5TH IEEE INTERNATIONAL CONFERENCE ON ENGINEERING TECHNOLOGIES AND APPLIED SCIENCES

ICETAS 2018

22 NOV - 23 NOV

ASIAN INSTITUTE OF TECHNOLOGY BANGKOK, THAILAND

5th IEEE International Conference on Engineering, Technologies and Applied Sciences 2018

The 5th IEEE ICETAS-2018 is being organized by IEEE IIUM SB, technically supported by the IEEE IMS Malaysia Chapter with Collaboration of ETSS Management Malaysia, UCSI university, Asia Pacific Center of Robotics Engineering, University of Indonesia and ILMA University, Pakistan. The theme of this conference is "Engineering, Technologies & Applications of Applied Sciences are Driving our Future".

Organized by:

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ABOUT ETSS MANAGEMENT

Aims and Objectives:

The main aim of the ETSS Management (ETSSM) is to support research culture among international community in the fields of Engineering, Technologies, Business, Social and Applied Sciences.

The primary objective of the ETSS Management is to promote research and developmental activities in Engineering, Technologies, Business, Social and Applied Sciences. Also ETSSM is to promote information exchange between researchers, developers, industrialists, engineers, students, entrepreneurs and practitioners working in and around the world.

Activities:

The ETSS Management is involved in organizing local as well as international level conferences, seminars, workshops, project competitions, project exhibitions, research talks and many more. The ETSS Management intends to start research journals in multidisciplinary discipline covering major fields of Engineering, Technologies, Business, Social and Applied Sciences.

Prof. Dr. Asadullah Shah
Executive Chair ICETAS 2018
Director
ETSS Management, Malaysia

FOREWORD FROM GENERAL CHAIR

Dear Colleagues,

It gives me great pleasure to welcome all of you in 5th IEEE International Conference on Engineering, Technologies & Applied Sciences 2018 (ICETAS 2018). The 5th IEEE ICETAS-2018 will provide a meeting place for the sharing of novel ideas and research findings in the field of engineering, technologies & applied sciences. Its main goal is to foster multidisciplinary exchange by researchers and developers as well as research students and professional experts. We invite original and unpublished work by Academics, Researchers, Business Leaders, Experts and Executives from Universities and industrial research institutes to submit for the conference.

The aim of the 5th IEEE ICETAS 2018 is to provide a platform for professionals to share their experiences, research studies and explore innovative solutions through joint research, to contribute to the advancement in engineering, technologies and applied sciences. I hope that this conference will be helpful in developing and sharing the strategies for meeting the challenges in Engineering, Technologies and Applied Sciences.

There is no doubt that the caliber and experience of our invited distinguish high-level speakers will inspire our wide participation and makes this conference a genuine platform to discuss matters involving the connection between idea creation and wealth creation.

Once again, we are delighted to welcome all of you in the 5th IEEE ICETAS 2018 conference and hope that it will be a productive, stimulating and successful event.

<div align="right">

Dr. Syed Faiz Ahmed
General Chair
ICETAS 2018

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FOREWORD TECHNICAL GENERAL CHAIR

The International Conference on Engineering, Technologies and Applied Sciences (ICETAS) 2018 is an IEEE Indexed Explore (Code #45557, ISBN No. 978-1-5386-7966-1-CFP18N08-ART) event with much more adding on to its début since its last debut in 2016. Here participants meet for an eye-to-eye and contemplating on different subject areas. ICETAS is one of the two flagship events of Engineering Technologies and Applied Sciences. ETSS a platform where researchers, academicians and educationists from around the world meet once every year. ICETAS's Technical Committee adds values and virtues to their skills they have gained during such events in the past while attending to delegates' responses and queries diligently. Participation in our event will equip one with an unforgettable learning experience, as we are on our way to host more international events bearing flag of the major IEEE Societies. We hope that you will be having a fruitful stay here at AIT, Bangkok. We guarantee attention with service, and see you in the upcoming events which will be announced soon.

Dr. Sheroz Khan
Technical General Chair
ICETAS 2018

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KEYNOTE SPEAKERS

Prof. Dr. Peter Haddawy

(Professor, Computer Science Academic Group, Faculty of Information and Communication Technology, Mahidol University)

Title: Representing and Reasoning about Surgical Procedures for Effective Intelligent Tutoring

Abstract: The teaching of surgical skills, which has traditionally followed an apprentice style approach, has faced a number of challenges that have driven medical schools to seek alternatives. In the past decade, medical schools have increasingly introduced simulators into their curricula as a way to provide students with increased practice without risk to patients. With the advance of computer graphics hardware and software, virtual reality simulators have become attractive due to their relatively low cost and flexibility. The deployment of such VR simulators provides a great opportunity to gather data on student performance and to use this data to personalize instruction. I describe our work on intelligent virtual environments for surgical training that seeks to explore the potential of the integration of techniques from Virtual Reality and Intelligent Tutoring Systems to increase the effectiveness of surgical training by providing personalized instruction, assessment, and formative feedback in a form and on a scale not possible in the physical world. I describe a general framework for providing formative feedback for training of psychomotor skills, as well as its implementation in a specific surgical simulator. I go on to describe our recent work on representing surgical procedures at the kinematic and symbolic levels in order to support rich communication with students as well as analysis of student performance.

Prof. Dr. Shahrulniza Musa

(Professor and Deputy President (Academic & Technology) in Universiti Kuala Lumpur Malaysia)

Title: Industrial Control System Cybersecurity: Threat landscape and ICS Testbed

The cyber-attacks to ICS become a real threat. A power outage on 17 December 2015 in Ukraine that caused 225, 000 people cut-off power was a cyberattack. In December 2016, another cyberattack, known as 'shamoon' malware attack the Saudi Aramco. The attack on Saudi oil company - which supplies a tenth of the world's oil - failed to disrupt production but was one of the most destructive cyber strikes conducted against a single business. It was also reported in May 2016, a utility provider in Michigan was hit by Ransomware Attack. The above examples show that the attacks on ICS are real and there are needs to study and prevent the attacks. To study the cyberattacks to a SCADA System, a SCADA System testbed is developed. Several cyberattack can be launched to the SCADA System testbed and the SCADA system vulnerabilities could also be verified. The testbed also can be used to perform ICS penetration test. 3 case studies of ICS cybersecurity attacked have been implemented. Test case one is launching SCADA HMI from attacker machine. Second test case is hijacking the supervisory host machine and the third case study is to manipulate the Modbus write operation and change PLC actuator register status. More test cases could be conducted, and the malware behavior related to ICS could be studied. Acknowledgement to Industrial Control System CyberSecurity Research Group at Universiti Kuala Lumpur and CyberSecurity Malaysia for this study.

Schedule DAY-1: Thursday 22nd November 2018

Time	Venue	Program	Duration
08:00		**Conference Registration**	**50 minutes**
08:50	B108	Welcome speech by Conference Executive Chair Professor Dr. Asadullah Shah	10 minutes
09:10		5th IEEE ICETAS 2018 Commencement and speech by General Chair Dr. Syed Faiz Ahmed	10 minutes
Keynote Speech			
09:20	B108	Professor Dr. Peter Haddawy	30 minutes each
		Professor Dr. Shahrulniza Musa	
		Vote of Thanks by Dr. M. Yaqoob Koondhar, Secretary ICETAS 2018	10 minutes
		Awarding of Plague of Recognition	10 minutes
10:40		**Refreshment Break**	**20 minutes**
11:00	B202	IT and SOFTWARE Parallel session	(10 min of presentations + 5 min of Q&A)
	B108	ENGINEERING Parallel session	
	B206	COMMUNICATION and TECHNOLOGY Parallel session	
13:00		**Lunch Break**	**60 minutes**
14:00	B202	IT and SOFTWARE Parallel session	(10 min of presentations + 5 min of Q&A)
	B108	ENGINEERING Parallel session	
	B206	COMMUNICATION and TECHNOLOGY Parallel session	
16:00		**Tea Break**	**30 minutes**
16:30	B202	IT and SOFTWARE Parallel session	(10 min of presentations + 5 min of Q&A)
	B108	ENGINEERING Parallel session	
	B206	COMMUNICATION and TECHNOLOGY Parallel session	
18:30 END of Day 1			

Schedule DAY-2: Friday 23rd November 2018

Time	Venue	Program	Duration
08:30		**Breakfast**	**30 minutes**
09:00	B202	IT and SOFTWARE Parallel session	(10 min of presentations + 5 min of Q&A)
	B108	ENGINEERING Parallel session	
	B206	COMMUNICATION and TECHNOLOGY Parallel session	
11:00		**Closing Ceremony & Award Distribution** Speech by Technical General Chair Dr. Sheroz Khan	**30 minutes**
12:00		**Lunch and End of Conference**	

IT AND SOFTWARE TRACK

TIME(Hrs.)	PAPER ID	PAPER TITLE
		DAY-1: Thursday 22nd November 2018: Room B202
11:00	4	Software as a Service Acceptance Model: A User-Centric Perspective in Cloud Computing Context
11:15	20	Assessing impact of Motivating IT professional: A case study of Jamshoro
11:30	21	Use of Web 2.0 Tools for Marketing and Promotion of Library Services in Higher Education Institutes of Sindh
11:45	22	Education Management Information Systems in the primary schools of Sindh a case study of Hyderabad Division
12:00	91	Between Vehicle Quality and Driving Satisfaction: Driving Quality as An Intervening Variable
12:15	98	A Conceptual framework for Measuring Acceptance of Contactless Payment Methods
12:30	150	An Overview of Social Engineering in the Context of Information Security
12:45	151	Components to design serious games for children with autism spectrum disorder (ASD) to learn vocabulary
13:00		**Lunch Break (60 MIN)**
14:00	71	A GaN/sapphire 1 x 4 Optical Power Splitter Using Five Rectangular Waveguide for Underwater Application
14:15	72	Optical Detection of Dissolved Solids in Water Samples
14:30	86	DPSK and Manchester coding for Inter-satellite Optical Wireless Communication systems
14:45	87	DP-QPSK based 400 Gbps/channel fiber optic DWDM system
15:00	88	Hybrid Multiplexing (OTDM/WDM) Technique for Fiber Optic Communication
15:15	96	Acceptance and Use of Information and Communication Technology in Higher Education Institutes of Kuwait: A Proposed Framework
15:30	97	Long Term Evolution (LTE) Network Design Frequency Division Duplex (FDD) of 1800 MHz Based on Subscriber Growth Forecasting in 2025 at Denpasar, Indonesia
15:45	100	Implementation of Visible Light Communication using PAM on Xilinx Artix 7 35T FPGA
16:00		**Refreshment BREAK (30 MIN)**
16:30	41	Disparity between Theory & Practice: Beyond the Worst-Case Competitive Analysis
16:45	56	A Web 2.0-based Collaborative Learning to promote The practice of Islam as a way of Life
17:00	75	BandoAR: Real-Time Text Based Detection System Using Augmented Reality for Media Translator Banjar Language to Indonesian with Smartphone
17:15	93	Factors Affecting Secure Software Development Practices Among Developers - An Investigation
17:30	95	Prediction-based Resource Allocation Model for Real-time Tasks
17:45	99	A Review of Programming Code Assessment Approaches
18:00	110	Strategy and procedures for Migration to the Cloud Computing
18:15	112	Enhancement of E-Learning performance through OSN
18:30		**END of Day 1**

TIME(Hrs)	PAPER ID	PAPER TITLE
		DAY-2: DAY-2: Friday 23rd November 2018: Room B202
09:00	101	Wavelength Shift in Single MZI as a Function of Arm Length Differences
09:15	125	Reserve Margin Space for Broadcast Storm Mitigation in VANETs
09:30	138	Information Communication Technology Applications used to Enhance Knowledge Management in the University Libraries of Pakistan
09:45	113	Evaluating Student Satisfaction with Interactive Television Classes in Saudi Universities
10:00	123	Offline-printed Sindhi Optical Text Recognition: Survey
10:15	124	REVIEW ON NATURAL LANGUAGE PROCESSING (NLP) AND ITS TOOLKITS FOR OPINION MINING AND SENTIMENT ANALYSIS
		END of Session

ENGINEERING TRACK

TIME(Hrs.)	PAPER ID	PAPER TITLE
DAY-1: Thursday 22nd November 2018: Room B108		
11:00	5	There Is No Perfect Research
11:15	18	Design and Development of Quadcopter for Autonomous Water Vehicle Navigation and Load Management Monitoring System
11:30	27	Inductively coupled plasma dry etch combined with wet treatment for the improvement of surface roughness of single crystalline β-Ga2O3
11:45	28	Improved Feature Vector of Median Filtering Residual for Image Forensics
12:00	29	Numerical Simulation of Counter-Flush System on Borehole Mining for Offshore Tin Mining
12:15	34	Current-Mode Quadrature Qscillator and Universal Filter Using ZC-CCFTAs
12:30	46	TRI-ENGINE SINGLE THRUST VECTOR ANALYSIS FOR YAW MOVEMENT OF FLYING WING
12:45	47	The Design of a Touchable Table Prototype
13:00		**Lunch Break (60 MIN)**
14:00	50	The Application of Fuzzy Analytic Hierarchy Process in Engineering Project Management
14:15	58	A Comparative Study of Sentiment-Based Graphs of Text Summaries.
14:30	147	Investigation of adoption behavior for social commerce in the Kingdom of Saudi Arabia.
14:45	63	Bayesian Framework based Brain Source Localization Using High SNR EEG Data
15:00	68	Bio-cell and virus detection using electrical capacitance assisted by coventorware simulations
15:15	70	Displacement Extraction of Piezoelectric Films
15:30	85	An Iso-scallop Toolpath aligned with a Flow of Preferred Directions for 5-Axis Machining
15:45	89	Stability of Perovskite Solar Cell with Optimized CuSCN as Hole Transport Layer
16:00		**Refreshment BREAK (30 MIN)**
16:30	48	Design a Low voltage & Low power multiplier-free pipelined DCT architecture using hybrid full adder
16:45	64	Design Analysis & Fabrication of Pneumatic Pipe Cutting Machine
17:00	65	Design and aerodynamic analysis of 50 kw combine cooling, heating and power (CCHP) micro-gas turbine plant and its vaneless centrifugal compressor
17:15	74	Comparative and numerical evaluation of methanol blends in CI diesel engine
17:30	83	Design Calculation & Different Analysis of Hybrid Vehicle
17:45	94	Rapid prototype of router casing in SME Malaysia
18:00	109	A Systematic Literature Review of Optical Sensors and Applications for Light Fidelity
18:15	137	A framework for Android Malware detection and classification
18:30		**END of Day 1**

TIME(Hrs)	PAPER ID	PAPER TITLE
DAY-2: DAY-2: Friday 23rd November 2018: Room B108		
09:00	132	Jakarta Fire Safety System Management Practices for High-Rise Building
09:15	134	Utilizing Community Detection Approach for Sustainability Application
09:30	142	Energy Saving from Heat Recovery in Paddy Drying Process
09:45	140	Food Prediction based IOS Application Using Convolution Neural Networks
10:00	141	Emission Computed Tomography Test Phantoms: A Review
10:15	149	Geant4 Step towards the Durability and Smooth Response of Silicon Based Neutron Dosimeter, and Protection from Thermal Neutrons
10.30	156	The Effect of Replacement of Natural Sand by Manufactured Sand on the Properties of the Concrete
10:45	157	Bandwidth tunable Optical Frequency Comb Source with high flatness
		END of Session

TIME(Hrs.)	PAPER ID	PAPER TITLE
		DAY-1: Thursday 22nd November 2018: Room B206
11:00	33	Understanding the factors of customer satisfaction: an empirical analysis of telecom broadband services
11:15	57	A Low-cost Activity Recognition System for Smart Homes
11:30	61	Developing an Interference-Free Non-Destructive Microwave Testing System for Liquid Samples
11:45	31	Bioethanol production through enzymatic saccharification and fermentation of empty palm bunch
12:00	42	Biological Control of Post-Harvest Banana Diseases Using Antagonistic Bacteria in Thailand
12:15	82	Optical Characterization of Calcium Oxalate Hydrate in Urine
12:30	84	Propolis Wax Application as Antimicrobial Active Substances of Transparent Soap
12:45	102	Strategy Prioritization and Development for Batik Industry
13:00		**Lunch Break (60 MIN)**
14:00	90	DESIGN OF VLC WITH DCT AND M-ARY PAM IN XILINX SYSTEM GENERATOR
14:15	92	Recent and Perspective of Fuel Quality Control Method in Indonesia
14:30	111	Convolution Neural Network for Pose Estimation of Noisy Three-Dimensional Face Images
14:45	114	ISO/IEC 17025 Implementation at Testing Laboratory in Indonesia
15:00	119	Evaluation of Mill Quality by Analysis of the Ventilation Behavior of Silo Blower
15:15	120	Study Wear of the Agricultural Engine By Using Yang-Na Oil
15:30	122	Analysis of Overall Heat-transfer Coefficient for Vapor Recovery Unit through Computational Fluid Dynamic
15:45	130	Designing the Installation of Solar Panel Plant in Sunda Strait Bridge Mega Project
16:00		**Refreshment BREAK (30 MIN)**
16:30	146	Blockchain Beyond Bitcoin: Block Maturity Level Consensus Protocol
16:45	152	Artificial Intelligence based Multi-modal sensing for flash flood investigation
17:00	153	A Comparison of the Effect of Single and Multiple Cavities on Base Flows
17:15	25	A Fuzzy-Based Dynamic Bandwidth Allocation Approach for Campus Area Networks
17:30	135	Study of vanillin formation under oxygen delignification process
17:45	115	Intrusion Detection in secure network for Cybersecurity systems using Machine Learning and Data Mining
18:00	144	Implementation of Automated Testing Scenarios in LTE Environment for Network Optimization
18:15	52	Term weighting schemes alternative to TF-IDF based on the Vector Space Model (VSM): state-of-the-art
18:30		**END of Day 1**

TIME(Hrs)	PAPER ID	PAPER TITLE
		DAY-2: DAY-2: Friday 23rd November 2018: Room B206
09:00	107	Effectiveness of Quality Control Circle On Construction Company Performance In Indonesia
09:15	126	High ethanol production from oil palm empty fruit bunch pretreated by hot-compressed water technique
09:30	133	GEOTHERMAL POWER PLANT AREA LAYOUT OPTIMIZATION CONSIDERING TOXIC GAS DISPERSION
09:45	73	The Effect of Web-based Social Networking on Consultancy
10:00	44	Synergistic Antibacterial Activities of Bioactive Compounds from Streptomyces sp. RS2 in Combination with Vancomycin against Staphylococcus aureus
10:15	15	Prediction of civilians killing in the upcoming drone attack
10.30	155	Role of VSM in optimization of R&D Prototype Development of SME
		END of Session

ABSTRACTS

Paper ID: **4**

Software as a Service Acceptance Model: A User-Centric Perspective in Cloud Computing Context

Hira Naqvi, Fida Chandio, Abdul Fatah Soomro and Muhammad Sharif Abbasi

Although Software as a service (SaaS) solutions offers promising outcomes on IT performance and competitive advantage, it is observed that adoption and acceptance of SaaS solutions by the consumers has been lower than expected. In this line, present article proposes an extended model of technology acceptance to understand the decision-making process of potential users towards SaaS usage. The theoretical frame proposed in this article integrates important variables from the usability engineering, human computer interaction, and cloud computing domain. These variables are perceived usefulness, perceived ease of use, usability, trust, and facilitating conditions. It is anticipated that the systematic framework of integrated factors developed in this article will be helpful for the SaaS solution providers.

Paper ID: 5

There Is No Perfect Research

Charles Schuster

Research is the crucial, indispensable basis in all scientific disciplines. There are, however, problems and flaws, sometimes insignificant and, on occasion, vast. The reasons for these flaws in research are varied: sometimes simple errors and, in some cases, outright fraud. This paper explores some of the reasons, providing examples from several different fields of study, including physics, biology and chemistry. The nature of these errors is briefly explored from simple errors resulting from computer software to deliberate misrepresentations

Paper ID: **15**

Prediction of civilians killing in the upcoming drone attack

Sarmad Hameed, Faraz Junejo, Mehtab Anwar Khalid and Imran Amin

Terrorism is use of violence systematic and unlawfully. After the attack on World trade Center on 9th November 2001, Pentagon decided to launch fight against terrorism operations in Afghanistan. The operation started in Afghanistan in 2001 and then with the passage of time the scope of operation was increased to northwest part of Pakistan. Remarkable results have been achieved with this technology but there are also some disadvantages of this technology. The negative impact of using the drone technology is that civilians are also affected by the strikes. First drone attack happened in Waziristan in November 2004, which resulted in the killing of militant's commander, and his companions with civilians were martyred. To minimize the deaths of such local innocent civilians different predictive systems for finding the location and time of next drone strike have been created by the researchers. In this research paper we have designed a predictive system using neural network that how many civilians will be affected by the next drone strike. This system has been designed on the basis of the available data about the drone strikes in Pakistan. Realistic results have been achieved and we are hopeful that this system can save some innocent lives.

Paper ID: **18**

Design and Development of Quadcopter for Autonomous Water Vehicle Navigation and Load Management Monitoring System

Nazib Sobhan, Abdullah Al Rakib, Md. Zakir Hossain, Md. Shohan Ahamed and Md. Omar Faruk

This paper presents an autonomous water vehicle (WV) navigation and tracking based on drone technology. The key objective of this work is shown the significant utilization of aerial system in WV tracking and monitoring. Recently, aerial vehicles or drones are used vastly for commercial purposes. For example Amazon.com, a giant company uses the drone for parcel deliver. Nowadays, the GPS system is applied to WV for better monitoring and tracking. To make it more precise and assurance a quadrotor cop drone can be introduced. With this proposed model, the WVs in a specific waterway can be monitored and navigated properly with the quadcopter. The ground center can control the quadcopter with GPS and other telemetry devices. With drone surveillance technique, the control center can track the water vehicle easily and they can observe the load or weight on the WV. Mainly, water level sensor and Radio Frequency (RF) transmitter are applied on the boat to transmit data about boat load condition. Thus this system will also help up to detect the boat with overweight. The mission planner software is used for showing the live time navigation data of Quadcopter and basic C program is used for load monitoring. Along with a Quadcopter project is implemented to validate the system.

Detection of Weed and Wheat Using Image Processing

Sarmad Hameed and Imran Amin

As the increase in the world population the demand of the wheat is also increases. In order to increase the growth wheat in the wheat crop it is necessary to detect the weed in the wheat crop and the barren land to minimize the growth of weed so that the growth of the wheat can be increased. Weed detection is the important factor to be analyzed. Unmanned Air Vehicle (UAV) is used for data acquisition of wheat crop in different phases so that high quality of RGB images can be captured. The proposed method facilitates the extraction of weed, wheat, and barren land in the wheat crop field using background subtraction. The result shows that background subtraction method is good for detection the weed, barren land, and wheat.

Assessing impact of Motivating IT professional: A case study of Jamshoro

Zubair–u-Din Buriro, Faiza Hisbani, Azra Soomro, Qurat-ul-Ain Abro, Liaquat Ali Rahoo

The aim of this study is to find out the level of devotion of IT professionals of city of education, Jamshoro by the six motivation factors for them are: (Appreciation, Training, Flexible Working Hours, Task Identity, Feedback and Micromanagement). The purpose of this study is focus on the appropriate motivational factor which helps IT professionals to increase their commitment to the jobs and their working organizations. The data were collected from IT professionals of four educational organizations including Mehran University of Engineering & Technology (MUET), University of Sindh (UoS), Liaquat University of Medical & Health Sciences (LUMHS) and Hidaya Institute of Science & Technology (HIST) in which mostly participants were qualified as graduated and less were Masters and male participants were in majority. Total 64 participants shared their views for getting survey data from the population. Survey results after analysis that the IT professionals want to leave their job and they showed less commitment. The factors like working hours, appreciation, training and feedback had less existence in the working environment of organizations. The de motivating factor form the respondents were the micromanagement. The results of analysis from the obtained data showed that the micromanagement had negative impact on the commitment of IT professional at their jobs. The IT professionals, showed the significant effect of appreciation, training and task identity on the motivation and commitment in educational city of Jamshoro. Hence flexible working hour and feedback have no impact on IT professional's commitment.

Use of Web 2.0 Tools for Marketing and Promotion of Library Services in Higher Education Institutes of Sindh

Liaquat Ali Rahoo, Zameer Hussain Baladi, Sadia Arshad, Muhammad Ali Khan Nagar, Shahnawaz Rustamani

Libraries and librarians around the world are using Web 2.0 tools to inform users about their services, share information, connect with users and colleagues, on a worldwide level. This study explored the use of Web 2.0 tools for marketing and promotion of library services and resources by the libraries of Higher Education Institutes of Sindh. A structured questionnaire were developed and administered through professional social network sites for data collection from the university libraries. A total of 87 completed questionnaire returns were received from the universities of Sindh province. The results show that Facebook, Twitter, Wikis, RSS, LinkedIn, Blogging, YouTube and email groups are the web 2.0 tools considered suitable and used for marketing and promotion of different library services and resources in the university libraries.

Education Management Information Systems in the primary schools of Sindh a case study of Hyderabad Division

Muhammad Ali Khan Nagar, Sadia Arshad, Hafiz Abdur Rehman, Liaquat Ali Rahoo

The development of information technology in the 21st century play important role in the education of Pakistan and ICT has more affective role on educational institution like schools, colleges and universities. The top level management of different institutes have been using management information systems to improve their efficiency of administrative works with the help of information management system. The purpose of this study is to explore the principal's view of the MIS and the ways in which the school uses the MIS. The respondents to this study were 98 elementary school and college principals of Hyderabad division. Data collection uses a five-part questionnaire. The first part collects the respondent's demographic information. Remaining parts of questionnaire have a statement about the school management information system. The data was analyzed in SPSS, for the frequency, percentage, mean and standard deviation. The results show that despite the lack of technical infrastructure in primary schools, higher authority make an important contribution to support the school management for the implementation of information management system.
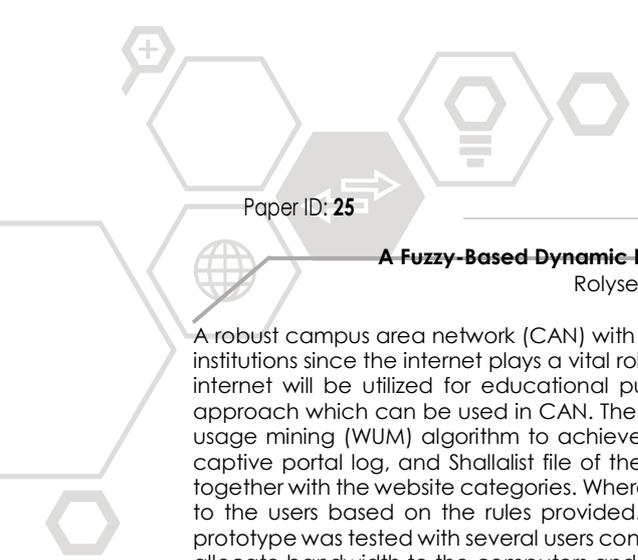
A Fuzzy-Based Dynamic Bandwidth Allocation Approach for Campus Area Networks

Rolysent Paredes, Arnel Fajardo and Ariel Sison

A robust campus area network (CAN) with excellent connectivity to the internet is no longer a luxury to the educational institutions since the internet plays a vital role in education. With that, proper bandwidth allocation is needed so that the internet will be utilized for educational purposes. This study proposes a fuzzy based dynamic bandwidth allocation approach which can be used in CAN. The Mamdani fuzzy inference system was utilized along with the enhanced web usage mining (WUM) algorithm to achieve the proposed method. The improved WUM was employed to the weblog, captive portal log, and Shallalist file of the proxy server to identify the network users and the websites they accessed together with the website categories. Whereas the Mamdani FIS was used to decide the bandwidth that will be allocated to the users based on the rules provided. A prototype was developed and installed in a pfSense proxy server. The prototype was tested with several users connected to the proxy. The results showed that the prototype could dynamically allocate bandwidth to the computers and the bandwidth is based on the given rules. Further, this method is vital to the network administrators since the setting of the bandwidth can be done automatically.

Improved Feature Vector of Median Filtering Residual for Image Forensics

Kang Hyeon Rhee and Ilyong Chung

For the detection of median filtering (MF) forensics, this paper proposes a new feature vector that improved using an additional information about gradient and edge lines of the image. The defined new nine dimensionality feature vector is trained in a SVM (Support Vector Machine) classifier for the median filtering detection (MFD) of the forged images. The performance of the proposed MFD scheme is measured with several types of the operated images: median filtered, unaltered and JPEG compressed, respectively. Subsequently, the AUC (Area Under Curve) results of the proposed MFD scheme are 0.9 over on the trained SVM (Support Vector Machine) classifier. Thus, it confirmed that the grade evaluation of the proposed scheme is 'Excellent (A)'.

Numerical Simulation of Counter-Flush System on Borehole Mining for Offshore Tin Mining

I Wayan Suweca, I Nengah Diasta and Jeremy Naftali Wahyudi

PT. Timah Tbk., a local company, is developing a Borehole Mining (BHM) technology for offshore tin mining to eliminate stripping overburden process. The mining process is done by drilling and spraying rocks using pressurized fluids to destroy rocks and produce a slurry which will then be distributed to the surface through the pipe. This BHM device has been tested in the field test but the result of field testing indicates that the device is not perform properly to deliver the slurry to the surface. Therefore, numerical simulation is performed to identify the problem. The result of the simulation shows that the design of the counter-flush system has not been properly designed.

Bioethanol Production Through Enzymatic Saccharification And Fermentation of Empty Palm Bunch

Snunkhaem Echaroj and Nattadon Pannucharoenwong

Shortage in supply for petroleum-based liquid fuel have promote researches in the area of alternative energy such as blended fuel containing various amount of bio-ethanol derived from waste lignocellulosic biomass. This paper aims to optimize the enzymatic saccharification by varying reaction temperature, enzyme loading and time required to hydrolyzed palm empty fruit bunch (P-EFB). The best saccharification conditions were used to generate reduced sugar, consisting of glucose, fructose which was then passed through the fermentation process to produce bio-ethanol. Optimal saccharification of P-EFB was found to be conducted at temperature of 45oC, enzyme loading of 20 FPU/g and reaction time of 12 hours. The optimum concentration of reduced sugar produced in the pre-hydrolyzed slurry was 11.4 g/L. Fermentation of pre-hydrolyzed slurry in 5 g/L yeast solution was conducted at 40oC and fermenting time of 24 hours. Product from fermentation contained 29.5 g/L bioethanol or bio-ethanol yield of 68.7 %.

Understanding the Factors of Customer Satisfaction: An Empirical Analysis of Telecom Broadband Services

Malook Rind, Aftab Shaikh, Kamlesh Kumar and Sadaf Solangi

Keeping in view the tough competitive market, it has been realized that the customer satisfaction is one of the most important factors for the survival of any service provisioning organization. Research community has been contributing enough literature with special focus on the analysis of the significant factors that affect the customer satisfaction. Most of the empirical research studies are conducted to understand customer satisfaction related to products as compared to services. Additionally, very few studies have been conducted in context of telecommunication service quality. Therefore, the aim of this research is to understand the customer satisfaction of broadband telecommunication services provided by Pakistan Telecommunication Company Limited (PTCL). To identify the most significant factors that affect customers' satisfaction of broadband services provided by (PTCL) in Pakistan, a comprehensive framework having relationship between dependent variable - customer satisfaction and independent variables including perceived service

quality, responsiveness, stability, content quality, and staff attitude is proposed. The results of research study will provide potential guidelines to (PTCL) management in formulating appropriate strategies as a mean to improve their efficiency and gain competitive advantage to attract more customers and retain existing customers.

Paper ID: **34**

Current-Mode Quadrature Qscillator and Universal Filter Using ZC-CCFTAs
Montree Kumngern and Boonying Knobnob

This paper presents a current-mode quadrature oscillator/universal filter using two z-copy current controlled current follower transconductance amplifiers (ZC-CCFTAs) and two grounded capacitors. The proposed circuit can be realized either as a quadrature oscillator or a universal filter without changing circuit topology. When the circuit works as a quadrature oscillator, the condition of oscillation and frequency of oscillation can be independently controlled. When the circuit works as a universal filter, low-pass, high-pass, band-pass, band-stop and all-pass filtering functions can be obtained simultaneously. PSPICE simulation results are used to verify the workability of the new topology.

Paper ID: **41**

Disparity between Theory & Practice: Beyond the Worst-Case Competitive Analysis
Javeria Iqbal, Iftikhar Ahmad and Asadullah Shah

Online algorithms are used in a variety of situations such as forex trading, cache replacement algorithms, and job scheduling etc. In an online problem, the algorithm is presented with a sequence of input in a serial fashion such that the algorithm does not have knowledge about the future inputs. For instance, in case of forex, the online algorithm is presented daily exchange rates. The algorithm does not have knowledge about future exchange rates, and has to make an irreversible conversion decision on each day. It is the standard tool to analyze the performance of online algorithms. Competitive analysis measures the performance of an online algorithm against a benchmark optimum offline algorithm. Competitive analysis is a worst case measure and is criticized as a pessimistic approach for performance evaluation. The assumptions of online algorithms designed under the competitive analysis paradigm also suffer from the same set of problems as competitive analysis it self. In this work, we contribute towards bridging the gap between theory and practice by considering a set of algorithms for online conversion problems and discuss the disparity between the assumed worst-case competitive ratios and experimentally achieved competitive ratios using real world data. We present modified worst-case input sequences in order to make them comparable to real world data. In addition, we also investigate, how the assumptions made by algorithms differs from real world. Further, we highlight other performance measures for online algorithms with the goal of realistic performance evaluation process.

Paper ID: **42**

Biological Control of Post-Harvest Banana Diseases Using Antagonistic Bacteria in Thailand
Korawit Chaisu

Gros Michel banana is an important economically tropical fruit. It is easy to grow and highly nutritious with increasing demand in the market. This research was conducted to study the type of microorganisms that cause of Gros Michel banana disease in Thailand and determine inhibition rate of post-harvest banana diseases using antagonistic bacteria. The study also includes methods to prevent diseases and prolong the shelf life of Gros Michel banana by using antagonist microorganism. The results showed that Curvularia sp., Nigrospora sp., Fusarium sp., and Colletotrichum circinasns (Berk.) Voglino were found in Thai Gros Michel banana farm. However, the Percentage Inhibition of Radial Growth (%PIRG), UN1 has the highest inhibition efficiency of Curvularia sp. (80%), followed by B23 that inhibited at 66.67% of Fusarium sp. and the highest % PIRG at 3 mL (91.60%) tested by dual culture method. The results showed that B23 and UN1 were able to inhibit growth of Curvularia sp. more than 85% of PIRG at 2 mL and 3 mL respectively. It can reduce the use of chemicals for more than 250 ppm. Analysis Identify the type of microorganisms by biochemical characteristics using API found that B23 and UN1 were similar to those of Bacillus subtilis/amyloliquefaciens at 96.6% and 99.6% respectively. The study of biological control from this research can be further developed in banana field in order to reduce the use of chemical, develop disease prevention method, and extend the shelf life of Gros Michel banana by using antagonist bacteria.

Paper ID: **44**

Synergistic Antibacterial Activities of Bioactive Compounds from Streptomyces sp. RS2 in Combination with Vancomycin against Staphylococcus aureus
Nongyao Nonpanya, Kwanjai Kanokmedhakul, Nattadon Pannucharoenwong and Snunkhaem Echaroj

Two bioactive compounds, namely tetrangulol methyl ether (1) and 2-phenylacetamide (2) were produced by Streptomyces sp. RS2, and were also active in dealing with Methicillin-resistance S. aureus (MRSA) and Staphylococcus aureus. The objective of this research was to determine synergistic antibacterial combinations between the active compounds with an antibiotic against S. aureus. The combined effects analysis was performed by the method known as checkerboard in order to find the Fractional Inhibitory Concentration (FIC) indexes, and all synergistic combinations were confirmed using time kill kinetic analysis. Synergistic effects were observed when compound 1 and 2 were combined with vancomycin (VA) against S. aureus ATCC 25923. FIC indexes of compounds 1+VA, 2+VA and 1+2 combinations were 0.313, 0.500 and 0.375, respectively. The result of time-kill kinetic analysis showed that the compounds 1, 2 and VA, and compound combinations 1+VA, 2+VA and 1+2 exhibited synergistic activity against S. aureus ATCC 25923 within 4, 6 and 24 h. In addition, the effects of the active compounds on the tested S. aureus and MRSA were observed by Scanning
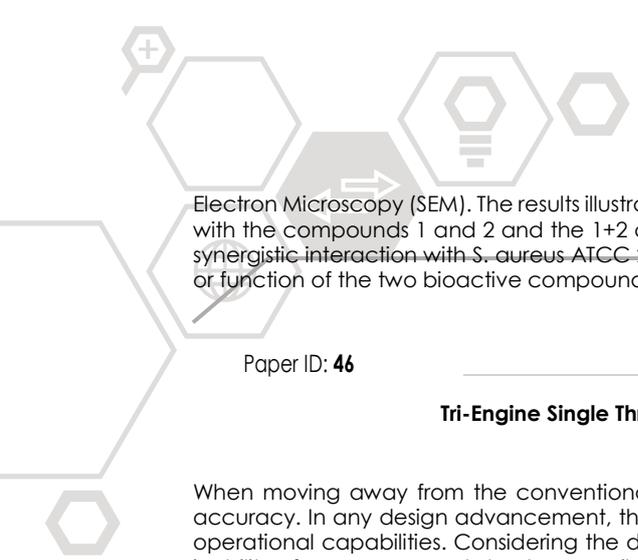
Electron Microscopy (SEM). The results illustrate that bacterial cells were slightly changed and decreased after incubation with the compounds 1 and 2 and the 1+2 combination. These results demonstrate that the active compound exhibited synergistic interaction with S. aureus ATCC 25923, and the two active compounds will be studied particularly for the role or function of the two bioactive compounds in the future.

Paper ID: **46**

Tri-Engine Single Thrust Vector Analysis for Yaw Movement of Flying Wing
Dakshina Fernando

When moving away from the conventional aviation concepts the most crucial areas of concern are efficiency and accuracy. In any design advancement, the efficiency stands with the fuel consumption and accuracy stands with the operational capabilities. Considering the design concept of the flying wing the shortages are reflected in the effect of inability of yaw movement due to unavailability of vertical fin. In most problems of engineering the solutions used to be found mostly in the nature. Like in most design aspects of aviation flight dynamics of birds have given solutions this area of drawback can be taken into broader understanding with the same examples as well. For this constraint the aerodynamic aspects of the 'swift' bird was considered. With its ability to handle critical manoeuvres under high speed flight conditions and achieving such with vectored tail movements were assessed in this matter. The method of thrust vectoring were considered by movement of engine to achieve necessary movement. In this research the control capabilities affected with thrust vectoring were calculated. As the primary design was built upon the usage of three engines the vector capability of a single engine with forward thrust of the rest were taken into consideration. By taking the same conditions delivered in the research "KF implemented Flying Wing", this research was built upon. Thus proper condition requirements to give the optimal efficiency and accurate manoeuvring were calculated and presented. The theoretical findings of this research will be forwarded for further studies in computational fluid dynamics simulations and practical testing for prototype model with the Wind Tunnel. Furthermore multi engine thrust vectoring will be comparatively smoother attitude manoeuvring methods. The suggestions made will give the technical advantage for practical approach for engine movement requirement. With this research the readily available drawback of Flying Wing concepts are addressed.

Paper ID: **47**

The Design of a Touchable Table Prototype
Seyed Ebrahim Esmaeili, Ali Jumah, Khaled Hamad, Abdulaziz Al-Hosainan and Ahmed Talaat

Innovation has turned out to be so useful to our lives in such huge numbers of ways. Innovation is advantageous and effective. Shape changing interfaces give physical shapes to advanced information so clients can feel and control information with their hands and bodies. Our approach is to construct an insightful model for the properties of deformable materials. Office desks have been created and have been used since quite a while. The most well-known viewpoint about these office work areas is that every one of them are nearly the same, much the same as a consistent table. The proposed Touchable Table is the perfect arrangement that will influence work areas. It can speak with the client in different diverse ways. It is an extraordinary advancement for a work area as it influences the client to feel more relaxed, inventive, and stimulated. Subsequently, the proposed table has the capacity to hold anything that drifts over it and thus, the user will never need to stress over purchasing any stands. The proposed touchable table will help in reducing some of the health issues triggered by the use of an old-fashioned office desk. In addition, the proposed table is capable of creating various types of 3D shapes as well as to moving the objects around. Furthermore, the proposed Touchable Table comes with a user-friendly application and can adjust itself based on the user's preference of the office style.

Paper ID: **48**

Design A Low Voltage & Low Power Multiplier-Free Pipelined DCT Architecture Using Hybrid Full Adder
Chinnaiyan Senthilpari, Maufuz Imran Imran, P.Velraj Kumar, Sheela Francisca and T.Nirmal Raj Raj

This paper proposes a new hybrid full adder design along with the comparative analysis of various 1-bit full adder designs. In the proposed design pass transistor based XOR-XNOR design has been used along with an inverter and two multiplexers that can operate at low power, voltages with reduced propagation delay, power delay product (PDP) and total chip area. The proposed design has been compared with various proposed full adder designs with full and non-full swing output voltage for total current withdrawn with change in input voltage along with power consumption, delay and area for 1-bit full addition. The proposed design was schematized by DSCH2 tools and layers are simulated by Microwind tool using 70nm, 90nm,120nm technology and corresponding voltage of 0.7V, 1V,1.2V. Furthermore, the proposed full adder design has been implemented into a multiplier-free DCT architecture suitable for VLSI design to further enhance it for low voltage, low power and less delay operation.
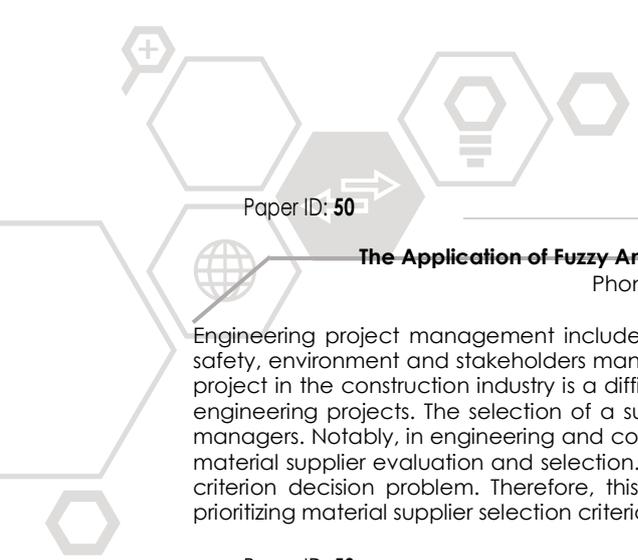
The Application of Fuzzy Analytic Hierarchy Process in Engineering Project Management

Phong Thanh-Nguyen and Loi Van-Nguyen

Engineering project management includes a variety of content such as time, cost, quality, resources, procurement, safety, environment and stakeholders management. However, identifying the right material suppliers in an engineering project in the construction industry is a difficult task. Material costs account for a significant proportion of total costs of engineering projects. The selection of a suitable material supplier is an essential decision for any engineering project managers. Notably, in engineering and construction projects, it is not an easy task because many factors influence the material supplier evaluation and selection. Assessing the importance of these factors is a dynamic and complex multi-criterion decision problem. Therefore, this paper presents the Fuzzy Analytic Hierarchy Process (F-AHP) method for prioritizing material supplier selection criteria in engineering and construction companies in Vietnam.

Term weighting schemes alternative to TF-IDF based on the Vector Space Model (VSM): state-of-the-art

Demba Kande, Fodé Camara, Reine Marie Marone and Samba Ndiaye

The explosion of textual data is leading to more and more important problems in text mining applications. The main feature of these applications is the need to have to search non-deterministically within each data item. To take advantage of these data, the researchers proposed several solutions called term weighting schemes. These ones constitute a fundamental problem in the exploitation of textual data. Among which we have the methods named Model Space Vector and Semantic, which are the two major domains of weighting at term used in the information retrieval (IR) and the texts classification (TC). However, the purpose of this study is to provide an overview of the most recent elements of algorithms of term weighting. First, we will try to study primary objectives in this domain, and then we look at the most recent elements. In the following steps, we will analyze qualitatively the related works. Only the term weighting methods based on the Vector Space Model (VSM) are described here. VSM-based methods are traditional or unsupervised methods, feature selection methods, and supervised or statistical methods. This study will help readers to acquire the necessary information about these methods and their associated techniques. Thus, we hope that this study will provide considerable support for other researchers and professionals in their efforts to propose new solution in the domain of term weighting.

A Web 2.0-Based Collaborative Learning to Promote the Practice of Islam As A Way of Life

Fariba Ataie and Asadullah Shah

The research aimed to design, develop and evaluate an innovative Web 2.0-based collaborative learning with the Islamic ethical system to support Islamicisation and the practice of Islam as a way of life that is the main goal of Islamic education. This is in response to the lesser amount of focus in Islamic education on the real example of integrating ICT into the collaborative learning process that could support social constructivist learning goals and skills for use of Islamic knowledge in daily life.

A Low-cost Activity Recognition System for Smart Homes

Yasir Arfat Malkani, Waseem Ahmed Memon and Lachhman Das Dhomeja

Pervasive or ubiquitous computing environments have become very common nowadays. The vision of pervasive computing is given by Mark Weiser in 1991. Pervasive computing offers such computing environments in which users are offered their desired services without requiring their dedicated or substantial attention. It supports users to achieve their desired goals/task with minimal user interaction. The applications of pervasive computing can be seen in various sub-domains including mobile and ad hoc networks, wireless sensor networks, location-aware systems, context-aware systems and smart environments (e.g. smart offices and smart homes). Sensing physical phenomena, human activity recognition, understanding and analysis can substantially play its role in realizing smart environments. In recent years, the domain of human activities recognition has got significant attention from researchers due its potential applications in smart environments. In the literature of smart environments, it is envisioned that a system could offer the best services to its users only if it is able to understand and recognize the actions/activities being performed by the user while present in the smart environment. Consequently, in this paper a low-cost system to recognize human activities is proposed. The proof-of-concept implementation of the proposed system is carried out and its usability is also conducted. The usability study results show that the proposed system is user friendly and significantly improves the user experience of smart home users.

A Comparative Study of Sentiment-Based Graphs of Text Summaries

Stephanie Chua, Bali Malancon, Narayanan Kulathuramaiyer and Hazimah Iboi

Sentiment included in a sentence can indicate whether a sentence may have positive, negative or neutral polarity. Polarity of the sentences is deemed important in text summarization, especially when summarizing narrative texts. This paper proposes to discover the patterns and sentiment scores of the summaries generated by established summarization methods: Luhn, Latent Semantic Analysis (LSA) and LexRank. This is done by conducting a study and comparison on the
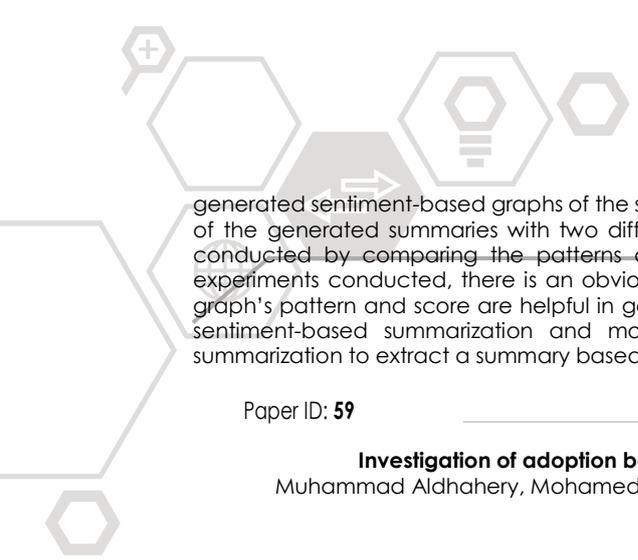
generated sentiment-based graphs of the summaries. A comparative study is conducted on the sentiment-based graph of the generated summaries with two different sentiment lexicons, namely SentiWordNet and VADER. The analysis is conducted by comparing the patterns of the sentiment-based graph and their sentiment scores as well. In the experiments conducted, there is an obvious pattern for the two sentiment lexicons. This implies that sentiment-based graph's pattern and score are helpful in generating a compact summary. The analysis will alleviate future research on sentiment-based summarization and motivates a new method which can be considered as a graph-based summarization to extract a summary based on its sentiment score.

Paper ID: **59**

Investigation of adoption behavior for social commerce in the Kingdom of Saudi Arabia.

Muhammad Aldhahery, Mohamed Ridza Wahiddin, Mansoor Ahmed Khuhro and Zulfikar Ahmed Maher

Social media fundamentally has changed the consumer's decision process. There are many research studies from different context for understanding the importance of social media, regrettably, not until recently, its business impact and opportunities were not been seriously addressed. This is what led the Information System (IS) research community to come up with a new discipline known as Social Commerce (s-commerce). Hence an alternative means businesses through online social interactions emerge. This has make the social networking platform drives consumers to participate in social commerce. Considering the increasing importance of social media as a mode of commerce, it is necessary to identify the significant factors that affect its acceptance. Thus, the aim of this research was to empirically examine the factors that affect s-commerce acceptance in Saudi Arabia. A hypothesized research model for s-commerce was proposed. Quantitative research methodology was chosen to test the formulated hypothesis by subjective assessment of attitudes, opinions and behaviour of the people of Saudi Arabia.

Paper ID: **61**

Developing an Interference-Free Non-Destructive Microwave Testing System for Liquid Samples

Abdelrahman Rashed and Montasir Qasymeh

Non-destructive testing (i.e., NDT) techniques are exploited in various fields to detect internal properties of materials. In this work, an interference-free scheme for NDT microwave system is proposed. A testing-bed using off-the-shelf equipment has been implemented. The microwave radiation pattern is optimized to overlap with the middling sample between the transmitter and the receiver. The received power is then measured to characterize different samples. A software is developed using MATLAB to handle the acquisition, processing, and analysis of the received power data. A pure water sample is utilized as a standard sample. The system is, then, designed to eliminate the environment interference by performing an initial testing for the standard sample, prior any actual measurement, and process the two reads by the developed software. First, testing experiments are conducted using a single microwave frequency for different samples and a data-base for material classifications is created. A fixed RF frequency of 2650 MHz is used. Second, the testing experiments were conducted over the 1700 MHz to 2600 MHz microwave frequency range to evaluate liquid samples with controlled/contaminated properties. These include gasoline with different octane number samples and mixtures of milk and water samples. It is shown that the properties of the controlled (or contaminated) under-test sample can be successfully detected by calculating the average of the received power with respect to the measurement frequency range. The developed system is interference-free, made of off-the-shelf equipment, and is compatible with any personal computer or smart display.

Paper ID: **63**

Bayesian Framework based Brain Source Localization Using High SNR EEG Data

Munsif Ali Jatoi

The multipurpose application of brain source localization in the domain of biomedical engineering has aggrandized the ways for its further development for various healthcare applications. Various brain regions are activated due to different mental and physical tasks. These sources can be localized using different optimization algorithms. This localization information is usable for diagnoses of brain disorders such as epilepsy, Schizophrenia, depression and Alzheimer. The brain signals are recorded through neuroimaging techniques such as MEG, EEG, fMRI and PET etc. Nevertheless, when EEG signals are used to reconstruct the active brain sources, then its termed as EEG source localization. The localization involves two phases: forward modeling and inverse modeling. The forward modeling is carried out to model the head using various numerical techniques. Some of them are finite element method (FEM), boundary element method (BEM) and finite volume method (FVM). Furthermore, the solution of inverse problem is realized through usage of various optimization techniques such as minimum norm estimation (MNE), low resolution brain electromagnetic tomography (LORETA), multiple signal classification (MUSIC) and multiple sparse priors (MSP). This research work discusses the results based on synthetically generated EEG data at an SNR level of 12 dB with Gaussian noise added linearly in data matrix. For forward modelling, boundary element method with 1 µA dipole amplitude at dipole frequency of 20Hz is utilized. The dipoles' location is set randomly at 2000 and 5700 at CTF. The techniques mentioned above are applied on data and are compared with latest multiple sparse priors (MSP). The evaluation of results is done based on comparative analysis of free energy and localization error. The results shows superiority of MSP over classical algorithms.

Design Analysis & Fabrication of Pneumatic Pipe Cutting Machine
Sanket Lakhe, Avinash Barve, Rahul Jangam, Bhagyesh Talekar, Vaishnavi Ratanparaj and Hemant Bansod

The main objective of this paper is to design fabricate & analysis of an automated pneumatically operated pipe cutting machine. Engineers are developing sophisticated machines and modern techniques are implemented for economical manufacturing of products. At the same time, we should caution about its quality and accuracy. In the age of automation, machines become an intrinsic part of human being. By the use of automation, machine gives high production rate than manual manufacturing process. In today's competitive market automation has powerfully entered in the industrial manufacturing process in order to increase the production rate and to reduce the process time without compromising with the accuracy of the product. Automatic pneumatic cutting machine is designed for industries to fragments metals pipes, rods or cylinders of precise dimensions with high accuracy in less time. Air is used as a working fluid which is compressed above the atmospheric pressure in order to pressurize the air so that this pressure energy can be utilize to perform the mechanical work with the use of proper mechanism. Operator can easily operate pneumatic pipe cutting machine. The running and maintenance cost of this machine is very economical.

Design and Aerodynamic Analysis of 50 Kw Combine Cooling, Heating and Power (CCHP) Micro-Gas Turbine Plant and Its Vaneless Centrifugal Compressor
Adil Malik, Qun Zheng, Shafiq Qureshi, Syed Asad Ali Zaidi and Salman Abdu Ahmad

CCHP systems for residential buildings is one of the solution that can eliminate the energy crises in developing countries, with lesser use of fossils fuels along with reduction in carbon dioxide levels in environment. In the present research work a 50 kW micro gas turbine of combined heating, cooling and power plant is designed. The optimum pressure ratio is calculated with the highest efficiency and minimum specific fuel consumption, in order to design a centrifugal compressor of gas turbine. Detailed performance assessment and aerodynamic analysis of designed compressor is conducted. Numerical simulation predicted excellent results, which is similar to the calculated performance. The association of the wake and secondary flow vortex in the impeller is discussed. Coriolis force has augmenting effects in flow characteristic of centrifugal impeller. The Coriolis force and its effects in the wake region and tendency of boundary layer separation is discussed.

Bio-Cell and Virus Detection Using Electrical Capacitance Assisted by Coventorware Simulations
Mahmoud Al Ahmad and Razan Khider

Cell Simulations are the real investment happening towards explain the configurations, changes, response and reaction in cell. All The previous simulations include the cells or viruses separately. In our research paper we find a new model that integrate between cell and virus in order to demonstrates virus detection with an efficient technique, which distinguish between normal cell and infected cell. This technique is based on electrical measurement of capacitance in cells either bio cell or virus cell, the electrical capacitance depends on structure and electrical properties of cell in specific dielectric constant and electric conductivity which are directly affect the capacitance.

Displacement Extraction of Piezoelectric Films
Mahmoud Al Ahmad, Abdulellah Shaman and Mousa Hussein

Piezoelectric-based innovative components and architectures depend on the strong interactions between their mechanical and electrical materials properties. Such type of materials requires a polling step to activate their piezoelectricity. Before the polling and with the application of electric fields to piezoelectric material across its thickness, only the dielectric constant will change, while after polling the piezoelectric materials mechanically extracts and/or contracts in addition to the change in dielectric constant. This work reports for the extraction of vertical piezoelectric film displacement coupling electromagnetics simulations with capacitance-voltage measurements. An interdigital capacitor structure has been fabricated and used as demonstrator. Lead zirconate titanate thin film of $0.75\mu m$ thickness with known properties has been used as piezoelectric film materials. The device capacitance-voltage measurements have been conducted at different DC biasing voltages using LCR impedance analyzer. The electromagnetic simulations have been carried out using Sonnet EM-simulator. The capacitance-spacing curves for different dielectric constants values were generated out of these electromagnetic simulations. Curve fitting technique is used to establish the connecting equation between the measured capacitance and spacing at specific applied voltage.

A GaN/sapphire 1 x 4 Optical Power Splitter Using Five Rectangular Waveguide for Underwater Application
Retno Wigajatri Purnamaningsih, Maratul Hamidah, Dini Fithriaty, M. Raditya Gumelar, Nyi Raden Poespawati and Elhadj Dogheche

This work reports a design of a simple four-branch optical power splitter using five parallel rectangular waveguides in GaN/sapphire for underwater application. The proposed power splitter works according to coupled mode phenomena occurred between the adjacent waveguides. The numerical experiments were carried out using the FD-BPM method to
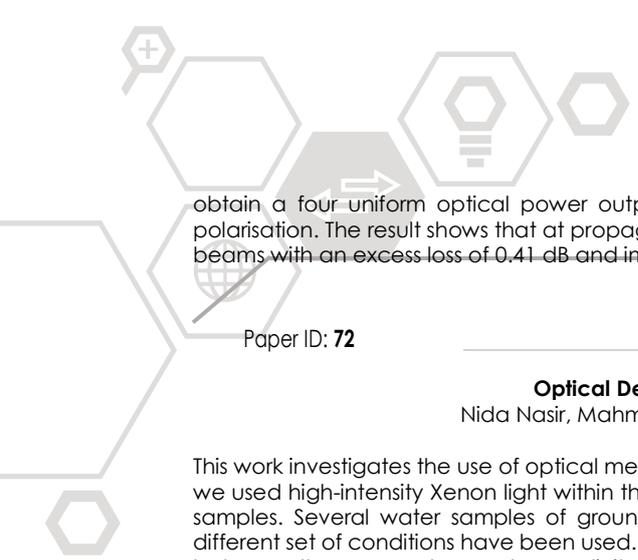
obtain a four uniform optical power output. The simulation conducted at the input wavelength of 0.45 µm for TE polarisation. The result shows that at propagation length of 770 µm, the optical power is successfully split into four output beams with an excess loss of 0.41 dB and imbalance of 0.1 dB.

Optical Detection of Dissolved Solids in Water Samples

Nida Nasir, Mahmoud Alahmad, Omer Albashier and Ahmed Murad

This work investigates the use of optical methods for the detection of dissolved solids in water. In this spectrophotometry, we used high-intensity Xenon light within the wavelength range of 640-1010 nm, to measure the transmittance of water samples. Several water samples of groundwater and medical wastewater collected from different locations under different set of conditions have been used. For all the tested samples, the transmittance was measured and the relations between the parameters such as salinity, pH and total dissolved solids (T.D.S.) concentration were developed. By considering the average of digital counts by the spectrophotometer, the concentration of dissolved solids in water samples is evaluated and the quantitative analysis is done based on the transmittance of the samples in the near infrared region.

The Effect of Web-based Social Networking on Consultancy

Humaiz Shaikh, Zulfikar Ahmed Maher, Asadullah Shah and Ali Raza

Social networking has become a fact that we cannot live without even if we try. It has become a day to day activity or even yet a chore. Where we share our life experiences. We have all become its slave! Social networks bring many benefits to the user and the world at large. These advantages from an expert perspective include the sharing of information, collaboration, promote products and services, building a group community, donations etc. This paper provides a review of the Effect of Web-based Social Networking on Consultancy.

Comparative and Numerical Evaluation of Methanol Blends in CI Diesel Engine

Salman Ahmed, Song Zhou, Yuanqing Zhu, Yongming Feng, Adil Malik and Asad Zaidi

The purpose of this work is to investigate the influence of methanol addition to diesel fuel on the performance and pollutants of a 6 cylinder CI Diesel using Numerical simulation tool. The mixtures were prepared by adding methanol (5, 15 and 25% by volume) to achieve 5M, 15M and 25M. In order to study engine performance and pollutant emissions, a series of numerical simulations were performed in GT-Power an engine simulation package at 4 different engine loads (4.5, 7.5, 10.5 and 12.75Bars) and at a constant engine speed (1800 rpm). The addition of methanol increased brake thermal efficiency (BTE) as compared to diesel fuel. The results also showed the methanol blends reduced carbon monoxide (CO) and nitrogen oxide (NOX). However, due its high latent of evaporation the HC emissions of the blends were observed to be higher than that of diesel fuel operation. Moreover, the high oxygen content of the blends resulted in a greater conversion of CO to CO2 thereby increased carbon dioxide (CO2) emissions. The addition of methanol had an increasing effect on exhaust gas temperature (EGT).

BandoAR: Real-Time Text Based Detection System Using Augmented Reality for Media Translator Banjar Language to Indonesian with Smartphone

Aulia Akhrian Syahidi, Herman Tolle, Ahmad Afif Supianto and Kohei Arai

Language is one of the fundamental factors that distinguish humans from animals. Language allows individuals to live together, help solve problems and position themselves as cultured beings. Language is a communication medium that aims to understand each particular ethnicity and nation. Language comprehension allows increased awareness and value of closeness between individuals in an area. However, a large number of languages seem to be the cause of difficulties and misunderstandings about the meaning of certain words. This research provides alternative solutions for solving these problems. This solution can provide convenience in the process of understanding the meaning of language words, especially Banjar Language, by recommending an application called "BandoAR". BandoAR is a translator application from Banjar Language to Indonesian. This application can work as a real-time application without requiring input media such as text that must be typed using a good camera quality and has autofocus characteristics on the camera. This study emphasizes the process of detecting and tracer texts that exist in the Banjar community. This research is intended to see how Augmented Reality technology can be applied in the text without markers and has different font sizes, backgrounds, and distances. The results show that software for Android smartphones, as a media translator in real time, can be used in almost every type of smartphone. Based on internal trials and the results of 160 respondents, this application can attract users' interest, can be applied in real life, and as an effort to preserve Banjar Language culture.

Optical Characterization of Calcium Oxalate Hydrate in Urine

Mahmoud Al Ahmad, Nida Nasir and Adel Najar

Kidney stones is a common ailment worldwide, affecting adults, children and even animals. Calcium oxalate is the main component of the urinary tract stones in individuals, mostly due to the intake of high-oxalate foods. This paper is an approach towards the optical characterization of calcium oxalate hydrate in urine. This study demonstrates a label-free, accurate and sensitive method for detecting the presence of oxalate levels in urine. This can be done by measuring the changes in the optical properties of urine with increasing concentrations of calcium oxalate hydrate ($CaC_2O_4.xH_2O$) powder. The current method could detect $CaC_2O_4.xH_2O$ at a concentration as low as 10 □g/mL of urine, making this method suitable for detecting changes that cannot be recognized by conventional methods. The ability to detect very small amount of stones makes it an attractive tool for detecting oxalate concentration. It can be used as cautionary measure for the individuals who take high amounts of oxalates and are prone to the kidney stones.

Design Calculation & Different Analysis of Hybrid Vehicle

Avinash Barve, Bhagyesh Talekar, Sanket Lakhe, Vaishnavi Ratanparaj, Rahul Jangam and Hemant Bansod

This paper focuses on detail design analysis and calculations of chassis, suspension, steering, knuckle, hub and disk brake of solar hybrid vehicle. By the concern about the energy crisis, this vehicle consist of PV cells. Abundant source of renewable energy is there, so we can use sun conveniently as a source by using the solar panel. Various impact analysis were performed in all the vehicle components and observed the deformation, flexural rigidity of structural analysis and thermal analysis are done for disk brake. Design of chassis has been done on using SOLIDWORKS V2016 and components like hub, knuckle and disk brake are done by using CREO PARAMETRIC 2.0. The chassis, hub, disk brake and knuckle analysis are done by using the ANSYS WORKBENCH 16.2 and suspension analysis perform by using LOTUS 4.2. Calculation for safety purpose for maximum loading condition are done theoretically. The entire design and analysis process is perform & changes according to requirement.

Propolis Wax Application as Antimicrobial Active Substances of Transparent Soap

Muhamad Sahlan, Heri Hermansyah, Anondho Wijanarko and Abigail Hotma

The extraction process of propolis produces by-products named propolis wax tends unwanted by people. Antimicrobial and antioxidant properties of propolis wax can be utilized as an active substance in transparent soap. Propolis wax transparent soap produced in the quality of SNI 06-3532-1994, are not significantly different with propolis soap commercial that has been sold in the market. Then the antimicrobial activity of samples were tested using Total Plate Count method. The percentage inhibition of microbial origin hands of propolis wax transparent soap 1%, 1.5% and 2% respectively are 28.25%, 45.06% and 62.62%, while commercial Lifebuoy soap with the same test has microbial inhibition percentage of 53.54%. For organoleptic test results, in terms of appearance and scent soap panelists prefer the propolis wax soap 1%, while in terms of subtle impression and the resulting foam soap panelists preferred 2% propolis wax.

An Iso-scallop Toolpath aligned with a Flow of Preferred Directions for 5-Axis Machining

Ashan Eranga Kudabalage and Dang Le

Five-axis machining that follows the optimal feeding direction (OFD) has gained more attention recently since it can significantly decrease the total machining time while maintaining the surface quality. Even though, the majority of work target only parametric surfaces. The iso-scallop tool path is a common efficient machining strategy. However, determining the initial path to obtain an efficient tool path is not an easy task. In this paper, the OFD field of the maximal material removal rate (MMRR) is generated on a triangular mesh. It is then transferred into a 2D parametric domain by a conformal mapping. The OFD is used to construct a discrete orientation field (OF). A tracking algorithm is applied to construct the flow curves which represent a skeleton of the OF. Then an iso-scallop tool path is generated with the initial path being the flow curve characterized by the maximum material removal rate. The proposed tool path strategy is tested against conventional iso-parametric and iso-planar methods. The experiments prove the advantages of the proposed tool path algorithm in terms of the total machining time and the tool path length.

DPSK And Manchester Coding For Inter-Satellite Optical Wireless Communication Systems

Jagana Bihari Padhy and Bijayananda Patnaik

With the evolving technology and ever-increasing demand for high speed communication, optical communication systems have provided a major breakthrough and paved the way for high quality, low noise data transfer. Optical communication systems have also developed from lengthy prolonged fibres to strong hybrid wireless systems. These wireless systems, also known as free space optics (FSO) technology, are efficient and powerful and counter many problems present within traditional microwave systems. One of the most important applications of FSO technology is the scope to utilize it in satellite applications. These systems are known as inter-satellite optical wireless communication
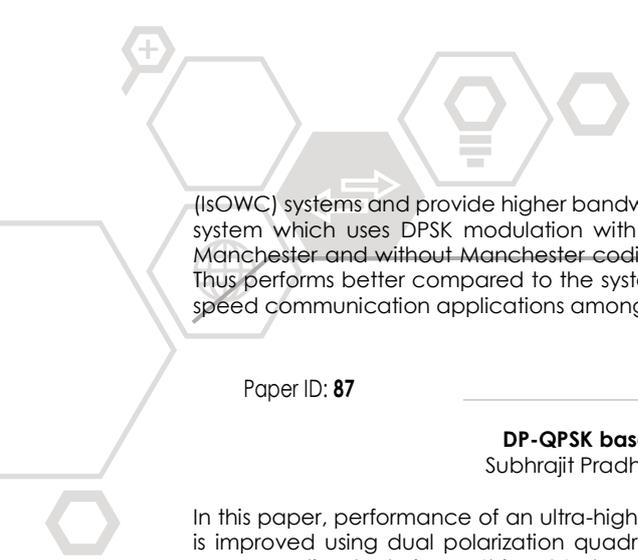
(IsOWC) systems and provide higher bandwidth, low power, compact size etc. In this work, we have proposed an IsOWC system which uses DPSK modulation with Manchester coding. The performance of the system is analyzed for with Manchester and without Manchester coding. Manchester coding provides self synchronization of the transmitted bits. Thus performs better compared to the system without Manchester coding. The system will be very much useful for high speed communication applications among satellites.

Paper ID: **87**

DP-QPSK based 400 Gbps/channel fiber optic DWDM system
Subhrajit Pradhan, Bijayananda Patnaik and Rasmita Panigrahy

In this paper, performance of an ultra-high capacity fiber optic dense wavelength division multiplexing (DWDM) system is improved using dual polarization quadrature phase shift keying (DP-QPSK) modulation and symmetrical dispersion compensation techniques. It is a 16 channel DWDM system. The proposed system is analyzed for different advanced modulation schemes such as modified duo-binary return to zero (MDRZ), quadrature phase shift keying (QPSK), dual polarization QPSK (DP-QPSK) technique and simulated with 400 Gbps/channel data rate. It is expected that the projected ultrahigh capacity system is more technically feasible, because it uses advanced modulation format and best dispersion compensation technique. In the modern communication world, the proposed system will be very much helpful for transmitting high-speed digital data with very high spectral efficiency.

Paper ID: **88**

Hybrid Multiplexing (OTDM/WDM) Technique for Fiber Optic Communication
Subhrajit Pradhan, Bijayananda Patnaik and Rasmita Panigrahy

Today's world needs high data transmission and huge bandwidth systems through optical fiber communication networks. For achieving that, passive optical networks (PON) are much more in practice. In this work, we have presented a hybrid multiplexed system, containing 4 channel optical time domain multiplexing (OTDM) and 2 channel wavelength division multiplexing (WDM) schemes. To utilize the available optical bandwidth for multiplexed system, carrier-suppressed return to zero (CSRZ) modulation technique is used. To mitigate the dispersion effect in fiber, symmetrical dispersion compensation scheme is used in the proposed system. Erbium-doped fiber amplifier (EDFA) is used to compensate the linear loss. The system is simulated for data rate of 40 Gbps. A link distance of 1,150 km is achieved with the proposed system. The main purpose of hybrid multiplexing of OTDM and WDM is to get higher spectral efficiency and cost reduction. Due to the use of hybrid multiplexing, it is possible to design a Gbps system with the help of two optical sources. The performance of the proposed system is analyzed in terms of bit error rate, received power, optical time domain, frequency domain signal and Q-factor. The system will be highly useful for next generation high-speed fiber optic communication applications.

Paper ID: **89**

Stability of Perovskite Solar Cell with Optimized CuSCN as Hole Transport Layer
Nji Raden Poespawati, Junivan Sulistianto, Tomy Abuzairi and Retno Wigajatri Purnamaningsih

Perovskite material has extensively investigated in several years due to its ability as solar cell active layer. However, stability of perovskite solar cell is still a challenge for mass production and commercialization. Transport layer is one of concern to overcome the stability problem. Inorganic material such as CuSCN can be use as p-type transport layer and more robust from degradation compared to organic transport layer. Furthermore, CuSCN has excellent transparency, low-cost and simple fabrication, and high hole mobility. In this research, we use CuSCN as hole transport layer and deposited it using spin coating method. Optimized CuSCN layer was obtained by varied spin coating rotational speed. Afterwards, the completed devices were studied its stability. The result is, performance of optimized solar cell was degraded about 50% from its initial measurement after 14 days.

Paper ID: **90**

Design of VLC With DCT and M-ARY PAM in XILINX System Generator
Korry Azrina, Dessy Indah Savitri and Dwi Astharini

Orthogonal Frequency Division Multiplexing (OFDM) is intensively applied in Visible Light Communication (VLC) systems due to its numerous advantages such as high data rate, provides high bandwidth efficiency and robustness against Intersymbol Interference (ISI). [1] The Xilinx System Generator for DSP is a plug-in to Simulink that enables designers to develop high-performance. This paper will talk about design VLC using 4x4 Discrete Cosine Transform (DCT) and 4 Pulse Amplitude Modulation (PAM) and using 8x8 Discrete Cosine Transform (DCT) and 8 Pulse Amplitude Modulation (PAM) in Xilinx system generator This paper will test the performance with several experiments with indicators of SNR effect on SER, the effect of Eb / E0 on SER and the effect of a large amount of data on SER. Performance simulation results of the SNR effect on SER which shows that, the 4 PAM-DCT system is more resistant to noise compared to 8 PAM-DCT because system 4 PAM-DCT has fulfilled telecommunication standart that is SER under 0.003 when SNR is 12 dB while for system 8 PAM-DCT when SNR is 14 dB. The maximum number of data quantity that can be transmitted in OFDM Visible Light 4 and 8 PAM-DCT systems is under 700000. System 4 PAM-DCT produced PAPR of 5, which means that it is smaller than 8 PAM-DCT, which is 49.

Between Vehicle Quality and Driving Satisfaction: Driving Quality as An Intervening Variable

Djoko Sihono Gabriel, Muhammad Habiburrahman and Rahmat Nurcahyo

Quality improvement of a product becomes an important program, but if the products quality achieved at highest level of criteria, will the customers always satisfy? Previous research and experience proved that statement but need deeper elaboration why not all of users satisfied by genuine quality of products. A case study of multi purposes van (MPV) automobile and its user using Structural Equation Modelling with Partial Least Square (PLS-SEM) and Smart-PLS software supported the proposition of this work. In depth data collecting with questionnaires from 516 car drivers conducted to reveal the role of users related to their post purchase satisfaction. This research concluded that driving quality of MPV drivers intervened the relationship between variables. Lower quality of driving will reduce driving satisfaction whether the quality of MPV was very good. Otherwise, high quality of driving will not only enhance the satisfaction, but also leverage the effect of other variable to driving satisfaction. The intervening variable role will give new approach in developing and maintaining driving satisfaction. A new approach of customer satisfaction improvement proposed and valuable programs of MPV producers with a new paradigm will improve manufacturer competitive advantage.

Recent and Perspective of Fuel Quality Control Method in Indonesia

Muhamad Sahlan, Mila Tejamaya, Heri Hermansyah and Anondho Wijanarko

Study "Determination of Fuel Quality Control Method in Indonesia" is conducted to find out the proper monitoring method to be applied in Indonesia. Nowadays regarding determining test parameters, the number and location of supervision are still random. With the determination of the model of fuel control, the priority of test parameters and cost analysis of the test is expected in the future of fuel quality control can be more effective. This study is limited from the results of fuel quality control held in 2013-2015 for the type of Gasoline 88, Gasoline 92, Gasoline 95, Diesel Oil 48, and Diesel Oil 51. The result of the study shows that the proposed supervisory model in Indonesia is the model of fuel quality control. Then, the implementation is done without the third party and directly in cooperation with the Laboratory Institute (Lemigas). And also, the determination of parameters and the number of samples as well as the location of the retrieval based on the evaluation of the results of supervision fuel quality control of the previous year with the sampling point covering the fuel distribution chain, i.e. refinery, storage and gas station. Proposed priority test parameters: Gasoline 88: (1) Octane Number, (2) Distillation T-50, (3) RVP; Gasoline 91: (1) RVP, (2) Distillation T-90, (3) Octane Number; Gasoline 95: (1) RVP, (2) Final Boiling Point, (3) Octane Number; Solar 48: (1) FAME, (2) Flash Point, (3) Cetane Number; Solar 51: (1) Sulfur Content, (2) Distillation T-90, (3) Cetane Number. The sampling is held in 46 selected cities with the number of samples is 1242 samples and total costs of IDR 2,940,718,000 and save by 42%.

Factors Affecting Secure Software Development Practices Among Developers - An Investigation

Zulfikar Ahmed Maher, Humaiz Shaikh, Mohammad Shadab Khan, Ammar Arbaaeen and Asadullah Shah

An evidently dominant problem in the software development domain is that software security is not consistently addressed from the initial phase of software development which escalates security concerns, results in insecure software development. Several secure software development methodologies were introduced in literature and recommended to the industry but they are usually ignored by the developers and software practitioners. In this research paper, an extensive literature review is performed to find out factors influencing implementation of secure software development practices in industry. Secondly, Based on Unified Theory of Acceptance and Use of Technology model 2 (UTAUT2), this study proposes a model to investigate the factors influencing adoption of secure software development practices among software developers.

Rapid prototype of router casing in SME Malaysia

Salman Ahmed Hashmi, Syed Faiz Ahmed, Nik M. Farid, Jaronie M. Janid, Nik Masmati and Athar Ali

One of the biggest challenges faced by technology based SME companies in Malaysia is to prototype their casing or housing for their customized electronic products such as embedded control systems, power supplies etc. One of the AME company from Malaysia involved in this case study also have faced the similar problem for their upcoming R&D products. Since the emerging of 3D printers technology, rapid prototyping are becoming more superior for their fast, cheap, and reliable compared to conventional or traditional manufacturing technology. The SME company used this as opportunity and used it for their prototype products and have saved time up to 70% and cost by 65% by decreasing the weight of the casing up to 55% using 3D printers.

Prediction-based Resource Allocation Model for Real-time Tasks

Muhammad Shuaib Qureshi, Muhammad Bilal Qureshi, Asadullah Shah, Ali Raza and Noor Ul Qayyum

High Performance Computing (HPC) platform provides computing, storage, communication etc facilities to process real-time applications efficiently having deadlines constraints. Such applications produce less important results if the deadlines

are missed. Most of the real-time algorithms decently schedule application tasks offline, but they usually take long in processing which results in high deadlines miss ratio when such tasks need some data from remote storage locations. In this paper, we propose a prediction-based model which analyze tasks feasibility before scheduling on the HPC resources when tasks have data-intensive constraints. The main advantage of the prediction analysis module is to save time by refraining further analysis on non-schedulable tasks. The model helps in searching suitable resources and improved resource utilization by considering task workload in advance.

Paper ID: **96**

Acceptance and Use of Information and Communication Technology in Higher Education Institutes of Kuwait: A Proposed Framework

Adel Aldaihani and Prof.Dr. Asadullah Shah

Information Technology has been effective in every field around the world, and ICT acceptance in any field has produced new developments which has significantly contributed in that particular context. Driven by this impulse the Higher Education Institutes (HEI) around the world are incorporating ICT apparatuses and using the most recent advances so as to give quality education to their citizens. In such manner Ministry of Education (MOE) Kuwait has propelled numerous plans and put some considerable measures in the execution of innovation in HEIs. HEIs for the most part comprises of Universities. While there is no comprehensive study conducted in measuring the success and obstacles in the State of Kuwait, therefore, this paper focuses to measure and identify the success factors in acceptance of HEIs in the State of Kuwait. In the interim keeping in mind the end goal to evaluate the acceptance and usage of ICT by students and academicians in their day by day work, the Unified Theory of Acceptance and Use of Technology (UTAUT) will be used as baseline theory to measure the ICT acceptance by students and academicians. This investigation likewise intends to discover the variables and issues keeping in mind the end goal to make a model for better usage of ICT by in HEIs. The effect of this investigation will be on HEI (s) to enhance the policy of learning methods through successful use of ICT and enhance the ability of students and academicians to be more viable and quality-situated people.

Paper ID: **97**

Long Term Evolution (LTE) Network Design Frequency Division Duplex (FDD) of 1800 MHz Based on Subscriber Growth Forecasting in 2025 at Denpasar, Indonesia

Suci Rahmatia, Azmi Azizah Azzahra, Muhammad Ismail, Octarina Nur Samijayani and Dwi Astharini

The Long Term Evolution (LTE) network is a technology developed by the 3rd Generation Partnership Project (3GPP) release 8. The capabilities that support downlink speeds of up to 100 Mbps and uplinks of up to 50 Mbps. There needs to be optimal planning before implementing LTE network technology due to the limitations of network development owned by the operator. Planning carried out includes coverage planning by choosing the appropriate are method, frequency and bandwidth. In LTE network technology, there are 2 divison duplex methods, Frequency Division Duplex (FDD) and Time Division Duplex (TDD). Frequency allocations commonly used in Indonesia are 900 MHz, 1800 MHz, 2100 MHz and 2300 MHz. This final project is planning 1800 MHz frequency FDD LTE network with 20 MHz bandwidth in Denpasar City with forecasting the number of LTE subscribes in 2025. Planning simulation is using Atoll radio network planning software. The planning used the coverage planning method. The output generated from this plan is the number of sites needed to consider the Maximum Allowed Path Loss (MAPL). Some input parameters include population data, LTE user penetration, population trend in 2025, link budget calculation, and mapping required containing clutter class, earth contour, and population density to determine urban, suburban and rural areas. The results obtained from the planning of the coverage by calculating the link budget to get the required number of eNodeBs is 129 sites. Besides, using PCI results provide to can increase the average value Carrier to Interference Noise is 0.08 dB, increase the average value of throughput is 412,59 kbps, and decrease the BLER is 0,6 km².

Paper ID: **98**

A Conceptual framework for Measuring Acceptance of Contactless Payment Methods

Ali Raza, Humaiz Shaikh, Muhammad Shuaib Qureshi, Noor Ul Qayyum and Asadullah Shah

Contactless payment or 'Near Field Communication has become extremely popular worldwide and does not seem to be slowing down. Pakistan has taken action in implementing this technology across the various banking, stake holding and merchant based sectors, which will be provided to their relevant consumers. Developing countries have been frontrunners in the research and implementation of NFC technology. Pakistan has recognized the vitality of this system and is making strides in their own right. Significant factors as to the delayed approval and acceptance of this mobile system will be explored in this study. UTAUT2 (unified theory of acceptance and use of technology), a widely accepted model used in technology, forms the basis of the 'integrated framework' research proposal. Significant factors will be determined through the use of this framework. The conceptual model which has been proposed, can be further defined by 15 factors which includes; Performance expectancy, Effort expectancy, Social influence, Facilitating expectancy, Hedonic motivation, Habit, Behavioral intention, Trust, Privacy, Cost, Security, Self efficiency, Compatibility, Complexity and. A 'mix mode' survey which comprises of quantitative and qualitative methodologies in the form of online surveys will be acquired from the mobile users. AMOS and SPSS software will be used to conduct the analysis. As a beneficial factor, which has been identified in the previous research, the acceptance of this technology by individuals in the bank sectors holds relevant importance. The country and its population will both benefit from the NFC technology.
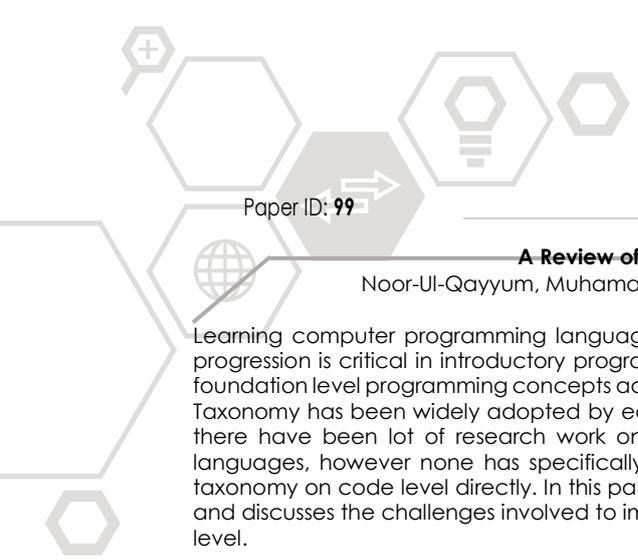
A Review of Programming Code Assessment Approaches

Noor-Ul-Qayyum, Muhamad Seman, Asadullah Shah, Muhammad Qureshi and Ali Raza

Learning computer programming language in harmony with practical coding activity while ensuring proper content progression is critical in introductory programming courses. Novice programmers usually face difficulty in acquiring the foundation level programming concepts adequately that usually lead to disappointment and ultimately back off. Bloom's Taxonomy has been widely adopted by educators as a standard for assessing learning progression of students. In past there have been lot of research work on adopting Bloom's taxonomy and its variants for computer programming languages, however none has specifically looked at an automatic mechanism to evaluate the six levels of Bloom's taxonomy on code level directly. In this paper we reviewed different approaches for assessment of programming code and discusses the challenges involved to implement the Bloom's taxonomy in programming languages directly on code level.

Implementation of Visible Light Communication using PAM on Xilinx Artix 7 35T FPGA

Dessy Indah Savitri, Dwi Astharini, Octarina Nur Samijayani, Korry Azrina and Rahmayati Alindra

In this paper, m-ary PAM is implemented on Arty board of Artix 7 35T, with the objection of creating a VLC system. PAM is used to fulfil VLC requirement of real-positive signal processing without imaginary parts. The signal proceesing as created at first in Simulink and synchronized with System Generator. The system design created was then generated to FPGA using Vivado Design Suite. Variations for comparisons are of PAM i.e. 4, 8 and 16. And also for system with and without DC bias component. Observations are made upon the FPGA performance in running the design, i.e. resource usage, power and time constraint. From the project result, the system design of 4 PAM without DC biased used least resources, power and time constraint, while the most is needed for 16 PAM with DC bias.

Wavelength Shift in Single MZI as a Function of Arm Length Differences

Rifqi Muhammad Imaduddin, Dwi Astharini and Octarina Nursamijayani

This paper describe the experiment of single Mach Zehnder interferometer for filter application. The filter is formed by single mode fiber structure and 3 dB optical couplers. Mach Zehnder interferometer is basically used to measure relative phase shift between two collimated beams from a coherent light source caused by different length arm. Using this basic principle, the arm length differences are manipulated by cutting one of arms to analyze wavelength shift at the output. The experiment result shows the relationship tends to look logarithmic. It has some direct function for practical fabrication of the filter.

Strategy Prioritization and Development for Batik Industry

Rahmat Nurcahyo, Fadila Paramitha, Djoko Sihono Gabriel and Ramdha Dien

Batik is an ancient method of decorating textile from Indonesia which had been recognized by UNESCO as one of the world heritage. This research discusses the strategy development of batik industry based on three different types of batik industry alternatives which are hand-writing batik (batik "tulis"), stamped batik (batik "cap"), and printing batik (batik "cetak"). Analytical Hierarchy Process (AHP) is used to make prioritization of the three batik industry types. Interpretive Structural Modeling (ISM) is used for strategy development. The strategy development for batik industry is based on three sequential stage: the initial stage, the core stage, and the final stage. In the initial stage, the activities are the human resource development and technology development. At the core stage, the activities are the expansion of batik marketing area, the development of information media, and setting up batik associations or batik village. In the final stage is creating online sales movement, increase the development of raw materials and batik processed, and business assistance from the government.

Effectiveness of Quality Control Circle On Construction Company Performance In Indonesia

Rahmat Nurcahyo, Ofila Irhamna, Muhammad Dachyar and Ramdha Dien

Quality is a key element that can not be ignored in the competition and is one of the critical issues for the success of the company, including in the construction industry. On the other hand, if the quality management policy is not implemented or limited participation will both negatively affect the management of the project and competitiveness of the firms. This will also decrease the survival potential of construction firms within the industry. Achievement of performance can be better if the implementation of integrated quality management is supported by the company. Quality Control Circle (QCC) has been found to be a simple and productive technique of Total Quality Management (TQM) and is proposed to be applicable in construction companies. This study aims to determine the effect of quality control group objectives on the performance of construction companies in Indonesia. Regression was used to analyze the effect of the relationship
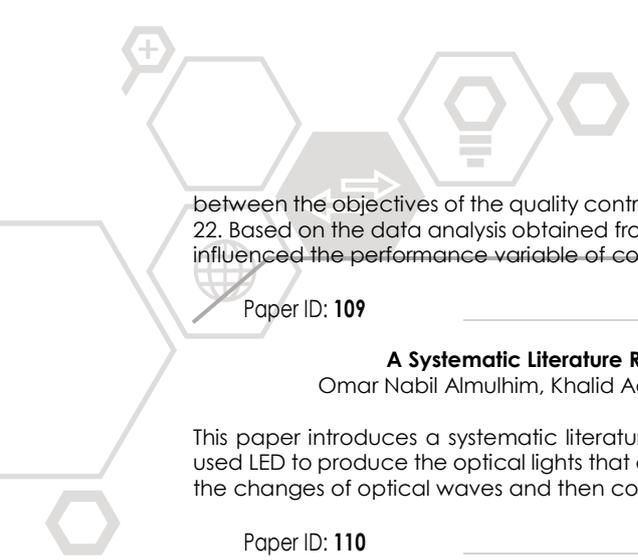
between the objectives of the quality control group on the performance of the construction company with software SPSS 22. Based on the data analysis obtained from the survey, it was concluded that the objective of the quality control circle influenced the performance variable of construction companies in Indonesia by 61%.

Paper ID: **109**

A Systematic Literature Review of Optical Sensors and Applications for Light Fidelity

Omar Nabil Almulhim, Khalid Adel Alnaeem, Hammam Rahsed Arbea and M M Hafizur Rahman

This paper introduces a systematic literature review of optical sensors and applications based on LIFI technology that used LED to produce the optical lights that carry data and then there is a detector which is a receiver device that detect the changes of optical waves and then convert the optical light waves into electronics.

Paper ID: **110**

Strategy and procedures for Migration to the Cloud Computing

Naim Ahmad, Najmul Hoda and Noorulhasan Naveed Quadri

The cost of enterprise IT is growing due to nonlinear expansion of IT resource's requirements. Cloud computing, a new paradigm of flexible and cost-effective computing, is being explored as the possible solution to make enterprise IT sustainable. Cloud computing also offers new cutting edge cloud native-platform to develop application composed of microservices. This paper investigates the strategies and procedures for migration to the cloud computing environment. Literature has been reviewed to illustrate upon the current state of the art strategies and procedures for cloud computing migration including tools provided by cloud service providers and application vendors. The tasks of cloud migration and procedures have been grouped into five phases and five generic strategies for migration have been identified. Future research directions have also been proposed in this area. The findings will help to stimulate the research in this direction and help cloud adopting organizations to analyze various issues and options for making informed decision for the cloud migration.

Paper ID: **111**

Convolution Neural Network for Pose Estimation of Noisy Three-Dimensional Face Images

Bharindra Kamanditya, Randy Pangestu Kuswana, Muhammad Adi Nugroho and Benyamin Kusumoputro

From limited two-dimensional recognition, facial recognition has now been developed to be able to recognize three-dimensional face images, which usually involves process of face pose estimation. As the conventional artificial neural networks has shown low recognition rate to this problem, Convolution Neural Network have been the most potential classifier to determine the pose estimation of a three-dimensional face images. Convolution operation is expected to minimize the effect of distortion and disorientation of the object, and able to efficiently reduce the required parameters. Results show that the CNN system could estimate the pose position of the 3D face images with high recognition rate, however, this recognition rate decline significantly for the noisy buried face images, showing the CNN still need improvement to deal with noisy environments.

Paper ID: **112**

Enhancement of E-Learning performance through OSN

Noorulhasan Naveed Quadri, Najmul Hoda and Naim Ahmad

Electronic Learning (E-Learning) has become a new well recognized approach in the field of education. It provides great flexibility of time and space in teaching and learning process. E-Learning provides opportunity to educate in a very cost-effective fashion and to the society that doesn't have access to traditional education system. On the other hand, Online Social Media Networks have bridged the digital divide and made the lower strata of the society tech-savvy. In this paper Factors of Online Social Media Networks (OSN) that enhance the E-Learning performance have been identified through systematic literature review using framework of Denyer and Tranfield (2009) [1]. The results of this research will be helpful for policymakers and practitioners of E-Learning in implementing Online Social Media Networks (OSN) in E-Learning successfully.

Paper ID: **113**

Evaluating Student Satisfaction with Interactive Television Classes in Saudi Universities

Najmul Hoda, Naim Ahmad and Noorulhasan Naveed Quadri

Student satisfaction with the courses taught in various programs is one of the main factors affecting student achievement and overall success of educational programs. Technology has added significant improvement to the quality of delivery, resulting in a performance equivalent to traditional face-to-face delivery modes. This paper is intended to evaluate the satisfaction of female students taught by means of interactive television (ITV) in Saudi Arabia and determining the factors that may predict the satisfaction in this medium. A sample of 108 undergraduate students pursuing various undergraduate programs were studied to measure their satisfaction on four facets of satisfaction in distance learning (course management; instructor; technology; and overall). The paper will be of significance to the various universities where students are being taught using ITV in understanding the aspects of delivery that need to be improved. The results of the study will also contribute to the extant empirical research on distance education.
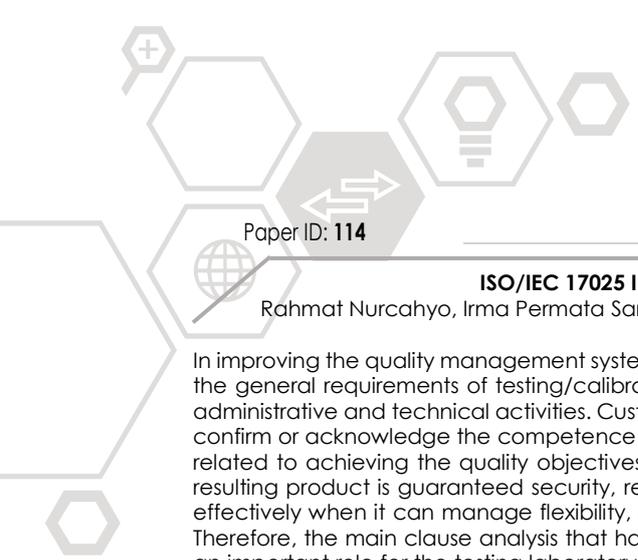
ISO/IEC 17025 Implementation at Testing Laboratory in Indonesia

Rahmat Nurcahyo, Irma Permata Sari, Djoko Sihono Gabriel, Elfianus Ivan and Muhammad Habiburrahman

In improving the quality management system, the testing laboratory uses the ISO/IEC 17025 standard as a benchmark for the general requirements of testing/calibration competence, including sampling. This standard is also used for quality, administrative and technical activities. Customer laboratories, regulators and accreditation bodies may also use them to confirm or acknowledge the competence of the laboratory. The application of standards in laboratory testing is closely related to achieving the quality objectives contained in the laboratory. By using the standard ISO/IEC 17025 then the resulting product is guaranteed security, reliable and certainly has a quality. The testing laboratory can be said to run effectively when it can manage flexibility, customer, production, value-oriented, and the primary job of its employees. Therefore, the main clause analysis that has an influence on the achievement of the objectives in the laboratory takes an important role for the testing laboratory. Analytical Hierarchy Process (AHP) is a tool for assessing any clauses related to the implementation of ISO consisting of several competent assessors.

Intrusion Detection in secure network for Cybersecurity systems using Machine Learning and Data Mining

Hassan Azwar, Murtaz Naqvi, Baqir Ali and Saad Rehman

The regard of using Internet contains some risks of network attacks. With each new assault seeming persistently, versatile security situated methodologies is a severe challenge. In this context, to distinguish or counteract arrange assaults, a network intrusion detection (NID) system may be equipped with machine learning algorithms to achieve better accuracy and faster detection speed. Anomaly-based network intrusion detection techniques are a significant innovation to ensure target frameworks and systems against malicious exercises, security gadgets consolidating fetish discovery functionalities are simply launching to show up, and a few essential issues stay to be understood. Intrusion detection systems usually been based on the organization of an attack and the tracking of the activity on the system to see if it matches that illustration. In this paper, a comprehensive analysis and study of various machine learning techniques have been carried out for finding the cause of problems accompanying with various machine learning techniques in detecting intrusive activities. Machine learning methods have been destitute and looked at as far as their recognition ability for detecting the different taxonomy of assaults. Recently, new intrusion detection systems based on data mining are making their appearance in the field. The main function of Intrusion Detection System is to protect the resources from threats. It analyzes and predicts the behaviors of users. Various data mining tools for machine learning have also been included in the paper. At the end, future guidelines are provided for attack exposure using machine learning technique then these will be considered an attack or a normal behavior. Experimental results show our proposed approach is operative in building models with good attack detection rates and fast learning speed. Limitations associated with each category are also discussed.

Evaluation of Mill Quality by Analysis of the Ventilation Behavior of Silo Blower

Ponthep Vengsungnle, Jarinee Jongpluempiti, Nattadon Pannucharoenwong, Snunkhaem Echaroj, Chatchai Benjapiyaporn, Julaporn Benjapiyaporn and Wanchai Suthapan

This research regards the study of ventilated air behavior in a rice paddy silo towards power consumption reduction. As rice paddy is an organic matter, it will generate humidity that will require ventilation to prevent from being spoiled. A rice paddy silo is experimented on the rice ventilation scheme as the former scheme is to blow intermitted on a 3 days interval for 24 hours through the on and off peak period. The studied scheme will operate only on off peak period once every seven days. The results showed that the former scheme consumed 1,565 kWh and reduced to 764 kWh which is worth 35,700 and 6,936 Baht respectively. Other than reducing power consumption, the rice paddy's quality still meets the government standard and remains constant when compared to the former scheme.

Study Wear of the Agricultural Engine By Using Yang-Na Oil

Somporn Katekaew, Kritsadang Senawong, Nattadon Pannucharoenwong and Snunkhaem Echaroj

Yang-Na is ranked 9th in the Plant Genetic Conservation Project Under the Royal Initiation of Her Royal Highness Princess Maha Chakri Sirindhorn (RSPG) in Her Royal Highness Princess Maha Chakri Sirindhorn. This research was aimed at evaluating the durability of two four-stroke one-piston agricultural diesel engines by comparison between the engine using refined yang-na oil mixed with diesel (B40) and the engine using diesel in terms of engine components. The agricultural engines were tested by measuring their performance in pumping water continuously for 300 hours at 1,400 rpm. Monitoring wear in this research was performed measurements of 14 pieces in combustion chamber. The results show the agricultural engine using B40, the wear compositions are not much happening, such as cylinder, piston, piston-ring 1 and 2, intake-exhaust valves etc. The wear that occurs in the test was found not wear more than the standard engine for the wear. Only the piston rings, engine oil B40 that is worn close to the standard as possible.

Analysis of Overall Heat-transfer Coefficient for Vapor Recovery Unit through Computational Fluid Dynamic

Nattadon Pannucharoenwong, Snunkhaem Echaroj and Ponthep Vengsungnle

Emission of volatile organic compounds (VOCs) in petrochemical processes have a devastating effect on the safety and the well-being of occupant in the working environment. The objective of this research is to evaluate the heat transfer properties of different model of the heat exchangers used as Vapor Recovery Unit (VRU). The main role of a VRU is to capture undesirable VOC emitted from oil terminals. Computational Fluid Dynamic (CFD) was utilized to calculate the outlet and inlet temperature of heat exchanger by analysis performed on commercial software (ANSYS-FLUENT 14.5). U-tube heat exchanger (UT-HX) was found to have better heat transfer capability compared with Fix-tube heat exchanger. The overall heat transfer coefficient of U-tube and Fixed-tube heat exchanger (FT-HX) was 333.8 W/m2.K & 130.6 W/m2.K.

Offline-printed Sindhi Optical Text Recognition: Survey

Yasir Ali Solangi, Zulfiqar Ali Solangi, Ali Raza, Noor Ahmed Shaikh, Ghulam Ali Mallah and Asadullah Shah

Optical Character Recognition (OCR) applications are becoming more intensive than before and show great perspective for rapid data entry, but has limited success when applied to the Sindhi language. This paper summarizes the general topic of optical character recognition and highlights the characteristics of the Sindhi script. It also presents a historical review of the Sindhi text recognition systems. More this paper underlines the capabilities of different OCR systems, and then introduce a five-stage model for off-line printed Sindhi text recognition systems and classify research work according to this model.

Review on Natural Language Processing (NLP) And Its Toolkits for Opinion Mining and Sentiment Analysis

Yasir Ali Solangi, Zulfiqar Ali Solangi, Samreen Aarain, Amna Abro and Ghulam Ali Mallah

As the majority of online networking on the Internet, opinion mining has turned into a fundamental way to deal with investigating such huge numbers of information. Different applications show up in an extensive variety of modern areas. In the interim, opinions have various pronunciations which bring along investigate challenges. The research challenges make opinion mining a dynamic research region recently. In this paper, Natural Language Processing (NLP) techniques for opinion mining and sentiment analysis are reviewed. Initially, NLP is reviewed then briefed about its common and useful preprocessing steps also. In this paper, opinion mining for various levels is analyzed and reviewed. In the end, issues are identified and some recommendation is suggested for opinion mining and-sentiment-analysis.

Reserve Margin Space for Broadcast Storm Mitigation in VANETs

Etienne Alain Feukeu and L. W. Snyman

In view to reduce accident risks on public roads, Wireless Access in a Vehicular Environment (WAVE) standard was developed to enable Inter-Vehicular Communication (IVC). Under WAVE, all involved node or mobile must exchange and share important information related to the road state in order to avoid accidents. In view to avoid the channel congestion of the limited bandwidth, the Distributed Congestion Control (DCC) algorithm was proposed by the standard. However, under a congested environment, broadcast storm naturally occurs and the proposed DCC becomes inefficient and in contrast, greatly contributes to the channel deterioration. This work presents the Improved Dynamic Broadcast Storm Mitigation Algorithm (IDBSMA) approach which could be used to cater for broadcast storm mitigation in VANETs. The embedded Reserve Margin Space (RMS) feature of the IDBSMA is also explored. The performance of the proposed approach is evaluated against the Dynamic Broadcast Storm Mitigation Algorithm (DBSMA). Result from simulations confirmed that not only can the IDBSMA cater for both CAMs/BSMs and DENMS message type at the same time, it also offers an outstanding performance over the DBSMA with more than 80% improved efficiency.

High ethanol production from oil palm empty fruit bunch pretreated by hot-compressed water technique

Natchanok Pangsang, Anusith Thanapimmetha, Penjit Srinophakun and Chularat Sakdaronnarong

In the present work, oil palm empty fruit bunch (EFB) was subjected to hot-compressed water (HCW) pretreatment in order to breakdown the structure and eliminate hemicellulose and partial lignin from the material. The aim of this work was to study the ethanol production from pretreated EFB using two different processes; Separate hydrolysis and fermentation (SHF) and Simultaneous saccharification and fermentation (SSF) by Saccharomyces cerevisiae TISTR 5606. Pretreatment process of EFB using hot-compressed water (HCW) treatment was conducted at the temperature of 200ºC at 30 bars for 15 min. Effect of different temperatures (30 and 35°C) and enzyme loadings (100 and 300 FPU/g dry pretreated EFB) on hydrolysis yield and ethanol fermentation were investigated herein. High ethanol concentration (53-55 g/L ethanol) was produced from 100 g/L dry pretreated EFB corresponding to 100% theoretical of cellulose content in pretreatetd EFB.

Inductively coupled plasma dry etch combined with wet treatment for the improvement of surface roughness of single crystalline β-Ga2O3

Hoon-Ki Lee, Chel-Jong Choi and Kyu-Hwan Shim

The inductively coupled plasma (ICP) process combined with wet chemical treatment using sulfuric acid-hydrogen peroxide mixture (SPM) or tetramethyl ammonium hydroxide (TMAH) solution was employed to achieve the high-density dry etching of undoped or Sn-doped single crystalline β-Ga2O3. The ICP dry etching was performed using gas mixtures of Cl2 and BCl3 (Cl2/BCl3 =40/30 sccm) with a bias power of 400 W and an inductive power of 700 W. The ICP process led to an increase in the values of root mean square (RMS) roughness for both undoped and Sn-doped single crystalline β-Ga2O3 wafers due to the formation of post-etch polymer residue associated with by-product during plasma etching process. The additional SPM treatment was effective in the removal of ICP etch residue for both samples, resulting in the decrease in their RMS roughness. The values of RMS roughness of undoped and Sn-doped samples were measured to be 4.5 and 3.6 nm, respectively. However, these values were higher than those measured from as-received samples. Namely, the removal of the plasma-induced physical damage by SPM treatment was insignificant. A further improvement of dry-etched surface uniformity was achieved using post-TMHA treatment. For instance, when comparing to as-received undoped and Sn-doped samples, the RMS roughness of both samples with ICP process coupled with TMAH treatment decreased, of which values were 2.8 and 0.9 nm, respectively. This implies that TMAH treatment dissolved the damaged layer caused by ICP process and simultaneously removed ICP-induced polymer residue. Namely, post-TMAH treatment was essential to minimize surface roughening, which frequently occurs during ICP process.

Designing the Installation of Solar Panel Plant in Sunda Strait Bridge Mega Project

Farizal and Janice Angelina

Sunda Strait Bridge (SSB) is a bridge connecting Java Island and Sumatra Island. The project to build the bridge that initiated almost a decade ago is currently stuck due to the lack of money and investors' interest. Geographically, the location of SSB like any other places in Indonesia has potency of utilizing of solar energy. This study aims to design the utilization of solar panel in the construction of SSB. The panel will be installed along the 29 km of the span of the bridge. This study is also integrated with previous study that designed ocean energy plant and tourism area in SSB project. The result shows that it is feasible to install solar power plant in SSB. However, the integration of all functions into the SSB still produces negative net present value. Through sensitivity analysis, it shows that the project will be feasible in some condition.

Jakarta Fire Safety System Management Practices for High-Rise Building

Tri Kusuma Wardani, Rahmat Nurcahyo and M. Dachyar

High-rise building residents risk becoming the victims of fire. The risks for the residents associated with the fire are property damage and loss of life. Even though high-rise buildings are provided with the most sophisticated fire safety features, assurance of safety for building occupants can be questionable and doubtful in certain cases. The objectives of this study are to identify the aspects of fire safety management that influence fire safety of high-rise building users; to establish the most critical of these aspects; and to identify methods to improve fire safety of high-rise building users. The results show whether high-rise buildings in Indonesian capital of Jakarta have followed important factors in accordance with the city's new regional regulations on Fire Safety Management.

Geothermal Power Plant Area Layout Optimization Considering Toxic Gas Dispersion

Farizal, Ariva, M Dachyar and A Rahman

Geothermal is believed a cleaner and more environmentally friendly energy source than fossil fuel. Indonesia whose has the largest geothermal potency in the world just be able to utilize around 5% of its potency. This research is about geothermal power plant area layout optimization considering one of process safety aspect, i.e. toxic gas dispersion particularly H2S gas spreading. Results of this study hopefully can be used to promote geothermal energy utilization further especially at Indonesia. For the purpose, the optimization problem was formulated as a mixed integer non linear programming and solved with excel solver using GRG non linear algorithm. The objective function of the model is to minimize total plant layout cost yet still taking into consideration toxic gas dispersion. In this case, H2S gas dispersion was computed through computational fluid dynamic simulation. To show the applicability of the model, layout of two research geothermal power plants, with and without following process safety standard spacing requirements, have been optimized. The results show that these proposed models are capable to reduce total plant layout cost of existing layouts up to 36%.
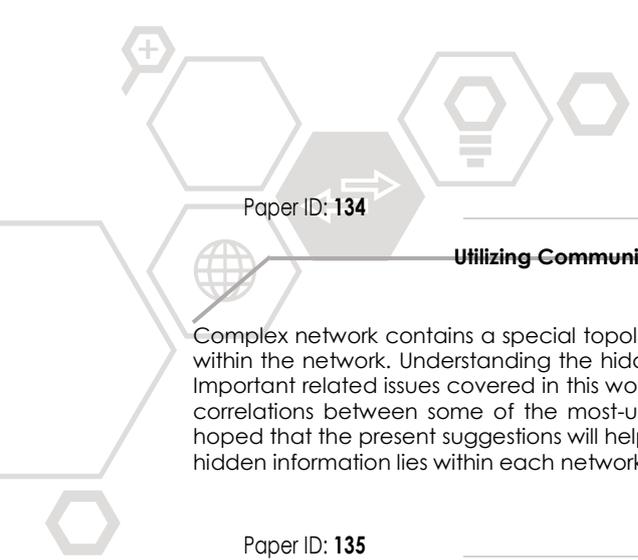
Utilizing Community Detection Approach for Sustainability Application

Suriana Ismail

Complex network contains a special topological features highlighting the existing interaction and connectivity that lies within the network. Understanding the hidden features requires an interpretation of network measurement associated. Important related issues covered in this work comprise the representation of the evolution of complex networks in terms correlations between some of the most-used measurements, and its relevant community detection application. It is hoped that the present suggestions will help the proper application and interpretation of measurements to optimize the hidden information lies within each network.

Study of vanillin formation under oxygen delignification process

Napat Viseshsin, Pimwalun Sukhitkul, Rangsalid Panyadee, Chularat Sakdaronnarong and Pattaraporn Posoknistakul

The production of vanillin during an alkaline oxygen delignification process was evaluated in this study. The degradation of lignin does not directly occur by oxygen but by the active oxygen species (AOS) generated in the system. These AOS occur by the attack of oxygen on the lignin phenolic side-chain leads to the cleavage of the lignin bond. This degradation of lignin results the formation of vanillin under alkaline oxygen treatment. The results from this study shown that oxygen pressure and system alkalinity both have an effect on the production of vanillin in the degradation of alkaline lignin. It can be explained by the difference amount of AOS generated in the system under various reaction conditions. Therefore, in this research, the production of vanillin from lignin extracted from EFB also observed. The result shown that the vanillin is not the main reaction products in the system and the amount of vanillin was much less than the system using alkaline lignin.

A Framework for Android Malware Detection and Classification

Hassan Azwar, Murtaz Naqvi, Saad Rehman and Mehwish Siddique

Currently the android platform is that the quickest growing hand-held OS package. As such, it's become the foremost desirable and viable target of malicious applications. Android malware growth has been increasing dramatically in conjunction with increasing the variety and guiltiness of their developing techniques. Mobile malware is therefore pernicious and, on the increase, consequently having a quick and reliable detection system is important for the users. Subtle Android malware use detection shunning techniques so as to cover their malicious activities from analysis tools. During this analysis, a brand-new detection and characterization system for investigation significant deviations within the network behaviour of a smart-phone application is planned. The most goal of the planned system is to guard mobile device users and cellular infrastructure corporations from malicious applications simply nine traffic feature measurements. The planned system isn't solely ready to observe the malicious or masquerading apps, however may also determine them as general malware or specific malware (i.e. adware) on a mobile device. The planned methodology showed the common accuracy 94% for 5 classifiers namely; Random Forest (RF), K-Nearest Neighbour (KNN), decision Tree (DT), Random Tree (RT) and Regression (R) etc. We have a tendency to conjointly provide} a tagged dataset of mobile malware traffic with a lot of applications includes benign and twelve completely different families of each adware and general malware. Recent substantial analysis centred on machine learning algorithms that analyse options from malicious application and use those options to classify and discover unknown malicious applications. This study summarizes the evolution of malware detection techniques supported machine learning algorithms centred on the Android OS.

Information Communication Technology Applications used to Enhance Knowledge Management in the University Libraries of Pakistan

Sadia Arshad, Hafiz Abdur Rehman, Liaquat Ali Rahoo, Muhammad Ali Khan Nagar

Information and knowledge has gained superiority in the present age where people believe that information is the most powerful weapon that leads a nation to progress. Knowledge is considered as the most important asset that leads a nation to progress and development. The Universities impart knowledge and the University Libraries, the place where knowledge accumulates, support the curriculum. Hence knowledge management gains importance. ICT is the major tool that helps the library professionals to provide better service to the users. The paper examines whether ICT enhances KM in University Libraries and also its effectiveness to the users. It is part of the study conducted to analyze the 'application of KM in University Libraries in Pakistan'.

Food Prediction based IOS Application Using Convolution Neural Networks

Owais Qayum and Melİke Şah DİrekoĞlu

Machine Learning is a popular research area in software industry alongside with big data, micro services, virtual reality, and augmented reality. With the recent developments in improving computing capacity, deep learning approaches such as Convolutional Neural Networks (CNN) has become the trendiest topic in machine learning for image recognition. In this paper, we have developed an IOS application for food image recognition using modified CNN models. In particular, we developed an IOS mobile application by converting the models to CoreML and then using them within the IOS application for food image recognition. After fine-tuning a pre-trained Google InceptionV3 model, we were able to achieve 82.03% Top-1 accuracy on the test set using a single crop per item. Using 10 crops per example and taking the most frequent predicted class(es), we were able to achieve 86.97% Top-1 Accuracy and 97.42% Top-5 Accuracy.

Emission Computed Tomography Test Phantoms: A Review

Inayatullah Shah Sayed, Raheela Bibi Sayed and Muhammad Shahrir Abdul Rahim

It is vital to assess the performance of emission computed tomography (ECT) systems prior to their use for clinical examinations. Generally, performance tests of ECT systems are time-consuming, expensive and require more than one phantom to scan and then analyse the data. There is non-availability of such type of phantoms that can provide all necessary data for performance of some quality control (QC) tests from a single scan data. In this paper, commercially available emission computed tomography (ECT) phantoms are thoroughly reviewed. Thus, designing and construction of a time-saving and cost-effective new compact ECT phantom has been suggested.

Energy Saving from Heat Recovery in Paddy Drying Process

Dr.Ponthep Vengsungnle, Jarinee Jongpluempiti, Dr. Nattadon Pannucharoenwong, Snunkhaem Echaroj, Mana Wichangarm, Chatchai Benjapiyaporn, Julaporn Benjapiyaporn and Wanchai Suthapan

Moisture removal station is an important process to perverse the quality of paddy rice. This process is usually energy intensive and cost a lot of money which significantly reduced the margin profit. This research is regarding the reuse of hot air from rice paddy drying process using the installation of a heat exchanger at the air outlet duct. The installed heat exchanger will increase the inlet air temperature from 303 K to 310.5 K by using the released air. The results were reduction in energy consumption by 1,837,080 MJ per year that is worth 145,800 Baht per year. The net present value is worth 237,260.87 Baht and the Internal Rate of Return (IRR) payback ratio is 17.32 %. The expected payback period is 6 year. Therefore, the application is practical and cost effective for agricultural usage. This research provided an incentive for rice mill entrepreneur to upgrade the drying unit.

Implementation of Automated Testing Scenarios in LTE Environment for Network Optimization

Javid Iqbal, Noor Jehan, Tarek Elhasiaa and Axel Hunger

The enormous increase of mobile users and the expectation of customers to stay connected with Internet all time not only for entertainment but also for professional purposes, has motivated rapid growth in wireless networks. LTE is the current wireless trend, that promises high data rates and improved Quality of Service. The networks intend to provide excellent QoS to their customers to retain them in their network. To ensure QoS, effective testing strategies have to be designed. This work proposes to develop simple effective, scalable test plans for voice and data services. Automated testing scenarios are sought as manual testing is a cumbersome process. The proposed testing scenarios are automated using NQVIEW tool. Key Performance Indicators are utilized to evaluate the network performance during testing. Three case studies namely Vodafone, KPN and T-Mobile are considered for investigation. The results show that the performance of networks can be clearly realized from the outcome of testing process. The analysis, when presented to network analysis team, enables them to work on issues and provide an improved QoS and efficient network platform.

Blockchain Beyond Bitcoin: Block Maturity Level Consensus Protocol

Muniba Memon, Umair Ahmed, Asad Ikhlas and Yusra Memon

This paper enlightens the stipulation of blockchain beyond the bitcoin and identifies the key challenges in the implementation of blockchain on a small scale or newly implemented projects based on the literature review furthermore it also introduces Block maturity level (BML) as a Consensus protocol, which eliminates the 51% attack, the hardfork problem and small-scale problem by introducing sub blocks as a defense mechanism against attackers. This technique can be used in the implementation of blockchain where the hash power and difficulty is lower and easy to match-up. This proposed consensus protocol would immensely secure the implementation of the blockchain on different projects.

Geant4 Step towards the Durability and Smooth Response of Silicon Based Neutron Dosimeter, and Protection from Thermal Neutrons

Athar Ali Shah, Syed Faiz Ahmed, Aamna Baloach, Akrajas Ali Umar and Muhammad Mujtaba Ali

Responses and durability of energy independent neutron dosimeters based on proton detector microchips covered with segmented multi-thickness polythene (PE) layers are badly affected by the slow neutrons produced in the process. Here, we report the shielding of slow neutrons by using 0.9 cm thick cadmium layer, which is transparent to fast neutrons. This is achieved by using 15 MeV beam of 107 number of neutrons incident on poly methyl methacrylate-aluminum-cadmium (PMMA-Al-Cd) multiple layers by means of a Monte Carlo method. The results can be used in real time dosimeters for measuring the tissue equivalent neutron doses, and for optimizing the shielding of thermal neutrons in the vicinity of proton therapy centers.

An Overview of Social Engineering in the Context of Information Security

S. A. D. T. P. Kaushalya, R. M. R. S. B. Randeniya and A. D. S. Liyanage

Social engineering in the context of information security is the exploitation of human psychology to gain access into secure data. Human emotion can act as both a strength and a weakness. When it comes to the world booming with technology, human emotions which are completely unrelated to the matter is made to relate through social engineering. Social engineering employs 'traps' to pry on human emotion and its vulnerability, taking advantage of the flaws of human psychology. Information security breaches utilising social engineering techniques are vast, so that social engineering in this context is a topic which could not be neglected. This research paper presents an overview of social engineering attacks and suggested defense mechanisms. An introduction of social engineering attack is given, with context to the current trends and related vulnerabilities. Main reasons for the spread of social engineering attacks in the current context are also presented. Attack frameworks are presented and defense approaches are proposed at the end.

Components to Design Serious Games for Children with Autism Spectrum Disorder (ASD) to Learn Vocabulary

Kamran Khowaja, Siti Salwah Salim and Dena Al-Thani

The research on the use of serious games to provide learning of skills to children with autism spectrum disorder (ASD) has increased in recent years. The use of serious games to provide vocabulary learning to children with ASD is still in infancy stage. Serious games are designed using a framework as a basis to use components in the game. However, there is no existing serious game design framework that can consider the needs of children with ASD.
Objective: The objective of this study is to review components that could be useful in the design of serious game for children with ASD to learn vocabulary.
Methods: The review of the literature on vocabulary learning of children with ASD and existing SGDFs was carried out to identify the components. The components have been reviewed from the perspective of 1) vocabulary learning of children with ASD in particular, 2) children with ASD in whole, 3) typical children and 4) game design in general.
Results: A total of fifty components were found. The four components namely autism behaviours, strategies, instruction methods and modalities are related to children with ASD and their learning of vocabulary. The remaining components are based on the review of existing SGDFs. There were similarities in terms of use of components across the frameworks.
Conclusion: The analysis of these components in the serious games developed for children with ASD shows its usability in designing games for these children.

Artificial Intelligence Based Multi-Modal Sensing for Flash Flood Investigation

Talha Khan, Muhammad Mansoor Alam, Zeeshan Shahid, M.S Mazliham, Syed Faiz Ahmed, Sheroz Khan

Flash floods are very abrupt and sudden and can devastate large areas with in fraction of seconds. Tsunami is also a grass root cause of infrastructure loss and casualties. Tsunami is caused by the release of energy inside the ocean. It has been observed that Tornados and Tsunami frequently occurred that caused more than 120000 casualties between 1992 to 2005. Several approaches and cases have been studied and applied to overcome this topmost issue. Strong and reliable flood risk management system must have the capabilities to forecast and estimate the change in the process: the hydro atmospheric and climatic development that causes flood waves and land and metropolitan exposure that leads to casualties. Techniques utilized for the early investigation of flash floods may be classified into following categories a. Sensors and instrumentation-based b. Radar based c. Satellite images based. In this paper researchers presented a reliable and vigor cost-effective solution for the prediction of flash floods accurately and precisely by using direct measurements with the combination of scaled conjugate gradient back propagation. Researchers have adopted direct measurement method by utilizing couple of sensors named as PIR, ultrasonic sensor, water or humidity sensor, temperature and pressure sensors. Gas sensor has also been used to detect the increased carbon dioxide levels in the environment as soil is saturated more and the probability of flash flood occurrence becomes sure in this situation. An appropriate mixture of estimation sensors can extensively boost the benefit of information in contrast with that from a single sensor. 48 hours of data has been recorded and processed for the false alarm identification by using Scaled conjugate gradient back propagation. Results proved that our proposed system worked better or equivalent to the other available techniques
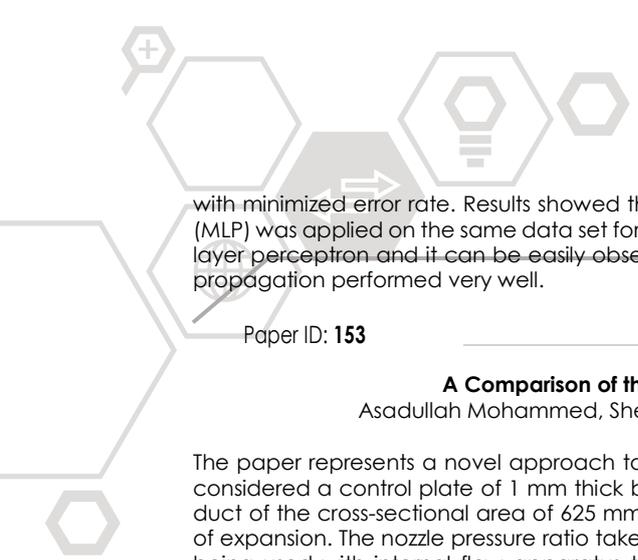
with minimized error rate. Results showed that it performed better than the existing approaches. Multi-layer perceptron (MLP) was applied on the same data set for the error and false alarm classification. Results were compared with the multi-layer perceptron and it can be easily observed that they are close enough therefore scaled conjugate gradient back propagation performed very well.

Paper ID: **153**

A Comparison of the Effect of Single and Multiple Cavities on Base Flows
Asadullah Mohammed, Sher Afghan Khan, Manzoore Elahi M Soudagar and Vaishak T.R

The paper represents a novel approach to understand the effect of single and multiple cavities on base pressure. We considered a control plate of 1 mm thick between a square nozzle of the cross-sectional area of 100 mm2 and square duct of the cross-sectional area of 625 mm2. Both single and multiple cavities results are compared for a different level of expansion. The nozzle pressure ratio taken are 1.27, 1.33, 1.53 and 1.7. The high-speed compressible subsonic nozzle is being used with internal flow apparatus to achieve flows ranging between Mach 0.6 to Mach 0.9. The comparison between single and multiple cavities are shown graphically with and without control. The multiple cavities were found to be more effective as compared to a single cavity for controlling the base pressure.

Paper ID: **154**

Optimization of PID using PSO for Upper Limb Rehabilitation Robot
S. Yarooq Raza, Syed Faiz Ahmed, Muhammad Kmaran Joyo and Athar Ali

Proportional Integral Derivative (PID) controller is most widely used feedback controller used in various applications such as control systems, instrumentation and motor drives. Tuning of PID parameters is challenging to researchers despite of its popularity. This paper presents the optimization of PID controller using particle swarm optimization for controlling upper limb rehabilitation robot. The proposed algorithm offers easy implementation, less computation burden and fast convergence of the system response. PSO is an evolutionary algorithm which is based on the social behavior of fish and flocking of birds. This study will demonstrate in brief how to employ Particle swarm optimization on PID. MATLAB simulations have been carried out and graphs have been plotted which shows less percent overshoot and a significant rise time of the system having no steady state error. The results proved that PSO-PID is stable and efficient control algorithm for upper limb rehabilitation robot.

Paper ID: **155**

Role of VSM in optimization of R&D Prototype Development of SME
Salman Ahmed Hashmi, Dr.Nik Mohammad Abdullah, Dr.Reza Ghadiri

Value Stream Mapping (VSM) has been used for decades to increase the efficiency and optimization of a production process but no body use this technique to optimize and identify the bottlenecks in a development of R&D prototyping. Prototyping is one of the most significant part of new product development process. Prototyping is costly and time consuming, it is vastly concerned for a SME company because of their small budget for their R&D. The purpose of this research was to investigate how possibly a company will use a method to improve or advances their new product's development process for their upcoming product line and reduce their time to market. In this research paper, a novel framework has been used to apply Value Stream Mapping to the new products developed by their R&D team. Value Stream Mapping is one of the best tools to map a process and to identify its main criticality. The proposed approach is based on three iterative steps and integrates Value Stream Mapping with other tools typical of industrial engineering. The essential thought is to execute a preliminary analysis to recognize new 'critical R&D product development path' utilizing the equivocated basic information such as Bill of Material. At that point, enhancements are made thinking about all conceivable offering to other auxiliary ways as possible limitations. As soon as the critical path has been optimized, a new trail may become critical. In this manner, the analysis continues iteratively until the completely optimized. The result after implementing VSM as company's new product development by R&D team, shows that there were improvement possibilities in time and cost up to 50 percent

Paper ID: **156**

The Effect of Replacement of Natural Sand by Manufactured Sand on the Properties of the Concrete
Altamashuddinkhan Nadimalla, Siti Aliyyah Binti Masjuki, Sher Afghan Khan and Akshatha B A Pradeep

The conventional concrete is produced using natural sand from river beds as fine aggregate. Decreasing natural resources poses the environmental problem and hence government restriction on sand quarrying resulted in scarcity and significant increase in its cost. In order to fulfill the requirement of fine aggregates, an alternative material like manufactured sand can be used in concrete. M sand is obtained by crushing the rocks. In this paper, conventional mix 1:2.32:2.82 (M20) with water to binder ratio is maintained as 0.55 was used in this present study. Here the River Sand is partially and fully replaced with M Sand with different percentages like 0%, 45%, 50%, 55% and 100%. Fresh and hardened state properties of concrete with river sand replaced by M-Sand were studied. Properties of concrete in fresh state such as workability and in hardened state such as compression strength test, split tensile strength and flexural strength test were considered in this study.

Bandwidth tunable Optical Frequency Comb Source with high flatness

Abbas Naveed and Syed Ashar Ali
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An approach for the flatness improvement and bandwidth tunability of optical frequency comb is proposed and the system performance is analyzed using numerical simulation software. The scheme consists of the cascade of intensity and phase modulators, arranged in a configuration to apply time to frequency (TTF) mapping and addition of intensity modulator afterwards, to achieve very flat and bandwidth tunable comb source. Simulation results show that the comb exhibit high spectral flatness and bandwidth tunability without compromising spectral flatness. Furthermore, comb flatness improvement in percentage (% improvement) is calculated after the suggested scheme for variable number of comb-lines and found as 23%, 43.71%, and 50.56% when comb source is tuned to 25-lines, 30-lines, and 45-lines respectively.