Editorial

I. Notes from the Editor

The ongoing impact of COVID-19 pandemic has brought many challenges to many people and activities including the West Indian Journal of Engineering (WIJE) in the past year. The pilot testing of the WIJE-web project had been postponed. However, the Editorial Sub-committee has continued to plan and review the work for the Journal despite the unexpected constraints.

Since the last volume, the Journal had received a total of 29 research and technical papers seeking for possible publication. Articles were of a theoretical nature, were based on practical experience orto report a case study situation or experimental results. After the peer review process, a total of 5 papers were accepted for publications, yielding a successful acceptance rate of 17.2%, and another 17 manuscripts are under review, with an in-progress rate of 58.6%. The remaining 7 manuscripts were rejected. Besides, the Journal would assign DOIs to all the papers accepted and published, starting from this current issue.

II. About this Issue

In this Volume 44 Number 1, the Journal includes five (5) research/ technical articles. The relevance and usefulness of respective articles are summarised below.

E. Jaggernauth and **S. Rocke**, "Effectiveness of Paired Next Generation Firewalls in Securing Industrial Automation and Control Systems: A Case Study", investigated the challenges posed to management teams, across different industries and business domains in Trinidad and Tobago (T&T) and other countries in the Caribbean. The business of cybersecurity has been evolving dramatically. This paper focused on the effectiveness of next generation firewalls (NGFWs) in their defense against malware within Process Control Networks (PCNs). It was supported by real data from a process plant complex within T&T, as a case study.

The Government of Barbados has endorsed the approach of 100% renewable energy (RE) implementation by 2030. In their article, "Barbados towards 100% Renewable Energy: Case Scenarios for 2030 National Energy Target Plans", **S. Marshall** and **R. Koon Koon,** explored three distinctive annual growth rate (AGR) scenarios to assess the impact on the expected power generation, economic and environmental parameters through the period of 2019-2030. Notable findings at a high case scenario for 2030 (at an AGR of 3%) project a power generation of 1.343 Tera-watts-hour (TWh), which will displace 790,500 barrels of oil equivalent (boe), resulting in an abatement of approximately 0.95 million tons of carbon dioxide into the atmosphere.

Trinidad and Tobago (T&T) has been witnessing a growing interest and application of commercial and non-commercial operations of Unmanned Aerial Systems (UAS). **R. Al-Tahir** and **G.K. Lalla,** "Assessment of the Emerging Landscape of Unmanned Aerial Systems in Trinidad and Tobago", identified the emerging UAS landscape in T&T during the period 2015 to 2019. As such, this study maps and characterises the spatial and temporal patterns of UAS distribution, then appraises the various categories for the existing operations. To achieve these goals, this study utilised qualitative and quantitative techniques of Geoinformatics. The intent for this study is to provide a perspective on the growth and the implications of the UAS industry in T&T, and to guide strategic planning among organisations with a stake in the emergence of UAS into civil airspace.

N. Ramsamooj, "Spatio-temporal Kriging of Lower Caribbean Wind Data", considered imputation by spatio-temporal kriging using data from neighbouring locations. Temporal basis functions with spatial covariates are used to model diurnal wind speed cyclicity. The residual set of our spatio-temporal model is modelled as a Gaussian spatial random field. Fitted models may be used for spatial prediction, as well as imputation. Examples of predictions are illustrated using two months of hourly data from eight Caribbean locations with prediction accuracy being assessed by cross validation and residuals.

In the fifth article, "Advancing the Ultra High Frequency RFID in Industrial Applications: A Review", **T. Aleong** and **K.F. Pun** provided a review on the principle of Radio Frequency Identification (RFID) system operation using an extensive search of relevant articles from technology management and related journals over the past two decades. The review explored 1) the RFID tags operating in the ultra-high frequency (UHF) band, 2) analysed some of the major advancements of this technology in the field of sensor tagging solutions in the past two decades, and 3) discussed industry-based applications utilising UHF RFID sensor tagging solutions for process measurement data acquisition. Among the main challenges have been privacy and security concerns on their applications in industry. The paper then amalgamated a list of UHF RFID industry-based applications and shed light on critical areas of the UHF RFID Technology.

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:

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KIT FAI PUN, *Editor-in-Chief*

Faculty of Engineering,
The University of the West Indies,
St Augustine, Trinidad and Tobago, West Indies

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