

Editorial

This Volume 41 Number 2 includes nine (9) research/technical articles and a memorial written for the late Eur Ing Aldwyn Lambert Lequay who was the past President of the Association of Professional Engineers of Trinidad and Tobago (1976-1977). The relevance and usefulness of respective articles are summarised below.

N. Ramsamooj et al., “A Comparison of Memetic Algorithms in a Generator Maintenance Scheduling Problem for Trinidad and Tobago”, compared the uses of three search methods (hill climbing, tabu search, simulated annealing) against genetic and memetic algorithms in the solution of the generator maintenance scheduling problem in power generation companies. The paper demonstrates the use of metaheuristic optimisation techniques to approximate global optimum schedules in finite time. Results show that the techniques could improve the previously implemented solution of generator scheduling for a case company under study in Trinidad and Tobago.

In the article, “Determination of Best-fit Propagation Models for Pathloss Prediction of a 4G LTE Network in Suburban and Urban Areas of Lagos, Nigeria”, **A.L. Imoize et al.** investigated the suitability of propagation models for path loss prediction of a fourth generation long-term evolution (4G LTE) network. These models were selected and developed using the least square regression algorithm. Promising prediction results with root mean squared errors (RMSEs) were recorded and compared with propagation measurement results reported in both urban and suburban areas. It was found that these models would better characterise radio coverage and mobile network planning, enhancing the quality of mobile services in the suburban and urban areas of Lagos, Nigeria.

M.B. Balogun et al., “Modular and 3D-Design of a Fluidised Bed Boiler with Agricultural Residue for Steam Energy Production”, investigated the fuel distribution of a miniature fluidised bed boiler designed and constructed for steam generation. The investigation was carried in two-dimensional chamber. The results obtained with corncob at constant feed rate recorded stability of the saturation temperature. Saturation pressures were obtained, and the effect of fuel particle size on emissions and over all combustion efficiency of corncobs has proven to be efficient in a fluidised bed boiler.

A. Mwashia and J.A. Iwaro, “Assessing Residential Building Energy Efficiency in the Caribbean Environment: A Case Study of Trinidad and Tobago”, explored the strategy for achieving sustainable building energy efficiency in warm humid regions. The impact of building envelope systems on the building energy efficiency was reported through experimental approach using three building physical models. The performance of the building envelope physical models was monitored in

terms of energy consumption, cooling load, indoor temperature, indoor relative and humidity. It was found that short-term strategies could be applied and the insulated galvanised and standing seam roofing systems are more energy efficient and cost effective.

In the fifth article, “Strengthening Geospatial Data Ecosystems in the Caribbean: A Role for Academic Institutions”, **B. Ramlal, D. Davis and E. Edwards**, explored the need toward the Sustainable Development Goals (SDGs), and examined the state of readiness of national geospatial data ecosystems (NGDE) in the region. They identified the major challenges in achieving functional systems, and proposed intervention strategies that could be implemented with indigenous support from academic institutions such as The University of the West Indies.

R. Murray and A. D’Arbasie, “Automated Identification of Vehicular Accidents from Acoustic Signals Using Artificial Neural Networks”, developed an automated system for the identification of motor vehicular accidents. They utilised an artificial neural network approach to estimate the probability of occurrence, based on recorded acoustic signals, and then developed a dual layer artificial neural network. The system was built and tested in the MATLAB environment, utilising 22 sample signals in the design phase and a further 53 for testing. An evaluation of the system found it have an accuracy of 86% and a precision of 76%, with a 100% identification of actual accidents. The system also prioritises the time domain signal features over those of the frequency domain, in the identification process.

R.L.A. Ellis, and K.D. Gordon, “Employee Perception of the Impact of Occupational Health and Safety Management on Organisational Commitment: A Case Study of an Energy Sector Organisation in Trinidad and Tobago”, spoke about the Occupational Health and Safety (OHS) dimension of the work environment. A cross-sectional case study was conducted using a group of non-managerial employees in the Petroleum Sector in Trinidad and Tobago (T&T). It was found that employee perception of managerial OHS support practices had a significant and positive correlation with affective commitment. Managerial OHS support would have an impact on employees wanting to remain employed in the organisation. It was concluded that the prioritisation of occupational health and safety in the workplace facilitates employees’ organisational commitment, and recognition of workers perception of health and safety would demonstrate emotional attachment and commitment to the organisation.

In the eighth article, “Modelling the Rehydration Characteristics of White Yam”, **AA. Akinola S.N. Ezeorah and E.P. Nwoko**, proposed a model describing

the variation in the rehydration ratio with rehydration time for yam slices. The model would describe the relationship between the moisture content of yam slices with time when rehydrated. It was claimed that the study would provide a better understanding of the rehydration characteristics of yam slices during the rehydration process. The results from rehydration process indicate that rehydration occurs very rapidly in the first few minutes of the rehydration process, and the process is faster as the rehydration temperature increases.

B.V. Chowdary, M-A. Richards and T. Gokool, “Redesign of a Furniture Industry Component: A Sustainable Design Approach”, explored a sustainable product design for a furniture component using Design for X (DFX) tools and techniques. The efficacy of the approach was demonstrated through a case study involving the redesign of a component selected from the local Caribbean market. The SolidWorks package was used to generate computer-aided design (CAD) models which were further analysed by using the Simulation and Sustainability modules. The guidelines of Design for Manufacture and Assembly (DFMA) and Design for environment (DFE) were also utilised in the redesign. The research shows that DFX tools and techniques could be combined in a single platform to effectively redesign products to meet functional and environmental requirements.

C.A.C. Imbert, “Ing Aldwyn Lambert Lequay (1927-2018): A Memorial”, speaks about the profession life, and recognises the commitments and contributions of late Eng Ing Aldwyn Lambert Lequay towards the development of mechanical and electrical engineering disciplines and professionals in Trinidad and Tobago and the wider Caribbean region.

On behalf of the Editorial Office, we gratefully acknowledge all authors who have made this special issue possible with their research work. We greatly appreciate the voluntary contributions and unfailing support that our reviewers give to the Journal.

Our reviewer panel is composed of academia, scientists, and practising engineers and professionals from industry and other organisations as listed below:

- **Dr. Abrahams Mwash**, University of the West Indies (UWI), Trinidad & Tobago (T&T)
- **Dr. Agnieszka Ciurzyńska**; Warsaw University of Life Sciences, Warszawa, Poland;
- **Dr. Albert Tsang**; Hong Kong Polytechnic University, Hong Kong
- **Dr. Chris Maharaj**; UWI, T&T
- **Dr. Cilla Pemberton**; UWI, T&T
- **Dr. David Oscar Yawson**; Centre for Resource Management and Environmental Studies (CRMES), UWI, Barbados
- **Professor Emeritus David R. McGaw**; UWI, T&T

- **Dr. Dhurjati Prasad Chakrabarti**; UWI, T&T
- **Professor Dirk J.E.M. Roekaerts**; Delft University of Technology, Delft, The Netherlands
- **Professor Emeritus G.S. Vijaya Raghavan**; McGill University, Québec, Canada
- **Dr. Henry Lau**; University of Western Sydney, Australia
- **Professor Himadri Chattopadhyay**; Jadavpur University, Kolkata, India
- **Dr. Jacqueline Bridge**; UWI, T&T
- **Dr. Jeffery Jones**; University of Warwick, UK
- **Mr. Jeffrey Barsatie**; UWI, T&T
- **Professor Joseph K. Ssegawa**; University of Botswana, Gaborone
- **Dr. Ken Sooknanan**; Centre for Information and Communication Technology, University of Trinidad and Tobago
- **Dr. Kimberly Baldwin**; CRMES, UWI, Barbados
- **Professor Kit Fai Pun**; UWI, T&T
- **Dr. Krishpersad Manohar**; UWI, T&T
- **Dr. Lotto K.H. Lai**; Hong Kong Science & Technology Park, Hong Kong
- **Ms Man Yin Rebecca Yiu** ; UWI, T&T
- **Dr. Mohammed M. Ibrahim**; Banha University, Shoubra, Egypt
- **Professor Peter Hogarth**; Bournemouth University, UK
- **Professor Prasanta Kumar Dey**; Aston University, Birmingham, UK
- **Dr. Randy Harnarinesingh**; UWI, T&T
- **Professor Reynold Stone**; UWI, T&T
- **Professor Emeritus Richard Dawe**; UWI, T&T
- **Dr. Richelle V. Adams**; UWI, T&T
- **Dr. Saheeda Mujaffar**; UWI, T&T
- **Dr. Shankar N. Dandare**; College of Engineering, Pusad, Maharashtra-State, India
- **Professor Steven D. Brown**; University of Delaware, Newark, USA
- **Dr. Tricia Ragoobar-Prescod**; UWI, T&T
- **Mr. Vinay Shrivastava**; Turner & Townsend Limited, London, UK

The views expressed in articles are those of the authors to whom they are credited. This does not necessarily reflect the opinions or policy of the Journal.

KIT FAI PUN, *Editor-in-Chief*
Faculty of Engineering,
The University of the West Indies,
St Augustine, Trinidad and Tobago
West Indies
January 2019