fully charged, the current sensor will detect that the current has dropped to 1A and send a signal to the Arduino UNO. The Arduino UNO will then cut off the gate signal of the MOSFET, causing it to automatically cut off the battery The monitoring system displays the battery voltage, input power, output power, and battery percentage. The voltage divider and current sensors are connected to an Arduino UNO microcontroller, which collects and sends the data to a user application via an ESP8266 module over a wireless network. The battery levels are displayed on user applications such as mobile and web interfaces, making this a simple, efficient, and low-cost charger for electric vehicles.**

Keywords: **Step-down transformer, Bridge rectifier, Arduino UNO, Wireless network, User Application, Current Sensor.**

I. INTRODUCTION

The depletion of natural resources has become a global issue in recent years, resulting in the need to regulate carbon emissions. As a result, there is a growing need for alternative options to Internal Combustion Engine driven vehicles. The replacement of conventional vehicles is gaining priority, and for this reason, Electric Vehicles (EVs) have been proposed as a better alternative.

Due to the rapid growth in EV sales, many countries have begun to issue interest in establishing governmental incentive policies to support the development of EVs regarding the future of vehicle sales, including the United States, China, India, and many countries within the European Union. which requires them to sell an increasing number of zero-emission vehicles over the year. Accordingly, various eco-friendly vehicles such as battery electric vehicles and hybrid electric vehicles, have been developed. These vehicles necessarily require a rechargeable battery system [1] as a power source for the electric traction system.

The battery is one of the most critical components in the development of an EV. Its energy density, charging time, lifetime, and cost are restricting practical applications. The charging time and lifetime of a battery depend on the characteristics of the battery charger [2] and its usage [3]. There are two kinds of chargers for the EV's application namely, on-board type and off-board type. "On-board" [4] would be appropriate for a household utility, these are limited by size and weight, and the "Off-board" permits fast charging of the battery.

The onboard charger allows the battery to charge at any time and convenience, given the availability of the supply grid [5]. It would increase the acceptance of EVs. It can use any household outlet and extend the range of EVs significantly.

Several research articles have been published on EV technologies, and some related literature surveys have briefly discussed these advancements.

M. Senthilkumar K.P. Suresh T. Guna Sekar C. Pazhani Muthu, "Efficient Battery Monitoring System for E-Vehicles" [1] proposes a battery management system to monitor the real-time health of the batteries using google apps script. By using machine learning algorithms to predict the life cycle of the battery and give suggestions to the user regarding the time and duration of each charge cycle.

Kotla Aswini, Jillidimudi Kamala, Bugatha Ram Vara Prasad, Lanka Sriram, Bhasuru Kowshik, Damaraju Venkata Sai Bharani "Design and Analysis of Bidirectional Battery Charger for Electric Vehicle" [2] proposes an onboard bidirectional battery charger for Electric Vehicles, the hardware topology and the control algorithms of the presented battery charger are validated through computer simulations, using the MATLAB software.

Dr. R. Essaki Raj, Poovizhi.S, Roshini Sathyamurthy, Rubadevi R "AC-DC Converter for Electric Vehicle Charger" [6] proposes a converter plays an AC/DC converter for power factor correction and output regulation. This converter circuit is simulated using MATLAB software.

Harish N, Prashant V, and Dr. Sivakumar's "IOT-based Battery Management System" [11] Propose the importance of overcharging the battery. Further, this paper explains the importance of monitoring the battery parameters by using controllers and tracking electric vehicles.

Journal of Engineering Research and Reports

22(12): 21-35, 2022; Article no.JERR.89281
ISSN: 2582-2926

Design and Implementation of Hybrid Harmonic Filter for Converter System

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

Article Information

DOI: 10.9734/JERR/2022/v22i1217581

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/89281

Original Research Article

Received 29 April 2022
Accepted 14 July 2022
Published 16 July 2022

ABSTRACT

Quality of power is essential for all electrical systems towards their reliable operation. In specific voltage/current magnitude, frequency and waveforms are the key parameters that decide the quality of electric power supply. Recently enormous nonlinear loads such as converters, inverters, variable frequency drives, and uninterrupted power supply are used in all modern industrial sectors which leads to power quality disturbance in power systems In particular, harmonic distortion is one of the main power quality causes produced by nonlinear loads which will affect the reliable operation of industrial electrical equipment. Harmonic filters help to maintain the harmonic limits as per the IEEE 519-2014 standard. This research article overviews the various types of harmonic filters and the design procedure for the passive harmonic filter. Also, this research paper briefly converses the design and control technique procedure for the proposed hybrid harmonic filter, used to control the harmonic distortion produced by the three-phase converter system. The results of the experimental setup with the implementation of a hybrid harmonic filter clearly show that the harmonic distortion is greatly reduced. The high accuracy power quality analyzer used in this research work measures the real-time voltage/current waveforms, power/energy, and harmonic profiles.

Keywords: Nonlinear loads; harmonics; hybrid filter; converter; pulse width modulation.

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INTERNATIONAL CONFERENCE ON RECENT INNOVATIONS IN COMPUTER, COMMUNICATION AND MANUFACTURING (ICRICCM-23) 12-13TH APRIL 2023
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Energy Audit and Analysis of Energy Utilization in Engineering Institution Building

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Day by day, energy demand keeps rising so that it is essential to reduce energy consumption for that energy conservation is needed. Energy audits are the easiest way to find the gap between energy supply and demand. For Conservation of energy the best option is energy audit. Energy audit is a process to determine when, where, why and how energy is used in a plant or building. Collection of these information helps to identify the situation where there is need to improve energy efficiency and decrease production cost. Normally, an energy audit is carried out by certified energy Auditors. By conducting energy audit process in college, employees begin considering energy as a manageable expense and try to conserve it in day-to-day action. Effective energy audit process in the college of engineering can focus the employees to think of energy as a controllable expenses and tried to save it in their daily work. The main objective of this paper is to evaluate use of energy in above engineering college for lighting purpose and determine the opportunities for energy saving with energy efficient equipment's or techniques have to be adopt in engineering college to make college more energy efficient through energy audit.

Keywords – Energy Audit, Manageable Expenses, controllable expenses, Lighting Load Laboratory Equipment's, Energy Efficiency

INTERNATIONAL CONFERENCE ON RECENT INNOVATIONS IN COMPUTER, COMMUNICATION AND MANUFACTURING

(ICRICCM-23) 12-13TH APRIL 2023

AAA College of Engineering and Technology, Amathur 626 005, Sivakasi, viruthunagar District,

PERFORMANCE ENHANCEMENT OF PV SYSTEM USING DISTRIBUTED NETWORK

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ABSTRACT:

In this research, Power losses and voltage drops severely impact the performance of home appliances and distribution transformers. Power loss is minimized to save electricity while the voltage level is maintained in allowable standard limits for the smooth operation of the power system. For this purpose, different techniques are discussed. Instead of utilizing traditional methods power engineers prefer to integrate renewable energy source(s) at optimal sites. In this paper, small scale solar photovoltaic modules are penetrated through the net-metering. The distribution feeder in theni district is taken as a case study for this research where irrigation loads of some optimal sites are solarized. Due to this integration of solar systems power loss is reduced while the voltage at consumers' ends is improved. This technique not only relieves the grid but also saves a huge amount of revenue. The solar PV systems are installed according to the demand of irrigation load. It is investigated that with the implementation of such small scale and a large number of solar PV units in the distribution scheme has declined the importance of large scale renewable grid integration. Performance analysis of existing and proposed distribution system has been carried out and the results obtained clearly demonstrates the effectiveness of the proposed method.

Keywords – Solar, grid, distribution system, Switching, Transformers, Photovoltic

INTERNATIONAL CONFERENCE ON RECENT INNOVATIONS IN COMPUTER, COMMUNICATION AND MANUFACTURING (ICRICCM-23) 12-13TH APRIL 2023

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ANALYSIS, DESIGN AND SIMULATION OF BIDIRECTIONAL DC- DC CONVERTER

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ABSTRACT:

In this research, a proportional integral controller is used to construct and simulate a bidirectional DC-DC converter. The suggested converter uses an inductor that is linked with the same primary and secondary sides have twisting curves. The main and secondary windings of the linked inductor are charged in parallel and discharged in series during step-up mode to provide high step-up voltage gain. The main and secondary windings of the linked inductor are charged in series and discharged in parallel in step-down mode to achieve high stepdown voltage gain. The proposed converter has a relatively straightforward structure. Hence, compared to the traditional bidirectional boost/buck converter, the suggested converter has larger step-up and step-down voltage gains. There includes a thorough discussion of the working principle and efficiency analysis. Last but not least, a 14/42-V closed loop circuit is developed and simulated to test the effectiveness of the automotive battery system.

Keywords – DC-DC Converter, Closed Loop, Zero Voltage Switching, Zero Current Switching, Boost Converter, Bi Directional Converter

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(Accredited by NAAC with (Autonomous)'A' Grade and by NBA for 5 UG Programmes) (Approved by AICTE and affiliated to Anna University,Chennai)
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"International Conference on Power and Energy Systems"
(ICPES-2023) 17th and 18th March 2023

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Abstract

Transmission line is the most important part of the power system. Transmission line a principal amount of power. The requirement of power and it allegiance has grown up exponentially over the modern era, and the major role of a transmission line is to transmit electric power from the source area to distribution network. The exploded between limited production and a tremendous claim has grown the focus on minimizing power losses. Losses like transmission loss and also conjecture factors as like us physical losses to various technical losses, another thing is the primary factor it has a reactive power and voltage deviation are momentous in the long-range transmission power line. In essentially, fault analysis is a very focusing issue in power system engineering to clear fault in short time and re-establish power system as quickly as possible on very minimum interruption. However, the fault detection that interrupts the transmission line is itself challenging task to investigate fault as well as improving the reliability of the system. The transmission line is susceptible given all parameters that connect the whole power system. This paper presents a review of transmission line fault detection.

1. INTRODUCTION

In the presentation of this report we recall with the sincere gratitude of each of those who has been a source of immense help and inspiration during the progress of report. Electricity is necessary and the useful form of energy. It plays an ever growing role in our modern industrialized society. Maintenance of a

SRI VIDYA COLLEGE OF ENGINEERING & TECHNOLOGY VIRUTHUNAGAR

Department of Electrical and Electronics Engineering

RENEWABLE ENERGY FOR ELECTRIC VEHICLE CHARGING SYSTEM, ON 17 March 2023

A bidirectional DC-DC converter fed separately excited DC motor electric vehicle application

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ABSTRACT

Due to the bidirectional DC-DC converter, this paper is intended to push the boundaries of the DC motor and perform regenerative braking for electric car idea with brakes. Applications for bidirectional DC-DC converters (BDDDC) are of noticeably growing interest.. Acceleration and pressure must match the battery voltage specified for the motor in order to manage the power flow in a braking condition, and the second: a DC-DC converter is primarily needed for two tasks. A DC-DC converter is mostly required for two purposes. Normal and accelerated modes When braking or in regenerative mode, the motor's kinetic energy is transformed into electrical energy, which passes between the battery power and is sent back to the battery. Bidirectional DC-DC converter regenerative braking will be carried out in this project employing a DC motor and energy recovery procedures in MATLAB/Simulink.

Keyword-bidirectional DC-DC converter ; lithium-ion battery; Seperately excited DC motor.

Optimizing Operation Indices Considering Different Types of Distributed Generation and Microgrids for Small Island Electrification.

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Abstract

The need for independent power generation has increased in recent years, especially with the growing demand in microgrid systems. In a microgrid with several generations of different types and with all kinds of loads of variable nature, an optimal power balance in the system has to be achieved. This optimal objective, which results in minimal energy losses over a specific period of time, requires an optimal location and sizing of the distributed generations (DGs) in a microgrid. This paper proposes a new optimization method in which both optimal location of the DGs and their generation profile according to the load demand profile as well as the type of DG are determined during the life time of the DGs. This is also relevant to the small islands in developing countries where the present need is to have access to adequate supply of electricity. The research progress in the fields of distributed generation (DG) and micro-grid (MG) are summarized in this paper, which mainly focuses on the schemes of DG islanding detection, DG's relay protection as well as the control strategy of converters.

An Internet of Things (IOT) based Joint Energy Auditing, Energy Conservation and Energy Management System for Industries.

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ABSTRACT

The Energy Consumption is strongly interrelated with the industrial sector, and it is integrated with Internet of Things (IoT) solutions for effective energy management, supporting decision making in the industries are key primary essentials for reducing the energy losses in the industries. The available systems still can be improved to increase the productivity of the systems. This research work will present an advanced Internet of Things based system for intelligent energy management in the industries for all the performance on energy consumption in Electrical systems, Fuel systems, Optimization, Thermal energy systems etc. A semantic framework would be introduced aiming at the unified and standardized modelling of the entity that constitutes the industry environment into the monitoring and control of Energy Consumption. Suitable Systems will be formed, aiming at the IoT based energy audit and management. In this context, an IoT based system would be implemented, which enhances the interactivity of the industry Energy Consumption and Energy Management Systems. The results from the energy audit will be monitored using IoT solutions. The Energy Audit focuses on Low investment, medium investment, and High investment possibilities by regular monitoring by which this would be supporting on Energy saving measures in the industries which will give the short term, medium term, and long-term benefits to the industries.The proposed system would broaden the existing approaches and integrates cross domain data functions such as the industrial data, energy consumption, energy bill, Energy tariff plans, weather forecast data and end user's performance to produce daily and weekly action plans for the energy end users. This research work emphasizes greater flexibility to accommodate new energy sources, better management of assets and operations, greater reliability, enhanced security, better customer service, and enablement of new business models and services etc.

Keywords—IoT based Energy Auditing System, Energy Conservation System and Energy Management System etc.,

An Off-Grid Renewable Energy System Using Wind Power and Energy Storage

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Abstract

Renewable energy systems have been used in many areas. However, little attention has been paid to investigating off-grid renewable systems for farming. In this project, wind power and energy storage are used to design a realistic renewable energy system to supply power to an average California farm. The system provides clean wind energy for typical household appliances and farming purposes such as irrigation. A scaled-down prototype of the system is implemented for validation of the theoretical design. The design calculation and validation results show that the renewable energy system is capable to supply sufficient power to the farm, independently from utility power grid. Some valuable experiences are obtained regarding selection and operation of the prototype components.

Paper ID: ICPES-22

Comparative Analysis of THD Reduction in Three Phase System by Passive Filters

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Abstract

Power Quality (PQ) is a measure to find the quality of power supplied by the grid. It is an important parameter to utilize the power efficiently and also to improve the life of equipment which is connected to the system. This paper describes about the power quality issues due to introduction of non-linear loads which are mainly used in our day-to-day life. The main PQ issue of Total Harmonic Distortion (THD) which is mainly occur in a system due to distorted voltage and current waveforms of non-linear loads is analysed. The mitigation of the THD by the use of passive filters such as Single Tuned, Double Tuned, High Pass, C-Type High Pass Harmonic filters are carried out with the help of MATLAB Simulink software and the performance of the filters are comparatively analysed based on the reduction in THD and losses in the system.

Paper ID: ICPES-23

Smart Traffic Light Controller & Intelligent Ambulance Tracking System

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Abstract

This paper proposes a project based solution to save the life of the patient in Ambulance by quickly clearing the road traffic so as to reach the hospital at the earliest. Not only doctors but also engineers can save lives. Engineers can proudly take equal credit as doctors in saving lives by inventing innovative technologies. The main objective of

the paper is to pave way to emergency vehicles without delay by automatically changing the traffic signal. With the help of XBEE transceiver, the signal is changed automatically. XBEE transmitter and receiver are placed on the ambulance and traffic signal pole respectively. The transmitter transmits the signal when the ambulance comes into particular range (based on XBEE transceiver). The receiver receives the signal and gives an impulse to the buzzer which is placed on the traffic pole. The buzzer gives an alarm, alerting the traffic policeman who is on duty about the arrival of ambulance. At the same time, traffic signal is automatically changed by getting an impulse from the receiver. Now the ambulance crosses the traffic signal smoothly without any delay. The location of the ambulance can be tracked by GPS and by using GSM, messages will be sent about the ambulance location and the condition of patient. The power supply for the transmitter is taken from the battery of the vehicle and power supply for the receiver is taken from the traffic pole and in future solar panels placed on the traffic poles, used to supply power to the receiver.

Paper ID:ICPES-24

Design and Implementation of an Intelligent Wheelchair Controlled by Multifunctional Parameter

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Abstract

Physically challenged persons those who are suffering from different physical disabilities face many challenging problems in their day-to-day life for commutating from one place to another and even sometimes they need to have to be dependent on other people to move from one place to another. There have been many significant efforts over the past few years to develop smart Wheelchair platforms that could enable the person for its ease of operation without any ambiguity. The main aim of our paper is to develop the smart Wheelchair to make the life easier for physically challenged persons. This voice-controlled smart Wheelchair comes with enhanced features, like Electric powered, Voice control, Automatic Light, Panic switch, with the obstacle avoidance etc. The smart Wheelchair control unit consists of an integration of Arduino Microcontroller with Bluetooth module, GSM module , and temperature sensor and motor driving circuit for controlling motor's speed.

Paper ID: ICPES-25

Design of Quadratic High Gain Boost Converter For Electric Vehicle Charging Applications

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Abstract

Design of analysis of Quadratic DC-DC high gain boost converter for charging applications in Electric vehicle (EV) plays major role in automotive industry. Infrastructure limitations are major challenge in the Battery operated Electric vehicle. The charging infrastructure include all the hardware and software that ensures transfer of energy from the electric grid to the vehicle. It is attributed by charging location, power level and charging time. Battery operated electric vehicle decreases the charging requirements at public charging stations. The electric vehicle supply equipment (EVSE) needed at different types of locations (eg. Home ,work and commercial parking) is based on an optimal charging strategy the proposed battery charging method using quadratic boost converter is a novel quadratic DC-DC converter, with high-voltage transfer gain and reduced semiconductor voltage stress. The proposed converter not only achieve high step-up voltage gain with reduced component count but also reduce the voltage stress of both active switches and diodes. This will allow one to choose lower voltage rating MOSFET's and diodes to reduce both switching and conduction losses. In addition, due to the charge balance of the blocking capacitor, the convertor automatic uniform current sharing characteristic of the two interleaved phases for voltage boosting mode without adding extra circuit or complex control methods. Finally, the complete system in analyzed and simulated through proteus software and experimental results are also presented to demonstrate the effectiveness of the proposed quadratic converter.

Paper ID: ICPES-26

Block Chain Tech as Cloud Storage in a Smart Grid

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Abstract

Using block chain technology as cloud storage in Smart Grid can provide several benefits, including: Security in Block chain technology provides a high level of security and protection against cyber-attacks. Since data is stored on a decentralized network of nodes, it is less vulnerable to hacking or data breaches. The transparency of the block chain ledger ensures that data is accessible and visible to all parties in the network, providing greater transparency and accountability. Resilience in Block chain technology provides a highly resilient storage solution. Since the data is distributed across multiple nodes in the network, it is highly resistant to failures and attacks. Scalability of Block chain technology provides a scalable storage solution, which can grow with the needs of the Smart Grid. New nodes can be added to the network as required, and the storage capacity can be increased as needed. Block chain technology can provide a cost-effective solution to cloud storage in Smart Grid. Since the technology is decentralized, there is no need for expensive data centers, and the costs of storing data can be shared across the network.

Paper ID: ICPES-27

Developing and Designing a Smart Library Management System

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Abstract

The Smart library management system is about organizing, and managing library-oriented tasks. It involves maintaining the database like entering new books and maintaining the customer data like books taken and received in the specified time. The main aim of this project is to provide an easy-to-handle and smart library management system. This project also provides features and an interface for maintaining librarian records, students' history of issues, and fines. The admin can easily update and delete the database. Mainly the Software used is developed in a simple and easy to use of UI and easy learns UX design. Nowadays Smart library exists in automation, but people feel reading while they see and choose the book author. So, this paper makes people to adapt the library conventionally and easily.

Paper ID:ICPES-28

RF Based Transformer Fault finder

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Abstract

Transmission line is the most important part of the power system. Transmission lines a principal amount of power. The requirement of power and its allegiance has grown up exponentially over the modern era., and the major role of a transmission line is to transmit electric power from the source area to the distribution network. The exploded between limited production, and a tremendous claim has grown the focus on minimizing power losses. Losses like transmission loss and also conjecture factors as like as physical losses to various technical losses, Another thing is the primary factor it has a reactive power and voltage deviation are momentous in the long-range transmission power line. In essentially, fault analysis is a very focusing issue in power system engineering to clear fault in short time and re-establish power system as quickly as possible on very minimum interruption. However, the fault detection that interrupts the transmission line is itself challenging task to investigate fault as well as improving the reliability of the system. The transmission line is susceptible given all parameters that connect the whole power system. This paper presents a review of transmission line fault detection.

Paper ID:ICPES-29

Smart Health Monitoring System

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Abstract

This presents the design and implementation of a health monitoring system using the internet of things (IoT). In the present days with the expansion of innovations specialist are always looking for innovative electronic devices for easier identification of irregularities within the body. IoT enabled technologies enable the possibility of developing

creates health hazard for citizens and labours. When manpower involved in clearing the block, it leads to fatal due to hazardous gases present in it. In this project, to overcome the issue of hiring man power to remove the blockage, Remote controlled underwater rover(RCUR) using raspberry Pi is used in this project.

Paper ID: ICPES-32

Industry Mechanization for Goods Loading and Unloading

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Abstract

The creation of an alternative to the currently employed conventional energy supplies was required by both the rapid expansion in energy demand and escalating environmental concerns. The best choice is renewable energy technology, but it is uncontrollable because the nature of the steady output is unpredictable. can't be acquired Solar and wind energy sources can be combined to address this issue because they are complementary to one another. Lithium- ion batteries are used in an enormous number of electric vehicles that are on the road today. These vehicles' reliance on the grid to recharge their batteries will eventually cause a problem with the stability of the power supply. In this study, a hybrid wind and solar-based battery charging system is suggested for recharging electric automobiles lithium-ion batteries that are used in an enormous number of the electric vehicles that are on the road today. These vehicles' reliance on the grid to recharge their batteries will eventually cause a problem with the stability of the power supply. In this study, a hybrid wind and solar-based battery charging system is suggested for recharging electric automobiles. a faulty The battery is charged either from both sources or from just one source using a DC-DC converter with a fuzzy logic controller dependent on the presence of wind and solar radiation.

Paper ID: ICPES-33

IoT based Single Axis solar Tracking System

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Abstract

"Now a days the solar panel will not giving constant continuous power so we are decided to A solar photovoltaic (SPV) cells based single axis tracking system on Arduino Uno platform is implemented in this article for achieving maximum power during a day. The key idea of this article is implementing an automatic single axis solar tracking system. Alignment of solar panel with the Sunlight for getting maximum solar radiation is experimented. This system tracks the maximum intensity of light in terms of maximum power point (MPP). When the light intensity decreases, its alignment changed automatically for catching maximum light intensity. This article shows implementation and analysis of single axis solar tracker, while various solar axis trackers are available in the market. Meanwhile, the proposed technique is able to identify axis quickly and aligned with sun rays in order to achieve Maximum Power Point (MPP) as the output regardless motor speed. This project is covered for a single axis and is designed for residential usage. Finally, the project is able to track and follow the Sun intensity in order to get maximum power at the output regardless motor speed."

Paper ID:ICPES-34

Automatic Rubber compound Injecting System for Mixing Mill

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[1,2,3,5]Electrical and Electronics Engineering, K.L.N. College of Engineering
[4]Plant Engineer, Super rubber mix, Arittapatti, MelurTk

Abstract

Rubber manufacturing uses certain chemical compounds and clean rubber materials to create a second layer of rubber material. The compounds should be mixed at the required temperature depending on the rubber material required in the mixing unit. The compound must be injected into the mixer unit. If the mismatched compound has been added the whole batch has been wasted and the mixer motor can also get damaged because improper mixing gets sticky inside the mixing unit and it loads the motor. To avoid such a problem, the automatic detection system has been designed. This system automatically opens the mixer door only when verified by detecting the compound connected to the main control unit.

Paper ID: ICPES-35

Single Axis Solar Tracking

Dr. M. Jegadeesan S. Akash Kumar, M.R. HariPrasath, S.G. Prithivi Raj
Associate Professor, UG student Department of Electrical and Electronics Engineering
K.L.N. College of Engineering

Abstract

Nowadays the solar panel will not give constant continuous power so we are decided to a solar photovoltaic (SPV) cells based single-axis tracking system on the Arduino Uno platform is implemented in this article for achieving maximum power during the day. The key idea of this article is implementing an automatic single-axis is solar tracking system. Alignment of solar panels with the Sunlight for getting maximum solar radiation is experimented. This system tracks the maximum intensity of light in terms of maximum power point (MPP). When the light intensity decreases, its alignment changed automatically for catching maximum light intensity. This articles how simple mentation and analysis of single axis solar tracker, while various solar axis trackers are available in the market. Meanwhile, the proposed technique is able to identify axis quickly and aligned with sun rays in order to achieve Maximum PowerPoint (MPP) as the output regardless motor speed. This project is covered for a single axis and is designed for residential usage. Finally, the project is able to track and follow the Sun intensity in order to get maximum power at the output regardless motor speed increase by maximum power point tracking technique. This technique also reduces the cost factor. In this technique, operator can get maximum power point on the solar panels by which get maximum efficiency which result in enhanced power output.

Paper ID: ICPES-36

Cloud Computing Based Lineman Security System While Working on

Transmission line

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Abstract

This paper is designed to safeguard the lineman by controlling the circuit breaker with help of a password and OTP. Fatal electrical accidents amonglinemen are increasing during electric line repair due to the lack of communication and coordination between the maintenance staff and the electric substation staff. This proposed system provides a solution, which can ensure the safety of the maintenance lineman. The control to turn the ON/OFF line depends on the lineman man only. This system has an arrangement such that a password is required to operate the solid-state circuit breaker (ON/OFF). Lineman can turn off the supply and comfortably repair it, and return to the substation, then turn on the line by entering the same OTP. The system is fully controlled by Arduino Uno. A matrix keypad is interfaced with the microcontroller to enter the password and the message is sent through GSM to a higher authority. The entered password is compared with the password stored in the ROM of the microcontroller. If the password entered is correct then only the line can be turned ON/OFF.

Paper ID: ICPES-37

Automatic Maximum Demand Controller with Indication

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Abstract

In industries, the EB has been used to distribute the fixed maximum load (Electricity Board). The industries have been penalized if the maximum demand has been exceeded, and this demand causes overloading of transformers and wires. Additionally, if the overload relay was opened, the management was unaware of the cause until they looked at the main control board. The automatic demand controller was developed as a solution to this problem. It automatically shuts down the instrument when the maximum demand is reached, showing the demand level in each SSB. At that time, Example we used 950 kVA of the available 1000 kVA. The maximum demand will be maintained since the contactor won't terminate the circuit when the demand is close to 950 kVA. In order to operate and monitor this item, NRF additionally connected it to the SCADA network.

Paper ID:ICPES-38

Numerically Investigate the Thermal Performance of Heat Pipe Positioned Various Angle in Laptop

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Abstract

using LED display moreover, whenever the people are out of station this device will be beneficial for gardening the plants.

Paper ID: ICPES-76

Brain Controlled Wheel Chair

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Abstract

EEG has been largely used in both clinical and research applications. Brain computer interface (BCI) system is one of the major EEG research applications which can provide a new way of communications for special users who cannot communicate via normal pathways. This paper focuses on the development of the brain controlled wheelchair which incorporates two additional control interfaces including joystick and a remote control through an android phone. All three controls are integrated in such a way that it allows the user to change the mode of control by simply changing the state of the slide switch. This work utilizes the Neurosky Mindwave Mobile headset to capture the EEG signals through a single channel placed at the FP1 position. Eye blinks and attention levels are the key features of the captured EEG that are extracted and identified through an android application. The design also assimilates ultrasonic sensors based safety system which is capable of detecting the obstacles in all four directions to ensure the safety of the user.

Paper ID: ICPES-77

Automatic Solar Tracking System Using Heliodrive

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Abstract

It is well known that solar power production is maximum to the solar panel.A number of solar tracking electronic devices have been made to align the solar panel with the sun, but they consume power and effective powergeneration is notefficient**.** It is defined to make solar panels.This project using a "HELIOTROPISM METHOD"(As Sunflower moving towards the sun), so the tracker does not consume power.This mechanism is achieved in solar tracking by using someComponents or Equipment such as Paraffin wax, piston, and some mechanical set. This Mechanism works under the heating of waxthat leads to expansion and moves the piston respective to the sun. This occurs repeatedly from morning to evening.This set is named a HELIODRIVE SYSTEM. These donot consume any power**,**whichis the main objective of the project.

Paper ID: ICPES-78

Ceramic Matrix Composites for High Temperature Stealth Technology

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Abstract

Thermal structural materials integrated with specific electromagnetic function have arised great attention in recent years. Driven by the urgent demand of multi-functional composites involving oxidation resistance, high strength and strong microwave attenuation in application of future high speed stealth vehicle, ceramics and their derivative architectures have considered to be a promising candidate in the field of high-temperature microwave absorption (HTMA) owning to tunable dielectric properties as well as intrinsic excellent thermo-physical properties. This article

Paper ID: ICPES-81

GPS Based Supporting System for Blind

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Abstract

There are 43 million peoples are being blind, in the world. Among these total 24 million women and 19 million men are blind and 75 percent peoples are in the age of above 50.In India approximately 4.17 percentage of men and blindness 5.68 percentage of women are being blind.Blind people are leading a normal life with their own style of doing things. But they are definitely face troubles due to social challenges. The biggest challenge of a blind person, especially the one who is with the complete loss of vision, is to navigate around places.An obstacle alert system was designed with Node Microcontroller Unit, which will alert the blind person from their surrounding region. This device operates like the radar and the system of the device uses the ultrasonic wave's fascicle to identify the height, direction and the speed of the objects.The Ultrasonic sensor is used to sense the object/person from their surroundings. The distance between the person and the obstacle is measured by the time of the wave travel and the buzzer is used to alert them. Also, this module can identify the exact location of the disabled person through GPS Module when a hazardous danger occurs. This project will build a self confidence among and blind person.

Autonomous Rover for Cleaning Photovoltaic Panel

EEE-027

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Accumulation of dust on the surface of solar panels decreases the amount of sunlight reaching the solar cells underneath and thus the efficiency of the solar panel is severely impacted. The dust accumulates in the solar panel and reduces power efficiency by 50% if the solar panel is not cleaned at regular intervals. If proper cleaning mechanisms are used then, it may show about 25% improvement in output energy or about 15 to 20% enhancement in conversion efficiency. This issue can be fixed by an autonomous photovoltaic cleaning system. This is done with the help of a Microcontroller board Arduino Uno R3 which easily controls all the devices used in this particular model and therefore helps us to understand the required parameters which deal with the change in efficiency brought about by the cleansing of the solar panel arrays.

IoT Based Smart Remainder Medicine Pill Box

EEE-028

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There are lots of challenges for blind people and elderly people who need constant help – may it be our family members, the ones who have special needs. These people apparently need the kind of care which busiest family members cannot provide. Some people may forget to take the medicines at the correct time and can forget the medicines which they have to take. So in order to help them with this liability we have developed this project. The people are provided a smart med box on which there will be an alarm with voice output which notifies the people about the medicine. Along with this we can alert them with an alarm and light indications. So that even if the person is sleeping or busy with some work the alarm helps in alerting him. To confirm that the person has taken that medicine or not we can put a sensor at the opening end of the pill box. so when the person tries to open the box the signal is sensed and the alarm will be off only if the sensor is pressed. By this data we can tell that the person has taken the medicine. We can notify the doctor and the other one is used to notify family members about the medicine taken using IOT.

EEE-063

AC to DC Rectifier for E-Vehicle charging

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In this paper, an AC to DC rectifier circuit has been discussed and the simulation results are provided. This converter is very useful for the upcoming development of the electric vehicles charging technology. For producing steady DC from a rectified AC supply requires a smoothing circuit or filter. The main purpose of the filter circuit is to remove the ripple or ac components from the output of the diode circuit. So, to make the output DC pure, the filter circuit is used. The filter circuit may be inductive (built with only inductors in series) or capacitive (built with only capacitors in parallel) or Inductive-Capacitive (built with both inductors and capacitors). A voltage regulator which is used to maintain the constant output DC voltage. Design of the controller is detailed for reference. The converter will operate in continuous conduction mode (CCM). Finally, some selected experimental results are presented to verify the proposed theory.

EEE-064

Voice Controlled Robot for COVID Test

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In COVID situation, hospitals are challenging workplaces in order to follow the precautions like keeping social distance etc. This project gives an idea about solutions designed to solve the problem of corona spreading issues faced in hospitals with the help of Robot. The surprising raise in the utilizing of robots and Automation offers various advantages as well as it has drawn the attention of both academic investigation and commercial programs. The analysis on numerous technique of controlling robot has accomplished quite a few success by introducing a number of innovative & unique methods of robot movement control. Verbal interaction intended for robot controlling is actually sort of an innovative process among many methods which are introduced regarding robotics control. Previous works on voice controlled robots shows that the design of those robot were complicated and none of them were able to interact with users. Robots are anticipated to socialize along with its user however, it has not yet arrived at this kind of level. There are numbers of techniques to control robot using voice identification yet it is reasonably limited. The development of a voice controlled robot is demonstrated in this project which has the ability to follow voice command from user and does communicate with user by using pre-recorded human voice sound.

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can balance the power generation and demand properly and control both system frequency and tie-line power effectively.

EEE-067

IoT Based Traction Control System

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This paper aims to provide an IOT Based Automatic Railway Gate Control System at the barriers crossings where road traffic passes at the same level on that of the railway track which is operated without human interaction by detecting train and obstacle that stuck on the crossing, and cause an alert signal and manage the barrier gates and in Addition to this, An AI Powered Camera captures trespassers who try to cross the barriers while they have been closed. We used Ultrasonic Sensors, IR Sensors, Alarm Module, GSM Module, Arduino, Servo motors, ESP32 Camera, Relay Modules. The IR Sensor detects the train before its arrival in the crossings and sends a signal to closes the gate by help of servo motors and opens the gate after the train to the crossings. Ultrasonic sensor detects the obstacles on the crossings and sends alert signal by the help of GSM Module to loco pilot. ESP32 camera captures the trespassers.

EEE-068

Design for Multi-Source Energy Storage System

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By integrating an additional storage device with a regular storage device, the proposed Hybrid Energy Storage System (HESS) proposes to boost the efficiency of energy storage systems for PV systems and prolong the lifetime of the batteries used in them. To achieve higher power regulation performance, it employs a logical controller to manage the power supplied by two DC sources a high energy storage unit (HESU) battery and a high-power storage unit (HPSU) supercapacitor. A traditional system stores electrical energy in form of chemical energy in batteries during surplus generation and supplies it on demand. However, in order to alleviate power fluctuations produced by high power disturbances, these devices feature a storage device degradation limitation owing to frequent charge/discharge cycles. Various energy storage technologies have been integrated to construct a HESS to sustain power fluctuation in order to fully leverage the potential of renewable energy sources. To

eliminate the constraints of employing only one storage unit, the suggested strategy combines the advantages of a high-power storage unit, such as a supercapacitor, and a high-energy storage unit, such as a battery, with a renewable power generation unit. In addition, a power sharing management controller is employed to share power between energy sources instantly. Simulation with MATLAB/SIMULINK will be used to verify the control design. A prototype of the proposed hybrid energy storage system with dual storage device is implemented using dual bi-directional flyback converters with close loop control.

Effects of Active Cooling Techniques to Improve the Overall Efficiency Of Photovoltaic Module- An Updated Review

EEE-069

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Our scientists have struggled for the last few decades to save the nation from the harmful emission caused by burning fossil fuel and restore enormous solar radiation energy. Despite their hard labor in this field, only 12-16% ofsolar radiation is converted into electrical energy. The major part of it iswastage as heat thatcauses to rise of panel temperature and lowersits efficiency.The aim of the review isto findout the cost-effective and efficient active cooling methods of solar photovoltaic (SPV) cell to improve their overall performance.Therefore, thirty-two active cooling techniques are thoroughly studied, compared their results from more than a hundred papers. Cooling of the SPV panel is a function of optimum spraying timing, coolant flow rate, wind condition, the distance between flow points (nozzle) to the panel,and solar radiation.The major facts revealed that the efficiency of the PV panel is optimum within 25-300C, and the panel's performancedecreases by 0.5% for each 10C rise of panel temperature from standard temperature.The best active cooling method revealed thatthe electrical efficiency of the PV module could be increased by 57% with a lowering of module temperature by 32% in hot summer.

EEE-071

Modelling and Performance Analysis of Positive Output Luo Converters- Voltage Lift Technique

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The main aim of the paper is modelling and performance analysis of positive output Luo converters output voltage is lower or higher than the input voltage. In this paper we concentrate on increasing output voltage concept. Positive output Luo-converters perform the voltage conversion from positive to positive voltages, five circuits have been introduced in this Voltage Lift technique, they are Elementary circuit, Self-lift circuit, Re-lift circuit, Triple-lift circuit, Quadruple-lift circuit. The identification and the modelling of each component of five different circuits of DC/DC converter taking into account the effects of parasitic elements is made. Finally, a performance analysis of these five circuits through a connection of 24V battery with a resistive load is showed and improving the efficiency of power. MATLAB/SIMULINK software has been used for simulating this system.

EEE-072

Design and Implementation of Multilevel Inverter for Electrical Vehicles

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Nowadays Multilevel inverters are most commonly used for DC to AC power conversion due to their superiority when compared to conventional two-level inverter. The performance factors such as switching loss, efficiency and THD in output voltage waveform of a MLI are rely heavily on the modulation technique. Among the various modulation techniques proposed in the literature, selective harmonic elimination technique is most efficient and effective in eliminating the lower order harmonics. The switching angle in selective harmonic method is obtained by solving non-linear transcendental equations and based on the number of switching per cycle. Most widely used numerical method Newton-Raphson method is used in the present work to solve the non-linear transcendental equations. Based on the number of switching angle In addition to the desired fundamental output voltage and number of lower order harmonics can be eliminated depends on the number of switching angle. As these equations are nonlinear and transcendental in nature, they may give simple, complex or even no solution for a particular modulation index. This project aims to implement five level MLI with two different patterns. Two switching pattern

namely pattern-1 and pattern-2 are suggested in the present work. Here switching angles are found by Newton Raphson method and MATLAB Simulink is performed to find output voltage waveform .Based on the Fast Fourier transform analysis, the performance of the proposed system was analysed and THD value was compared for five level cascaded H- bridge with multiple switching pattern 1,2 and single phase cascaded H bridge. The comparison results shows that the THD values are lower and better lower order harmonic elimination happens in Five level Multiple switching pattern-2 when compared with single phase cascaded H-bridge inverter.

Automated Ceiling Hoover

EEE-073

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In contemporary years wall climbing robots have begun to substitute manual work at altitudes to diminish casualties caused by working at heights. In general, the application of climbing robots has grown with their ability to deal with various surfaces. Motivated by this realization, this paper proposes a visionary design of a propeller-type climbing robot. This project focuses on an automated wall-climbing robot that cleans the spider web or the other dust particles in the ceiling and the vertical wall. Over the world, quite inherent have used vacuum cleaners since they make home cleaning easier, on another side significantly float glass cleaning robots are emerged to clean skyscrapers, except for the canopy or the edges of the wall are complicated to clean. With the help of the upgraded technology, an inclined perpendicular wiping robot is proffer. For designing the robot, the propeller thrust force is considered a means to stick to a vertical surface for this project. The thrust force must be enough to hold the robot on an abrupt surface. A brushless DC motor is selected to deliver the required RPM to spin the propeller for the thrust force. A custom cleaning mechanism is to serve the cleaning purpose. The molded robot is rectangular-shaped, equipped with vacuuming and cleaning technology, and controlled by Arduino nano. A 6V motor drives the cleaning mechanism. The wheels are in such a mode that the outer frame of the front wheels will be barely outside of the chassis so that it can climb on the abrupt surface without any external assistance. Treble rechargeable batteries are powered. Working against gravity makes it more challenging. To hold the robot on any inclined vertical aerodynamic techniques are used. The robot is controlled with a help of a Bluetooth module which is connected to Arduino Nano.

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Authors: A.V.Balajee, T.S.Aswin, S.Balaji, M.Hariprasath, Dr. V. Kejalakshmi

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Published in Volume 9 Issue 7 , July-2022 | Date of Publication: 2022-07-21

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Chapter 9
Evolution of Deep Learning for Biometric Identification and Recognition

S. Miruna Joe Amali
K.L.N. College of Engineering, India

Manjula Devi C.
Velammal College of Engineering and Technology, India

Rajeswari G.
K.L.N. College of Engineering, India

ABSTRACT

Biometrics is a method based on the recognition of the biological characteristics of an individual like fingerprint, vocal, and facial features. Biometric features hold a unique place when it comes to recognition, authentication, and security applications as they cannot be easily duplicated. Deep learning-based models have been very successful in achieving better efficiency in biometric recognition. They are more beneficial because deep learning-based models provide an end-to-end learning framework.

INTRODUCTION

In this digital era, improvements in technology have led to the emergence of advanced security and authentication systems, including biometrics, a method based on the recognition of fingerprints, vocal and facial features. Biometric features hold a unique place when it comes to recognition, authentication, and security applications as they cannot be easily duplicated. Biometric recognition is an information system that allows the identification of a person based on some of their main physiological and behavioral characteristics. The functioning of the biometric recognition systems varies according to their two main objectives namely, verification or identification of a person. Deep learning-based models have been very successful in achieving state-of-the-art results in many of the computer vision, speech recog-

DOI: 10.4018/978-1-7998-8892-5.ch009

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37th INDIAN ENGINEERING CONGRESS

Theme

Role of Engineers for Creating a Sustainable & Self Reliant India

held at Hotel Le Royal Meridian, Chennai during December 16 -18, 2022

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SYMPTOM BASED PROGNOSIS USING DEEP LEARNING

Mrs.S.Venkata Lakshmi[1], R.Karthikeyan[2], A.Laurence[3], M.Mohammed Arafath[4]
[1]Assistant Professor, [2, 3,4Final] Year Students
Department of Computer Science and Engineering,
K.L.N. College of Engineering.

ABSTRACT

The rapid proliferation of Internet technology and handled devices has opened up new avenues for an online healthcare system. There are instances where online medical help or healthcare advice is easier and faster to grasp than real-world help. The patient's intuitive expression of feelings is also an aspect that cannot be ignored. Doctors record the pathological characteristics of patients in system. People often feel reluctant to go to hospital or physician or minor symptoms. However, in many cases, these minor symptoms may trigger major health hazards. In online health advice is easily reachable, it can be a great head start for users. Moreover, existing online health care systems suffer from a lack of reliability and accuracy. This system analyzes the symptoms provided by the user as input and gives the disease as an output. The disease will be predicted using the Artificial Neural Network. This algorithm results in the maximum accuracy for a larger dataset. The dataset contains disease as labels and for each disease, symptoms are given. It can be contributed primarily to the improvement in the classification and recognition systems used in disease diagnosis which is able to provide data that aids medical experts in early detection of fatal diseases and therefore, increase the survival rate of patients significantly. It accepts the input from the user and predicts the most probable disease. This is achieved with the help of the dataset and the deep learning algorithm.

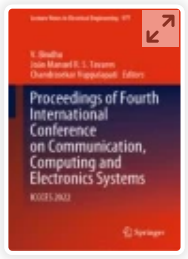
Keywords-Symptoms, Prognosis, Deep Learning, Data Analysis, Early intervention, Predictive model, Healthcare.

INTRODUCTION

Most existing network embedding methods only focus on the structural information between nodes or entities, regardless of rich semantic information encoded in the text of diseases/symptoms. Moreover, because of the limitation of diseases/symptoms representations, these models are not able to handle a pair when at least one of disease or symptom is not in the dictionary. However, this situation can be handled by our model. Since both the structure and text descriptions provide valuable information to solve the sparsity problem caused by the semantic mismatch of symptoms or diseases, we want to integrate all this information into a joint representation learning framework shown in.

Fig. 4. To utilize both structural and textual information, we propose two types of representations for symptoms and diseases, i.e., structural representations and textual representations. Structural representations are better for capturing information in the bipartite symptoms-disease structure in the network, while textual representations can better capture the textual information in diseases/symptoms descriptions. We learn both types of representations simultaneously into the same continuous vector space. In particular, we propose a unified model to learn the joint representation of both structural and textual information

Nowadays, when anyone suffers from any health-related issues, then the person has to visit a doctor which takes time and it is costly too. It has



Proceedings of Fourth International Conference on Communication, Computing and Electronics Systems pp 1–13

Study of Different Control Strategies Applied to a Second-Order Nonlinear Tank Process

S. Nagammai, S. Latha, D. Pradeepkannan, A. Umarani & S. Balamurugan

Conference paper | First Online: 15 March 2023

Part of the Lecture Notes in Electrical Engineering book series (LNEE,volume 977)

Abstract

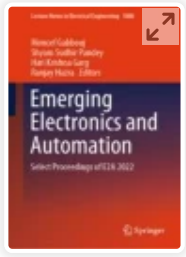
Conical tank process (CTP) is used in most of the industries, namely food processing, chemical, beer production, pharmaceutical, and waste treatment plants. This unit is widely used because of its accurate and thorough mixing capability. Efficient operation of these industries would require control of enormous process variables within their specified

bounds. Today, control of large continuous interconnected plant is a challenging task and needs complex control hardware. Although the conventional PID control algorithms are widely used, modern control method such as adaptive control can provide noteworthy improvement. CTP has nonlinear characteristics due to its variable area and control of level has become an exigent task. Most of the industrial process loops are interacting in nature and require enormous control effort to achieve desired level. In order to accommodate changes in process parameters, gain-scheduled PI controller (GSPI) is designed. A major implementation issue of GSPI is design of the switching function to have a smooth changeover in process variable according to the operating point variations. A fuzzy logic system is used to overcome this difficulty. In fuzzy gain-scheduled PI (FGSPI) controller, based on expertise of human operator fuzzy rules are framed, and with the associated reasoning mechanism, the controller parameters are determined. In this paper, the elucidation of proposed FGSPI controller is simulated on a interacting conical tank process (ICTP). A simulated result shows the effectiveness of FGSPI controller in terms of setpoint tracking, disturbance rejection and process parameter variations.

Keywords

Interacting conical tank process

Gain-scheduled PI controller **Fuzzy GSPI**



International Conference on Emerging Electronics and Automation

E2A 2022: **Emerging Electronics and Automation** pp 65–76

Experimental Validation of Direct Synthesis-Based PI/PID Controller Applied to First and Second Order Variable Area Tank Process

S. Nagammai, S. Latha & S. Balamurugan

Conference paper | First Online: 03 February 2024

Part of the Lecture Notes in Electrical Engineering book series (LNEE,volume 1088)

Abstract

This paper's primary goal is to design and experimentally test a PI/PID controller based on Direct Synthesis (DS) method for first and second order variable area tank processes. A desired closed loop transfer function and a process model are used to develop the controller in the DS technique. The physical system's transfer functions are calculated using empirical approach. The

parameters for controller tuning are found using the model that was thus created using time response data. The success of this control strategy is experimentally demonstrated on a bench mark single and two conical tank systems. To evaluate the performance of the controller, servo and regulatory response studies are performed. The presentation in terms of time response specifications, the suggested technique is compared to the Zeigler Nichols (ZN) method.

Keywords

Direct Synthesis (DS) **PI/PID controller**

Variable area tank process **Servo response**

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