



20th World Conference on Applied Science, Engineering
and Technology
(WCASET – 19)



Kuala Lumpur, Malaysia

26th - 27th June' 19

Organized by

Institute For Engineering Research and Publication

www.iferp.in

Publisher: IFERP Explore

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IFERP-Explore

Preface

We cordially invite you to attend the **20th World Conference on Applied Science, Engineering and Technology (20th WCASET-19)** which will be held at **Holiday Inn Express Kuala Lumpur City Centre, Kuala Lumpur, Malaysia** on **June 26th-27th, 2019**. The main objective of **WCASET** is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in relevant fields of Science, Engineering Management, Education and Technology. This conference will provide opportunities for the delegates to exchange new ideas and experience face to face, to establish business or research relationship and to find global partners for future collaboration.

These proceedings collect the up-to-date, comprehensive and worldwide state-of-art knowledge on cutting edge development of academia as well as industries. All accepted papers were subjected to strict peer-reviewing by a panel of expert referees. The papers have been selected for these proceedings because of their quality and the relevance to the conference. We hope these proceedings will not only provide the readers a broad overview of the latest research results but also will provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities, research institutes and colleges. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in the review process, and to the authors for contributing their research result to the conference.

Since April 2019, the Organizing Committees have received more than 170 manuscript papers, and the papers cover all the aspects in Electronics, Computer Science, Information Technology, Science Engineering, Management, Education and Technology. Finally, after review, about 60 papers were included to the proceedings of **20th WCASET - 2019**.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of **20th WCASET-19**. We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work by the technical program committee and all reviewers, whose contributions made this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard work.



Rudra Bhanu Satpathy

CEO

Institute for Engineering Research and Publication (IFERP)

Acknowledgement

IFERP is hosting the 20th **World Conference on Applied Science, Engineering and Technology** this year in month of June. The main objective of 20th WCASET is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points, and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader.

I express my hearty gratitude to all my Colleagues, staffs, Professors, reviewers and members of organizing committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to travel such a long distance to attain this conference.



A. Siddh Kumar Chhajjer
Director
Institute for Engineering Research and Publication (IFERP)

Keynote Messages



ESTRELLA O. SIMON, PhD

President

First City Providential College, Philippines

It is with great felicitation that I greet the community of researchers, delegates, scholars and guests for the 20th World Conference on Applied Science, Engineering and Technology International Conference. Everyone shares the objective to collaborate and interact with one another for the advancement of individual interest as well as share relevant and worthy experiences to be able to gain advance knowledge in respective areas of discipline. I would like to congratulate everyone in participating in this enriching academic endeavor.

Mabuhay!

A handwritten signature in black ink, appearing to read 'Estrella O. Simon', on a light-colored background.

Estrella O. Simon

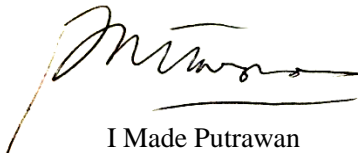


Dr. I Made Putrawan

Professor,
Faculty of Mathematics and Sciences and Postgraduate Studies
Universitas Negeri Jakarta, Indonesia

I am honor to be invited here and thanks IFERP and Organizing Committee of 20th WCASET, for your trust to be part of your institution. As co-chair of this reputed conference, I would like to welcome all of you and thank you for your time and participation

It is your chance for all of you to be here to share and to exchange your expertise by disseminating your products based on your scientific research. By doing this you would be recognized as part of your disciplined scientific society. To ensure that you are on the right track of your research road map. Moreover, your research articles will be read by a million or even more people in the world. Your presentation would be nothing unless published internationally through reputed journals. That is why, logically, it should be interrelated and interwoven between presentation and publication. WCASET will always endorse all of you and be loyal and committed to serving you to gain your better future. we look forward to seeing all of you at the coming conferences. Thank you for your full participation and enjoy your stay in this beautiful city of Kuala Lumpur.



I Made Putrawan

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WCASET - 19

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ABSTRACTS

20th WCASET - 19

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Institute For Engineering Research and Publication (IFERP)

Neural Network Programming in Python

Primož Podržaj, Faculty of Mechanical Engineering, University of Ljubljana, Aškerčeva 6, 1000 Ljubljana, Slovenia

Abstract:--

In this paper a basic introduction to neural networks is made. An emphasis is given on a two layer perceptron used extensively for function approximation. The backpropagation learning rule is than briefly introduced. A short introduction into Python programming language is made and a program for the perceptron design is written and discussed in some detail. The “neurolab” library is used for this purpose

Keywords:--

Neural networks, Perceptron, Python.

A Pre-test via Partial Least Square Structural Equation Modeling with the Influence of Organisational Structures and Organisational Internal Factors on Construction Risk Management among Malaysian Construction Industries

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Abstract:--

Risk management is a practise, which is increasingly becoming unusual in a number of organizations. This investigated the effects of organizational structure and internal factors on the risk management among G7 contractors in Malaysia. The purpose of this paper is to present the research model together with the developed hypotheses, and the results of a preliminary study on construction risk management among the large contractors (G7 contractors) operating in Malaysia. A pilot study was conducted, data was collected and a total of thirty (30) respondents' responses were analysed using a questionnaire of eighty-one items. This was conducted to access and validate how reliable the analytical tools (i.e PLS-SEM model) used in the survey were. The results obtained indicated that the reliability of the measurement model and the ensuing data for pilot study suggested a veritable evidence of their validity.

Keywords:--

Construction, Coercive, Risk management, Instrument, Reliability assessment, and Validity assessment.

A Thinking-Based Learning Module for Enhancing 21st Century Skills

Nor'ain Mohd Tajudin, Sultan Idris Education University, Malaysia

Zamzana Zamzamir, Sultan Idris Education University, Malaysia

Ruslina Othman, SAM Paya Jaras Sungai Buluh, Malaysia

Abstract:--

This study aims to develop the Thinking-Based Learning (TBL) module for learning secondary school Algebra. This study uses the developmental model design and the TBL module is designed using the combination of ADDIE Model and Kemp Model. It is conducted in five phases: (1) Analysis (2) Design of TBL Module, (3) Development of TBL Module (4) Implementation, and (5) Assessment of TBL Module. The research instruments are the Content Validity Form and Module Reliability Survey. The validity of the module is validated by three experts in the field of mathematics education. Sample of the study in the evaluation phase consisted of the pre-service secondary school mathematics teachers which are selected using random sampling technique. The findings showed that the content validity and the reliability indices for the TBL module are at a satisfactory level. Significantly, the TBL module is able to provide guidance to all secondary school mathematics teachers in customary teaching practices for the inculcation of higher level thinking, thus generating knowledgeable generation and a good problem solver for the present and future challenges.

Keywords:--

Thinking-based learning, ADDIE Model, Kemp Model, 21st century skills

Graphene-Based Coating for Corrosion Application

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Abstract:--

Graphene-based, molybdenum oxide-based and composite coating were prepared by one-step electro-deposition without using aggressive solutions. The coatings were characterised by Scanning Electron Microscope (SEM). The corrosion resistance of the three coatings were evaluated by immersion test (ASTM G31-72), salt spray test (ASTM B117-16) and potentiodynamic polarisation, in 5% NaCl and 2% H₂SO₄ respectively. All of the results indicated that reduced graphene oxide – molybdenum oxide (rGO/MoO) composite coating exhibits the highest corrosion resistance in both saline and acidic environment. This could be ascribed to the synergistic effect of both graphene and molybdenum oxide with the combination of high mechanical strength and superior chemical resistance.

A Green Synthesis of Graphene Based Composite for Energy Storage Application

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Abstract:--

In this study, graphene-molybdenum oxide composite materials were prepared via green hydrothermal synthesis method and evaluated as supercapacitor electrodes. The morphology and structure of the composite were examined by using Scanning Electron Microscopy (SEM), Raman spectroscopy. The electrochemical performances of the composite were evaluated by cyclic voltammetry (CV), galvanostatic charge-discharge (CD) method, and electrochemical impedance spectroscopy (EIS). The electrochemical results show that the composite electrodes possess improved specific capacitance of 122 F/g at a scan rate of 5 mV/s, which is about 22% higher than that of pure graphene. Additionally, the composite electrodes exhibit good capacitive properties and a high specific energy with superior capacitive retention after 1000 cycles. In contrast to the previously reported systems that are usually complicated and costly, the present work potentially provides a readily scalable technological platform for economic mass production of energy storage devices.

Index Terms

Supercapacitors; composite; graphene; molybdenum oxide; hydrothermal

Institutional Study of Ecotourism Industry in Luisiana, Laguna, Philippines: Linking Institutions to Natural Resource Conservation

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Tatil, Wella, Mindanao State University-Iligan Institute of Technology

Pollisco, Jano, University of the Philippines Los Baños

Abstract:--

This study aims to understand the institutional landscape of the ecotourism industry in the municipality of Luisiana, Laguna. Specifically, it aims to: 1) identify the underlying issues and concerns regarding the ecotourism activity and the conservation of natural resources and 2) assess the dynamics among the different institutional actors relevant to the local ecotourism industry. Data were gathered through key informant interview and focus group discussion from the various local government officials and head of the local tour guide groups. The decrease in the number of tourists was attributed to some of the issues faced by the communities such as boundary issues, no permanent location for the registration area and limited number of activities in the areas. Meanwhile, the different local governing entities as well as the people's organizations tour guide, local landowners and tourists are the various key institutional actors identified in the study. Their synergistic interactions create opportunities for the further development of the local ecotourism industry. Therefore, it is crucial that the programs and policies implemented by these different governing entities should be designed based on the context-specific needs and priorities, in order to solve local issues and challenges that are confronting the ecotourism industry.

Keywords:

Ecotourism industry, institutional landscape, natural resources conservation

Insilico Screening Chemical Compounds α -Glucosidase Inhibitor From *Cordia myxa* L

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Abstract:--

One of mechanism to maintain blood glucose level for diabetes mellitus is the inhibitor of the α -glucosidase enzyme to reduce the increase level. The research aimed to determine the chemical compound of *Cordia myxa* L. that can inhibited a α -glucosidase by insilico screening. The 3 D enzyme target receptor downloaded from Protein Bank Data (PDB) with 1LWJ code and the macro molecules of chemical compound from sample were resulted from GC-MS analysis. Screening of chemical compound by Aautodock Vina on Pyrex Program. The results showed that 19's chemical compounds of (*Cordia myxa* L.) having the value of free bonding energy (ΔG) in the range of -5.3 kcal/mol to -9.3 kcal/mol, two compound with the higher ΔG value than the others are Bis (2-ethylhexyl) phthalate (ΔG -7.8 kcal/mol) and 2,2,4-Trimethyl-3-(3,8,2,16-tetramethylheptadeca, 3,7,11,15, tetraenyl-cyclohexanol) (ΔG -9.3 kcal/mol).

Index Terms

Diabetes Mellitus, *Cordia myxa* L., Insilico.

Building Employees' Organizational Commitment Through Leadership Styles And Organizational Culture At Automotive Industry

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I Made Putrawan, Professor in Research Methodology and Management, Universitas Negeri Jakarta

Hamidah, Professor in Management, Universitas Negeri Jakarta

Abstract:--

Organizational commitment is one of the main outputs of organizational behavior. The existence of an institution strongly depends also on the committed employees. This study already explored how the leadership styles and organizational culture has built the foundation of organizational commitment. A number of samples for this research was 155 respondents in the industry producing automotive components. The Instruments of leadership styles (Ls), organizational culture (OCu) and organizational commitment (OCo) are already proven to be valid and reliable. This study has revealed the role of leadership and culture to build the commitment of employees in the industry of automotive component in Indonesia. This study has found that the simultaneous coefficient regression for the leadership styles and organizational commitment is .064; Organizational culture and organizational commitment is .226. The partial coefficient regression between leadership style and organizational commitment is .217; the partial coefficient between Organizational Culture and Organizational commitments is .298; and the partial regression between leadership styles and organizational culture is .235. The study hopefully will be used for the industry to formulate policies for building commitment, finally for the productivity.

Key words:

Leadership styles, organizational commitment, organizational culture.

An Exploratory Model of Fishermen Quality of Life

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Gustri Devi Artanti, Lecturer at Faculty of Technic, State University of Jakarta

Abstract:--

This research was aimed at finding out fishermen' quality of life affected directly or indirectly by antecedents factors such as environmental leadership (EL), cohesiveness (COH), locus of control (LOC), social justice (SJ), and Innovativeness (INN) as well. A causal survey used and 120 fishermen selected as sample, in North Jakarta. There were six validated instruments developed for measuring those variables and its reliability respectively was .820(QoL), .913(EL), .807(COH), .253(LOC), .746(SJ), and .635(Inn). Data analyzed by path analysis. The research results revealed that SJ was not good mediated factor, compared to INN which directly and significantly affect fishermen QoL. Based on exploratory model, it was found also that EL and COH only significantly and directly affected on SJ, but not on INN and QoL. It was interesting finding which LOC has a powerful effect directly on SJ, INN and even on fishermen QoL. Therefore, in order to make a policy regarding with fishermen empowerment, based on these findings, both locus of control and innovativeness should be taken into consideration. A combination of fishermen characteristic (LOC) and innovative mind set (INN) would build a high fishermen quality of life, especially at the era of industrial revolution 4.0.

Key words:

Quality of life (QoL), Locus of control (LOC), Environmental leadership (EL), Cohessiveness, Innovativeness.

Environmental Integrity Based on School Climate, Instructional Leadership and Personality

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Abstract:--

Introduction: This research was aimed to finding out the relationship of school climate, instructional leadership, and personality with environmental integrity students.

Method: The research used survey method by using correlation approach. The data were collected through respondent used the instrument. This research used 115 students as sample. There are four instruments for measuring school climate (20 items) instructional leadership (25 items), personality (20 items), and environmental integrity (18 items).

Result: The results of this research showed there is a positive and significant correlation between school climate and environmental integrity, there is a positive and significant correlation between instructional leadership and environmental integrity, there is a positive and significant correlation between personality and environmental integrity, finally between school climate, instructional leadership and personality with environmental integrity.

Conclusion: Based on those finding, it could be concluded that school climate, instructional leadership and personality could be improving students' environmental integrity of senior high school (SMA) kendari.

Index Terms

School Climate, Instructional Leadership and Personality with Environmental Integrity

The Effect of Instructional Leadership and Naturalistic Intelligence on Students Citizenship Behavior toward Environment Mediated by Environmental Morale/Ethic

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I Made putrawan, Professor at Biology Education Dep, Fac. Of Math & Sciences, State University of Jakarta

Abstract:--

Environmental degradation has been identified caused by human life styles, indicated by human behavior. That was why this research was aimed at finding out information about verifying a confirmative model which consisted of students' citizenship behavior toward environment (CBE) affected by instructional leadership (IL), naturalistic intelligence (NI), and mediated by environmental ethic (EE). A causal survey used and 150 senior high school students selected as sample. Four instruments developed for measuring IL (reliability/rel. was .882), NI (rel. .686), EE (rel. .600) and CBE (rel. .612). Data analyzed by multiple regression and correlation, and path analysis. The research results showed that environmental morale/ethic was proved to be good mediated factor between IL and students NI which indirectly affect significantly on students CBE. Both of IL and NI was not significant directly affect on students CBE, therefore, it could be concluded that if one of the efforts in trying to save our the only one planet, in empowering students' citizenship behavior toward environment, students environmental ethic which closely related to morale, might be taken into account when the role of teachers in term of their leadership and students naturalistic intelligence could be not neglected at the instructional process in environmental education at any schools.

Key Words:

Instructional leadership, Naturalistic Intelligence, Citizenship Behavior toward Environment

Validating Students' Pro-Ecological Behavior (PEB) and Its Related Factors

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Abstract:--

One of the most issues in any development is environment. This research aimed at validating students' pro-ecological behavior (PEB) including all exogenous variables, i.e. instructional environmental leadership (IEL), environmental personality (EP), naturalistic intelligence (NI), new environmental Paradigm (NEP), and environmental morale (EM). A survey used by involving 132 senior high school students. There were six instruments developed to measure students' PEB (17 items), IEL (18 items), EP (19 items), NI (15 items), NEP (21 items), and EM (13 items). Data analyzed by item to scale correlation, Cronbach for instruments reliability, and exploratory and confirmatory factor analysis (ECFA). The research results revealed that its reliability respectively was .612 (PEB), .882 (IEL), .662 (EP), .686 (NI), .801 (NEP), and .600 (for EM). There was only 1 item for NI was not valid, but all items (variable) have high factors loading for all instruments, except for NI, indicated that they have strong construct validity and suggested eligible for further environmental research. When related to relationship among variables, it was found that EP and NEP have high and positive contribution to students' PEB meant that in implementing environmental education, EP and NEP should be taken into consideration when students PEB needed to be improved positively.

Keywords:--

pro-ecological behavior, instructional environmental leadership, Environmental personality, exploratory and confirmatory factor analysis (ECFA).

Structural Model of Teachers' Citizenship Behavior, School Leadership and Personality Mediated by Motivation

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Arita Marini, Professor at Elementary Education Dep., Fac. of Education Science, State University of Jakarta.

Abstract:--

The objective this research was to find information whether teachers' CB affected directly or indirectly by school leadership (SL), personality (P) which mediated by teachers' Motivation (TM). A causal survey used by selecting 120 elementary school teachers as sample in Jakarta. There were four instruments measuring teachers' CB (29 items, rel. was.857), SL (23 items, reliability: .827), personality (22 items, reliability: .845), and TM (22 items, reliability:.872). Data analyzed by factor analysis and path analysis under structural equation modeling (SEM). Research results showed that teachers' motivation found to be good mediated factor between SL, P, and teachers' CB. It was found also that teachers' CB affected significantly and directly by school leadership, personality and motivation. Moreover, teacher motivation, significantly and directly affected by SL and Personality. This finding did confirm a theoretical model which has been developed by Colquitt, et.al. (2017). Therefore, it could be concluded that a variation which occurred at teachers' citizenship behavior could be affected by school leadership, personality and teachers motivation. When teachers' citizenship behavior as part of teachers' performance dimensions would be improved, so school leadership and personality could also be taken into consideration by focusing on the role of teachers' motivation.

Index Terms: –

Teacher's Citizenship Behavior, School Leadership, Personality, Motivation

The Effect of Blended Learning Strategy and Students Personality on Students' Knowledge about the Basic Concepts of Ecology

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Abstract:--

Blended learning is an ICT-based learning strategy that can be used at learning process for Z-generation students who are familiar with technology and gadgets. The purpose of this study is to investigate the effect of blended learning (Rotation Model vs. Flex Model) and personality traits on students' knowledge about basic ecology. An experimental method used by 2x2 factorial design, involving 90 senior high school students. Personality instrument developed with a reliability was .971 and 33 items multiple choice test for measuring students' knowledge (reliability was .966). Data analyzed by two-way ANOVA. The research results showed that there was no significant effect of instructional blended learning strategies on students' knowledge, however, students personality significantly affect students' knowledge about basic ecology. Unfortunately, the interaction effect of strategies and personality in affecting students' knowledge was not significant as well. Therefore, it could not be proved that blended learning was effective in affecting students' knowledge dependently to personality, even though Z-generation is characterized by digital literacy, but from this case, it could not be judged that students which dominated by Z-generation was effective when taught by complicated classroom technologies.

Keywords:--

Experimental Research, Blended Learning, Personality, Z-generation, Two-Way ANOVA.

PPKn Instructional Materials Development Based on Citizenship Behavior in Improving Students' Knowledge about Citizenship Concepts (PKn)

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Abstract:--

The objective of this research was to find out whether instructional product which called PPKn based on citizenship behavior (CB) could improve students knowledge about concepts of citizenship. PPKn has been put into curriculum since elementary schools as one of tools to build students to be more positive in their behavior as a citizen. In this case, what they need is a guidance in form of book as an instructional product which developed based on R & D by using Borg & Gall (2007) steps. A knowledge instrument developed for measuring elementary school students' knowledge, both for treatment and control group. Data analyzed and verified by t-test. Research results showed that there was positive and significant improvement of students' knowledge in PKN which was as an indicator that the product developed was effective. Comparing to control group, by using its each gain score, it was found also there was significant different of studnets' knowledge. Therefore, it could be stated that PPKn based on CB was able to improve students' knowledge about concepts of citizenship and for PKN teachers would be recommended to implement this product if they would like to improve not merely students' knowledge but students behavior as well to be good citizen.

Keywords:

PPKn stands for Citizenship Education, Citizenship Behavior, Borg & Gall R & D steps

Standardization and Bacteria Inhibitory Test of Purified Extract of Mahogany (*Swietenia mahagoni* (L.) Jacq) Seeds and Leaves

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Abstract:--

Mahogany (*Swietenia mahagoni* (L.) Jacq) is one of the plants that is often used by the community as traditional medicine. One of them is antihypertension, cold, antipyretic, antifungal, antibacterial, antidiabetic, lack of appetite, rheumatism, and eczema. This study aims to obtain standardized extracts from mahogany seeds and leaves. Standardization of purified extract of mahogany seeds and leaves has been carried out according to the monographs of extract standardization guidelines which include testing of specific and non-specific parameters. The results of the specific parameter testing showed that the purified extract of mahogany seeds is a thick extract, brown to reddish, smells distinctive and has a bitter taste. While the purified extract of mahogany leaves is a thick extract, greenish brown in color, distinctive smell and has a bitter taste. The chemical content of purified extract of mahogany seeds and leaves showed the presence of flavonoids, alkaloids, terpenoids and saponins. Water-soluble essence levels in mahogany seeds and leaves was 14.84% and 10.28%. While the ethanol-soluble essence levels in mahogany seeds and leaves were 15.38% and 12.43%. Testing of non-specific parameters on mahogany seeds and leaves showed the results of drying shrinkage levels of 0.22% and 8.84%, moisture content of 2.60% and 4.04%, total ash content of 1.71% and 1.93%, levels acidic insoluble ash 0.38% and 0.32%, Total Plate Number (ALT) of mahogany seed bacteria 1×10^2 colonies/g, Number of mahogany mold seeds 4×10 colonies/g, heavy metal lead (Pb) contamination and cadmium (Cd) in mahogany seeds 0.0607 $\mu\text{g/g}$ and $<0.003 \mu\text{g/g}$. The inhibitory diameter of each concentration of seeds against *Escherichia coli*, 3%, 5%, 7%, and 9%, is 12,67; 13,67; 17,67; and 19,67 mm, respectively. The inhibitory diameter of each concentration of leaves against *Escherichia coli*, 3%, 5%, 7%, and 9%, is 10,27; 10,90; 13,46; and 15,68 mm, respectively.

Keywords:

Bacteria, Inhibitory test, mahogany, purification, specific parameters, non-specific parameters, standardization, *Swieteniamahagoni* (L.) Jacq.

The role of Linked Building Data (LBD) in Aligning Augmented Reality (AR) with Sustainable Construction

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Abstract:--

Over the years, the construction industry has been evolving to embrace the delicate balance between buildings and a sustainable environment by optimizing resource use to create greener and more energy efficient constructions. Sustainable building design and optimization is a highly iterative and complicated process. This is mainly attributed to the complex interaction between the different heterogenous but heuristic construction processes, building systems and workflows involved in achieving this goal. Augmented Reality (AR) has rapidly emerged as a revolutionary technology that could play a key role towards improving coordination of sustainable design processes. AR makes possible the real-time visualization of a three-dimensional (3D) building prototype with linked design information in a real-world environment based on a two-dimensional drawing. From past research, it is evident that this technology relies heavily on a common data environment (CDE) that syncs all construction processes with their related building information in one central model. However, due to the fragmented nature of the construction industry, different domain experts generate and exchange vast amounts of heterogenous information using different software tools outside a CDE. This paper therefore investigates the performance gap that exists within Malaysia's construction industry towards using linked building data (LBD) with AR to improve the lifecycle sustainability of buildings. The results of this study clearly delineate how current construction practices in Malaysia do not favor the use of AR however, stakeholder perception is positive towards adoption of workflows that link heterogenous building data to streamline AR with sustainable building design and construction.

Keyword:--

Augmented Reality, Building Information Modelling, Common Data Environment, Linked Data, Sustainable construction.

First City Providential College's Roadmap in Becoming a World Class University

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Abstract:--

This study aims to evaluate the compliance of FCPC to the horizontal typology minimum requirements set by CHED for a university status. Consequently, an implementation road map is crafted towards its attainment by 2027. This road map shall guide the stakeholders to the realization of their goal. This study is primarily a descriptive research utilizing document analysis. The PACUCOA Self-Survey Instrument to determine the assessment of the top executives, deans, faculty, staff and personnel of the current state of compliance to the accreditation standards. They collectively gave a numerical evaluation for each item in the SSI. All items with a score less than 5 were subjected to the Blondin-OPS system analysis protocol. The scores per area were also computed.

Document analysis was also done to determine the level of compliance of FCPC to CHED's horizontal typology minimum requirements for university. The institutional profile, college brochure, Manual of Regulations for Private Higher Education, CMO No. 36 s. 1998, CMO No. 46 s. 2012 and Handbook on Typology, Outcome-Based Education & Institutional Sustainability Assessment.

There is a high degree of compliance in terms of faculty qualifications and the number of active academic degree programs offered. There is evidence of research productivity of faculty and students but utilization can still be improved especially in community services applications. International linkages are not yet evident but local linkages with local universities are already in place. Learning resources available are those required by CHED only. There are no graduate programs offered in FCPC. This is expected since the CHED requires an HEI to have a Level III accredited status to be granted with a government permit.

The root problems that surfaced in the system analysis are the following: (1) Inadequate long-term planning is evident. (2) Participative decision-making is weak. (3) Horizontal and vertical communication is not fully efficient. (4) Evaluation of programs and implementation plans not consistently done.

First City Providential College can transform into a university within eight to ten years. A road map to its attainment is already proposed. It is up to the stakeholders now how they will be faithful to the vision of FCPC of becoming a university. The institution still has a lot of elbowroom for improvement. FCPCians should always "better" the best.

Index Terms

Accreditation Self Survey Instrument, University Status, Blondin Organizational Planning System

National Nursing Core Competency Standards: Basis for Determining the Level of Competencies of Beginning Nurses in Selected Hospitals in San Jose del Monte

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Abstract:--

The level of competence of the new nursing personnel of Ospital ng Lungsod ng San Jose Del Monte is an important factor in measuring the quality of care a new nurse can provide. A new nurse, when given proper training, can be competent enough to face the challenges of the profession.

This study adapted Patricia Benner's levels of skill acquisition of nursing personnel: novice, advanced beginner, competent, proficient and expert.

The researcher determined the current profile of the new nurses hired in OLSJDM, evaluation of the head nurses and new nurses in terms of the eleven core competencies (11), and the significant difference between the head nurses' evaluation and new staff nurses' self-rating on the level of competence of new nurses in OLSJDM.

A standard competency-based evaluation tool formulated by the CHED in the CMO was used to determine the level of competency of the new nursing personnel. The Descriptive method was used to summarize the results, and test for the difference of means was used to determine if there is significant difference in the head nurses' rating and new nurses self-rating in terms of their level of competency.

There were two respondent groups; the new nurses who were recently hired and head nurses or superiors of the new nurses. The new nurses rated themselves according to their perception of their own performance and the head nurses were asked to evaluate the new nurses using the same competency evaluation tool.

Initially, the researcher targeted 30 new staff nurse respondents but only 24 complied to answer the questionnaires provided by the researchers. There were 7 respondents who were the head nurses of the new nursing personnel. The 7 head nurses were asked to evaluate the new nurses under their supervision according to their level of competence by using the tool.

Findings show that the mean age fell at 23 years old. Most of the nurses were female (54.17% of the total sample). Most of the respondents are single (95.83%) and college students without MA units and most are without previous experience. As to the level of skill acquisition, most of the new nurses perceived that they are proficient compared to the head nurses' perception which is only under the competent level.

The outcome of the study was based on the respondent's profile and the researchers deem to ascertain the level of competence in holistic means.

Index terms:

Effectiveness of nursing care, Newly-hired nurses, Level of competence, National Nursing Core Competency Standards, Self-evaluation and the evaluation of their immediate supervisor

Construct Validity of Biological Students' New Environmental Paradigm (NEP) Dimensions Based on Gender

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Rizki Ananda, Research Staff at Environmental & Cleaner Local District of Jakarta

Abstract:--

There are still a few studies related to sustainable development, environmental paradigm, ecological footprint, etc. based on gender equality. This study was conducted in order to find out information whether men and women differ in their New Environmental Paradigm (NEP) construct validity. An Ex post facto method was used in this study by involving 350 senior high school biological students from different big cities in Indonesia, Jakarta, Palembang, and Makassar. Data were analyzed using Confirmatory Factor Analysis (CFA). This study revealed that there were no significant differences between male and female biological students' NEP. Generally, however, this finding depicted that education has a vital role in determining similarity among them in terms of their NEP, involved based on gender equality. Even though students stay in different cities background, their NEP based on gender equality have a similarity. Based on factor analysis, female students NEP has higher internal consistency than male students in terms of its factor loading and number of factors omitted. These findings would be beneficial in developing a NEP instrument, especially based on students' gender which has a high knowledge contribution to measurement theories related to environmental issues.

Keywords :—

Confirmatory Factor Analysis (CFA), Gender Equality, New Environmental Paradigm (NEP)

Utilization scheme of ablution water as an alternative water resource: A case study of Istiqlal Mosque, Jakarta

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Abstract:--

Ablution water is one of the main domestic waste in the mosque as a place of worship. Its minimal contamination during uses has the potential to be used again as an alternative water resource to meet water needs in the mosque and reduce the consumption of clean water from the first of its source. Ablution water utilization scheme started by utilizing water to fulfill water needs from the category of water with the lowest quality to higher quality of processed water. Several water treatments processes are proposed in this utilization scheme. The potential of ablution water that can be reused as an alternative of water resource at the Istiqlal Mosque reaches 72.57 m³/day with savings of clean water usage up to 30.55%. According to the water supply charge toward low level tariff for household, the potential of annual cost saving is IDR 299,000,000. The application of utilization scheme of ablution water can reduce the consumption of clean water and have an impact on the sustainability of water supply at mosque.

Keywords

Greywater, Ablution Water, Water Quality Standards, Alternative Of Water Resources, Water Utilization Scheme

Research on the cause of Traffic congestion in the Pala-pala Intersection

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Abstract:--

The necessity of this report is brought up by the overwhelming increase in traffic at the Pala-Pala intersection located at the province of Cavite. The data gathered were subject to limited variables and time constraints; since its objective was to obtain a report of the current traffic climate and to prove whether or not the traffic in Pala-Pala had a correlation with the leading problems of transportation today. This includes mass private transportation, economic driven climates, and the overall design of the road. To determine faults, the collection of specific data was required and simulated using Python.

Utilizing Simultaneous Localization and Mapping (SLAM) in Augmented-Reality Shell Game for iOS Mobile Phone

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Abstract:--

Augmented Reality (AR) has come to integrate with daily life to improve productivity and quality of experience. The goal of this study is to improve the performance of the participants on mental training and to utilize SLAM algorithm. The researchers created a game where user interaction and skills application are monitored in augmented reality environment. This game provides an exciting, entertaining and engaging Augmented Reality experience which will specifically enhance cognitive training and development. . This work adopted the new tool for augmented reality, ARKit, which is introduced by Apple in 2017. ARKit enables smartphones to sense environment, comprehend world experiences and interact with context. ARKit is a great contribution in Augmented Reality technology evolution and growth. Through this tool it will soon remove the necessity of making marker-based applications for AR implementation. Further, this game focuses in utilization of Simultaneous Localization and Mapping (SLAM) algorithm. This uses mainly visual sensors of the camera in the iOS mobile phone which reveals innovations of SLAM algorithm to improve user experience on games especially on skills training.

Save Your Grades! A 3D Mobile Educational-Entertainment Game Using Ant Colony Algorithm

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Abstract:--

Educational games are games that are designed to help people to learn about certain subjects, expand concepts, reinforce development, understand a historical event or culture, or assist them in learning a skill as they play. The process of playing games is actually a constant observation and problem-solving process. The study applied path finding algorithms in finding or predicting the player where an AI waits. Using the path finding algorithm particularly the Ant Colony Optimization Algorithm, the Ant Colony Algorithm has helped the researchers create an AI that would determine for the shortest path in searching for the player. The study was able to identify that the AI can find the shortest route optimizing each AI to search for the player. Further, the researchers also conclude that educational-entertainment games can help students in working to improve their intelligence.

Keywords:

Mobile Computing, Smartphones. Educational Games, Multiple Intelligence. Ant Colony Algorithm, Path Finding Algorithm, Artificial Intelligence.

Hydroponics Monitoring System

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Abstract:--

As innovation is quickly propelling nowadays, these techniques for cultivating develop further, and the procedure of how it functions are likewise immensely improved. A great deal of consideration has been conveyed to hydroponics, aquaponics and aeroponics cultivating prompting numerous innovations that prompt enormous upgrades in its procedure. This paper takes IOT into thought and designing aptitudes for the Checking System for Smart Farming. With the utilization of Wemos, the information from the temperature and sensor, water level sensor, pH sensor and light switch is altogether sent through a progression of associations and after that passing it to the web interface utilizing a remote system where all the data is transferred progressively with a reassure screen where the client can see the data refreshed in milliseconds.

The client can likewise observe all recently gathered plants in the other tab of the framework. For the outcomes, the numbers are very mind-blowing as the clients inputted an exceptionally incredible criticism of the framework. Under the usefulness class, it got a 4.0 score that gives awesome imprint. Under dependability, it got the score of 3.4 which falls under the great imprint. Ease of use, having 4.2 scores for the excellent imprint. Effectiveness having a 3.6 score for good imprint. Practicality with 3.3 focuses for another great imprint and movability with an ideal 5.0 focuses to get a fantastic imprint. Totaling all which gives 4.7 focuses that gives the framework a generally excellent imprint.

Predicting the Relationship between Parent-Teaching Activities and Emergent Literacy in Preschool Children of Oxford Louise Academy of Dasmaringas Using a Correlation and Clustering Analysis: A Data Mining Approach

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Abstract:--

Generally, children's language development lies in the foundation for their literacy development, though it is difficult for preschool teachers alone to consistently engage in the individual interactions necessary to boost children's language skills. Given that parents are their children's first teachers, it is imperative to consider how parents can help improve their children's language and emergent literacy development prior to formal schooling.

The purpose of this study was to determine the relationship of the parent's intervention on the emergent preschool children student of Oxford Louise Academy of Dasmaringas in relation with teaching activities for emergent literacy by conducting an assessment survey form out of 31 out of 54 samples. And to predict the students need to undergo a summer class based on the teacher's evaluation prior to child learning capabilities. This paper concentrates primarily to the application of the data mining method in area of higher education, in which such methods have not been applied yet. In addition, a model, useful for strategic planning of additional mechanisms to improve the efficiency of studying, is also suggested.

Keywords

preschool, emergent literacy, data mining, correlation, clustering

Fuzzy Logic: A Technique for Assessing Students' Learning Performance

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Rolando B. Barrameda, Faculty, Computer Studies Department, De La Salle University – Dasmaringas

Abstract:--

Students Performance plays significant role in the learning assessments of students. It is important for the faculty members to know the type of their learners. With this, the researchers aimed to evaluate and identify the impact of student performance using the fuzzy inference system. This study focuses on students who were taking up Bachelor of Science in Information Technology at De La Salle University - Dasmaringas. The students' performance depends on exam results both in lecture and laboratory classes; and it is evaluated as success or failure. By applying a fuzzy logic approach, the input will analyze to gain the final output. This paper also describes the fuzzy logic basic concepts applied in evaluating students' performance. Forty students took part for the statistical course considered as study samples. Fuzzification of exam results was carried out using input variables and their membership functions of fuzzy logic system. As a result, the researchers have come up that the students perform well in laboratory exam than in lecture examination.

Keywords:

fuzzy logic, triangular membership function, students' performance, fuzzy sets theory, defuzzification method.

Gap Refinement of Teaching and Learning Practice in Digital Era via Informal Guidance

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Abstract:--

Digitalization era leads to short concentration span and memoryless learners, as the whole world is in their hand in the form of gadgets and the internet. In such a situation, mismatching of coaching style of an educator and learning preferences of a student can lead to an ineffective learning experience. This paper is an attempt to explain the shift in learning preferences of the current younger generation. Educators need to acknowledge this issue to ensure the effective teaching and learning experience achieved and the gap between students and instructor refined. To achieve this objective, the Index of Learning Styles (ILS) questionnaire is adapted with addition of a few questions to understand the students learning preferences. The data were collected from a sample of 1089 respondents from Malaysia, China and Indonesia. The results reveal that majority of the students are in the visual category and they prefer informal guidance through social media channels.

Index Terms:

Digitalization, learning preferences, visual learners, social media, accountability.

Mathematical Modelling of the Large-scale Dengue Epidemics in Taiwan

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Abstract:--

A mathematical model for the transmission dynamics of dengue outbreaks in Kaohsiung and Tainan Cities in Taiwan from 2014-2015 is developed and analyzed. First of all, we fitted the model using the data published by the Taiwan National Infectious Disease Statistics System. The model has two equilibrium points, that is the disease-free equilibrium (DFE) which is locally asymptotically stable and the endemic equilibrium (EE) which is shown to be globally asymptotically stable. Further analysis have shown that, the backward bifurcation phenomenon exist, where the stable DFE coexist with stable EE even if the basic reproduction number exceed unity. The sensitivity analysis has been carried out to show the effect of each parameter in the model. Our result suggested that proper sanitation of mosquito breeding sites and avoiding the mosquito bites are the key control measures to future dengue virus prevention and intervention in Taiwan.

Safety of Frozen Shrimp Imported through Entry Points in Selangor, Malaysia

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Abstract:--

The presence of antibiotic residues in food raises significant public health concerns as it may result in increased antimicrobial resistance in human pathogens. Recently the United States of America issued an import alert on shrimp from Peninsular Malaysia after detecting illegal and unsafe levels of drug residues in thirty two percent of samples tested over a one-year period. As local investigations at aquaculture farms could not detect drug residues at farm level, transshipment of imported prawns was suspected. The Food Safety and Quality Department of the Selangor State Health Department, Port Klang Health Office, Selangor Food Safety and Quality Laboratory and National Public Health Laboratory conducted a study to assess the safety of imported shrimps through sampling at entry points through which frozen prawns are actively imported. Analysis of nitrofurans, chloramphenicol, malachite green and crystal-violet were carried out through Liquid Chromatography Mass Spectrometry at two Laboratories on one hundred and forty seven samples taken over a four month period but none were found to contain drug residues. The results which indicate a total absence of drug residues in frozen shrimp from the region are reassuring but somewhat surprising and suggest the use of analytical methods with a higher sensitivity.

Keywords:

Entry Points, Safety, Selangor, Shrimp

Model Assessment of Preliminary Reading Skills Based on Whole language learning in Early Grade of Elementary School Students

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Abstract:--

This study aimed to determine the effectiveness of assessment model preliminary reading based on whole language in early elementary school students. This study used an experimental research by one group pretest-posttest design. In one group pretest and posttest were conducted. The samples in this study were first grade of 100 students. Determination of the sample is done by using simple random sampling. Data collection techniques used were tests and observations. Data analysis technique used was descriptive statistics and t test (t-test). The finding of the calculation showed that the result of t is 4.144 with a significance level 0.002, which is smaller than 0.05. Thus, it can be concluded that the learning model of assessment of preliminary reading skills is based on whole language learning on students of the early grades of elementary school is effective to minimize the level of diversity of students' preliminary reading ability.

Key Words:

Early reading model, whole language learning, reading ability

Real Time Wireless Energy Management System of Miniature Standalone Photovoltaic Application

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Abstract:--

Standalone photovoltaic (PV) system is practical and beneficial for the place where the physical power transmission line is not feasible. Nevertheless, for miniature scale standalone PV system, efficient and interactive energy management is extremely necessary to ensure that the battery is capable of supplying energy to the load uninterruptedly without any failure as its condition is being monitored, time by time. In this paper, a real-time energy management system equipped with wireless monitoring features has been developed and tested. All energy information such as battery voltage, generating current, discharging current, etc. are well displayed and extracted directly from the developed system. The high-power switching system is able to be controlled remotely as several MOSFETs attached to the main circuit are feasible to be flagged on or off via Blynk application instantaneously without any time lag. Therefore, the proposed system may become a good model for better small-storage-capacity based real-time energy management system in the future.

Keywords:

Energy management system, real-time monitoring system, solar energy, standalone photovoltaic system.

Evaluation of the Co-Delivery of Diagnostic and Therapeutic Agent in Polymeric Micelles for Triple Negative Breast Cancer Treatment

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Abstract:--

Triple-negative breast cancer (TNBC) is characterized by its higher incidence of recurrence and more aggressive clinical course. Due to higher rate of recurrence, early detection is urgently needed as well as an effective delivery of anticancer drug to tumor sites to increase patient survival. In this study, we develop theranostic nanoparticles loaded with anticancer drug (docetaxel) and diagnostic agent (iron oxide) to achieve simultaneous effect of therapeutic and diagnostic. Vitamin E TPGS was used as the nanocarriers, it has amphiphilic structure which is useful in the preparation of nanoparticles to encapsulate hydrophobic drug. This docetaxel-iron oxide loaded TPGS micelles were synthesized using solvent casting method. These micelles were characterized for its nanoparticles properties such as size, surface charge, morphology and drug loading. The synthesized micelles size found to be between the range of 15nm and 100nm for single drug and dual drug loading respectively. These micelles have uniform size distribution with polydispersity index less than 0.3. The surface charged of the micelles is negative between -7 mV and -20 mV. Whereas, the micelles have smooth spherical shape as observed under cryo-TEM. Overall, our micelles have higher drug loading which is suitable to use for effective delivery for triple negative breast cancer treatment.

Key words:--

Dual Drug Delivery, Biomaterial, Nanomedicine, Pharmaceutical, Cancer

The effect between number of turbine blades, wind speed, and it's interaction to the electric power generated by Wind Turbines NACA 6412

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Abstract:--

The increasing of the population impact to the increasing of the energy demand. Indonesian non-renewable energy and the renewable energy demand increased faster but the energy supply is decreased, and the gap between demand and supply of energy is wider and wider. The government of Indonesia tries to shift and to look for an alternative energy to prevent future scarcity of energy resources. One alternative energy used is to utilize wind energy. The wind energy is no pollution, cheaper, and easier to maintain it. Wind energy potential in Indonesia is more than 90 GB and the production electric energy using wind energy has not been explored optimally. The research objective is to analyze the effect between the wind speed and number of turbines blades and the electric power generated by Vertical Axis Wind Turbine (VAWT) using NACA 6412. VAWT used 4, 5, and 6 unit turbine blades and the variation wind speed is 3.0 till 6.0 meter per second. The research variables are variation of wind speed and number of turbines blades, and the electric power is generated by VAWT. This research applies quantitative method is experimental design using two way classification and data simulation. The finding of this research reveals is 1). null hypothesis 1 is accepted or the means of the variation of the turbine blades to the electric power generated by VAWT are not different significantly at the level 5%. 2) The null hypothesis 2 is accepted or the means of the variation of the wind speed to the electric power generated by VAWT are not different significantly at the level 5%. 3) The null hypothesis 3 is accepted or the means of the interaction of variation turbine blades and variation of the wind speed to the electric power generated by VAWT are not different significantly at the level 5%.

Keywords:

VAWT, wind energy, strategic, turbine blades, NACA 6412.

The Effect between number of water turbine blades and water flowrate to the power generated by Mycro Hydro Power Plant (MHPP) using Crossflow type NACA 63210

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Sadar Wahyudi, Politeknik Negeri Malang - Indonesia

Sudarmadji, Politeknik Negeri Malang - Indonesia

Abdul Bashith, Universitas Islam Negeri Maulana Malik Ibrahim, Malang - Indonesia

Abstract:--

The demand of Indonesian energy is growing faster and the non-renewable energy has decreased very rapidly, so the government tries to shift and to look for an alternative energy to prevent future scarcity of energy resources. One alternative used is to utilize water energy. Water is one of the most renewable energy, environmental friendly energies, cheaper, the MHPP is easier to maintain, and the biggest water energy potential in Indonesia, so it has the potential to reduce dependence on current (non renewable) energy use (namely: petroleum, oil, gas, and coal). The purpose of this research is to analyze the effect of the number of turbine blades and water flowrate to the power generated by Micro Hydro Power Plants (MHPP) using Crossflow type and NACA 63210. The research method uses experimental design with null hypothesis: there is no effect of number of turbine blade to the power generated by water turbine and there is no effect of water flowrate to the power generated by MHPP. There are two type of MHPP namely Pelton and Crossflow types. The research result rejected the null hypothesis, it means there is an effect of number of turbine blade to the power generated by water turbine and there is an effect of water flowrate to the power generated by water turbine.

Keywords:

MHPP, Crossflow, water energy, turbine blades, water flow rate, NACA 63210.

The application of 3-D wire cloth electrode for higher throughput dielectrophoretic separation experiment

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Abstract:--

Dielectrophoresis (DEP) is one of an alternative way for cell separation. It has mainly been limited to processing small volumes due to constrain in fabrication of microelectrode over large surface areas. This work incorporated the wire cloth electrode fabricated using textile technology into a high throughput chamber experiment. The plain-weave wire cloth consists of 71 μ m stainless steel wires as the microelectrode arrays hold together by polyester yarn warp. This work determines the cell separation yield with parameters on applied voltage, flow rate and cell concentration as well as its optimized variables on the chamber width of 1.2cm and 2.5cm. The optimum voltage achieved was 30Vpk-pk, with flow rate of 3.5 ml/min and maximum cell concentration of 2.08x10⁷ cells/ml. In chamber width comparison, 1.2cm width chamber gives better total percentage yield of 96% than the 2.5cm width chamber of 85% total percentage yield.

Modeling Suspended Sediment Load in a River Using Extreme Learning Machine and Twin Support Vector Regression with Wavelet Conjunction

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Abstract:--

Sediment load prediction in a river is a complex phenomenon due to various parameters such as tropical climate, extreme rainfall, transportation etc. By decomposition of the data on several steps, the wavelet transformations approach helps to explore the temporal and frequency information for estimation of sediment load prediction. Keeping this idea in mind, in this paper, two conjunction models named as, wavelet based extreme learning machine (WELM) and wavelet based twin support vector regression (WTSVR) are suggested and implemented for sediment load prediction. The results are compared with the standard extreme learning machine (ELM) and twin support vector regression (TSVR). The performances are evaluated based on two quality measures i.e. root mean square error (RMSE) and mean absolute error (MAE). The result shows that wavelet based hybrid models are performing better results as compared to the other standard models.

Index Terms:--

Coiflet wavelet, suspended sediment load, wavelet based twin support vector regression, wavelet based extreme learning machine.

Analysis and reduction of manufacturing non-conformities of non-threaded fastener

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Abstract:--

This paper may be considered as a systematic and collective approach to reduce manufacturing non-conformities of Non-threaded fasteners i.e. Dowel Pin by Basic Quality tools. This paper covers manufacturing process of Dowel Pin and its analysis at various stages of manufacturing. The manufacturing process of Dowel Pin has been analyzed at industry X and done corrections in the process, drawing and holding device of Machine Tool to reduce manufacturing non-conformities. After modification, the results have been improved.

Index Terms

Dowel Pin, Basic Quality Tools, Brainstorming, Centreless Grinder, Automatic Lathe, Root Cause Analysis.

Design and Implementation of a Smart System for Multiple Applications

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Abstract:--

At Present, agriculture includes forestry, dairy products, fruits cultivation, poultry farming, etc. apart from farming. One of the main problem or concern of farmers is irrigation. There are various factors that affect irrigation like proper timing and proper amount. This paper presents a system that can improve the lives of farmers. This system, besides farming can help farmers in various ways, as they are not dependent only on crops for their livelihood. This system comprises of various subsystems that can reduce their effort. To deal with the problem of irrigation, the humidity of the soil is constantly measured using soil humidity sensor. When there is no humidity in the soil an SMS will be send to the concerned farmer. Another problem of the farmers is the safe storage of grains for which this system can be a useful solution. With help of smoke and fire sensors the possibility of fire can be avoided. If a farmer is doing poultry farming then the proper temperature can be maintained for eggs during hatching. Another subsystem is also designed to utilize the solar energy of the sun. This energy is the best and cheapest source available to the people especially farmers. For this whole system to work we have used ARM7 (LPC2148) microcontroller.

Study on properties of Nano concrete using industrial waste

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Abstract:--

According to survey reports of 2018, the world population reached 7.6 billion in April 2018 and among that 54% of the lives in the urban areas and it will reach to 66% in 2050. Due to increase in the population in the urban areas, necessity of tall buildings for effective use of land and resources. Ultra-high strength concrete structures play a vital role in the construction of tall buildings. Lateral loads become an increasingly dominant parameter for the planning and design of tall building. In lateral load, HSC are most likely used in the structural columns and walls. The dynamic properties of the main wind force-resisting system must be taken into account. For effective use of the carpet area in the tall buildings, the buildings should be of thinner structural members with high strength and durability. This paper deals with development of high strength concrete by using the industrial slag. Usage of sand will deplete the natural resources of the country but nowadays they are using M-sand that too deplete the natural resources (rocks). Using of industrial waste (slag) as a replacement of river sand will solve the above mentioned problem. This paper presents the developed high strength concrete of 110MPa compressive strength and other mechanical properties.

Anomaly Detection in Wireless Sensor Networks for Precision Agriculture

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Tanima Dutta, Department of Computer Science and Engineering, IIT (BHU) Varanasi, India

Abstract:--

Monitoring of agricultural field using sensors provide valuable information about the crops to the farmers. The information consists of the real-time pH level, humidity, temperature, etc. Such information is obtained using wireless sensor network which is to be analyzed for predicting the right time of irrigation and amount of water needed by the crops. It is true that this prediction depends on the quality of obtained data. There are several anomalies that can influence the quality of data, such as, battery drainage, communication failure, and faulty measurements. In this paper, we therefore discuss various ways to detect such anomalies to get precise information about the agricultural field.

Index Terms

Agricultural field, mobile sink, sensors.

Towards Effective Bug Triage with Software Data Reduction Techniques

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Abstract:--

A software bug is a problem which causes a computer program or system to crash or produce invalid output or to behave unintended way. Software bugs are unavoidable. Many software companies have to face large number of software bugs. Bug Triage consumes more time for handling software bugs. It is the process of assigning a new bug to the correct potential developer. In this paper, we deal with the software bugs where large software company spent lot many of their cost in the same. The step of fixing the bug is called as bug triage where we correctly assign a developer to a new bug. Here, we address the problem of data reduction for bug triage. The problem of data reduction deal with how to reduce the scale and improve the quality. Hence, we combine instance selection with feature selection both simultaneously to reduce bug dimension and word dimension. We also extract the historical bug data set and predictive model to build new data set. This work provides leveraging techniques on data processing for high quality bug data in the software development.

Keywords :

Bug Triage, Bug Repositories, Bug Data Reduction, Feature Selection, Instance Selection, Machine Learning Techniques.

Cascading of RBFN, PNN and SVM for Improved Type-2 Diabetes Prediction Accuracy

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Abstract:--

Diabetes is a metabolic disorder caused by a defect in insulin secretion or action (or both) leading to hyperglycemia (high glucose levels). Over time, hyperglycemia damages nerves and blood vessels, leading to complications like heart disease, stroke, kidney disease, blindness, nerve problems, gum infections and amputation. In order to increase the classification accuracy on diabetes data in this paper a dual-stage cascaded ensemble framework is proposed. This framework has two stages; the first stage consists of simple Radial Basis Neural Network (RBFN) and simple Probabilistic Neural Network (PNN). The results from both the neural networks are combined and serve as inputs to the second stage classifier called support vector machine. The soundness of proposed framework is validated using Pima Indians Diabetes dataset. The Experimental results indicate that the proposed Dual stage network outperforms individual as well as state-of-the-art models.

Key-words:--

RBFN, PNN, SVM, Cascading, Ensemble Technique, Diabetes prediction

Design, Fabrication and Modelling of Four-Wheeled Mobile Robot Platform with Two Differentials and Two Caster Wheels

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Abstract:--

Speech recognition has a high complexity and a broad range of applications, since it has to predict the word under many types of distortions. This paper aims to compare the performance of different optimization techniques like Genetic Algorithm (GA), Particle Swarm Optimization (PSO), Artificial Bee Colony (ABC) for optimizing the different hidden layers and neurons of the hidden layers of artificial neural network (ANN), for maximum recognition accuracy. The features of input speech signals are extracted using amplitude modulation spectrogram (AMS). The outcome demonstrates that the accuracy of ABC is 95.3% and it performed better when compared with the other optimization techniques.

A Study of Impact of Cultural Dimensions on ATM User Experience

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Abstract:--

User Experience is an overall experience of a user using a product may be a tangible product or an intangible product like software. This study aims to improve the overall user experience of Automated Teller Machines (ATM) by identifying the influence of cultural dimensions using the factors proposed by Hofstede and Bond, Kluckhohn and Strodtbeck, Hall, Parsons and Shill, Trompenaar, Schwartz frameworks. The Cultural Dimensions related to the User Experience of ATMs (region-wise) based on contextual inquiries and online surveys conducted.

Keywords:

Cultural Dimensions, User Experience, White Label ATMs

Measuring the Efficiency of Leather Industry, a Comparative Analysis of Pakistan and India.

An Application of DEA Double Bootstrap Technique

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Abstract:--

The aim of this study is to measure and compare the technical and scale efficiency of leather industry in the context of Pakistan and India through DEA double bootstrap technique. While conducting quantitative research, secondary data was collected from leather industries annual reports and different data bases over the period of 2014-2017. First, the study applied bootstrapped DEA technique for measuring bias-corrected technical efficiency scores by utilizing 2 inputs (capital, labour) and one output (sale). Finally, the study employed the bootstrapped truncated regression model for determining the sources of technical efficiency. The results of the study reveal that some of the firms are technically fully efficient while some of the firms are less efficient over the period under consideration. The study also estimated the technical efficiency score of the firms at individual level, group-wise, and overall efficiency score of the firms in the sample. On the basis of analysis, it is suggested that there is intense need to establish training institute to improve the labour quality through training, guidance and equip them with the modern techniques needed for the enhancement of their productivity.

A Novel Approach to Analyze Cyber Racism: A Review

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Abstract:--

Cyber Racism is the phenomenon of racism online including online micro aggressions, online racist hate speech and cyber bigotry. It is heightened during crises or threat. People posts their opinions, feelings and expressions on twitter- one of the most popular reporting tools towards each other which will help terrorists to influence people and recruit them as new group members. This paper presents a framework for detection of cyber racism. Framework consists of six modules: Twitter search API, Twitter database, Data preprocessing, cleaned database, Sentiment analysis, Label learning. This proposed framework would help in forming new policies aimed at reducing racism activities online as to protect people from getting trapped by terror groups.

Index Terms-

Terrorism, Cyber Racism, Twitter Search API, Sentiment Analysis, Data Preprocessing.

Numerical Investigation of Detonation Wave Propagation in Pulse Detonation Engine with Obstacles

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Abstract:--

The numerical investigation of Detonation wave propagation and Deflagration-to-Detonation transition is carried out in a straight long tube of pulse detonation engine with stoichiometric ($\phi=1$) mixture of hydrogen-air at ambient pressure and temperature of 0.1 MPa and 293 K, respectively. The detonation tube contains obstacles having blockage ratio (BR) 0.5, 0.6 and 0.7, and having 60 mm gap among them. The computation analysis is performed firstly on a simple straight tube having no obstacle (BR=0.0) and then obstructed channel. The combustion phenomena of the fuel-air mixture are modeled by one-step irreversible chemical reaction model. Three-dimensional Navier-Stokes equations along with realizable k- ϵ turbulence model are solved by the commercial computation fluid dynamics software ANSYS Fluent-14 code. The performance of the pulse detonation engine (PDE) depends on the blockage ratio (BR) of obstacles. The simulation results show that the initiation and propagation of flame are due to the exothermic expansion of hot combustion gases. The obstacles generated turbulence at obstacle wakes, which caused to increase flame surface area. Therefore, obstacles reduced the Deflagration-to-Detonation transition (DDT) run-up length. The perturbation inside the combustor increases as increased the blockage ratio of the obstacle. The PDE Simulation results of with and without obstacles were analyzed and compared with adiabatic flame temperature.

Keywords:

Obstacles; Detonation; Turbulent flame; Pulse Detonation Engine.

Fermented wine like beverage from Sugarcane juice: A review on its production, quality assessment and future scope

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Abstract:--

Sugarcane, *Saccharum officinarum* L. is one of the tallest members of the grass family, and important cash crop used for sugar production cultivated in more than 110 countries, with 50% of total production occurring in India and Brazil. Sugarcane juice is rich in sucrose content which is the best source of carbon for microbial growth thus can be an effective substrate for fermentation. Surplus production of sugarcane can be utilized for making alcoholic beverages to avoid post-harvest losses of matured cane and hence gets preserved in the form of fermented beverage. The blend of sugarcane juice with different fruits produces an alcoholic beverage of better quality than sole sugarcane juice. This review summarizes current knowledge about the usage of sugarcane juice and sugarcane –fruit juice blend for making alcoholic beverages and also elaborates its compositions like phenolic content, antioxidant activity, volatile compounds and sensory evaluation.

Design Concept of a Bio-Electronic Heart Using Artificial Muscles.

Pragya Sunil Mahadule, Shri Ramdeobaba college of Engineering and Technology

Abstract:--

The objective of this study paper is to introduce a new preliminary design of a bio-electronic heart which will facilitate the use of artificial muscle and an electric pulse generator which will enable the structure to act-alike the biological heart.

The following research on this design will aim at creating a solution for less heart transplant donors available, transplant rejection and following immunosuppressant medication given to suppress the contradictory reactions between donor's and recipient's tissues.

The decade has already witnessed the era of micro and nano-scale robots being used in field of medical science for treatment and/or elimination of diseases like tumours, blood clots etc. And it has also observed a rapid growth in developing biological substitutes to restore, replace or regenerate defective tissues by means of tissue engineering.

In this paper, I aim to collaborate both the activities to imitate biological muscle movements of human heart and reproduce them by means of artificial muscles made up of EAPs. Electroactive polymers (EAPs) are materials that change their shape and/or dimension in response to an electric stimulus, and thus accomplish movements that are smooth enough to mimic the biological muscles.

Optimization of LED lighting System for horticulture application – A Simulation

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Dr. Narasimhan S, Department of Biotechnology , Manipal Academy of Higher Education, Manipal, India

Abstract:--

The scope for application of Light Emitting Diodes (LEDs) as grow lights has enhanced significantly in the recent past. The place of LEDs as the most commonly used lighting fixtures in the horticulture industry looks imminent in the near future. LEDs have the capability to be provided desired light quantity and quality which aids the plant growth. All the plants mainly absorb the red and blue spectrum for their growth and development. In this work various Spectral Power Density (SPD) models were simulated and compared with practical SPDs. On comparison of different SPD model functions, the Asymmetric Gaussian function provided very good overlap. Database of several LEDs were created. Linear Programming (LP) was developed for spectrum matching and optimize the number of LEDs. Also the CCT and PPFD were compared with the reference spectrum. The SPD models and LP were simulated using MATLAB software.

Keywords:--

Photosynthetic Photon Flux Density (PPFD), Full Width Half Maximum (FWHM), Integrating sphere, Spectral Power Density (SPD)

Denoising Medical Images Using Classic Non Local Means and Its Fast Variants: A Detailed Study

Rayeesa Mehmood, Central University of Punjab, Near Mansa Road Bathinda

Abstract:--

Non Local Means filter is an efficient denoising algorithm that brought a drastic improvement in denoising and is remarkably better than older generation algorithms in restoring the original image. Initially NLM filter proved to be efficient but particularly for additive noise. Since the denoising results of NLM were such that researchers made successful attempts to model it according to the characteristics of multiplicative noise present in medical images and the results provided were much better than the prior local methods. It must be noted medical images are corrupted with multiplicative noise such as speckle noise and Rician noise. This paper presents a detailed study of the Non local means denoising algorithm when applied to medical images. Also the traditional NLM is inferior in terms of execution time which led to the improved fast versions of NLM. Some of those improved NLM methods for medical images are also discussed in this paper.

Index terms:

Non local means, Medical images, denoising, Gaussian noise, multiplicative noise.

Assessment of Vehicle Body Vibration in Indian Motorbike Riders

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Abstract:--

The major Indian population depends on motorbikes for their transport due to cost-effective motives. The vibration is most common in Indian motorcycles because of its active nature. The motorbike riders are subjected to excessive vibrations. This study aimed to assess the risk exposures that are involved in the motorcycle riders due to vehicle body vibration. This study involves 5 subjects who drive 4 different Indian made motorbikes. The arbitrary names assigned to the different motorbikes considered for the study were A, B, C, D. Seat vibration were measured using a tri-axial seat pad accelerometer placed on the seat. Based on ISO 2631 standard, the ideal acceleration range should be between 0.4 m/s^2 – 2.0 m/s^2 . Seat vibration obtained for bike A and B falls between the ideal acceleration range. The Seat vibration obtained for bike C is 2.142 m/s^2 . Our findings reveals that Bike D's seat vibration were more than the ideal acceleration range. Increase in vibrations in Motorbike C and D are exposed to lower back pain and other health risks. Essential ergonomic modifications were suggested in the kerb weight and volume of the cylinder to reduce the vibration risk exposures.

Keywords:

Motorbike, Seat vibration, Tri-axial seat pad Accelerometer, Ergonomics

Comparative Study of Energy efficient and Quality of Service based Routing Protocols in Wireless Sensor Networking

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Abstract:--

A wireless sensor network (WSN) consists of a large number of sensor nodes which are deployed over an area to perform local computations based on information gathered from the surroundings. With the increasing demand for real time applications in the Wireless Sensor Network (WSN), real time critical events anticipate an efficient quality-of-service (QoS) based routing for data delivery from the network infrastructure. Hence, maximizing the lifetime of the network through minimizing the energy is an important challenge in WSN; sensors cannot be easily replaced or recharged due to their ad-hoc deployment in hazardous environment. Considerable research has been focused on developing robust energy efficient QoS based routing protocols. The main focus of this article is primarily on periodical cycling schemes which represent the most compatible technique for energy saving and we also focus on the data-driven approaches that can be used to improve the energy efficiency. Finally, we will make a review on some communication protocols proposed for sensor networks.

Index Terms:--

Wireless sensor networks, Quality of service, Energy efficient, MAC

Classification of Human Emotions using EEG signal analysis under different Audio-Visual Stimuli

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Abstract:--

Emotions play an important role in human cognition, perception, decision making, and interaction. In this paper, classification of human emotions is proposed by extracting features from Electroencephalogram (EEG) signal under different Audio-Visual Stimulus (AVS). EEG data for the classification of emotions is obtained from the DEAP database. Totally 32 patients' watched 40 minute long videos and their peripheral physiological signals and electroencephalograms were recorded. A down sampled (128 Hz), pre-processed and segmented versions of this data were used to extract multiple Time-Series features in particular frequencies across an array of relevant electrodes through Matlab. There are reports on voice based, facial image based study of expressions to recognize their emotions. However, emotion identification using both methods can be biased as they can be faked. In order to overcome this difficulty, many researchers analyze brain physiological signals to represent the changing patterns during emotional fluctuations. A new dataset corresponding to the channels and features are used to classify these EEG signals into two classes - Anger and Calmness using K-Nearest Neighbour (KNN) classifier.

Keywords:

Emotion recognition, EEG, physiological signal, AVS, KNN.

Security of Medical Big Data Images using Decoy Technique

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Abstract:--

The tele-radiology technology helps in bringing the communication between the radiologist, patients and healthcare units situated at distant places. This involves exchange of medical centric data. The medical data may be stored as Electronic Health Records (EHR). These EHRs contain X-Rays, CT scans, MRI reports. This potentially forms big data which can be termed as medical big data (MBD). Using Healthcare Cloud can be used to handle MBD. Since lack of security to EHRs can cause havoc in medical IT, healthcare cloud must be secure. This paper discusses the decoy technique to provide security to EHRs. It also involves study on honey-pots and intrusion detection techniques. Further it identifies the possibility of an intrusion and alerts the administrator.

Key words:-

Medical Big Data, Cloud Computing, Security, Decoy, Honey-pot, Intrusion Detection.

Heat Transfer from Extended Surface Microchannels: A Review

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Abstract:--

Due to higher energy requirements and need for sophisticated equipment for heat disbursement, there is a rapid development in technology. Due to technological advancement there is a need to increase the heat dissipation from the compact systems. Microchannel heat sinks are found to be reliable solution to have high heat dissipation rates due to its high heat carrying capacity. Now many high heat flux applications are using microchannels for effective cooling. In present review, heat transfer improvement in microchannel was studied. Enhanced heat transfer by using finned microchannels, offset ribs on sidewalls, shapes of channels, secondary channel, hybrid technique of ribs and secondary channels. Numerical analysis shows that Upstream finned microchannels are more effective than downstream finned microchannels and plain microchannel. When done analysis with various configurations of secondary flows it shows that TC-RR-SC (Triangular cavities-Rectangular ribs and secondary channel) design has an extraordinary overall performance compared to other designs due to combined effect of thermal boundary layer re-development and flow mixing in main channel. When analysis done with combinations of ribs and secondary channels, the MC-SOCRR (microchannel with secondary oblique channels and Rectangular Ribs) performs better compared to other configurations of secondary channels.

A study on the Influence of hybrid fibers on mechanical properties of cementitious composites at low fiber volume fractions.

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Abstract:--

This study is aimed to develop and investigate the effect of fiber hybridization on low (30 MPa), medium (50 MPa) and high strength concretes (70 MPa). Mechanical properties of hybrid fiber reinforced concrete (HFRC) incorporated with steel, polyester and polypropylene fibers were studied on three grades of concrete. Hybridization was done in two stages, the first stage of the investigation was to develop and study the effect of polyester-polypropylene (Non-metallic) HFRC at a total fiber volume fraction of 0.15%. Further, the investigation was carried out to develop a hybrid fiber reinforced concrete made with metallic (hooked-end Steel) and non-metallic fibers at a total fiber volume fraction of 0.5%. Mechanical properties, namely compressive strength, direct tensile strength and flexural strength were investigated. The results obtained were compared with mono-fiber reinforced concrete and conventional concrete. Significant improvement in direct tensile strength and flexural strength observed with the with the fiber hybridization compared to mono-fiber reinforced concrete and control mix. This may be due to synergic response of different fibers at different scales of cracking at different stress levels in concrete. Superior results were observed at metallic – non-metallic hybridization due to exhibition of synergetic response of fibers by inhibition of crack growth and propagation, at different scales of cracking at different stress levels in concrete.

Keywords:

Hooked-End steel (HS), Polyester (PO), Polypropylene (PP), fiber reinforced concrete (FRC), hybrid fiber reinforced concrete (HFRC).

Optimization of Multi-color LED Light Sources using Genetic Algorithm and Linear Programming

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Abstract:--

Multicolor LEDs play an important role in the field of general lighting. These LEDs when mixed appropriately, can produce various Correlated color temperatures with different optical spectrums according to the required application. The wavelength composition of an optical spectrum defines the quality of light and its suitability to be used for various applications. Human centric lighting focuses on the quality of light which can improve work efficiency, increase concentration, change the mood without affecting one's vision. Hence, in this paper we have proposed an optimization technique using Genetic Algorithm and Linear Programming for the selection of appropriate LED wavelengths to match the target CCT and luminous flux. The algorithm also controls the quality of spectrum by optimizing the intensity of blue light in the wavelength range of (400-500) nm thereby reducing blue light hazard which is harmful for human vision. The result shows that for a target CCT of 5000K and flux of 500lm six different wavelength LEDs were selected by the algorithm. The algorithm has also preserved the quality of spectrum by considering very less proportion of blue in the specified wavelength range.

Keywords

Human Centric Lighting, Genetic Algorithm, Linear Programming, Blue light Hazard

Review on Recent Advances in Pulse Detonation Engine.

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K.M Pandey, National institute of technology, Silchar, Assam, India

Abstract:--

A pulse detonation engine, or "PDE", is a supersonic relative of a jet engine, known as supersonic pulse jet engine. It is an experimental propulsive device that uses supersonic combustion waves as detonation mechanism. The main difference between a jet engine and a pulse detonation engine is the method of combustion. In a jet engine, deflagration waves are the cause of combustion, a subsonic combustion flame propagates in the chamber. But PDE works under detonation, combustion involving a supersonic exothermic front accelerating through a medium and it drives a shock front propagating directly in front of it. This type of propulsion system has the capability to do efficient combustion and rapid energy and material conversion. The basic operation of the PDE consists of air fuel mixing then mixture ignition by detonation waves. At last the exhaust gases are expands through a nozzle producing a thrust. The time taken by the combustion mechanism was very less hence the entire process considered as constant volume process. Up to now, no practical PDE engine has been put into production. The present review analysis gives the further scope in research in the area of pulse detonation engine and practical possibilities of PDE.



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