4th International Conference on Emerging Trends in Engineering, Science and Technologies

(ICETEST-2020)

Bangkok, Thailand

26th – 27th February' 2020

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PREFACE

We cordially invite you to attend the ***4th International Conference on Emerging Trends in Engineering, Science and Technologies (ICETEST-2020)*** which will be held at ***Ramada D'Ma Bangkok, Bangkok, Thailand*** on ***February 26th – 27th, 2020***. The main objective of ***ICETEST-2020*** 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 Renewable Energy & Emerging Technologies. 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 December 2019, the Organizing Committees have received more than 120 manuscript papers, and the papers cover all the aspects in Engineering and Technology. Finally, after review, about 50 papers were included to the proceedings of ***ICETEST-2020***

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of ***ICETEST-2020*** 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.

ICETEST-2020

Acknowledgement

Ankit Rath
Chief Scientific Officer
Institute for Engineering Research and Publication (IFERP)

IFERP is hosting the ***4th International Conference on Emerging Trends in Engineering, Science and Technologies (ICETEST-2020)*** this year in the month of February. The main objective of ICETEST 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 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 attend this conference.

Ankit Rath

4th International Conference on Emerging Trends in Engineering, Science and Technologies

Keynote Speaker

Dr. Andrew Stotz

Co-Founder and CEO,

A. Stotz Investment Research

Message

It is my pleasure to address the delegates of 4th International Conference on Emerging Trends in Engineering, Science and Technologies (ICETEST-2020) organized by The Institute For Engineering Research and Publication (IFERP). It is critical that research and the scientific advancement of knowledge serve the mutual benefits of individuals and industry. I look forward speaking with all of you about how we can combine the scientific method in an ethical and prosperous way that will allow us to build a better tomorrow. 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.

Dr. Andrew Stotz

Co-Founder and CEO,

A. Stotz Investment Research

ICETEST-2020

4th International Conference on Emerging Trends in Engineering, Science and Technologies

Bangkok, Thailand, February 26th -27th, 2020

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4th International Conference on Emerging Trends in Engineering, Science and Technologies

Bangkok, Thailand

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ABSTRACTS

ICETEST-2020

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Institute For Engineering Research and Publication (IFERP)

Adaptation Readiness of Industrial 4.0 on SMEs of Developing Countries; Malaysia Perspective

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Dr Mohd Razif Bin Idris, University Kuala Lumpur
Nur Adilla Binti Aris, University Kuala Lumpur

Abstract

Implementation and adoption of Industry 4.0 has emerged as a megatrend of industrial world since it was initiated in Germany back in 2011. The disruptions caused by the convergence of multiple digital technologies by Industry 4.0 is proven to be challenging especially for Small and Medium Enterprises (SMEs). This is particularly true in many developing countries where the industrial foundation is comparatively weaker than those of developed countries such as Japan, Germany, USA, etc. Malaysia as one of the developing countries, relies heavily on its SMEs for tax contribution and employment provision. Due to the globalisation and also Malaysia's open market policy, these SMEs are now facing huge disadvantages on competitiveness if they don't participate in this Industry 4.0 megatrend. Early studies showed that SMEs of Malaysia are facing obstacles such as among others low awareness towards Industry 4.0, small domestic market size, lack of skilled workers especially in the IT and automation areas, insufficient implementation fund, etc. Along the perspective of Malaysian SMEs, the objectives of this paper are to have a practical overview of Industry 4.0 adaptation in some developing countries, elaborate Industry 4.0 policy and strategies laid out by the Malaysian government, preliminary analysis on the level of awareness and readiness of SMEs on Industry 4.0. The paper uses several techniques to gather the data including a survey and company interview. Based on the finding, the paper also proposes some initiatives or solutions for Malaysian SMEs to overcome the obstacles, as well as future research on the matter.

Keywords

Automation, Digital Technologies, Globalization, Industry 4.0, Sme

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Protection of Patient Information Records monitoring system through USB-HID and PIC Microcontroller PPIRMS

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Abstract

Several wearable devices have been suggested by the healthcare to assemble and display the patient information. Unfortunately, the privacy nor the reliability of the recorded data are met since many people can use the same device, and not necessarily with prior knowledge. The main objective of this project is to design a new system for patient information recording to ensure both privacy and relevance of the data. This new Protection of Patient Information Records monitoring system (PPIRMS) system can monitor the data in total privacy using USB-HID. The system will send the recorderd data using USB-HID connection which will ensure both security and privacy. The system implementation consists of many simulations. This PPIRMS system avoids the misuse of the wearable devices since reliability and privacy of recorded information are met. Benchmarking has been performed as well to fill in the research gap with previous studies and the highest value obtained was 71%. This study is enabled to create a system of high reliability, privacy, and security to record and monitor the patient's information.

Keywords

PPIRMS, patient information, reliability and privacy.

Semi-Autonomous System for Robotic Navigation

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Abstract

This work presents the research and development of hardware and software of a semi-autonomous system for robotic navigation. The robot need to navigate through a game field and throwing objects. The robot with semi-autonomous system were design and build using bluetooth controller, Arduino Due, digital fiber optic sensor and rotary encoder. It also utilised USB host shield, planetary DC Gear Motor, omni wheel and rollers, power window motor, lifter, flipper, 1 holder, which were all controlled by Arduino Due as microcontroller. DC Motor Driver is used to drive high current of planetary DC Gear motor and power window motor continuously. Bluetooth controller is used to control the motion of omni wheel together with Planetary DC Gear motor and motor Driver, so the omni wheel can rotate both clockwise and anticlockwise. Furthermore, the rotary encoder and the digital fiber sensor is used as a distance sensor. The use of rotary encoder in semi- autonomous robot navigation is important due to high motor speed. It has been establised that the rotary encoder is more efficient compared to the digital fiber optic as the average distance error produced by the rotary encoder is significantly less than the digital fiber optic sensor.

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Injecting Tissue Texture and Morphology Comprehension into Algorithm for Cancer Grading

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Abstract

Image technology has many applications in various fields of knowledge including multimedia systems, biometric security and medical image analysis to diagnose illness. In the analysis of medical images, particularly in the field of cancer detection, as well as radiology, the detection technique that can determine the diagnosis of cancer is a biopsy ex- amination by histopathologist. However, the analysis process still time consuming in the determination of cancerous grade on histopathology images. Therefore, this study proposes a method for analyzing images and classifying histopatological images automatically by using two texture feature approaches throughout the image area. The first approach is to investigate the textural features of the entire tissue using GLCM feature at the pixel level to identify the patch cluster (sub images) from the image area based on its texture similarity. Clustering is done using the k-means clustering method. The patch is the result of previous conversion from the original image into 100x100pz size. Each pixel is a representation of the GLCM texture feature in a patch. Thus, GLCM can differentiate each texture of each patch. While cluster co-occurrence matrices (CCM) features is used to improve the accuracy and performance of the classifier. Furthermore, this feature is used to determine the relationship between patch on the whole image. Then classification of cancerous grade was performed using this feature as the input for SVM, KNN, and RF. Experiments were conducted using breast cancer histopathology images containing grade 1, grade 2 and grade 3. The accuracy of the classifier has achieved 84.97%, 84.5% and 85.25%. Then, this model also was implemented in the data set of prostate cancer histopathology images containing grade 3, grade 4, and grade 5. The performance accuracy using this dataset has achieved 84.63%, 83.51%, and 83.73% for each grade. Both sets of data were obtained from Hospital Universiti Kebangsaan Malaysia.

Keywords

digital pathology, Cancer grading, Tissue texture.

Design and Implementation of Grid Based Clustering In WSN Using Dynamic Sink Node

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Abstract

A wireless sensor network (WSN) has important applications, especially in remote environmental monitoring, which has been possible with the availability of smqller, cheqper, qnd more intelligent sensors. The equipment of these sensors are with wireless interfaces linked together to create a network, that contains many distributed nodes. The closest nodes to the sink are exploited with the huge traffic load since data from the entire region is forwarded through them to reach the sink. Consequently, their energy is rapidly tired and the network is divided. This is solved by changing the sink node position in Grid based clustering technique, which considers the optimal method for this purpose. A simulation with MATLAB can be applied for Grid based clustering technique to evaluate the performance of WSN. The expected results deal with outperforms in term of output, reduction in energy consumption , the residual energy imcrease, and the sensor network lifetime prolongation.

Keywords

WSN; Grid based clustering; Static & dynamic Sink node position;

A Strategic Framework for Good Governance through E-Governance in Kathmandu, Nepal

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Abstract

The study aims to assess the level and use of e-services and examine the impact of social, economical and political governance on e-governance. The study has incorporated e-governance practice as dependent variable which is explained by the level of corruption, the level of inefficiency, the level of harassment and the level of difficulty encountered. The social, economical and political governance have been considered as independent variables in the study. The e-citizen, e-society and e-administration have been considered as moderating variables in the study. The study has adopted the descriptive and correlational research design. All concerned persons related to ministries, universities, business organizations and government offices are considered as population of the study. The sample size has been confined to 393. The purposive and convenience sampling technique have been used to select the sample. The statistical measure mean has been used to assess the position of dependent, independent and moderating variables. The correlation test has been run to know the association between the dependent and independent variables. The impact of independent variables of the dependent variables has been assessed through ordinary least square (OLS) regression model. The results of the study have shown that the good governance practices have been used but not satisfactory in the view of educated and experienced people. The lack of infrastructures: quality manpower, computer knowledge and language have been found as the major challenges to implement e-governance practices in Nepal. The study concluded that the improvement in political policies and social domains, e-governance can be effective but cost and other economic indicators are to be improved negatively so as to improve in e-governance practices.

Keywords

E-governance; Social Governance; Political Governance; Economic Governance, Good Governance.

Transfer Function Selection and Importance Ranking of Time, Cost, and Quality Factors in Project Management of Construction Firms using Back Propagation Neural Network coupled with Multiple Linear Regression based Feature Reduction Approach

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Abstract

There are numerous challenges faced in construction management, such as insufficient management skills, changing scope, and priorities, slow decision making, misallocation of resources, budget estimation, project conditions, and risks. To achieve a successful project that meet objectives with customer satisfaction, project engineers need to be sufficiently experienced to identify which constraint is best to utilize in certain conditions. Project management is essential for a company to develop and manage different project operations, together with leading management devices and techniques for managing time, cost constraints and meeting challenging requirements for enhanced efficiency. The main purpose of this research study is to develop a model utilizing the Back Propagation Neural Network as a basis for transfer function selection. Specifically, the study determined the topology of the best model and finally test the different combinations of parameters. Results showed that Levenberg – Marquardt algorithm was the best training algorithm with hyperbolic tangent sigmoid for the transfer function. The final importance ranking based on the feature reduction approach performed was Quality, Cost, and Time. Being Quality as the most important factor to project management and Time as the least important project management factor.

Keywords

Artificial Neural Network, Back Propagation, Levenberg Marquardt, Mean Squared Error, Project Management, Triple Constraint

Performance Analysis of K-Nearest Neighbours Algorithms for Automatic Handwritten Devanagari Text Generation in Marathi Styles

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Dr.Yogesh Kumar Sharma, professor, Research Coordinator JJTU Rajasthan, Head of Department, Research Coordinator Shri JJTU, Rajasthan

Abstract

The Devanagari scripts forms the backbone of the orthography of several Indian languages includes Hindi, Sanskrit and Marathi. With the increased demand, exploration and globalization of digital Devanagari documents, different printed and handwritten document recognition techniques have involved since last 20 years. In this paper recognition process is working with the four different stages such as pre-processing, segmentation, feature extraction and recognition with text generation. It works supported the 2 phases like training and testing phase. The proposed method is implemented within the python platform and it compared with the Artificial Neural Network (ANN) and K-Nearest Neighbours (KNN). The performance of the proposed method is analysed with statistical measurements of accuracy, precision and recall.

Keywords

Devanagari script, Marathi, AMA, ANN, KNN, feature extraction, pre-processing, segmentation

The Implementation of Internet of Things Using Test Bed in the UKMNET Environment

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Abstract

The Internet of Things (IoT) is one of the most important components for the 4.0 industrial revolution. Among today's problems of computing is the need for high power consumption and considerable space and equipment usage. Therefore, a small-sized technology and requires only low power to operate is necessary. A study has been conducted to study the implementation of IoT within the UKM network environment known as UKMNet. Furthermore, a test bed is developed using an Arduino Uno board as the IoT Hardware. To test the performance of the connection be-tween the Arduino board and the server, the iPerf software is use. As a re-sult, we find that Arduino Uno is suitable for use as the IoT hardware for this scenario. Performance tests for Arduino board also meet the require-ments for the implementation of IoT where the data transmission rate is between 3.483 Mbps up to 3.563 Mbps. The jitter value for this connection is also lower than 1.80 milliseconds to 1.85 milliseconds while the packet loss rate recorded is 0% to 0.59% for 10 seconds of data transmission. In conclusion, by using Arduino Uno as an IoT hardware is suitable to implement in the UKMNet.

Keywords

4IR, Arduino Uno, iPerf software, UKMNet.

Guidelines of Tourist Destination Image on Sustainable Growth in the Whole System of Tourism Industry of Thailand

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Abstract

Increasing the efficacy of tourist destination image is the growth basis of the whole system of tourism industry in Thailand for making the country to be sustainable economic and increase the competitiveness of sustainable country in the future. The objective of this research was to study guidelines of tourist destination image on sustainable growth in the whole system of tourism industry in Thailand. Research methods were both qualitative and quantitative research, quantitative data survey from the questionnaires of 500 managers of the tourist organizations by using descriptive statistics, reference statistics and multiple statistics. Result found that the guidelines of tourist destination image on sustainable growth in the whole system of tourism industry in Thailand that has shown the highest mean were 1) the policy aspect as supporting Thailand image to be the best quality tourist places and safety places, 2) the moral aspect as having the fairness of government and recompense, 3) the quality management aspect as developing tourist personnel and promoting the businessman for tourist personnel having the knowledge of sustainable tourist management, and 4) infrastructure aspect as having system of many facilities. For the result of hypothesis testing found that a business brings less or equal working for 5 years with the business having more working for 5 years was important to the guidelines of tourist destination image on sustainable growth without difference. The result of structural equation model analysis found that the model fit with empirical data, the level of chi-square was .099, Goodness of fit index (GFI) was 9.62 and Root mean square error of approximation (RMSEA) was .016.

Keywords

Structural Equation Model, Tourist Destination Image, Tourism Industry

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iRAH Apartment Residents Management System

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Abstract

In Malaysia, there are many high rise residential buildings, be it apartment or offices and shopping complexes. These buildings require maintenances and proper managing system especially the apartments. Most of them still using manual system in managing the well-being of the residential areas. This is due to the fact that they were not exposed to the use of technology that are available and also because of the high cost incurred to spend for a good system. Another problem is time where tenants need to find suitable time to visit the management office because most of opening time is during working hours only. This situation makes it more complicated as tenants are also working as per the same hour. Due to these problems, iRAH Residents' Management System is proposed and build for both, web and mobile applications. Residents can use the system to manage and interact with management through online for keeping track on their information, checking monies due, compiling complains, paying bills and asking questions with regards to maintenance services. Using Rapid Application Development (RAD) method for developing the initial analysis and quick design, the system is followed by prototype cycle which consists of development, demonstration and refine of the system. With the uses of software called flutter, Visual Studio and php coding, the online system was built from scratch. In ensuring the system functionality, acceptance testing was done for all components of the system, which are documented as proof that it worked and functions as required.

Index Terms

Apartment Management System, Acceptance Testing, Rad, Prototype, Mobile Application

Investigation of Heat Transfer Efficiency of Tungsten Carbide and Cobalt Oxide Nanoparticles Dispersed on Distilled Water as Base Fluid

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Abstract

Dealing with the inquiries on the effects on heat transfer efficiency of nanofluids with water as base fluid at laminar and transient regimes, WC (Tungsten Carbide), and Co3O4 (Cobalt (II, III) Oxide), were tested in a shell and tube type crossflow heat exchanger with 0.25-inch inner diameter. Percent volume concentrations of nanoparticles ranges from 0.5% to 2.0% in increments of 0.5%. Impacts on the thermo – physical properties were investigated. Considered also was the comparison of Nusselt number between theoretical, experimental, and computer simulated results. The study showed that adding nanoparticles had substantial impacts. Decrease in heat capacity can be perceived for all nanofluids investigated. While increase in thermal conductivity, viscosity, and density was recorded. Theoretical computations compared with computer simulated results had the highest discrepancy. While experimental data and simulated results had smaller difference. Regarding the effects on heat transfer efficiency, WC nanofluid presented deteriorations in all particle loading even though it exhibited boost in thermal conductivity. While cobalt oxide nanofluid displayed substantial improvements, with the highest augmentation recorded at 13.27% for 1.5% volume concentration. Based on the experimental data, correlations are proposed in approximating the Nu of the nanofluids investigated with ±10% consistency between predicted and experimental values.

Keywords

heat transfer, laminar flow, nanofluids, transient condition

Effect of Rubber Tapping Height on Trunk Muscle Effort

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Abstract

Rubber tapping often causes musculoskeletal disorders (MSDs), especially to the Lower Back Pain (LBP). The aim of this study was to investigate the muscle effort of trunk muscle in rubber tapping. The scope of this study consisted of four male students of the Prince of Songkla University who participated in this study. The main inclusion criterions were that they must be habitually active, have no prior back complaints or pathological disorders. Surface Electromyography (sEMG) was used to record the activities both sides of muscles – Erector spinae and Multifidus - during a 20-minutes isometric contraction workout. A laboratory-based rubber tapping simulation conducted five-level working heights (lower-knee, knee-waist, waist-shoulder, shoulder-head, and over-head). Muscular effort in this study was calculated as the percentage of Maximal Voluntary Contraction (MVC). The MVC for the level of rubber tapping resulted in knee-waist, lower-knee, waist-shoulder, shoulder-head and over-head which were 56.43%, 50.04%, 37.72%, 33.92%, and 32.98%, respectively. The results indicate that the EMG increase in muscle activity levels at a low level of rubber tapping.

Keywords

Lower back pain, Musculoskeletal disorders, Electromyography, Rubber Tappers

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Validators Performance Efficiency Consensus (VPEC): A Public Blockchain

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Abstract

The consensus is a problem in the distributed system. There are different nodes in the distributed system, and these nodes agree on specific criteria. As we know that there is no central authority in the distributed system, to control and manage. Therefore, block-chain is also a distributed system. The consensus is the core part of it. For the block-chain system, several consensus algorithms are designed. They have different philosophy behind since bitcoin appearance. Some of the consensus algorithms consume more energy, having low or high throughput, and low latency. In this article, we proposed a novel consensus algorithm for the block-chain system. It is more efficient and provided fairness to ordinary users. The fairness is, in terms of getting the reward for the creation of a new block in the block-chain system.

Keywords

Blockchain Consensus, Consensus Algorithm, Consensus Mechanism

Mobile Application in Learning Basic Needs of Plants using Internet of Things: Pokok+

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Abstract

Learning methods that use technology have a profound effect on learning. The Internet of Things (IoT) is a viable technology for Science, Technology, Engineering and Mathematics (STEM) education as it can integrate real-time data from the environment into the teaching and learning process. This can be done by developing a system that consists of physical objects that send data from sensors to smart phone for data manipulation. The objective of this study is to is to design and develop a mobile application based on IoT, Pokok+, as an additional material in learning Chapter 3 in Science and Technology subject of Year 2 in Malaysia's school. The Pokok+ application integrates the use of IoT technology to create an exciting and more interactive learning experience in classroom learning. The methodology used to develop the Pokok+ application consists of five phases which are analysis, design, development, implementation and evaluation. The results show the application received positive feedbacks in terms of engagement, interest and competency from students. The use of IoT in learning basic needs of plants can support students in visualizing the effects of light and water toward the growth of plants based on the current situation. Furthermore, the students can test their understanding by completing the exercise for each real-data module. This will increase students' interest in STEM education by connecting the syllabus with the technology and environment.

Keywords

IOT, Mobile Application, Basic Needs of Plants, Teaching and Learning, STEM education

A Solar Panel to operate Computer Laboratories of Messiah's Angel Learning School

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Abstract

One of the major problems of an establishment is the payment of Electricity Bill. It's been a long time that a lot of establishment is relying upon the Meralco as the producing electricity company. High used of electric power and sometime electric disturbance is a cost to have a lower income of a company. Now a day, a solar energy is an alternative way for lessening the cost of electric bills, at first the effect of this is higher but in a long run, you will be benefiting from the said structure. The project scope is (1) to promote the solar panel as the source of electricity (2) the structure of solar panels (3) and to lesser the payment of the electricity bills. The Value of Solar Methodology signifies a contingency for condition and utilities across a project to assess the benefits of distributed energy investments and to provide maximum benefits to society. This study is based on solar energy simulators evaluating the structure by means of effectiveness and efficiency. This study also suggests for future researchers as alternative way to produce an electric provision.

Keywords

Solar Panel, Computer Laboratories, School

An Iterative Learning Control of the Parallel Gas Turbines with the Crossing Link

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Abstract

Gas turbine engine has the highest performance in the engine rotation able up to 44%. In specific applications, gas turbines are used for equipment such as electrical generators, aircraft engines, high-speed boat ... There is a problem with shared power of the GT when we need control parallel GTs. Gas turbine system can use into transmission turbines, cabinet pull in the general. This paper presents an iterative learning controller (ILCer) to control the Parallel Gas Turbines (PGTs) with the speed synchronization. Using Rowen's model to study control gas turbine and analyze system on the combined ILC with PID to compensate control signals. GTs are a nonlinear delay system, we can't use PID as a linear system. The application of intelligence to GTs provides a good method to replace traditional controllers. Simulation results for a parallel turbine system with combination of 32MW to explain the theory for detail. We will see that ILC can apply into practice with combination PID controllers to increase control qualities.

Keywords

gas turbine; parallel turbine system; iterative learning control; balance power line; gas turbines system; crow pass signals, PID controller, Rowen model

Analysis on Effects of Variability of Solar and Wind Energy and Reserve Planning in Luzon (Philippine) Grid

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Abstract

Large penetration of Variable Renewable Energy (VRE) Resources such as Solar and Wind Energy has brought in additional reserve requirement to the grid. Considering VRE intermittency and variability, a systematic procedure to size reserve requirements is presented in this study. It identified fluctuations, VRE prediction errors and load forecast errors as sources of imbalances. Various methods for calculating fluctuations were employed, accommodating both positive and negative fluctuations. Net imbalances were matched as secondary and tertiary reserve requirements. These calculations were done on 10-min intervals, for three weather seasons in a tropical country, namely: (i) cool dry, (ii) hot dry, and (iii) rainy. The results of the study produce an estimate Secondary and Tertiary reserve requirements in terms of Imbalances and should contribute to the process of reserve sizing as specified in the Grid Code, as practiced by the System Operator, and will soon be procured via the Electricity Market.

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Cloud Solution with Optimal Document Indexing for Program Evaluation System

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Abstract

Accreditation is something inevitable, particularly those firm who are after process or service improvement. Academic organizations is not an exemption to this activity; there are several accrediting agencies in the country that aids academic institution improve their operation. Development of a cloud-based system for program evaluation that facilitates document submission online can be used to facilitate online submission of documents for evaluation. CloudPES facilitates this kind of transaction aside from giving importance on the user hierarchy. It is suggested to get cloud service from a vendor available in the country to minimize expenses. Lucene search indexing can be used for document clustering which allowed documents to be segregated according to the category. CloudPES had undergone uploading stress test it shows that as the number of concurrent user increases, the system response during uploading activity also increases. It is suggested to look into the maximum number of users that will be using the system to manage the resources.

Keywords:

cloud computing, file management system, document indexing, program evaluation, program accreditation

Impact of Briquette Socialization as an Alternative Fuel for Residents in Tambora Flat, West Jakarta

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Abstract

The research carried out in the Tambora flat was attended by productive housewives (20-60 years old). The purpose of this study was to determine the extent of knowledge of residents in Rusunawa Tambora regarding briquettes as an alternative fuel to substitute oil and natural gas both on an industrial and household scale. By using the likert scale in statistical science through questionnaires distributed to respondents before the socialization, it was found that 93% of people did not have knowledge about briquettes, 94% of people had never heard of briquettes as alternative fuels through print media such as newspaper, tabloids, and magazines, 91% of people have never heard of briquettes through electronic media such as television, radio, and video, 96% of people have never heard of briquettes through social media like facebook, instagram, twitter, 99% of people have never participated in sicialization about briquettes, and 100% of people have not had attended briquette training. After the evaluation of the questionnaire was distributed, the results were obtained and 88% of the results were obtained residents feel the benefits in the form of increasing their knowledge related to briquettes.

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Analyzing Reliability and Validity of Test Items Based on Point-biserial Correlation and P-values with Table of Specification using Classroom Management Software

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Abstract

Major Examinations in most Colleges and Universities in the Philippines ranges from 40% to 50%. A valid and reliable test item is a must to ensure that the students are given a fair assessment. Testing the validity and reliability of an examination requires a thorough process. In this paper, Point-biserial Correlation (Rpbi) and P-values have been applied to the test data extracted from Lanschool, a classroom management software (CMS) to gauge the basis for retention, deletion, and modification of items in an examination. A modified Table of Specification (TOS) was generated based on course learning objectives, total time a lesson was taught in class, and intended outcomes. These were used to calculate the degree of discriminations of student answers to an examination to further determine attainment of lesson learning objectives. Simulation results show that validating examination and ensuring its reliability could aid in the attainment of course learning objectives which could serve as an ancillary for the evaluation of both student and teacher performances.

Keywords

Point-Biserial Correlation, P-Values, Table of Specification, Classroom Management Software Test Item Reliability, Examination Validity

Implementation of Support Vector Machine Algorithm for Identifying Facial Skin Types

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Abstract

The skincare problems that are often experienced by Indonesians raises awareness upon the urgency of skincare treatment. Skincare treatments are adjusted by the type of the person's skin. In order to make it easier for people in general to identify facial skin types, classification of different types of skin are done by using digital microscopes of 60 x magnification. Based on the classification model, an application can be made to identify facial skin types. This application is developed using Python and Flask Framework to implement Support Vector Machine algorithm. Gray scale filters are used in the image preprocessing step before any classifications are made. Feature extraction is the next step after image preprocessing to identify features of the digital image. There are six features extracted from the image grouped into 2 groups known as the First Order parameter and the Second Order parameter. The metrics used to measure the models performance uses the F-score measure. Out of all the test cases conducted, a value of precision 0,85, value of recall, accuracy 0,90, and F-score of 0,85 was achieved using six feature extraction, C value of 120.000, and gamma value of 1.

Keywords:

Facial Skin Type Classification, Gray scale, Features Extraction, Support Vector Machine, and F-score

Techno-Economic of Binary Power Plant Application for Brine Heat Recovery In "X" Geothermal Field of Indonesia

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Abstract

Geothermal field in "x"field in Indonesia producing wet steam that contain hot brine as result of separation from wet steam. Currently hot brine production is injected to injection wells. The need to extract the heat from hot brine had lead to further potential assessment of binary plant technology to extract the heat from hot brine into electricity.

In this paper process simulator used to get key parameters in binary power plant cycle. Around 11 MW of gross electricity could be produced from plateau rate of brine production. The research then proceed to economic feasibility using scheme of split as set forth under regulation of Government of Indonesia. How attractive the application from economic side under current scheme and feasible option of how to level up economic of similar project to attract investor are presented in this paper.

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The Comparison of Bio-oil Production from Sugar cane Trash, Napier Grass, and Rubber Tree in The Circulating Fluidized Bed Reactor

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Abstract

This experiment is to compare the bio-oil production from sugarcane trash, napier grass, and rubber tree. Three of biomass were used in this experiment. The feed rate of biomass at 45 kg/h, 60 kg/h, and 75 kg/h was installed in the fast pyrolysis process, the temperature ranging from 440 oC to 520 oC and the superficial velocity of 7 m/s. The influence on temperature, bio-oil properties, cold efficiency and energy conversion were studied. The result indicated that the sugarcane trash is the best condition to produce the bio-oil yield and is higher than that of napier grass and rubber tree. The bio-oil yield from sugarcane trash was 49.47 wt% while the bio-oil yield from Napier grass and rubber tree were 43.73 wt% and 26.33 wt%, respectively. the properties of bio-oil include Oxygen, carbon, hydrogen, and nitrogen in which the best properties are sugarcane trash with percentage of 52.185%, 37.573%, 9.653% and 0.589%, respectively. The heating value (HHV) of sugarcane trash was 16.417 MJ/kg while High Heating Value (HHV) of Napier grass and rubber tree were 11.088 MJ/kg and 8.288 MJ/kg, respectively. The sugarcane trash was able to producing the cold efficiency and energy conversion at 33.33% and 26.48%, respectively.

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Performance Management System Based On Balanced Scorecard

Case study PT. PERTAMINA INDONESIA

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Abstract

The aim of the study was to analyze the performance management system in a government-owned company engaged in the gas and oil industry in Indonesia, named PT. Pertamina. The performance management system used is a Balanced Scorecard (BSc) with 4 perspectives as the basis of analysis, namely finance, marketing, internal business and growth learning. The research method is a case study with an interview approach, focus group discussion (FGD) and a questionnaire as a data collection tool for 3 months. The sources of interviews were directors, general managers, managers and supervisors on all lines with 78 people. The results of the study show that there must be a clear separation of subsidized and non-subsidized commodities in financial and marketing performance. While for internal business performance and learning growth does not need to be distinguished. PT. Pertamina must balance business interests, especially for non-subsidized products by paying attention to competitors, so that performance measures related to improving product quality, acquisition of new customers, increasing sales volumes, and increasing consumer consumption are very important. For subsidized products, the performance measure that must get the main attention is related to the achievement of distribution targets, stock stability, cost savings, and supply and working losses.

Key words

Balanced Scorecard, Financial Perspective, Consumer Perspective, Internal Business Perspective, Growth Learning Perspective.

Influence of Socio-Economic, Environmental and Financial Infrastructures in Achieving Inclusive Growth in Gulf Region: A Panel Data Analysis

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Abstract

Socio-economic, environmental and financial infrastructures are prerequisites to achieving inclusive growth. Inclusive growth focuses on growth that results in broader access to stable socio-economic opportunities for a wider number of people in the region or the country while protecting the vulnerable and equal justice. In this context, this study aims to analyze the influence of socio-economic, environmental and financial infrastructure on inclusive growth in the short-run and long-run among the six Gulf cooperation countries (GCCs). Panel Autoregressive Distributed Lag approach was used to investigate the relationship of the dependent and independent variables using secondary data for the period of 1990-2016. The findings show that evidence of a significant long-run relationship between socio-economic, environmental & financial factors and inclusive growth of GCCs. Besides, the finding shows that in the case of disequilibrium in the short-run, the Error Correction Mechanism can be significantly adjusted to restore the long-run relationship within the first year. This study is useful for academic specialists and decision-makers, offering extended support for improving the inclusive growth and developing socio-economic, environmental and financial infrastructural policies. In that context, the work proposes to go further, by supplementing inclusive growth with some new elements, required for the society's advancement.

Key words

Socio-economic and financial infrastructure, inclusive growth, Gulf region, Panel data

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Milk Pasteurization Using Low Temperature Geothermal Fluid in Dauin, Negros Oriental

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Abstract

A geothermal vat pasteurizer is presented to exploit geothermal energy for direct use in Upper Bulak, Dauin in Negros Oriental. This pasteurization system includes one main vat pasteurizer with an involute water guide. The pasteurizer is equipped with an agitator mechanism with four hemispherical propellers. The geothermal fluid is channeled through a pipe, and because of the involute pathway, the geothermal fluid flows in a circular motion through the small cylindrical reservoir. This drives the movement of the propellers causing the agitator to rotate inside the pasteurizer. Hence, this geothermal vat pasteurization system is an efficient tool to utilize the heat from the source and use the fluid movement to drive the agitator to stir the milk for maximum heat distribution. A lumped system analysis is used to estimate the time the raw milk reaches the required temperature before clocking the milk for the pasteurization process. This analysis is verified by the actual recorded time of 3 minutes during the conduct of the study. The characteristics of the geothermal water in terms of temperature, pH, and the flow rate is studied. The characteristics of both the raw and pasteurized milk that uses the geothermal pasteurizer are analyzed. The results indicate that the geothermal resource can reach the required temperature and can hold it for the entire pasteurization process. The results of this study provide a good reference for geothermal direct use applications in the Philippines.

Keywords:

Geothermal Direct Use, Low-enthalpy, Lumped-System Analysis, Pasteurization

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Hybrid Optimal Coordination of Over current Relay and Distance Relay for Offshore Wind Farm

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Abstract

Offshore wind farm (OWF) protection is of major concern for power engineers now days. In a radial structure of OWF the coordination between protective devices is generally done at AC side of the system. But a major challenge involved with this is that coordination between protective devices is lost. This happens because unidirectional flow of power is lost and the short circuit level also changes. Further the relay setting fluctuates when OWF are connected to onshore grid via voltage source converter-high voltage direct current (VSC-HVDC). For effective relay coordination a large number of coordination constraints should be taken for the formulation of objective function. This paper investigates the performance achieved by performing distance and overcurrent relay coordination on the basis of faults simulated at both near and far-ends. This research work proposes application of a new hybrid optimization technique particle swarm optimization gravitational search algorithm (PSOGSA) in relay coordination problem. The efficacy of the proposed technique is further compared with conventional optimization techniques and validated using real time digital simulation (RTDS) data.

Key words

Genetic algorithm, Gravitational search algorithm, Distance relay and Particle swarm optimization, PSOGSA.

Enhanced Oil Recovery Using SLS Bagasse Surfactant Flooding Method

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Abstract

Currently Indonesia is the country with the greatest energy needs in Southeast Asia with the dominant fuel demand of 42%. Indonesia has also been a country of importing fuel oil since 2004. In 2016 one third of energy needs are fuel oil. One effort in the oil sector to increase petroleum production is Enhanced Oil Recovery (EOR). The EOR process can be done by injecting fluid into the reservoir that can change the physical properties of petroleum. One of the methods used is Chemical Flooding using surfactants.

The purpose of this study is to prove that Surfactant Flooding can increase oil recovery.

This is a laboratory study with Core Flood Apparatus where the core is injected using SLS surfactant solution. The crude oil sample used is from the one of the oil fields in Indonesia. The mechanism of surfactant flooding in reservoir rocks forms a middle phase emulsion that will reduce interfacial tension (IFT) so that oil can move more easily.

From the results of this study it can be concluded that SLS surfactant injection can increase oil recovery by up to 10%. So, surfactant injection can be used as an effort to increase oil recovery in Indonesia.

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Design of an Autonomous Robot Navigation Control System using Simultaneous Localization and Mapping Framework

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Abstract

In this paper we designed a control system for navigation of autonomous robot movement based on robot operating system (ROS), it is introduced using python programming, which contains hardware circuit design, control software and upper computer software. In lower level programming, velocity and current control of DC motors were utilized, parameters such as weight, posture calculation, sensor data transfer and average speed of the robot were considered. The upper computer platform is based on ROS, which is an open system for robot developers. Simultaneous localization and mapping (SLAM) and autonomous navigation have been applied on ROS with data of different sensors. This paper also introduces new open source software toolkit for the executive control system of robotic navigation in Pyrobot. The proposed system is a lightweight python framework with preemptive and anticipatory control.

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Microclimate Monitoring System for a Home Greenhouse as Part of ESP32

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Abstract

This article is related to designing a home greenhouse monitoring system using WSN and IoT technologies. Wireless Sensor Network (WSN) and Internet of Things (IoT) technology are the most advanced IT technologies and provide fast and distributed data collection and monitoring in various industries and widespread access to use. The developed "Microclimate GH" system allows for accurate measurements and monitoring of the microclimate of the home mini-greenhouse in real time through a mobile application. Monitoring data can be stored in the cloud and displayed in the form of reports and graphs and will be available for analysis at any time. Three important processes are being implemented: cooling, watering and lighting. The results of graphs and histograms analysis help the user to timely and accurately identify microclimate violations and take the necessary measures.
The proposed system is implemented on the basis of the ESP32 microcontroller with built-in Wi-Fi and Bluetooth modules, which has a significant advantage over the analogue of the ESP8266. The developed system compares favourably with its other prototypes by its accessibility to a wide user, good communication quality, good design and construction. The economic effect of using the proposed technology amounted to 10,000 tenge, the payback period is 4 seasons.

Keywords:

home mini-greenhouse, monitoring, IoT, WSN, ESP32, ESP8266

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Analysis of Simulation Effect between the Variation of Number of Blades and Variation of Water Flow Rate toward the Power Generated By Crossflow Water Turbine Using Naca 63(3)-618 Model

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Abstract

Water turbine is a turbine that converts potential energy of water into mechanical energy by harnessing the water height called the potential head. Electric power generated by water turbine depends on the head and water flowrate. A type of water turbine is a water turbine crossflow, in which it's turbine is crossflow driven. The water turbine or Micro Hydro Power Plant (MHPP) generates the electric power that comes from the potential energy and kinetic energy of the water, thus there is no difference of pressure between the incoming and outgoing section vanes. This research was conducted on the design of the vanes by using airfoil that is NACA 633-618 type. The design of the vanes is performed with the use of PLA (Poly Lactic Acid) which has a heat resistant characteristics. The producing of the blades using 3D Printer that had previously been in design in Catia V5 software. This research method used experimental design - two-way classification. The research result is rejected the null hypothesis, which means that is an effect between water flowrate and the number of blades toward electric power generated by MHPP signifcantly at the level of 5%.

Keywords:

MHPP, Crossflow, NACA 633-618, Blades, Water flowrate

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A Wideband Triangle Patch Antenna with Double Dumbbell Shaped Defective Ground Structure for 5G Application

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Abstract

In this study, the addition of defective ground stucture (DGS) to a microstrip triangle antenna was developed to improve bandwidth performance. Development is carried out through the addition of double dumbbell shaped at the DGS antenna structure that works at 28 GHz for 5G applications. The sample design is MIMO 4T4R antenna using Rogers RT5880 substrate material with a dielectric constant $(\varepsilon_r)\ of\ 2.2,\ h\ =\ 0.787$ mm. The sample antenna design has dimension 30.11×19.89 mm. The simulation and measurement results show a significant increase in bandwidth performance compared to without using DGS. This study also shows the improvement in bandwidth performance and gain of microstrip antenna with the addition of double dumbbell shaped compared to the addition of single dumbbell shaped in previous studies.

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A Mobile based Travelling Recommendation Framework with the Big Five Personality Model

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Abstract

Currently, a lot of travelling recommendation systems use reviews and ratings to give a recommendation. Some of the reviews are paid reviews. This paper aims at presenting a personality based recommendation framework in travelling that recommends places of interest based on the user's personality. The items to be recommended can be any objects such as hotels, restaurants, attraction places, etc. We applied the Big Five Personality test which consists of openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism to capture the personality of the users. The Big Five Personality test has 15 statements and a scale of 1 to 7 on how much the user agrees with the statement. At the end of the test, a score is calculated for each trait by calculating its mean value. The similarity between the user's personality score with other users' personality scores is then measured. Places of interest are recommended based on the personality similarities between the users.

Keyword:

Big Five Personality model, Recommendation system, Similarity score.

Biosequestration of Crystal violet Dye from Aqueous Solution Using Zero Valent Iron Algal Biocomposite: Box-Behnken Optimization and Fixed Bed Column Studies

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Abstract

In this study, nano zero valent iron Sargassum swartzii (nZVI-SS) biocomposite a novel marine algal based biosorbent was used for the removal of simulated crystal violet (CV) in batch and continuous fixed bed operation. The Box-Behnen design (BBD) experimental results revealed the biosoprtion was maximum at pH 7.5, biosorbent dosage 0.1 g/L and initial CV concentration of 100 mg/L. The effect of various column parameters like bed depth (3, 6 and 9 cm), flow rate (5, 10 and 15 mL/min) and influent CV concentration (5, 10 and 15 mg/L) were investigated. The exhaustion time increased with increase of bed depth, influent CV concentration and decrease of flow rate. Adam-Bohart, Thomas and Yoon – Nelson models were used to predict the breakthrough curve and to evaluate the model parameters. Out of these models Thomas and Yoon –Nelson models well described the experimental data. Therefore, the result implies that nZVI-SS biocomposite is a cheap and most promising biosorbent for the removal of CV from wastewater.

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Efficiency and Environmental Impacts of Improved Biomass Stoves in Rural Northern Ghana

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Abstract

Up to 2.4 billion people (approximately 40% of the earth's population) still depend on biomass as their main source of energy and currently there are a wide variety of stove technologies and designs aimed at providing better cooking experience to end-users. The study design was cross-sectional and quantitative data was collected between January and March of 2019 in the Kasena Nankana Districts. The study conducted 20 in-field uncontrolled cooking tests designed to assess the emission and efficiency of the Ace stove and the Jumbo stove. Emission Factors (EF) were calculated for Carbon Dioxide (CO_2) and Carbon Monoxide (CO). Modified Combustion Efficiency (MCE), Specific Fuel Consumption (SFC), Cooking time, Fuel consumption rate and Per capita Biomass consumption were also calculated across a variety meal types using the two stoves. The results showed that the Jumbo stove average 1.42 kg of fuel per a cooking event with a per capita annual consumption of 38.06-274.97 kg while the Ace stove averaged 0.31 kg per cooking event with a per capita consumption of 14.6-75.65kg. While the jumbo had a SFC of 0.27 kg/kg the Ace stove had a SFC of 0.13 kg/kg. Using the Partial capture Carbon Balance Method (CBM), EF was calculated for both stoves with the Ace recording a CO EF of 1425.04g/kg and CO_2 EF of 1318.35 g/kg. the Jumbo on the other hand had a CO EF of 151.57 g/kg and a CO_2 EF of 1215.82 g/kg. The study concluded that the two stoves we not best for the study area since they consumed more fuel and emitted more CO and CO_2 than the local technologies already present in the study area as presented by other studies.

Keywords:

Stove, Biomass, Emissions, Fuel

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Microstructural Characterization of Phase Transformations in Shape Memory Alloys

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Abstract

Shape memory alloys take place in class of smart materials, due to the shape reversibility. These alloys exhibit a peculiar property called shape memory effect, which is based on successive dual thermal and stress induced martensitic transformations. Thermal induced transformation occurs along with lattice twinning on cooling and ordered parent phase structures turn into twinned martensite structures, these twinned structures turn into detwinned martensite structure by means of stress induced transformation by deforming plastically in martensitic condition. Shape memory alloys exhibit another property called superelasticity, which is performed in only mechanical manner. These alloys can be deformed in parent phase region just over austenite finish temperature, and recover the original shape on releasing the stress in superelastic manner. Superelasticity is also associated with stress induced martensitic transformation, which occurs by only mechanically stressing and releasing at a constant temperature. Superelasticity exhibits classical elastic material behavior, but stress-strain profile exhibits nonlinear characteristics. Copper based alloys exhibit this property in metastable ß-phase region. Lattice invariant shears are not uniform in these alloys, and the ordered parent phase structures martensitically undergo the non-conventional layered structures.

In the present contribution, x-ray and electron diffraction studies were carried out on two copper based CuZnAl and CuAlMn alloys. These alloy samples have been heat treated for homogenization in the ß-phase fields. X-ray diffractograms taken in a long time interval show that diffraction angles and intensities of diffraction peaks change with the aging time at room temperature. This result refers to new reactions in diffusive manner.

Keywords:

Shape memory effect, martensitic transformations, superelasticity, lattice twinning and detwinning.

Analysis of NTCP Based Radiobiological Models: A Systematic Review of Literatures

Rahman M, Gono Bishwabidyalay

Abstract

Introduction: To achieve the optimal treatment goal, radiobiological parameters has to evaluate and predict the outcome of this treatment plan in terms of both TCP and NTCP. Different types of radiobiological model were used to achieve prescribed treatment dose of radiation during the tumor control. Where TCP models play a important role in order to achieve desired dose to the tumor. A suitable NTCP model was theoretically found among different models that can be used in treatment plan evaluation.

Materials and Methods: Theoretically, six different radiobiological dose response models such as Lyman–Kutcher–Burman, Critical element, critical volume, Relative Seriality, Parallel architecture, Weibull distribution were analyzed in this project. All models were discussed elaborately with its various parameters and were used in the calculation of normal tissue complication probability during the treatment in radiotherapy. Further, all models were compared with each other.

Results: The models denote the dose for 50% complication probability (D50) parameters is the most commonly used radiobiological models for the normal tissues. The functional subunit response models (critical element & Relative seriality, Critical Volume, parallel architecture) are used in the derivation of the formulae for the normal tissue.

Since all complicated NTCP model predict same as the simple NTCP model that is Lyman–Kutcher–Burman model as well as it is computationally efficient. Also Lyman–Kutcher–Burman model can be used in different treatment planning system incorporating with other model. For this reason our suggested model is Lyman–Kutcher–Burman NTCP model which can be used in treatment plan evaluation.

Conclusion: After analyzing six different model of NTCP, finding of the study is the treatment plan evaluation in where Lyman–Kutcher–Burman model may be considered as a better option for biological plan evaluation.

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Eagerness of Brand Awareness among Female Consumers in the Digital Age of Saudi Arabia

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Abstract

Digital age has brought a drastic change in the area of marketing. Branding of products and services is of vital importance to the companies through the digital channels considering its wider range and reach of the audience. Brand awareness symbolizes how acquainted your target audience is with your brand and how well they will recognize it. The purpose of this study is to investigate the eagerness of female consumers towards brand awareness in Saudi Arabia through the technological advancement in digital channels. This is a quantitative survey based study conducted using google forms in the regions of Riyadh & Eastern Province. Around 200 females participated in the survey. The results of this research study confirm the uprising trend in usage of social media among the females and its impact on brand awareness and purchase decisions. With the help of this research results it will be useful for companies to improve their social media marketing strategies to enhance brand awareness.

Key words:

Brand Awareness, Females Consumers, Saudi Arabia, Digital Market, and Social Media.

An Assumption of Uav Swarms Utilizing Ocean Surface Gradient Wind Field to Acquire Energy for Air Cargo Transportation

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Abstract

Using UAV swarms to carry out freight transportation has begun to carry on the application exploration stage, many areas began to use UAV in the field of express transportation. However, due to the limitation of UAV in the range capability, this manner can be just used in the short-distance mode of transport. In this paper, in view of the widespread existence of wind gradient at sea, we propose an idea that using UAV swarms for air cargo transportation at the advantage of sea level gradient wind field to obtain energy. By this method, UAV swarms can fly from one location to another during unpowered long voyages, like albatrosses that migrate on a large scale on the sea surface. According to the characteristics of UAV flight route under different position conditions, we propose a dynamic gliding route that combines a variety of flight tracks to realize unpowered flight under different wind field conditions. The characteristics of sea level wind gradient field and the green transportation mode of dynamic gliding provide a new method for the exchange of goods between marine freighters and the transmission of goods on the sea.

Keywords

UAV swarms, Dynamic soaring, gradient wind field, cargo transportation

Geological Modeling for Mishrif Formation in Nasiriyah Oil Field

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Abstract

The construction geological model is very important since it is used as a basis for the reservoir model which is utilized in predicting optimal development plans of Field. Mishrif Formation in Nasiriyah OilField in the south of Iraq is the most important reservoir due to the high amount of OIIP. It consists of bioclastic limestone rock and bio- chalky limestone. This paper presents building a 3D geological model for Mishrif Formation in Nasiriyah OilField using Petrel software and based on data of 4o vertical oil wells (NS-1 to Ns-40) used in setting structural model and petrophysical models(water saturation, porosity and permeability). Depending on petrophysical properties, Mishrif Formation Carbonate was divided into six units (Top Mishrif, MA, Shale, MB1-a, MB1-b and MB2). Top Mishrif and Shale are considered nonreservoir rock and represented as cap rocks. MA is considered water zone due to high water saturation. MB1-a, MB1-b and MB2 are considered the main reservoir units, but MB2 contains a small amount of oil because most oil-water contact of wells lies within it. The structural model indicates that Nasiryha OilField represents a longitudinal anticline structure with the northwest-southeast axial direction. Cross-sections were represented to show lateral and longitudinal variation in petrophysical properties. The geostatistical analysis is used to estimate data for unsampled locations in order to distribute data normally and avoid random distribution to achieve a reliable geological model that is used in reservoir simulation.

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Geomaterials as Cost Effective Sorbent To Remove Fluoride from Water

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Abstract

As a regulated contaminants, fluorine compounds impact the health of millions of persons around the world. Adsorption method is employed to remove fluoride ions F^- from a synthetic water using concrete waste materials as a low cost adsorbent and to evaluate its feasibility as an alternative agent to eliminate fluoride ions F^- in aqueous solution. Influence of pH, concrete particles dosage, agitation speed, fluoride initial concentration and contact time on F− removal were investigated by using batch mode. Fluoride removal has been obtained over a wide range (3-11). The rate of adsorption was rapid at the first 4 hours, while the equilibrium has been reached within 9 hrs. The desorption study revealed that fluoride adsorption onto concrete particles was chemical in nature. The kinetic of adsorption was fitted well with second-order rate model, while the adsorption behavior obeyed Freundlich model. This study obviously presents the applicability of concrete particles as low cost adsorbent to eliminate fluoride from water.

Key words :

concrete waste material; Fluoride removal; Adsorption, Batch test, Desorption study.

Comparative Analysis of Blind Spectrum Sensing Techniques over Fading Channel

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Abstract

A spectrum is a scarce and precious natural resource and a matter of concern with the rapidly growing wireless communications. However, studies show that licensed spectrum is underutilized. Cognitive radio system allows unlicensed users (secondary users) to access licensed spectrum band (spectrum hole) of primary user when they are not occupied. To do this the secondary users need to continuously monitor the licensed user's activity to find the unused band. Spectrum sensing is the key tasks for cognitive radio which prevents the unwanted interferences with authorized users to recognize available radio spectrum and enhance the usage of spectrum. Spectrum sensing is also a tough task because of shadowing, fading, and time-varying nature of wireless channels. This thesis investigated the difference in performance of energy detection and eigenvalue based blind spectrum sensing technique (without having prior knowledge) by implementing it over different environmental models and compares the Receiver Operating Characteristics (ROC) curves. Evaluation and analysis of performance is done by using Monte Carlo method with MATLAB software. The implementation gives detail comparison between blind spectrum sensing technique performances over fading channel and multiple network nodes. In particular, the result show the minimum required energy level for optimal detection (with acceptable interference) over fading channel and also how effectively cooperative spectrum sensing overcome the hidden primary user problem for both scheme and channels.

Keywords:

Cognitive radio, energy detection, eigenvalue based detection, blind spectrum sensing, fading channels, spectrum hole.

Scientific Development of Sustainable Mitti Cool Refrigeration System

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Abstract

This project outcome based paper is a Scientific Development of Mansukh Bhai's all-natural clay refrigerator. The Al-4Ti master alloy was fabricated by aluminum (Al) and sponge titanium particle in a resistance furnace at different cooling rates added with clay to improve cooling effect .Mityi cool doulbe layer packing , first with fine grade sand with sponge titanium aluminum & second layer with paper pulp(recycled)- small sponge cubes.Solar PV cell with a D.C motor used to pass of air through multi clay tubes makes the system renewable energy sourced. This increase more cooling effectiveness adding a multi bucket cooling chamber instead of single one. Conventional Refrigerators has its own share of problems pertaining to environmental safety, usage and maintenance in rural parts of developing countries. This sustainable project is a one man stand to serve & satisfy economical, social& environmental conditions.

Keywords-

Evaporative Cooling;Environment; Refrigeration; Sustainable

Design Thinking for Futuristic Skills Development Using Project-Based Learning(PBL) Approach: A Preliminary Study

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Abstract

The teaching and learning methods adopt Project-Based Learning (PBL) to provide industry required skills to the graduates. It plays a vital role for problem solving and determine innovative solutions. However, Design thinking(DT) strengthen the innovation to enhance the solutions dynamically. The futuristic skills seek for integrated Technology based innovation for design, develop and apply to social needs which integrates critical thinking, problem solving, communication and leadership skills. The Saudi Arabia vision 2030 is focused on integrating the skills for the national development . The DT is the conceptual tool identifying the skills required by the graduates through PBL pedagogy. This paper signifies DT role for futuristic skills, to integrate futuristic skills practices in PBL approach and preliminary results are discussed.

Keywords

Design thinking; Project Based Learning; Futuristic skills; teaching learning pedagogy

Microcontroller Based Detector And Monitoring System of Overspeeding Vehicles for Traffic Management Unit: A Prototype

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Abstract

The advancement of phase's technology of the social order uses improved technology in almost everything as it has their lifestyle and added welfares. In this generation, many devices and technologies have been utilized to provide road safety and accordingly to reduce is occurring due to overspeed and traffic of vehicles providing the real time and place verification. The study aimed to develop a system used for less attention has been given to the monitoring system of overspeeding vehicles and violations, despite the fact that the greatest damage in the accident, violation and traffic is caused by overspeeding. The study will be conducted in the expressways, national road, and skyways at Luzon, Visayas and Mindanao. The defendant respondents of the study are the traffic enforcer, police investigator, vehicle owners, toll plaza management office, Land Transportation Office (LTO), Metropolitan Manila Development Authority (MMDA) office and future researcher. The study used the ring research method diagram which is a step by step process and circular cycle method used as a guide to develop a system. The ring research method diagram has sequential processes such as conduct and analyzes the requirement, design the system has two components the hardware and software design, construct the system, test the system and evaluate the system. The study provides learning theories, hardware skills of microcontroller, server, Global Positioning System (GPS) satellite and Global System for Mobile Communication (GSM) network and software skills of visual basic.Net programming, My SQL for the database system, windows 7 for operating system, software integration of Google map application and Short Message Service (SMS) notification. In this model the testing starts only after the prototype development is complete and it consists of conduct and analyzes the requirement, design the system, construct the system, test the system and evaluate the system. The performing test evaluations of the speeding rate (kph) efficiency of the system were presented in this stage and parameters being observed based on the methods of determining the speeding rate (kph) of Accuracy and methods of determining the functionality of the system. The findings showed different number of trials has been conducted with set of conditions in determining the functionality of the system and from the results of the varied tests of the system functionality and accuracy is 100% in performing the output operations in terms of microcontroller unit outputs, server and SMS communications. The prototype model process qualifies the automobile proprietors to safe the appropriate speeding rate indicating the scientifically design, skills and knowledge.

Keywords

Microcontroller, Ring Research Method Diagram, Server, Prototype Model and Experimental Design, Philippines

A System Dynamics Modeling Approach to Monitor a Project Portfolio Strategic Performance

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Abstract

Effective monitoring of a Project Portfolio Strategic Performance (PPSP) has been widely claimed to hold great promise for effective management of organisations. The current literature is confined to measuring a PPSP either statically or by taking a separate view of each project within a portfolio. Advocated here is the development of a dynamic monitoring model that assists with the understanding of the overall performance of a portfolio at any given point in time. Thus, this paper proposes a System Dynamics (SD) modeling approach by creating a link between a portfolio and its constituent projects. The proposed SD model attempts to answer a question of particular interest: "How changes in the state of projects within a portfolio affect the overall performance of the project portfolio over time?"

Keywords:

Project portfolio management, Project portfolio strategic performance, Project state, System dynamics.

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Crowd-vote Implementation to support Decision Making among University Students on Program Selection

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Abstract

This paper describes how the implementation of crowd-vote as a part of components in university expert recommendation system. It helps to support freshmen students' decision making during program selection and their first time of enrolment. The objectives of this paper are to investigate the use of crowd-vote as a decision maker, and to evaluate the implementation of crowd-vote in supporting decision making during university program selection among university students. The challenges of decision making among students is formed by many influential factors, such as family, agents, universities, peers, financial aids and others. The most popular decision making models are rational, intuitive and others. Rational models have series of sequential steps that involved on thinking process. On other hands, intuitive models are involved on people experiences, and recognize the pattern based on what the people belief and think how it will work. Other models are attempt to combine both rational and intuitive aspects of decision for example Edward de Bono's Six Thinking. Prototype has been developed as a click-dummy. Constructive feedback from experts' opinion and students were selected to examine the decision making and also significant of using crowd-vote in this field. The results from expert opinions and student's evaluation also has been discussed.

Keywords

Crowdsourcing, crowd-vote, decision making, university program recommendation, indecisiveness, undecided

Development of a conceptual framework to Operationalize the Flood Risk Management

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Abstract

Policy makers have progressively recognized the limitations of traditional decision-making frameworks of Flood Risk Management (FRM). This is mainly due to their incapability to manage inherent uncertainty of flood risk. Accordingly, the method of flood risk assessment, method of flood risk management and methods of operationalizing flood risk management have been recognized to be improved over the past years. The theory related to FRM has advanced over the years. However, there are visible shortcomings in operationalization of this concept mainly due to the lack of a framework for clear recognition and understanding the components of flood risk management system. Therefore, the objective of this research is to identify the FRM system, its components and make appropriate recommendations for its operationalization. State of art review was conducted to recognize the present level of flood risk management systems with its components. Further, it has identified the critical components for successful operationalization and develop a solution model for critical elements of the system. A satisfactory solution has been identified with accepted criteria and proposed solution for a Flood risk management system and developed recommendations for sustainable management of flood impacts.

Keywords:

Flood, Vulnerability, Stakeholders, Uncertainty, Integration

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User Preferences on eText Interface Design to Support Reading Among Low Vision Elders

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Abstract

Accessibility and usability are two important concepts for universal design but have been given less emphasis by most developers especially when developing web interfaces. Among the affected users are the elderly people who are facing difficulties interacting with the computer devices as the interface could not fully support the changes in their sensorial, motor and cognitive abilities. The objective of this study is to elicit elderly readers' opinions on the interface of eText in order to support their reading. It discovers elderly people preferences on the background and font color on the interface for reading. The study is motivated by reported work claiming that these two interface elements could support the elders in reading. Through an interview, a suitable contrast color of background and text was determined. The findings were used to design an e-text interface and tested with elderly people. The study findings help designers to better design e-text interface for elderly readers.

Keywords

Elderly People, Interfaces, Accessibility, Usability, E-Text