PROLOGUE

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Technology is an enabler in all spheres of life today. In Education, it has been said that "technology will not replace teachers, but teachers who use technology will probably replace teachers who do not use it". This extends to Industry, Business and Commerce. Using technology to its full potential enables that "competitive edge" that so many organisations are vying for today. It enables efficiency of various processes, such as automation, data analytics, business intelligence and customer service. Indeed, technology is being used to the full by businessmen, managers, environmentalists, scientists and many more to achieve the mission and vision of organisations around the globe. In this regard, we have shortlisted only ten papers out of more than one hundred submissions that were presented at the "International Conference on Business, Management, Environmental, and Social Science 2021 (BMESS®-2021)" and the "7th International Conference on Recent Trends in Computer Science and Electronics" in this special issue of Web of Science/Emerging Source Citation Index Journal, 3C Tecnología. A brief synopsis of these papers follow.

In the first paper, Abosaq (2021) discusses how the Blockchain enabled Internet of Things (IoTs) has gained prominence among global researchers, academicians, planners, managers and industrialists. Both Blockchain and IoTs have the potential to achieve the 17 Sustainable Development Goals of the UN by the year 2030. Blockchain enabled IoTs has become an integrated and distributed Systems of Systems (SoS) networked technology that has been used in cloud infrastructures and in 5G/6G wireless systems. However, challenges to its use still exist which are noted in this paper, as well as further potential applications of it. A key

challenge is noted regarding the lack of security in blockchain technology and resource constrained architecture of the industrialized IoTs to tackle crypto-materialized protocols.

In the second paper, Memon *et al.* (2021a) proposes a variable duty-cycle control scheme to increase the efficiency of buck converter operating in discontinuous conduction mode (DCM). In other words, they propose a control scheme to achieve a high power factor for DCM buck converters by only modulating the duty-cycle of a buck switch. The simulation results of this technology indicate that the proposed control scheme increases the efficiency and reduces the losses of a DCM buck convertor.

In the third paper, Çakır and Ulukan (2021) sort existing web (or video) platforms according to criteria determined by experts and select the best one among different alternatives for class education with the help of interval-valued fuzzy parameterized intuitionistic fuzzy soft sets. In this work, seven experts determined six criteria and their interval-valued fuzzy weights depending on educational needs. Ten video conferencing tools for educational institutions were evaluated in this regard that may also be classified under educational technologies. The results are intended to guide future research.

In the fourth paper, Memon *et al.* (2021b) concludes that our life is simpler, easier and comfortable due to power electronics. However, low power factors remain a challenge along with harmonic content that leads to higher power loss, voltage distortions and electromagnetic interference. A modified variable-on-time control scheme for an Integrated Buck-Boost Converter (IBBC) is therefore proposed in order to make the input current waveform as a sinusoidal as possible. The research methodology involves comparing a buck converter within a traditional control scheme to that with the proposed control scheme. Simulation results of this technology indicate an almost sinusoidal current waveform for the verification of the theoretical analysis.

In the fifth paper, Flores and Silva (2021) review seven models that may be used to predict divorce that has increased globally over the past two decades. They reference "The Four Horsemen of the Apocalypse" that can lead to divorce, along with the most leading cause being infidelity. The study draws on 56 questions as predictors of divorce and makes use of 4 automatic machine learning models and 3 hybrid models based on voting criteria that forms part of computer based technology. 35 experiments are presented in total for these

seven models where the best results were obtained for the perceptron model. A limitation of the study relates to the context, the amount of data and the country in which the data were collected.

In the sixth paper, Panjagal and Ramaiah (2021) focus on odor pollution that can be caused by a number of factors, including the growth of urbanization with improper sanitation facilities or from unscientific dumping on vacant lands. It can lead to a number of health concerns that can negatively impact ones quality of life. They propose an intelligent mechanism for detecting, measuring and alerting individuals to the possible health effects of odor pollution. It involves the design of a solar-powered handheld electronic device (called an E-Nose) where real-time measurements are uploaded to an IoT cloud for remote monitoring and alerts. The results of these measurements were collaborated by a health survey that was completed by 80 individuals living in the area of the research site. Threshold limit values for Ammonia, Hydrogen Sulphide and Sulphur Dioxide were implemented for this technology from which alerts could be generated.

In the seventh paper, Tas *et al.* (2021) discuss an important step in the business supply chain, being supplier selection. They propose a new combined fuzzy methodology (using the SWARA and MARCOS methods that are made possible through computer based technology) to select suitable green suppliers that take into account the environment. A case study using a textile company is used where six suppliers are evaluated against 12 green criteria. The highest weight criteria were found for suppliers who have a well projected green image, a clear-cut environmental management system and options for green transportation.

In the eighth paper, Pedraza *et al.* (2021) propose the design of an ecological green area to improve the quality of life within a given district of Lima, Peru. The district was selected based on a topographic survey along with an evaluation of the climate, soil science, flora and fauna. An online survey was further used to obtain perceptions of the residents regarding the importance of green areas in their district. Results indicate that this district has only 1.69 m^2 of green area per inhabitant, which is much less than the recommended WHO standard of around 10 m^2. The proposed design, derived from computer based technology, is deemed viable and can be used to respond to the urgent need to raise the environmental quality of similar districts around the world.

In the ninth paper, Memon *et al.* (2021c) presents a power factor improvement technique for a buck-convertor by only modulating the on-time of a buck switch without the need of an extra converter. Buck converters exhibit many advantages such as maintaining high efficiency for a wide range of input voltages, cost reduction, low output voltage, protection against inrush current and lifetime improvement. The technique makes use of a variable-on-time control scheme for critical current mode (CRM) buck converters. A theoretical analysis is given in the paper with simulation results to confirm the advantages of this technology.

In the tenth paper, Geldres *et al.* (2021) analyses the deficiencies of older buildings of educational institutions within a given district of Peru by using computer based technology. The methodology is based on percentage variations of the institutions by levels, where a sample of 79 educational institutions was considered, based on critical components such as their basic infrastructure, essential services, and advanced infrastructure. Percentage variations found between 2017 and 2020 reveal that maintenance does not mitigate or strengthen the educational infrastructure, but are palliatives that are worsening over time.