CONFERENCE PROCEEDINGS

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Preface:

Scientific & Technical Research Association (STRA) is a conglomeration of academia and professionals for promotion of research and innovation, creating a global footprint. STRA aims to bring together worldwide researchers and professionals, encourage intellectual development and providing opportunities for networking and collaboration. These objectives are achieved through academic networking, meetings, conferences, workshops, projects, research publications, academic awards and scholarships. STRA strives to enrich from its diverse group of advisory members. Scholars, Researchers, Professionals are invited to freely join STRA and become a part of a diverse academic community, working for benefit of academia and society through research and innovation.

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Our mission is to make continuous efforts in transforming the lives of people around the world through education, application of research & innovative ideas.

KEYNOTE SPEAKER

Dr.-Ing. Ralph Hammann LEED A.P.
Thomas D. Hubbard Endowed Professor in Architecture
University of Illinois at Urbana-Champaign, Illinois, USA

Since 2007 I am the tenured Thomas D. Hubbard Endowed Professor in Architecture and have taught studio and seminar courses in the undergraduate, graduate curriculum and Ph.D. program at the University of Illinois at Urbana-Champaign, United States of America. I hold professional registrations as an architect in the U.S. and Europe and I am an Accredited Professional in 'Leadership in Energy & Environmental Design' (LEED® A.P.) I have authored, or co-authored two significant books 'Creative Engineering, Architecture, and Technology' and 'Energy Design for Tomorrow', one major book chapter for a book publication on sustainable design in hot and arid climates, and five chapters in the three-volume 'Encyclopedia of 20th Century Architecture' (Sennott, S., Editor, Routledge, 2003). I am the inventor of an International Patent in regards to disaster relief shelter design. Prior to teaching, I worked for fifteen years as a registered architect in Germany designing buildings that were sustainable in their use of materials and incorporation of cutting-edge building systems technologies.

Title: Assessment of Exterior Air Barrier Systems Based on Integrated Thermal and Hygrothermal Analysis in Low-Rise Residential Buildings in North America

KEYNOTE SPEAKER

Professor Dr. Hjh. Norma Binti Alias
Ibnu Sina Institute for Fundamental Science Studies Technology University of Malaysia, Skudai, Johor, Malaysia

Completed supervision for 5 Ph.D. students and 19 MSc students. Ongoing is supervising for 5 Ph.D. students, 7 MSc students and reviewing postgraduate students for Computing faculty, Science Faculty, Sports Science Research Center, Universiti Teknologi Malaysia, and Universiti Malaysia Sarawak. There are 8 innovations and invention medals received, completed 150 publications, 4 Intellectual property declarations, 2 patent disclosures, 1 product commercialization, Completed and ongoing task as project leader and principal researcher for 27 numbers of research grants with more than RM 1,000,000 budget. The three parallel computer systems laboratories have been developed and connected with LAN and MYREN network at Ibnu Sina Institute, Center of Excellence, Technology University of Malaysia. Principle researcher and leader for GRID Computing lab, mathematical parallel software, and multicore computing laboratories. The research plan is to contribute to grid technology and middleware combining the worldwide cluster of distributed computer systems for solving the grand challenge and big data applications.

Diena Noviarini **ERCICSTR1803052**	**The Model Of Integrated Software System To Improve The Accountability Of Health National Budget** **Diena Noviarini** **Faculty of Economics, State University of Jakarta, Jakarta, Indonesia** **Within the framework of reporting the accountable health budget, a Patent Integrated System Software is created from combines database of population administration information with accurately health national budget management information.** **In designing the Patent software the method used is literature study, analysis method with fishbone diagram and software design method using web based PHP. The analytical method of action research is to examine the problems faced by the Local Government Work Unit (SKPD) of the health office in Indonesia and the health service centers in East Java & Bali as sample. The designing method was used to design a new Patent system based on data taken from the interview with SKPD in Patent form of software industry that can solve the problems encountered. Patent design software industry using hardware web server and hardware client and software for programming, Biometrics tools as the input and interface connecting database server and software for client. The results to be achieved are the production of patents of the software industry in the first year of research and publication that will have Intellectual Property Rights Software Integrated System in the second year of research and publication that can produce accurate, transparent and accountable information reports relating to health national budget management at the provincial government of Indonesia.**
 **Anggun Lestari** **ERCICSTR1803053**	**Effect of Seed Amounts On The Synthesis Of Zeolite Zsm-5 Using Coal Bottom Ash And Rice Husk As Sources Of Silica And Alumina By Using Seeding Method** **Anggun Lestari** **Faculty of Engineering, University of Lampung, Bandar Lampung, Indonesia** **Abstract** **ZSM-5 has been successfully synthesized by seeding method using coal bottom ash and rice husk as the sources of silica and alumina.Synthesis ZSM-5 were performed by the hydrothermal method in autoclave autogenous at 180 ˚C for 36 h with molar ratio 10Na : 50SiO : 2Al2O3 : 500H2O with the addition of ZSM-5 commercial as seed. In this experiments, investigated variations seed amounts of 5, 10, 15, and 20% of weight silica. The product was characterized using X-Ray Diffraction (XRD), Fourier Transform Infrared (FTIR), Scanning Electron Microscope (SEM), and Brunauer-Emmet-Teller (BET). Resulted showed that ZSM-5 succeed formed in all variation of seed contain. At variation seed amount 5%, crystallinity obtained still low in which content of quartz phase still be high. Percent crystallinity highest obtained at the variation of seed amount 20% with the result percent crystallinity relative 106%. The experimental results revealed that phase transformation has occurred, in which an amorphous phase of coal bottom ash and rice husk has been transformed to the ZSM-5 crystal with addition seed as**

	substitution organic template. **Keywords: ZSM-5, Seed, Rice Husk, Coal Bottom Ash, Synthesis, Template Free, Crystallinity**
 **Muhamad Rostan Zakaria** **ERCICSTR1803054**	**The Basic Of Iqra Learning For Beginner** **Muhamad Rostan Zakaria** **Faculty of Computer, Media & Technology Management, TATI University College, Teluk Kalong Kemaman, Terengganu, Malaysia** **Abstract** **This project to design and develop the basic learn of iqra' for beginner android application mobile that could be used for children between 8-12 years old and also for beginners. The basic of iqra' learning for beginner is a method of teaching children to read by correlating sounds with letters or groups of letters in an alphabetic writing system also as known a phonics. Beside, in this project suitable for children between 8-12 years old and also for beginners. These applications are an early exposure to help them on determined the Quranic alphabet. This application using three language which is English, Malay and Arabic language it may help student to more understand while using this application.** **Keywords: Iqra'; alphabetic; phonics; Quranic alphabet**
Mohammed Umar Mustapha **ERCICSTR1803055**	**Biodegradation of carbofuran pesticide by local bacteria isolated in vegetable farming areas** **Mohammed Umar Mustapha** **Environmental Science Department, University Putra Malaysia, Malaysia** **Abstract** **Carbofuran pesticides are widely used in agriculture, though they are biodegradable in nature, some are acutely toxic and their residues are found in the environment. Many conventional techniques are used to detoxify these chemicals such as incineration, land filling excavation etc. However, due to their tedious procedure and high expenditure cost, an efficient and inexpensive methods of biodegradation is essential to replace the previous ones. Bacterial specie isolated in soil samples collected from various vegetable plantation areas in Cameron highland were investigated for their abilities to degrade carbofuran in Minimal Salt Medium (MSM) containing 1% Carbofuran pesticide concentration. The isolates were identified by using various techniques like Staining, Biochemical Analysis, Antibiotic Sensitivity and Heavy Metal Sensitivity Tests. Determination of phosphate activity and effect of pH, temperature and concentration of pesticide on the bacteria were also performed. The experiment showed that the bacteria could eliminate carbofuran in soils effectively and safely. The present study may provide a basis for bio treatment and bioremediation of carbofuran-contaminated soils.** **Keywords: Biodegradation; carbofuran; biochemical methods; molecular methods**
Isah Usman Balan **ERCICSTR1803056**	**Determination of Serum Electrolyte In Pregnant Women Attending Anti Natal Care Service At Sir Sunusi General Hospital Kano** **Isah Usman Balan** **Department of Science Laboratory Technology School Of Technology Kano State Polytechnic, Kano State Polytechnic, Nigeria**

	Umar Aliyu **Department of Science Laboratory Technology School of Technology, Kano State Polytechnic** **Abstract** **Blood samples collected from pregnant women attending anti-natal care services in Sir Sunusi General Hospital were analyzed for serum electrolytes levels (Na, K and Cl). The level of sodium in the blood samples ranged from 122mmol/L to 151mmol/L The amount of potassium ranged from 2.4mmol/L to 5.2mmol/L While that of chloride ranged between 76mmol/L to 116minol/L. The results showed electrolytes disturbance in some of the pregnant women as the concentration level was not within the range; the normal range for sodium is 135-145 mmol/L, that of potassium; is 3.5-5.0mmol/L while chloride has the normal range between 98mmol/L and 106mmo/L The disturbance may be due to some certain reasons such as vomiting, low fluid intake, drugs and malnutrition.** **Keywords** **Serum, Electrolytes, Pregnant woman, Blood, Kano State**
Chitra Dhawale **ERCICSTR1803058**	**Improved Variational Approach to Enhancement of Marathi Printed Degraded Documents** **Chitra Dhawale** **P.G.Department of Computer Application, P.R.Pote College of Engineering and Management, S.G.B.Amravati University, India** **Abstract** **Optical Character Recognition (OCR) system aims to translate scanned text to a machine understandable text. To do so, numerous tactics exist for several scripts and so far for good quality documents. Conversely, only a delimited permutation of the same has been investigated for degraded printed Marathi documents. This work offers learning which aims to discover and fetch out a marginal and competent policy of pre-processing in treating OCR for degraded printed Marathi documents. An effective estimation of the offered substitute has been considered by exposing it to documents having bleed-through, border smear, smear inside, low illuminations, unclearness etc. The proposed model is robust with respect to noise, complex background and its results have been computed using MATLAB R2015.**
Manojkumar Sonawane **ERCICSTR1803059**	**Improved Variational Approach Towards Enhancement of Marathi Printed Degraded Documents** **Manojkumar Sonawane** **Computer Science, SGBAU, India** **Abstract** **Optical Character Recognition (OCR) system aims to translate scanned text to a machine understandable text. To do so, numerous tactics exist for several scripts and so far for good quality documents. Conversely, only a delimited permutation of the same has been investigated for degraded printed Marathi documents. This work offers learning which aims to discover and fetch out a marginal and competent policy of pre-processing in treating OCR for degraded printed Marathi documents. An effective estimation of the offered substitute has been considered by exposing it to documents having bleed-through, border smear, smear inside, low**

	illuminations, unclearness etc. Proposed methodology's results are examined in MATLAB R2015a. The work produces preprocessed images having better lucidity.
Chris Obioma Nwoko **ERCICSTR1803060**	**Assessment of the Distribution Pattern of Poly Aromatic Hydrocarbons around Nekede Auto-Mechanic Village, Imo State, Nigeria** **Chris Obioma Nwoko** **Department of Environmental Technology, Federal University of technology, Owerri, Nigeria, Federal University of Technology, Owerri, Nigeria** **Abstract** **Auto mechanic activity in the recent time has significantly contributed to environmental degradation partly due to poor waste management practices and weak enforcement in ensuring operators are located in designated sites. This study therefore investigated the distribution pattern of Poly Aromatic Hydrocarbon (PAH) contaminants around Nekede auto-mechanic village, Owerri. The auto-mechanic village was subdivided into five sampling locations: Sites A, B, C, D and E; with Site A located at the centre of the auto-mechanic village; Site B, 50m away from the centre of the auto-mechanic village; Site C, 80m away from Site B, Site D 70m away from Site C; and Site E, 35m from the Otamiri River. Soil samples (0-30cm deep) were collected at three separate points (10m apart), from each of the locations and bulked to make composite samples. Sediment samples were also collected from two locations along the Otamiri River (100m apart) representing sediments (RS) 1 and 2. Control samples were similarly collected from a distance where no auto-mechanic activity existed, representing subsurface soil (SS) 6. Physicochemical analyses of the samples were carried out using standard methods and Poly Aromatic Hydrocarbons (PAHs) in the samples determined using a Gas Chromatographic System, equipped with a single detector (Flame Ionization Detector) — GC-FID. The results obtained showed that out of the sixteen US-EPA target PAHs (EPA-16) analysed, only eight were detected in varying concentrations. Total PAH concentrations in the samples were in the order of dibenz{ah}anthracene (29.111mg/kg) > indeno{1,2,3-cd}pyrene (20.178mg/kg) > anthracene (10.717mg/kg) > naphthalene (8.340mg/kg) > 1,2-benzoanthracene (4.124mg/kg) > acenaphthene (2.784mg/kg) > benzo(ghi}perylene (2.324mg/kg) > fluorene (1.421mg/kg). The concentration of total PAH components detected in the samples ranged from 2.564mg/kg to 21.841mg/kg in the study site compared to that of the control site where no PAH component was detected. The results therefore call for public concerns as PAH levels exceeded the maximum permissible limits set by some regulatory bodies. Public health education and regulation on management of wastes in the auto-mechanic workshops is recommended for environmental sustainability.**

Abdullahi Haruna Birniwa
ERCICSTR1803062

Synthesis and characterization of polypyrrole-Polyethylenimine composites and its application of Nickel ions removal from aqueous solution

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Abstract

Polypyrrole-based adsorbent (PPy), a novel conducting polymer, has successfully been prepared by using FeCl3.6H2O, FeCl3.0H2O and (NH2)2 S208) as an oxidants with an aim to remove Nickel ions from aqueous solution. The removal of Nickel ions from aqueous solution has been observed in a batch equilibrium system with higher efficiency 99.8%. The optimum adsorption dosage has been found as 0.20 g at pH 6.5 with a contact time of 50 mins at room temperature. The ATR-FTIR, FESEM, XRD, BET and EDX provide the evidence of Nickel ions adsorption by Ppy-PEI composite. Thermal analysis like TGA and DSC was used. The adsorption data has been well fitted to Freundlich isotherm model and followed the pseudo-first order kinetic model. As an effective adsorbent for the removal of heavy metal ions from aqueous solution, this new conducting polymer-based adsorbent offers the promise to be commercially used in near future.

Keywords: Polypyrrole-polyethylimine; adsorbent; Nickel ions; ATR-FTIR; Freundlich model; Pseudo-second order model.

Shafiq Ur Rehman
ERCICSTR1803064

The Pakistan Phasor Intermittent Warning sign Exploration of Classification RL Complex by Multisimulation Scheme

Shafiq Ur Rehman
Telecommunication and Electronics Engineering,Sir Syed University of Engineering & Technology,Karachi, Pakistan

Abstract

In this article we distinct the rudimentary the basic Pakistan Asian Electronic World of Modern the technology of different discipline should be combine to make the hybrid world of Methodological which will be perform numerous operation at a stage according to the constraint of circumstances in the world of technology whether it will be apply on the forces in the world. The Pakistan Asian hybrid world and other rest of the world essential. The problems is that the world scientific are not well artificial. The basic principal of the science are instigating properly. Popular this paper we proposed the original pioneering model of the Pakistan Asian Hybrid. Now this artefact we integrated the all more than twelve restraint in the world of knowledge.

Keywords:
The Pakistan Asian Hybrid World, the Scientific Algorithm, The Pakistan

	commonsensical
Aminu S. M. **ERCICSTR1803065**	**Determination of Rhizobial Populations of Soils from Different Geographical Locations in North Western Nigeria for Biological Nitrogen Fixation on Soybeans** **Aminu S. M.** **Department of Science Laboratory Technology, Hussaini Adamu Federal Polytechnic Kazaure, Jigawa State, Nigeria** **Shamsuddeen U.** **Department of Microbiology, Bayero University Kano** **Dianda, M.** **International Institute of Tropical Agriculture (IITA) Ibadan, Nigeria** **Abstract** **This study was conducted to estimate the rhizobial populations of soils for biological nitrogen fixation on soybeans (Glycine max) by the Most Probable Number (MPN) technique. Soils were collected from seven locations namely; Albasu, Bichi, Garko, Gaya (Sudan savanna), Giwa, Soba and Z/kataf (Northern Guinea Savanna). The result showed that Garko has the least MPN rhizobia/g (0.61*101) and Z/kataf has the highest MPN rhizobia/g (7.65*103). The soils sampled at northern guinea savanna have higher organic carbon content (0.69-0.65%) and nitrogen content (0.05-0.07%) compared to the soils sampled at Sudan savanna (0.30-0.44% and 0.08) respectively. From the result obtained soils collected from northern guinea savanna have higher MPN rhizobia/g compared to the soils collected from Sudan savanna.** **Keywords: Soybeans, Rhizobia, Populations, Most Probable Number, Biological Nitrogen Fixation.**
Abba MusaYau **ERCICSTR1803066**	**Careers in Printings as a Means of Diversifying Nigeria Economy** **Abba MusaYau** **Department of Fashion Design and Clothing Technology, Hussaini Adamu Federal Polytechnic Kazaure, Jigawa State, Nigeria** **Abstract** **Nigeria is a country that is blessed with abundant human and natural resources that when properly harnessed can accelerated her development. But sadly the country depends mainly on oil as her main source of generating income. This has made it to be a consumer country instead of a producer country, and apparently impaired the creativity and innovative skills of the citizenry. The current global realities occasioned by fall of crude oil price in the global market have put Nigeria in quagmire known as Recession. This paper looks at printing as a viable source of employment for the teeming youth of Nigeria. It identifies various careers in the printing profession that when proper attention is given to them, can help turn the economic fortunes of Nigeria for the better. Not just in the area of job and wealth creation, but also in the area of technological break - through. These careers are Stenciling, Screen Printing, Graphic Designing, Colour Separation, Lithography, Direct Imaging, Heat Transfer, Binding, Letter Press and Laminating. Other Jobs, not directly involve in printing but connected with printing are production of printing equipment, Ink and accessories, transportation and supply. This paper also recommends that Government, nongovernmental organizations and**

	individuals should develop positive attitude towards the printing profession.
Fahad Suleiman **ERCICSTR1803067**	**Application of Mathematical sciences to Farm Management** **Fahad Suleiman** **Department of Mathematics & Statistics, Federal Polytechnic, Kaura Namoda, Nigeria** **Abstract** **Agriculture has been the mainstay of the nation's economy in Nigeria. It provides food for the ever rapidly increasing population and raw materials for the industries. People especially the rural dwellers are gainfully employed on their crop farms and small scale livestock farms for income earning. Within the broad concept of farming, there are two very important elements: time and money. At the root of both of these is mathematics. Mathematics has enabled farming to be more economically efficient and has increased productivity. Farmers use mathematics as a system of organization to effectively utilize their time and manage their money. Farmers use numbers every day for a variety of tasks, from measuring and weighing, to land marking. This paper explores some of the ways math is used in farming. For example, farmers use math to determine the amount of seed they need to plant their crop and how much it will cost. They use math to purchase equipment and make payments. Math is important in determining taxes and insurance and helping farmers keep track of how much their livestock weighs, how much milk their cows produce and their crop yield per acre, etc.** **Key Words: Agriculture, Application, Economic, Farming, Mathematics**
Victor Obaseki **ERCICSTR1803068**	**Comparative Study on Achievement in Basic Science Using Mastery Learning and Convectional Learning Strategy Among Basic Secondary School Students in Lagos State Nigeria** **Victor Obaseki** **Science Education, Federal College of Education (Technical), Akoka, Lagos State, Nigeria** **Abstract** **The study empirically examined the relative mastery learning model on students' achievement in Basic Science in Lagos State schools. It also determined the level of retention of scientific content by the students. The achievement of students taught with mastery learning model was compared with these taught with the convection method of teaching. Two research questions and three hypotheses were generated to guide the study. A total of one hundred and fifty (150) Junior Secondary School students randomly selected from three schools in Mainland Local Government Area of Lagos State. The study adopted a quasi experimental design (pre-test, post test and control group). The instrument used for the study was Students Basic Science Achievement Test which was developed and validated before it was administered. The data generated were analyzed using relevant statistical instruments. The result indicated that there is no significant difference in the mean score performance of students using both teaching strategies. There is significant difference in the level of retention of scientific content by students having been exposed to the two teaching strategies. The difference observed was in favour of those taught using the mastery learning model. It was recommended that workshops, seminars and conferences should be organized by relevant**

	bodies to educate and sensitize teacher on appropriate teaching skills that could enhance effective teaching and learning. **Key words: Mastery, Learning, Model, Basic Science Achievement, Test**
Yusuf Bako Taura **ERCICSTR1803069**	**Graft Copolymerization of Methylmethacrylate onto Cellulosic Cotton Fabric - Effects of Preteatments And Monomer Concentration** **Yusuf Bako Taura** **Department of Fashion Design and Clothing, Technology, Hussaini Adamu Federal Polytechnic, Kazaure, Jigawa state, Nigeria** **Gumel S. M.** **Department of Pure and Industrial Chemistry, Bayero University, Kano, P.M.B. 3011. Kano State, Nigeria** **Yakubu M.K.** **Department of Textile Science and Technology, Ahmadu Bello University, Zaria, Kaduna state, Nigeria** **Habibu S.** **Department of Chemistry, Federal University, Dutse P. M. B. 7156, Jigawa State, Nigeria** **Abstract** **The graft polymerization of methylmethacrylate (MMA) on to enzyme desized, scoured, bleached and mercerized cellulosic cotton fabric was studied in 0.1M nitric acid using ceric ammonium nitrate (CAN) as initiator. The investigation was conducted to study the possibility of grafting methylmethacrylate on to cellulosic cotton fabric at various stages of processing. Two sets of five different samples were used, four of them passed through the pretreatment stages of desizing (D), desizing and scouring (DS), desizing, scouring and bleaching (DSB), desizing, scouring, bleaching and mercerizing (DSBM) and one was kept as grey (G). The first set of these samples including the grey were grafted with 3.5mls of MMA and CAN concentration of 0.05M at a time of 3hrs and a temperature of 50°C. In the second set of samples the graft polymerization was carried out under varying concentrations of monomer, while keeping all other factors constant. The second set has all passed through the final stages of pretreatment (DSBM). The results of FT-IR (infra red spectroscopy), water absorption, dimensional stability, crease recovery properties, tearing strength indicated that there was modification in the physical and chemical properties of the cellulosic cotton fabric as a result of the graft polymerization. Tearing strength and water absorption of the grafted sample showed considerable decrease. The dimensional stability and crease recovery characteristics of the cotton fabric were generally improved.**

Gbenga Festus Akomolafe
ERCICSTR1803070

A Review on Global Ferns Invasions: Mechanisms and Management

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Abstract
There has been paucity of information and adequate studies on the invasive potentials of ferns as most invasive ecological studies have so far focused on higher plants across the continents. This paper therefore, reviews ferns invasions, mechanisms of invasions and management of invasive ferns that have been reported in literatures. We searched four databases including Jstor, Science direct, Willey online library and Scopus for relevant literatures between 1990 – 2018. A total of seventy articles reporting ferns invasions in various countries in six continents were harvested. Eighteen ferns reported to be invasive across the world include Lygodium microphyllum, Lygodium japonicum, Azolla pinnata, Pteridium arachnoideum, Dennstaedtia punctilobula, Thelypteris noveboracensis, Pityrogramma calomelanos, Azolla filiculoides, Acrostichum spp, Asplenium adiantum-nigrum, Dryopteris carthusiana, Dryopteris intermedia, Polystichum acrostichoides, Cyclosorus afer, Sphaeropteris cooperi, Angiopteris evecta, Salvinia molesta and Pteridium aquilinum. Most of these ferns were reported to have invaded parts of South America than other continents. Prevalent mechanisms of invasion for these ferns include their polyploidy nature, ability to disperse spores for long distance, allelopathy, aadaptation to disturbed areas and unfavourable environmental conditions. It was suggested that using biological approaches which enable ecological succession and ecosystem restoration is preferable to other methods of controlling these invasive ferns.

Keyword: control, Cyclosorus, ecology, ferns, invasion, Pteridium

Danlai Agadi Tonga
ERCICSTR1803071

Development of GSM Based Control System for Electrical Appliances

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Abstract
Fire incidence in Nigeria results from different sources, such as cooking gas, kerosene stove and above all, due to epileptic nature of electrical power supply and the user's negligence to switch OFF the appliances not in use. This paper explore the application of GSM communication integrated with electronics technology to control electrical appliances as a solution to reduce the rate of fire incidences at residential and office buildings. PIC16f887A microcontroller were programmed, simulated and constructed to control electrical appliances within the network coverage of the Nigerian GSM service providers. Source code was developed in C

	language and MIKRO C software was used to develop the microcontroller software while MPLAB were used to debug the program into the microcontroller. The interface between the GSM phone and the microcontroller was generated through the mobile SIM cards. The microcontroller circuit receives a command message in form of SMS from the GSM phone to switch ON and OFF the electrical appliances. The command are simple English capital letters L, F, C and T and small letters l, f, c and t to switch ON and OFF the appliances respectively. The finished product was tested in a laboratory to control a lamp, fan, laptop charger and a LED TV. The control system was successful and works in line with the design specifications. The system developed can be upgraded to control high current consumption appliances such air condition, refrigerator, immersion heater and electrical cooker. **Keywords: Global System for Mobile Communication, Microcontroller, Control System, Electrical Appliances and Fire Incidence**
Nasiru Yau **ERCICSTR1803072**	**Dynamics of domestic debt and the growth of Nigerias Economy** **Nasiru Yau** **Banking and Finance, Federal Polytechnic Kaura Namoda, Kaura Namoda, Nigeria** **Alfa Yakubu** **Department of Economics, Nigerian Defence Academy, Kaduna, Nigeria** **Abstract** **This study examines the dynamics of domestic debt and economic growth in Nigeria over the period 1981-2016. To achieve the objective of the study, annual time series data on Gross Domestic Product (GDP) at current prices, domestic debt outstanding on Treasury Bills (TRB), Treasury Certificates (TRC) and Development Stock were collected from the publications of the Central Bank of Nigeria and analyzed using the Johansen co-integration and Autoregressive Distributed Lag (ARDL) models. The result of Johansen co-integration suggests that the variables have a long-run equilibrium relationship. The ARDL model reveals that most of the variables that are statistically significant have negative impact on GDP. Only TRC has a positive impact on GDP. It is therefore recommended that the government should reduce the level of domestic debt it raises over time because of its negative impact on economic growth process in Nigeria.** **Keywords: Domestic Debt, ARDL, GDP**
Sabrina Soloi **ERCICSTR1803073**	**Surface Morphology of Cogon Grass Paper via Soda Pulping** **Sabrina Soloi** **Faculty of Science and Natural Resources, Univerisiti Malaysia Sabah (UMS), Sabah, Malaysia** **Nur Fazeera Bakir** **Faculty of Science and Natural Resource, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia** **Abstract** **Utilization of non-wood fibre for paper making has been the subject of interest in order to expand the usage of renewable resources as well as reduced the dependency on wood pulp since this non-wood fibre has similar chemical composition as wood fibre. This study was done to**

	demonstrate the potential of cogon grass to be used as a raw material of non-wood resources in the papermaking industry. In this study, sodium hydroxide (NaOH) was used as pulping agent for lignin removal. The concentration of the NaOH was varies at aroud 5-10% and was treated for 45-75 minute to investigate the best condition for defibrillation of the cellulose fibre. Based on this study, it was found that the soda pulping produces fibre that can be molded into paper sheet without any binding agent. The morphology of the fibre observed under Scanning Electron Microscopy (SEM) shows that, cogon grass fiber consist of individual micro fibrils that are well separated. This reflects that lignin removal effectively occurred in low concentration of NaOH during the delignification process. The paper produced has rough surface and has the potential to be develop for craft paper. **Keywords** **Non-wood pulp, cogon grass, surface morphology, delignification**
Abiche Ekalu **ERCICSTR1803074**	**Phytochemical, Antimicrobial studies and structural elucidation of bioactive compound from the aerial parts of Vernonia Pauciflora (Willd.) Less** **Abiche Ekalu** **Chemistry, Nigerian Army School of Education, Ilorin, Kwara, Nigeria** **Abstract** **Vernonia pauciflora is a plant found in the North central Nigeria and is used in the traditional treatment of many diseases including pneumonia, tuberculosis, skin infection, meningitis, whooping cough, typhoid fever, headache, and diarrhoea. Phytochemical and antimicrobial screening was carried out on the aerial parts of the plant in order to validate the medicinal claims ascribed to the plant. The phytochemical screening was carried out using standard procedures and the antimicrobial activity was tested against pathogens using the tube dilution and agar diffusion method outlined by the Clinical and Laboratory Standards Institute (CLSI). The result of phytochemical screening of n-hexane, ethyl acetate and methanol extracts revealed the presence of cardiac glycosides, saponins, tannins, triterpenes, flavonoids, alkaloids and carbohydrates. The result of antimicrobial activity as indicated by the zones of inhibition of growth of the microorganisms ranged from 17-20 mm for n-hexane extract, 22-28 mm for ethyl acetate and 20-25 mm for the methanol extract. The Minimum Inhibition Concentration (MIC) result for n-hexane, ethyl acetate and methanol extracts ranged from 7.5-30 mg/ml while the Minimum Bactericidal Concentration/Minimum Fungicidal Concentration (MBC/MFC) result for the extracts ranged from 15-60 mg/ml. Extensive chromatographic separation of the ethyl acetate extract led to the isolation of compound ADT1. The structure of the compound was established as 3-oxolanyl acetate using spectral analysis including 1D and 2D NMR. The antimicrobial activity of the isolated compound as indicated by the zone of inhibition ranged from 22-29 mm against Methicilin Resistant Staphylococcus aureus (MRSA), Vancomycin Resistant enterococci (VRE), Staphylococcus aureus, Streptococcus pyogenes, Escherichia coli, Candida albicans, and Candida krusei. The ability of the ADT1 to inhibit the growth of several bacterial and fungal species is an indication of the broad spectrum anti-microbial potential of Vernonia pauciflora which makes the plant a good source for antibiotic and antifungal drugs. The compound is being reported for the first time.**

Suleiman Rabiu **ERCICSTR1803077**	**Catalytic Pyrolysis Upgrading of Bio-Oil Produced from Sugarcane Bagasse** **Suleiman Rabiu** **School of Engineering Technology, Federal Polytechnic Bida, Niger State, Nigeria, Bida, Nigeria** **Abdullahi Mohammed** **Department of Chemical Engineering, Federal Polytechnic, Bida, Niger State, Nigeria** **Abstract** **The catalytic (ZSM-5) zeolite pyrolysis upgrading of bio-oil produced from sugarcane bagasse (SB) was conducted in a fixed-bed reactor to determine the effects of heating rate, temperature, and catalyst/biomass ratio on yield of bio-oil and their chemical compositions. The result obtained for proximate analysis indicates that SB has 13.2% moisture content. The ultimate analysis carried out showed that the percentage of carbon content is higher (52.1%) while the fibre content analysis showed 48.4% lignin. The Brunauer Emmett and Teller (BET) result of the activated ZSM-5 showed that the surface area reduced by 43.5%, pore size reduced by 5.62% and pore volume also reduced by 21.4%. The heating rate, temperature and catalyst/biomass ratio were varied in the range of 10–50 oC/min, 400–600 oC and 0.05–0.25 respectively. Results showed that the non-catalytic pyrolysis gave the maximum percentage yield (45.67 wt.%) of bio-oil at a pyrolysis temperature of 600 oC, heating rate of 50 oC/min, sweeping gas flow rate of 40 mL/min and the catalytic pyrolysis gave (40.83 wt.%) of bio-oil at the same conditions. The Fourier Transform Infrared Spectroscopy (FT-IR) spectra (functional groups) showed that the non-catalytic bio-oil is dominated by oxygenated compounds (acids, ketones, aldehydes, alcohols), while the catalytic bio-oil is dominated by desirable compounds (alkanes, alkenes, aromatics, phenols). The chemical composition of the bio-oils was analyzed using Gas Chromatograph Mass Spectrometry (GC-MS), revealed that the quality of the bio-oil has been improved using ZSM-5 catalyzed pyrolysis.** **Keywords: catalytic, pyrolysis, bio-oil, fixed-bed reactor, zeolite**
Fatai Amuda **ERCICSTR1803078**	**Engineering Innovations as a Means of Achieving Food Sufficiency in Nigeria** **Fatai Amuda** **Electrical Engineering, Hussaini Adamu Federal Polytechnic, Kazaure, Nigeria** **Abstract** **For Nigeria to enjoy sustainable growth, her security system must guarantee security of life and properties. Common sense indicates that no meaningful production of goods and services can thrive in chaos communities. Foreign investors would not be ready to invest in a country with no sustainable security. This paper identifies Nigeria security challenges and provides technological solutions to them. Some critical challenging aspect of our system that require technology innovations are finance, communication surveillance, intelligence gathering, emergency response and public enlightenment among others. The use of cutting edge technology to centralize and coordinate all the nation's data will act as a proactive and dynamic means of combating insecurity.**

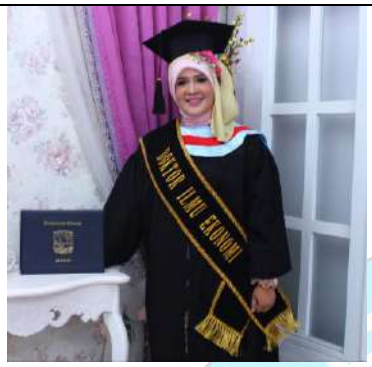
	Keywords: Security, Nigeria, Unemployment, Corruption, communication, surveillance, intelligence gathering, emergency response.
Abdullahi Bello Birchi **ERCICSTR1803079**	**Examining the Influence of Perceived Behavioural Control and Attitude on Polytechnic Students Intention to Adopt Environmentally Sustainable Behaviour** **Abdullahi Bello Birchi** **Department of Technical Education,Hassan Usman Katsina Polytechnic, Katsina, Nigeria** **Abstract** **This paper reports on the study conducted to explore the influence of Perceived Behavioural Control and Attitude on polytechnic Students' intention to adopt environmentally sustainable behaviour. The study utilized the Theory of Planned Behaviour (TPB) to analyze intention to perform behaviour related to environmental sustainability. Two hundred and twenty (220) students from a public Polytechnic in Nigerian were assessed about their Perceived Behavioural Control and Attitude toward intention to adopt environmentally sustainable behaviour. The result shows that both Perceived Behavioural Control and Attitude are practically important in predicting individual's intention to environmentally sustainable behaviour. A model of practical important that explained 49% variance emerged with all the two predictors (perceived behavioural control and attitude) found to be significant predictors of the polytechnic students' intention to adopt environmentally sustainable behaviour.** **Keywords: Perceived behavioural control, Attitude, Intention, Sustainable environment**
Lukman Selvi **ERCICSTR1803080**	**Time Optimization and Energy Consumption Analysis for Hole Manufacturing With Hybrid Simulated Annealing and Genetic Method on CNC Based Turret Punching Machine** **Lukman Selvi** **Faculty of Physic Engineering, Bandung Institute of Technology, Bandung, Indonesia** **Abstract** **This research describes the method of manufacturing process planning of hole manufacturing, which in every machining process consists of several individual operations with various types of punching blades. The process of setting the trajectory is one of the problems of holes manufacturing process because this kind of process takes a long machining time and often it obtaines undirected sequence path that sometimes caused stress material moreover the damaged of punching blades. The purpose of the optimization process is to minimize the processing time of hole manufacturing so the time function obtained can be converted in the form of energy consumption that helps manufacturers to predict the machining time. The machining process is presented by Dynamic Directed Graph where each node represents a machining operation. The time function can be obtained by studying the shortest path of a directed graph where the structure of objectivity studied is similar to the Traveling Salesman Problem problem. The mathematical model is used to solve the hole optimization problem of the graph structure by proposing Simulated**

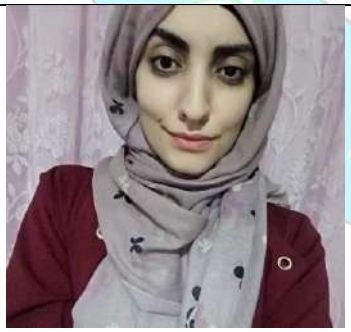
	Annealing Algorithms, Genetics Algorithms and the combination of both to solve the optimization problem. The Algorithm realization will be applied in real time CAD / CAM programming by using TOPS300 which is used for TRUMPF TC200 Punching Machine. There are 2 kinds of blade operations in this research which are single stroke operation and multi strokes operation. Both produce different time function. By applying the algorithm, shorter travel time with a more directed path is obtained. Directed Path is needed to avoid the stress of material that often occurs during the manufacturing process. Finally some meaningful conclusions about the application scope of the algorithm is achieved and some advices for further study are given. The final example shows that the hybrid algorithm of Simulated Annealing and Genetic Algorithms shows higher optimize performance and less energy consumption which 26.02 seconds for single stroke operation and 126.02 seconds for multi strokes operation with the acquisition of logical path results with the absence of intersecting trajectories. By applying routing algorithm, cost saving is obtained as much as 32% for single stroke operation with energy consumption as much 0.05237 kWH meanwhile for multiple strokes operation,cost saving is obtained as much as 24% with energy consumption as much as 0,313 kWH. **Keywords : TSP, Simulated Annealing Algorithm, Genetics Algorithm, Hybrid Algorithm, Tool Path Planning,Energy Consumption**
Chinnasamy Asokan **ERCICSTR1803081**	**Enhanced Secretion of Blood Grouping Anti-A mAbs by Encapsulation of Hybridoma Cell Culture** **Chinnasamy Asokan** **Department Of Biochemistry, Sokoto State University, Sokoto, Okoto, Nigeria, Sokoto, Nigeria** **Shagari A B** **Department of Biochemistry, Sokoto State University, Sokoto. Sokoto State. Nigeria** **Abstract** **Introduction: Biopolymer membrane was prepared using two oppositely charged natural polymers. The biopolymer membrane was used for the encapsulation of Anti-A Hybridoma Cell lines to secrete monoclonal antibodies (mAbs). Objective: Morphologies of beads and the cell growth were observed in inverted microscope. Soy Hydrolysate was added as supplement in the concentrations of 0.1 %, 0.3% and 0.5% with the scope to enhance the cell viability and to increase the secretion of mAbs. Materials and Methods: The effect of Animal component free media of RPMI-1640 with Soy Hydrolysate is characterized by studying the Cell growth and monoclonal antibody secretion. Results: Increased secretion of monoclonal antibody is confirmed by avidity test, titre analysis and total protein estimation. The results indicate the effectiveness of encapsulation and Soy Hydrolysate for Hybridoma Cell culture. Conclusion: The present study concludes that the increase of cell viability and the yield of Diagnostic Antibodies could be maximized by the encapsulation method. Recommendations: Thus in the optimization of antibodies in Cell culture and their secretion, supplements like Soy Hydrolysate plays a significant role.** **Keywords: Monoclonal Antibodies, Soy Hydrolysate, Hybridoma cell, Diagnostic and RPMI-1640**

James Omale **ERCICSTR1803083**	**Activated Charcoal Promotes Surgical Wound Healing Effect S of Musa Sapientum and Citrus Limon Peel Gel In Rattus Novergicus** **James Omale** **Biochemistry, Faculty of Natural Sciences, Kogi State University, Anyigba, Nigeria** **Abstract** **Musa sapientum known as banana is a rhizomatous perennial crop used as source of starchy staple food for millions world over. Some parts of the crop have been claimed to be efficacious in the management of different ailments including wounds. Similarly, lemon, Citrus limon (L)Osbeck , is a specie of small evergreen tree in the flowering plant family Rutaceae. The fruit peel has been claimed to posses wound healing activity. The purpose of this study was to assess the effects of combining activated charcoal with banana and lemon peel gel on the healing of surgical wound s in rats .All experiments were conducted following standard procedures. Thirty six (36) wistar rats were divided into nine (9) groups of four (4) rats each. Wound control groups(Paraffin base) , Standard (Povidone iodine) and experimental groups(4% w/w Citrus limon and Musa sapientum peel gel ointment) and (activated charcoal mixed with Citrus limon peel and or Musa sapientum peel). Surgical wound of 40mm X 40mm was created dorsally on each rat, cleaned daily with methylated spirit and treated with the formulated drugs. Measurement of wound contractions were done on the 4, 8, and 12 days of the experiment. Wound contraction rates were found to be higher in wound treated with Citrus limon and Musa sapientum peel gel ointment formulated with activated charcoal . Order of increasing wound contraction rate (unripe M.sapientum peel gel……> ripe M.sapientum peel gel ……> activated charcoal + ripe M.sapientum peel gel ……..> activated charcoal + unripe M. sapientum peel gel …….> unripe M.sapientum peel gel + C.limon peel gel …….>activated charcoal + C. limon peel gel. Wound contraction or healing elicited by the drugs in this investigation following topical application clearly indicates that activated charcoal enhanced the wound healing effects of M. sapientum and C. limon peel gel ointment. The observed efficacy could be due to antibacterial and adsorption characteristics of activated charcoal.** **Key words: Musa sapientum, Citrus limon, activated charcoal , wound healing and Rattus norvergicus**
 **Dr. Shanmugasundaram N** **ERCICSTR1803085**	**Development of smart grid university infrastructure for educational purposes** **Dr. Shanmugasundaram N** **Department of Electrical and electronics Engineering,Vels Institute of Science Technology and Advanced Studies,Chennai, Tamil Nadu, India** **N.Ganesh** **Dean, School of Engineering, Vels Institute of Science Technology and Advanced Studies, Chennai, Tamil Nadu, India** **D.Venkadesvaran** **Project Engineer, RRT Electro Powwer, Chennai, Tamil Nadu, India** **Abstract** **This paper introduced a new framework and platform for testing and**

	integration of distributed energy resources (DERs) into smart grid. It is based on contemporary Hardware -in-the loop environment, useful for testing large power systems interfaced with power electronics grid connected converters as a part of renewable energy generation. A case study for standard IEEE 13 node test feeder extended with inclusion of renewable energy sources is presented. The all tests could be done in the laboratory or distantly through the web access. **Key Words: Smart grid/ Distributed energy resources/ /Photovoltaic energy/Hardware-in-the-loop/Virtual laboratory**
 **Aliyu Yusuf** **ERCICSTR1803086**	**Multiphysics simulation of Photovoltaic-Thermoelectric module for power systems optimization in COMSOL** **Aliyu Yusuf** **Department of Physics, Science faculty, Kaduna State University, Kaduna State, Nigeria** **M. H. Ali** **Department of Physics, Bayero University, Kano State, Nigeria** **Abstract** **Thermoelectric generation is an encouraging technology which transforms waste heat into electricity in a clean and efficient manner. Performance of thermoelectric generator module was investigated in stationery state heat conduction current model in COMSOL Multiphysics environment. Simulation based on the analytical model has been carried out to study the performance and design optimization of the module. Experimental data obtained such as ambient and panel temperature amount of irradiance and panel area were used in the simulation, results show that there is a unique flow rate that gives maximum net-power in the system at the each temperature difference.** **Keywords: Thermoelectric generator, Hybrid Photovoltaic-Thermoelectric, Heat Transfer coefficient.**
Dauda Abubakar **ERCICSTR1803087**	**Sensitivity of Nickel Oxide Nanoflakes layer on EGFET based pH sensor** **Dauda Abubakar** **Department of Physics, Bauchi State University, Gadau, Bauchi, Nigeria** **Naser M. Ahmed** **School of Physics - Universiti Sains Malaysia - 11800 Pulau Pinang – Malaysia** **Abdullahi Hassan Abdullahi** **National Agency for Science and Engineering Infrastructure, Idu Industrial Area, Garki, Abuja Nigeria** **Abstract** **NiO nanoflakes films based EGFET pH sensors were synthesis and deposited by Chemical bath method on the ITO glass substrate. The properties of NiO nanoflakes layer and pH sensing behaviour of devices were studied. FESEM result shows that the NiO/Ni(OH)2 film consists of a smooth and rough grown porous net-like structure made up of interconnected nanoflake's wall with a thickness of 300 nm for the annealed NiO layer sample. The atomic ratio and weight of sample treated at 300 0C has almost similar value with the stoichiometric value. XRD**

	analysis demonstrated that the NiO nanoflakes has a cubic structure with the preferential orientation of the films being at (111), (200) and (220) for the annealed NiO. The devices exhibited superior sensing characteristic, because of its smaller of size of grain and denser porosity of the NiO layer. The results confirmed that NiO nanoflakes membrane had much better sensitivity (72 µA/pH and 57 mV/pH) compared to other reports of NiO as pH sensor membrane
 **Musa Ahmed Abubakar** **ERCICSTR1803088**	**Standardization and Antibacterial Activity of Persicaria minor Huds. Against Enteric Bacterial Pathogens In Johor, Malaysia** **Musa Ahmed Abubakar** **Department of Science Laboratory Technology, Kano State Polytechnic, Kano, Nigeria** **Razauden Mohamed Zulkifli** **Department of Health Sciences, Faculty of Biosciences and Medical Engineering, Universiti Technologi Malaysia (UTM), Johor Bahru, Malaysia** **Abubakar Abdullahi1** **Department of Science Laboratory Technology, Kano State Polytechnic, 3401 P.M.B, Nigeria** **Abstract** **A significant number of herbs have been utilized as dietary and phytomedicinal sources in enhancing our health. Persicaria minor (Huds.) Opiz known as Small water-pepper and well recognized locally in Malaysia as "daun kesum" is an edible vegetable with nutritional and medicinal benefits utilized generally by South-east Asians. The present study was conducted to evaluate the antibacterial activity of aqueous-ethanolic and aqueous extracts of P. minor leaves. The leaves of the plant undergone extraction based on Malaysian Standard Guidelines which is 30% aqueous-ethanol and absolute water as normally used in traditional medicine to produce the respective extract concentrates. The plant was identified and authenticated by taxonomist from Forest Research Institute of Malaysia (FRIM). Both extracts were standardized by evaluating the total protein and polysaccharide contents in which aqueous-ethanolic extract was found to possess high contents of proteins (1713.67 µg/mL) while contents of polysaccharides were high in absolute water extract (17.6 µg/mL). These measurements were used as a standard for different batch extract. The extracts were then tested against four standard strains of bacteria which are Enterococcus faecalis ATCC 29212, Escherichia coli ATCC 11229, Staphylococcus aureus ATCC 6538 and Pseudomonas aeruginosa ATCC 15442 at different concentrations using disc-diffusion test with penicillin being used as positive control and dimethylsulfoxide a carrier as negative control. Both extracts showed antibacterial activity with minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) values in the range of 50 to 100 mg/mL against S. aureus, E. faecalis, and E. coli, respectively with aqueous-ethanolic extract being more potent. However, none of the extracts were active against P. aeruginosa. Therefore, the results obtained in this research have shown the nutritional values and high potential of P. minor leaves to be used as natural antibacterial agent for the elimination of various bacterial diseases and infections.** **Keywords: Persicaria minor; Antibacterial activity, Crude extracts,**

	Standardization
 **Anita Ekawati** **ERCICSTR1803089**	**Improvement of Capasity Development Management Village Through The Integrated Rural Development Models (IRD)** **Anita Ekawati** **Field of Research and Development,Regional Development Planning and Development Agency Kerinci of Regency, Sungai Penuh- Kerinci, Jambi Province-Indonesia** **Abstract** **The development planning policy in Indonesia especially the development of the village is still largely top down and sectoral, the implementation is still less integrated, it can be seen from the central government program in some sectoral ministries without involving the sector, local government and society, besides not paying attention to fundamental issues which occurred in areas especially in the village, so that the strategic formulation and the program became inappropriate. In relation to poverty, as in statistical data, it turns out that most of the poor are in the village, therefore, development is naturally focused on the village as an effort to overcome poverty. Development has been more directed in the city causing economic activity centered in the city, causing migration from village to city. Villagers with all the limitations of moving to the city complain their fate and most of them become a big problem in the city. On the other hand, conditions in the village have not been fully developed, basic infrastructure is poorly met, economic activity and low business opportunities, limited educational facilities, largely fulfilled for primary school only, this condition causes no other option for villagers to change their destiny , that is by wandering to the city. In fact, the entire potential of natural resources as a material activity supporting the economy can be implemented without any support of raw materials produced in the village.These conditions must be resolved immediately through an appropriate village development strategy and integrated through Integrated Village Development model with village spatial layout, Determination of activities and commodities that will be used as the basis for economic development of the village, the establishment of community institutions that will act as stakeholders, village head and provide assistance to planning documents in the village. IRD model is expected to reduce the inequality of development between urban villages.** **Keywords: Development, Village, Integrated, Sector, Strategy, Society**
M. Javad Jafarzadeh **ERCICSTR1803090**	**The Impact of Using Messengers to Improve Team Relations at the Management Level of the National Bank of Iran Track: Management** **M. Javad Jafarzadeh** **Department of IT Management, Faculty of Industrial Engineering, K. N. Toosi University of Technology,Tehran, Iran** **Abstract** **The National Bank of Iran, as the largest commercial and government bank in Iran, is using a widespread mobile messaging app. The bank also created and developed a messenger with the help of the Data Corporation. Senior and senior executives of these organizations are increasingly using this tool to improve their interactions. With the possibility of creating groups, channels, and sending private messages, these tools have made administrators quicker and easier to access. Managers thus have strong**

	links with team members and exchange information quickly and make team relations more effective. **In this study, factors such as the impact on privacy, the facilitation of team members' relationships, the effectiveness of managers, and their dependence on messenger tools were identified. Based on these factors, some hypotheses were presented and a questionnaire was prepared to prove these assumptions and more than 30 bank executives were investigated. Finally, it became clear that the use of social media has reduced their privacy, significantly improved team relations and increased the efficiency of their managers, and had no effect on their dependence.**
Kabiru Abdullahi **ERCICSTR1803091**	**Evaluation of Classifier Models for The Detection of Diabetes Disease** **Kabiru Abdullahi** **Department of Computer Science, College of Science and Technology, Hussaini Adamu Federal Polytechnic, Kazaure, Hussaini Adamu Federal Polytechnic, Kazaure, Kazaure, Jigawa, Nigeria** **Abstract** **Diabetes is one of the major disease which is commonly found among all age groups and people of different origins. Diabetes is a disease which may lead to failure of different organs, and causes high risk of blindness, kidney failure, heart disease and problems in the nervous system. Data mining algorithms could be used as an alternative way for diagnosis this disease by discovering patterns from the history of patient data and also by capturing the experience of experts. In this paper, different classifier models was designed and implemented for predicting presence or absence of diabetes as well as predicting type 1 and type 2 diabetes disease from positive class, performances measure was evaluated for identifying the optimal model. The classifiers proposed will be using the following approaches: decision tree, Support Vector Machines, and Artificial Neural Networks. The optimal model identification was implemented using performance evaluation measures, such as Accuracy, specificity, sensitivity and precision. The models is tested using the following databases: Pima Indian diabetes database from UCI Machine learning repository and also data set obtained from VCU database collected from 139 hospitals across US** **Keywords - Data mining, Classification of Diabetes, Classification, prediction, Neural Network, SVM, Decision tree**
 **Amani Touati** **ERCICSTR1803093**	**Application of Polyaniline/Pectin Biosorbent for Cationic Dye Removal from Aqueous Solution** **Amani Touati** **Faculty of Material Science, University of Elbachir el ibrahimi, Bordj bouareridj, Algeria** **Souad DJELLALI** **Department of Material sciences, Faculty of Sciences and Technology, University M.E. El Ibrahimi, Bordj Bouarreridj, Algeria** **Imene FEKKAR** **Department of Material sciences, Faculty of Sciences and Technology, University M.E. El Ibrahimi, Bordj Bouarreridj, Algeria** **Maya KEBAILI**

Laboratory of Materials and durable developpement (MDD)

Abstract

The present work aimed to elaborate a novel adsorbent based on polyaniline and pectin for the removal of dyes from aqueous solutions. Pectin and aniline were used to synthesis polyaniline/pectin biosorbent. The different materials were characterized by FTIR and UV-VIS spectroscopy. The ability of pectin and the synthesized polymers (PANI and PANI/PEC) to remove the cationic dye (methylene blue) (MB) from the aqueous solution was investigated using the UV–VIS spectroscopy at different values of pH and contact time. The FTIR spectra of pectin and polyaniline showed the characteristic bands of each polymer while the polyaniline/pectin spectrum revealed the presence of the bands characteristics of both polymers. The obtained results showed an optimum adsorption pH for all materials at about 10; however, the contact time required to obtain the maximum adsorption was found to be 15 minutes for pectin and 45 minutes for polyaniline and polyaniline/pectin. For the maximum adsorption of Methylene blue on the various adsorbents, the highest value was obtained for polyaniline/pectin biosorbent.

Jyotismita Talukdar
ERCICSTR1803094

Analysis of Cardiovascular Diseases Using Artificial Neural Network

Jyotismita Talukdar
Computer Science, University of Petroleum and Energy Studies, Dehradun

Abstract

In this paper, a study has been made on the possibility and accuracy of early prediction of several Heart Disease using Artificial Neural Network. (ANN). The study has been made in both noise free environment and noisy environment. The data collected for this analysis are from five Hospitals. Around 1500 heart patient's data has been collected and studied. The data is analysed and the results have been compared with the Doctor's diagnosis. It is found that, in noise free environment, the accuracy varies from 74% to 92%.and in noisy environment (2dB), the results of accuracy vary from 62% to 82%. In the present study, four basic attributes considered are Blood Pressure (BP), Fasting Blood Sugar (FBS), Thalach (THAL) and Cholesterol (CHOL.).It has been found that highest accuracy(93%), has been achieved in case of PPI(Post-Permanent-Pacemaker Implementation), around 79% in case of CAD(Coronary Artery disease),87% in DCM(Dilated Cardiomyopathy), 89% in case of RHD&MS(Rheumatic heart disease with Mitral Stenosis), 75 % in case of RBBB +LAFB (Right Bundle Branch Block + Left Anterior Fascicular Block),72% for CHB(Complete Heart Block) etc. The lowest accuracy has been obtained in case of ICMP(Ischemic Cardiomyopathy),about 38% and AF(Atrial Fibrillation) , about 60 to 62%.

Keyword: Coronary Heart Disease, Cardiovascular Disease, Thalach, Cholesterol, (Sick Sinus Syndrome (SSS), Chronic Stable Angina (CSA).

Gunawan Refiadi
ERCICSTR1803095

The Effects of Permanganate Treatment on Weibull Characteristics and Tensile properties of Kenaf Fiber Reinforced Polypropylene

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Abstract

The unrecyclable of conventional composites generates pollution when incinerated. However, it could be developed to a new eco-composite such as natural fiber reinforced thermoplastics. Natural fiber, like kenaf has been chosen because of the CO_2 free characteristic. Unfortunately, natural fibers have difficulties when it binding with the synthetics matrix. One solution of this problem is treating the fiber chemically, such as permanganate treatment. In this study, permanganate treatment was aimed to improve the interface between kenaf fibers and polypropylene waste matrix. The tensile fibers characteristics investigated by Weibull distribution. Meanwhile, fiber matrix interface studied by composites tensile properties as well as by comparing to Rosen statistics methods and Rule of Mixtures. Using tensile test, diameter, and density measurements, the matrix, the fibers and kenaf preform are characterized on both pre-treated and after permanganate treatment. The control is virgin fibers (VF) and various permanganate solutions range from 0.01 to 0.50% v/v. It was found that the optimum permanganate solution was 0.02% v/v with 125 MPa composites tensile strength. Above this composition, degradation of kenaf fibers occurs and the strength decreases. From Weibull distribution its was found that all of the treatments show modulus number range from 2,48 – 3,49 and the Rosen method was more accurate to the Rule of Mixture (6.34 to 15.43% discrepancy to the real measurements).

Keywords
Natural Fibers, Permanganate Treatment, Weibull Distribution, Eco-Composites, Rosen Statistics, Rule Of Mixture

Nurjanah Nurudin
ERCICSTR1803097

Isolation, Synthesis, Characterization, and Antibacterial Evaluation of Curcumin-Sulfanilamide Compound

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Abstract

Curcumin, a diarylheptanoids compound which isolated primary from Curcuma longa, exhibits a variety of interesting biological activities, including as an antibacterial agent. In the present study, a sulfanilamide-contained curcumin compound was synthesized and characterized to investigate its antibacterial activity. This research was started by isolating the curcumin from Curcuma longa, followed by the synthesis of curcumin-derived compound containing isoxazole. Afterward, the sulfanilamide was added to this compound, which later can be determined its antibacterial activity against S. mutans and E. coli. The characterization of the synthesized compound was determined by analyzing its peak absorbance, molecular weight, functional group, and chemical shift using UV/Vis spectrophotometry, mass spectroscopy, FTIR, and 1H/13C NMR, respectively.

Keywords: Curcuma longa, curcumin-sulfonilamide, isolation, antibacterial

Md Jalal Uddin
ERCICSTR1803098

Plastic Use In Civil Engineering Stream

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Abstract

The project elucidates about the use of plastic in civil construction. The components used include everything from plastic screws and hangers to bigger plastic parts that are used in decoration, electric wiring, flooring, wall covering and waterproofing.

Plastic use in road construction that have shown same hope in terms of using plastic waste in road construction.i.e..,plastic roads. Plastic roads mainly use plastic carry bags, disposable cups and PET bottles that are collected from garbage dumps as important ingredients of the construction materials.

By using plastic waste as modifier, we can reduce the quantity of cement and sand by their weight, hence decreasing the overall cost of construction. At 5% optimum modifier content, strength of modified concrete we found to see the times greater than the plain cement concrete.

Using plastic poisons our food chain under the plastic affects human health. By the disposable plastics is the main source of plastic. For these plastic pollution is not only the ocean also in desert.

Plastic will increase the melting point of the bitumen. Rain water will not seep through because of the plastic in the tar. So, this technology will result in lesser road repairs.

Keywords; - M2O plain cement concrete, waste plastic.

Younes Benarioua
ERCICSTR1803099

Anodizing Treatment Study Applied On Recycled and Non-Recycled Aluminum Alloy

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Abstract

Anodizing of aluminum alloys in electrolytic acid bath has traditionally been used. This process successfully combines science with nature to create a best finishes to parts of aluminum alloys. The objective of this

	work is to study the influence of the immersion time as technological parameter on the thickness, the structure, morphology and the hardness of thin layer compound obtained by anodizing treatment of a recycled and non-recycled aluminum alloy. This material was used as substrate which is employed for field of manufacturing industry belongs to series of 6000. Prior to be anodized, the specimens used in manufacturing industry field were subjected to series of surface preparation. The specimens were polished, degreased and dipped. After each step of the surface preparation, the specimens were rinsed. In electrolytic solution, anodizing steep was carried out in the presence of acid solution for different immersion time. The chemical reactions which take place between aluminum alloy and electrolytic solution give rise to the formation of metallic compounds layers. The structure of these solid solution layers was identified by X ray diffraction. The morphology and thickness of coatings obtained at different immersion time took place with optical microscope. Finally the hardness of coatings was measured with a Vickers hardness tester. **Keywords: Anodizing, aluminum, alumina**
 **Mahesh G** **ERCICSTR1803100**	**Investigation and Mechanical Properties of Brass in Sand Casting** **Mahesh G** **Mechanical Engineering,Saranathan College of Engineering, Trichy, India, Tamil Nadu** **K. Murugu Mohan Kunmar** **Profeesor, SASTRA Univserity, Tamil Nadu, India** **Abstract** **Casting is the most importance process in the world. The sand casting is very common for all industries but it has low yield and not satisfactory quality of mechanical properties like hardness and surface roughness. The quality characteristics of Brass is used for several applications. During the optimization of the green sand casting process, some parameters like clay content, green strength and moisture content and are required to finally examine the experiment and it achieves good surface and hardness. The characteristics which are estimated depend upon the optimum staging of green sand casting at the optimum stage of parameters is done in this paper and by confirming results are done with the practical experiential.** **Keywords: Green strength, Hardness, Surface roughness, Design of experiment**
 **Md Shakhawat Hossain** **ERCICSTR1803102**	**Variation of Rainfalls by Some Others Climatic Phenomena in the Northern Part of Bangladesh** **Md Shakhawat Hossain** **Associate Professor Department of Statistics, University of Chittagong, Chattogram, Bangladesh** **Md Rokonuzzaman** **Associate Professor, Department of Statistics, University of Chittagong, Bangladesh** **Abstract** **The main objectives of the study are to find the seasonal variations of rainfalls and it's related some others climatic variables in the northern**

part of Bangladesh. Also fit a suitable panel regression model of rainfalls on these climatic variables. In this study, monthly climatic data from 1981 to 2017 are collected from Bangladesh Meteorological Department. The selected explanatory variables cloud cover, bright sunshine, temperature and humidity are considered in this analysis. For the availability of data for all of these variables considered this studies the weather stations of Bogura, Rajshahi and Rangpur which situated in the northern part of Bangladesh. Among these three cities, the average monthly total rainfall is highest in Rangpur with high variability and lowest is in Rajshahi with low variability. For all these three cities seasonal effect of rainfall is highest for the month of July, seasonal effect of sunshine is highest for the month of March, and that of cloud cover is highest for the month of July. But for humidity variable, the seasonal effects of Bogura and Rajshahi stations are highest for the month of July but that for Rangpur station is September. Since all of these time series data have seasonal variations and non-stationary so to run panel data regression model it is needed to make transformation for getting stationary time series data. For rainfall data it is needed two times transformation to get stationary form. Firstly, using fourth root power transformation and the secondly make a twelve periods lag difference transformation to obtain stationary form. But for all other climatic variables only twelve periods lag difference transformation is sufficient for getting stationary form. Insignificant Cook-Weisberg test statistic suggest the homoskedasticity and lowest variance inflating factor conferred the absent of multicollinearity. A panel regression model is employed to check the effect of cloud cover, bright sunshine, temperature and humidity on rainfall which is conferred by Lagrange multipliers test statistic. Since hausman test statistic is insignificant so the random effect panel regression model is considered. Coefficient of non-determination is 0.66, implies that about 34% variation of rainfall can be explained by these explanatory variables. Cloud cover, Humidity and Sunshine have significant positive effects whereas Temperatures has significant negative effect on rainfall. One can try to fit a dynamic panel regression model such as GMM with Arellano Bond correction or two step analysis of panel data models for further study.

Key Words: Rainfall, Cloud cover, Bright Sunshine, Hausman Test Statistic, Cook-Weisberg Test Statistic.

Md Rokonuzzaman
ERCICSTR1803103

Variation of AQI for Some Others Climatic Phenomena in the Capital City of Bangladesh

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Abstract

The AQI is a tool for reporting daily air quality of a city tells how clean or polluted the air is, and what associated health effects might be a concern for public. The AQI focuses on health effects that one might experience within a few hours or days after breathing polluted air. Air pollution today is becoming an increasingly serious issue in Bangladesh. The main objectives of this study is to find the seasonal variations of AQI and its related some others climatic variables for the capital city of Bangladesh. In this study, it is also tried to find the relationship between air quality and some weather variables like rainfall, cloud cover, bright sunshine, average temperature, sea level pressure, wind speed and humidity. The

daily air quality data from 17 February 2014 to 31 December 2017 are collected from the clear air and sustainable environment project's website implemented by ministry of environment and forests, Bangladesh and the climatic variables with same period daily data are collected from Bangladesh Meteorological Department. Different types of graphs are used to check the seasonal variations o the variables and different types of statistical tools are used in this study. In AQI data, there have seasonal variations – in the winter season it is very high and in rainy season it is very low. Though different diseases break out in the epidemic form and sometimes normal course of life is stopped in the rainy season with the month of June to September but on the aspect of air quality it is the most comfortable healthy life for living in the Dhaka City. On the other hand form the month of December to February is the very high and most of the days are very hazardous life for living in the Dhaka City. Since all of these variables have seasonal variation for the similar time span, so to check the contribution of climatic variables to AQI simple liner regression is employed. Significant Cook-Weisberg test statistic suggest the heteroskedasticity and lowest variance inflating factor conferred the absent of multicollinearity. All of these variables have significant contributions to the model. Only sea level pressure for this city has a positive significant effect on AQI but all other variables have negative significant effect on AQI. Further hence about 76% variation of AQI can be expressed by these explanatory variables. One can try to fit a dynamic time series regression model. One can use the dynamic model for forecasting the AQI for further study.

Key Words: Air quality index, rainfall, cloud cover, bright sunshine, temperature, sea level pressure, wind speed and humidity

Mohamed Gama
ERCICSTR1803105

Mobile robot design for explorationAnd hazardous materials

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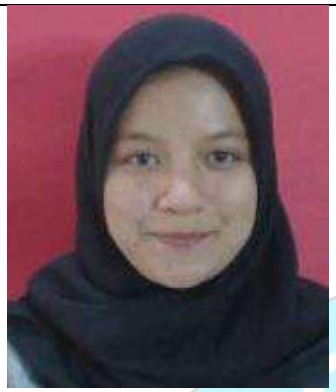
Abstract

This paper presents the mechanical, electrical and electronic design of the Rover Robot (SDR01) model for multifunction applications. The Rover is designed to work in tough and tough environments with the addition of a powerful automatic moving and disassembling arm, such as hazardous materials, bombs and explosives. Or even can be used in exploration, researches and gathering samples, The Rover is equipped with a camera to take pictures and video clips of the environment. The prototype of the mechanical body is designed to be flexible and stable. It has been designed from domestic materials such as PVC, aluminum, and also DC, and Servo motor has been used to convey rotor and rotor. The Arduino controller is used to control Rover.

Keywords — component robot, rover, hazardous material, Arduino, Explorer, bomb, arm, explosive.



Dane Viarsyah
ERCICSTR1803106

Time Integration Analysis of Soekarno-Hatta Inetrnational Airport (SHIA) Train and Skytrain

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Abstract

The sustainability of transportation systems in Jakarta is under threat from climate change. Better integration and planning of public transportation is an alternative to support land transportation and to solve the congestion problem to Soekarno-Hatta International Airport, PT Railink, PT Angkasa Pura II, PT Kereta Api Indonesia with its BUMN synergy built rail-based transportation called SHIA Train and tries to make their service as attractive as possible, to as many persons as possible. Moreover, SHIA Train and skytrain connected in an integrated building as a transferring point. This study analyzes the time taken to travel using the airport railway from BNI City Station and its integration with the skytrain to reach the terminal of the passenger's destination by observing the walking time factor at integrated building and waiting time of skytrain. And also skytrain–SHIA Train by identifying the walking time, ticket purchasing time, and its effect on SHIA Train waiting time. Study is necessary to know the average travel time and show whether these two modes of transport can be integrated in time and, individual journeys must in some way be scheduled, this paper will present an optimization model of how journeys should be scheduled in this kind of service.

Keywords : time integration ; walking time ; waiting time ; travel time

Nur Nadrah Mohd Naim
ERCICSTR1803107

PM2.5 Compositions and Health Risk Estimation Towards Primary School Children in Kuala Lumpur

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	Environmental Health Research Centre Unit, Institute for Medical Research, Jalan Pahang, 50588 Kuala Lumpur, Malaysia **Abstract** **Indoor air pollution in school building play an important role since children spend about 90% of their time in the classrooms. The study aims to measure the composition of PM2.5, which were the trace metals and ionic species in air samples and evaluate the carcinogenic and non-carcinogenic health risk among school children. Air samples were simultaneously collected for indoors and outdoors in 19 primary schools by using Low Volume Sampler (LVS) for 24 h from May to November 2017. Trace metals and ionic species were quantified by using inductively couple plasma-mass spectrometry and ion chromatography, respectively. The average PM2.5 indoor concentrations was 42.96±21.47 µg/m3 and 37.08±18.74 µg/m3 for outdoor with indoor to outdoor ratio (I/O) value was greater than 1. The higher concentration of PM2.5 in indoor as compared to outdoor suggested that the physical activities of students affected the indoor air quality (IAQ). The trace metals concentration followed the order of Al>Fe>Zn>Sr>Ni>Pb>Cr>Mn>Cu>Co>Cd for indoor and Al>Fe>Cu>Zn>Sr>Ni>Pb>Cr>Mn>Co>Cd for outdoor. Ionic species concentrations showed the same order for indoor and outdoor, Ca2+>K+>NH4+>SO42->NO3->Cl->Mg. The potential inhalation risk estimations for trace elements in PM2.5 show that the hazard quotient (HQ) was higher than acceptable value of 1 and excess lifetime carcinogenic risk (ELCR) values are within the acceptable range (10-6 to 10-4). This study suggests that there is possibility of non-carcinogenic health risks towards school children.** **Keywords** **PM2.5, indoor air pollution, health risk assessment, trace metals, ionic species**
Kah Keng Wong **ERCICSTR1803109**	**Antinuclear Antibodies, Complement Levels, and Lupus Erythematosus-Specific Lesions are Measures for Systemic Lupus Erythematosus Disease Activity** **Kah Keng Wong** **Department of Immunology, Universiti Sains Malaysia, Kubang Kerian, Kelantan** **Che Shaffi Syahidatulamali** **Department of Immunology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia** **Wan Ghazali Wan Syamimee** **Department of Medicine, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia** **Che Hussin Che Maraina** **Department of Immunology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia** **Abstract** **Research Objectives: Systemic lupus erythematosus (SLE) is a chronic debilitating autoimmune disease. The aims of our study were to determine the demographic, immunopathological and clinical characteristics, and their correlations with SLE Disease Activity Index (SLEDAI) score in a**

	cohort of SLE patients (n=80) attending Hospital Universiti Sains Malaysia (HUSM). **Methodology: Demographic, laboratory results and clinical manifestations data were collected from patients' laboratory investigation and clinical record at Department of Immunology and Unit Records, HUSM.** **Findings: Of the 80 SLE patients, 63 were females and 17 were males (3.7:1 ratio). The highest prevalence of clinical manifestation was arthritis (n=57; 71.3%) followed by malar rash (n=46; 57.5%), alopecia (n=31; 38.8%), prolonged fever (n=28; 35%), photosensitivity (n=20; 25%), and other manifestations. Antinuclear antibodies (ANA) were detected in 51 patients (63.8%) and 33 patients (41.3%) were negative for anti-double stranded DNA antibodies. Low levels of C3 (<0.66 g/dL) and C4 (<0.20 g/dL) occurred in 34 (42.5%) and 48 (60%) patients, respectively. Higher SLEDAI score (>8) was significantly associated with oral ulcer (P=0.034), vasculitis (P=0.013), serositis (P=0.018), higher ANA titers (P=0.035), low levels of C3 (P=0.034) and C4 (P=0.006), and patients with both lupus erythematosus-specific (LE-specific) and LE-nonspecific skin manifestations (P=0.014).** **Research Outcomes: Our study showed that SLE patients with higher SLEDAI scores were associated with both LE-specific and LE-nonspecific lesions, as well as demonstrating higher ANA titers and lower levels of C3 and C4 complement proteins.** **Future Scope: ANA, C3 and C4 level continue to be appropriate measures for SLE disease activity and our study supports the proposal that mucocutaneous features might require more intensive therapy and disease monitoring.** **Keywords: Systemic lupus erythematosus, antinuclear antibodies, complement levels, lupus erythematosus-specific lesions, SLEDAI score**
Nurnadhrah Athirah Abu Bakar **ERCICSTR1803110**	**Super-Help! Children Abduction Tracking System** **Nurnadhrah Athirah Abu Bakar** **Computer and Information Science Department, University of Technology Petronas, Perak, Malaysia** **Abstract** **Even though sensors are used almost in every aspects of our daily routines, there is still a limited number of researches conducted to develop a technological solution in overcoming the issue of child abduction. Now that we have sensors with ability beyond measures, it will be wise if we utilized the sensors to a good use. Even in Malaysia, sensors are widely used, be it in education or agricultural practices to name a few. The impact of sensors in changing our life for the better is undeniable for it does play an essential role in our live. As of now, the only solution in combatting the issue of child abduction is through controlling method of which tips and advices are given to parents on how to keep their children safe. However, parents could not be with their children all the time due to their commitment to profession as well as their children education commitment.** **Keywords— (Child, movement, vibration level, sensor)**
Nur Qurratu Ain Khairilanuar **ERCICSTR1803111**	**DETRAT: A Web-Based Application for Rat Detection System** **Nur Qurratu Ain Khairilanuar** **Department of Computer and Information Sciences, University of**

	Technology PETRONAS, Perak, Malaysia **Abstract** **Nowadays, the wide usage of web application has become a norm in the society's everyday life due to its contribution in making our daily routines easier. Their ability to collect data by relying on only the Internet connection has helped mankind in obtaining more information on environment, agriculture and many more. Even now, the progressive technology has helped us to retrieve large amount of data in identifying patterns of environment changes. This helps us to conduct more in-depth research about habitats in agricultural industry as the industry is also becoming more aware of the impact of technology on agriculture. Agricultural industry now plays a prominent part in utilizing technology to help finding solutions over problems faced in the agriculture field as taking preventive measures. One of the main problems that is faced by the farmers is the problem of rat infestation in paddy fields of which no solution has been fully developed to overcome the said problem.** **Keywords— (MyGAP, infestation, habitats, mark)**
Tharaka Chathuranga **ERCICSTR1803101**	**Determination of Biocontrol Efficacy of Selected Trichoderma Isolates Against Fusarium Oxysporum f.sp. Cubense Under Greenhouse Condition** **Tharaka Chathuranga** **Faculty of Science, University of Ruhuna, Matara, Sri Lanka** **Abeysinghe, S.** **Department of Botany, Faculty of Science, University of Ruhuna, Matara** **Abstract** **The Panama wilt disease is one of the most destructive diseases of banana in worldwide, caused by the pathogen Fusarium oxysporum. f.sp. cubense. Trichoderma spp. have been reported as the most promising biocontrol agent against several phytopathogens. Among 13 native Trichoderma isolates, T9 and T13 showed significant ($P<0.05$) antagonism against 3 pathogenic Fusarium isolates found in Sri Lanka on Petri plate assay. Among these three pathogenic isolates F.oxysporum (ma)K1 was found to be the most aggressive isolate showing disease severity index (DSI) of 96.16±1.49. Therefore F.oxysporum (ma)K1 was selected for further studies. When Trichoderma isolate T13 and T9 applied separately as a biocontrol agent in greenhouse pot experiments, DSI was significantly ($P<0.05$) reduced to, 9.019±3.110 and 15.997±3.323 respectively. This shows T13 could be used as superior biocontrol agent against Panama wilt disease than T9. The mean population density of T9 and T13 in the rhizosphere was assessed on Trichoderma selective medium (TSM) at every 28-days interval starting at 4 weeks after introducing the biocontrol agent to the root system and showed progressive colonization until 8 weeks from the post-inoculation in the presence of both pathogen F.oxysporum (ma)K1 and either T13 or T9. However, significant enhancement of T13 population was observed when the presence of both the antagonist and the pathogen whereas this trend was not observed with T9. The prolong colonization by T13 explains the superior biocontol activity against F.oxysporum (ma) K1 over T9. When both antagonist and the pathogen exist in the rhizosphere, colonization ability has increased than their in alone indicating an interesting plant-microbial interaction favor to the biocontrol agent. Accordingly, both Trichoderma isolates can**

	be used to control F.oxysporum (ma)K1 and T13 was the most effective isolate under greenhouse condition. **Keywords: Fusarium oxysporum f.sp. cubense; Biocontrol agent; Mycoparasitism; Trichoderma spp**
 **Walakulu Gamage Sumudu Sriyanthi** **ERCICSTR1803104**	**Effects of Compost Amendments on Phytoremediation of Soil Contaminated with Used Lubricating Oil by Crotalaria Retusa L.** **Walakulu Gamage Sumudu Sriyanthi** **Department of Botany, Faculty of Science, University of Ruhuna, Matara, Sri Lanka** **Masakorala Kanaji** **Department of Botany, Faculty of Science, University of Ruhuna, Matara, Sri Lanka** **Murray T Brown** **School of Biological and Marine Sciences, Plymouth University, Drake Circus, Plymouth, United Kingdom** **Widana Gamage Shirani Manel Kumari** **Department of Botany, Faculty of Science, University of Ruhuna, Matara, Sri Lanka** **Abstract** **Improper disposal of used lubricating oil (ULO) to the soil has become an emerging global environmental concern. The presence of highly toxic polycyclic aromatic hydrocarbons and heavy metals in ULO, may affect negatively on environment and biota. Phytoremediation is a promising strategy to remediate contaminated matrices. Addition of compost may pose a positive impact on phytoremediation. Therefore, the aim of the study was to determine the effects of compost amendments on phytoremediation potential of Crotalaria retusa L. grown in soil contaminated with ULO. A pot experiment was conducted by employing soil contaminated with 1%, 2% and 3% w/w ULO amended with compost level at 5% and 10 %. The randomized block design (RBD) was applied with three replicates per each treatment. Control experiment was carried out by using the same contamination levels without compost amendments. Two seedlings of C. retusa L. were planted per pot in all treatments and control. At the end of 90 days, plant growth performances (PGF), chlorophyll content and ULO biodegradation were measured. Two sample t test was employed to compare the significant difference of the means of the measured parameters from treatments and controls. The results revealed significantly ($p<0.05$) high percentage biodegradation in 1% w/w ULO (62.53%) amended with compost level at 10% w/w compared to that of in the compost un-amended contaminated control (44.65%). PGF were also significantly different ($p<0.05$) in compost amended soil compared to soil without compost amendments. Significant ($p<0.05$) positive correlation was found between each growth parameters and percentage biodegradation. Therefore, overall results highlight that the addition of compost enhance the PGF and phytoremediation potential of C. retusa L. grown in soil contaminated with ULO. Thus, compost amendments can be effectively used in the phytoremediation of ULO contaminated soils even at higher contamination levels.** **Key words: Compost amendments, Phytoremediation, Used lubricating oil**

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Abu Yamin Hasimahwati
ERCICSTR1803114

KISS: A Web Application for Key Record Tracking using Server-side Scripting Language and Robust Data Storage

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Abstract

Segamat 2 Community College (KKS2) is an educational institution equipped with rooms, labs and workshops ranging from architectural, programming and computational, and electrical and installation courses. These courses are mainly using different rooms to adequate the lessons. Therefore, an efficient system to record and track keys to these rooms is crucial to maintain comfortable working environments. Keys are arranged and easy to access whereas the location determined only by checking the system online. Whilst an approach to solve a problem often addressed using methods, procedures, frameworks, technical apparatus and many others, the researcher is introducing Sistem Maklumat Kunci (KISS). KISS can record and tracked keys virtually as it is using dynamic server-side scripting language. KISS introduces better ways to manage problems that arises prior to it because of keys displacement because the basic process of lend and returning keys can be monitored online by users. Thus, users can retrieve and search any information and on the key's whereabouts 24/7 on their fingertips. In addition, expanding user interaction within other institutions also possible through collaboration because KISS promised robust database storage. Also, SDLC model is used to develop the system as it is more flexible to maintain as each phase is organized with suitable activities towards fast and efficient system development.

Keywords: Records, Tracking, Key, Server-side Scripting, Web Application.

Intan Idura Mohamad Isa
ERCICSTR1803120

Variation of PM10 mass concentrations from Southern areas of Malaysia

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Abstract

PM with aerodynamic diameter of 10µm or less is one of the most common air pollutants used to monitor the level of environmental pollution. Objective: This study aimed to explore the trend of PM10 within three selected air monitoring station with different background in Southern areas of Malaysia. Materials and Methods: Data were obtained from the Malaysian Department of Environment (DOE) on a 24 h basis for industrial area (S1), urban area (S2) and suburban area (S3). Data were then analysed using XLSTAT software and HYSPLIT model. Results: The results showed that the highest PM10 concentration was from industrial area and followed by urban and suburban area. PM10 concentrations increased substantially on August for all monitoring

	stations in this study due to haze across border from neighbouring country. S2 showed the highest PM10 reading (142µgm) for daily average data during haze episode. Hot and dry weather following El Nino may increase in open fires which contributes to the occurrence of haze problems in Malaysia. Future scope: Principle Component Analysis (PCA) can be done to investigate possible sources of air pollutants in Malaysia. **Keywords : Air quality, Haze, Particulate Matter**

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- 2nd ICSTR Dubai – International Conference on Science & Technology Research, 26-27 December 2018
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