

Editorial Preface

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I am happy to present the editorial preface of the International Journal of Hyperconnectivity and the Internet of Things (IJHIoT) Volume 05 No 01 (2021). This issue is containing selective six manuscripts from reputed researchers.

The first paper of this issue titled, “SEF4CPSIoT Software Engineering Framework for Cyber-Physical and IoT Systems,” is contributed by Muthu Ramachandran. This manuscript focuses on Cyber-Physical Systems (CPS) that have emerged to address the need for a more efficient integration of modern advancement in cyber and wireless communications technologies such as 5G with physical objects. Besides, CPSs systems also needed to the active control of security & privacy when we compare them with the Internet of Things (IoT). In recent years, we experienced a lack of security concerns with smart home IoT applications such as home security cameras, etc. Therefore, this paper proposes a systematic software engineering framework for CPS and IoT systems. This paper also proposed a comprehensive requirements engineering framework for CPS-IoT applications, which can also be specified using BPMN modeling and simulation to verify and validate CPS-IoT requirements with smart contracts. In this context, one of the vital contributions of this paper is the innovative and generic requirements classification model for CPS-IoT application services, and this can also be applied to other emerging technologies such as fog, edge, cloud, and blockchain computing.

The second paper, titled “Ethical Computing For Mitigating Hyperconnectivity Threats,” is authored by Wanbil William Lee. In this interest, he writes that many of the problems arising from a technology-driven information-intensive environment could have been avoided, occur, because we are either insensitive to or ignorant of their ethical implications. Consequently, data protection remains a chronic, expensive nightmare despite the significant speeding on cybersecurity. Ethical Computing can play a role in identifying the ethical issues, key stakeholders, and reaching a near-ideal solution vis-à-vis an ideal solution. Hyperconnectivity threats that inherit all the vulnerabilities of the physical objects and virtual subsystems that IoT connects to serve some purposeful objectives change not the environment. Ethical Computing is assistive in reaching that near-ideal solution.

The third article authored by Ganesh Khekare et al., is titled “Analysis of Internet of Things Based on Characteristics, Functionalities, and Challenges,” The team focusing on the Internet of Things (IoT) as transpiring technology. In the last decade demand of IoT has been increased due to various things like the use of smart devices; increased demand for voice-based services; the concept of smart cities has been evolved; more requirements of processed data in fields of artificial intelligence and machine learning; fog computing, deep learning, etc. IoT is expected to reach a milestone of 30 billion IoT units at the end of the year 2020. Internet of things is the network of statutory stuff like houses, private companies, automobiles, and various objects integrated with sensors, actuators, software, electronic equipment, and internet availability that provides the facility to devices to interchange their data. The main contribution of this article is to provide state of the art about the characteristics, functionalities, and challenges of the Internet of Things and the journey of IoT right from start to how it will make an impact on people’s quality of life throughout the world in the near future.

The Fourth article titled, “Hyper Connectivity As A Tool For The Development of The Majority” by Danilo Piaggese. This paper explores hyper wireless connectivity and its associated costs –including ICT infrastructure-- in their impact on health, education, government, and commercial applications. It analyzes the cost-effectiveness of wireless provision of access and services in underserved (primarily rural) areas, examining applications around the world. A snapshot of private sector activity in Latin America and the Caribbean is presented along with government and international development organizations’ efforts to promote wireless technologies in development projects. Attention is given to the policy barriers preventing the private sector from developing these technologies in the context of underserved markets, the role of government in providing universal service, and issues of spectrum allocation. Finally, recommendations are proposed for the future of Multilateral Development Banks (MDBs) involvement in the area of wireless applications and wireless technology policy, as tools for the development of emerging economies.

The fifth article contributed by Edith Obregón Morales et al., titles “Portable Hybrid Refrigerator Prototype for Agribusiness With It’s 3D Real Physical Geometry Scanned and Transferred for Simulation Software.” The author focuses on a methodology that starts from the acquisition of real prototype geometries up to simulations to evaluate parameters, improvements, or performance under various conditions is proposed. They have shown a case study of a refrigerator with storage capacity for 50 kg of fruit solar-powered by photovoltaic panels, which reach a temperature of about 4 °C. The fridge comprises two systems, vapor-compression, and Peltier. The methodology consisted of acquiring by a 3D laser scanner or coordinate measuring machine (CMM) and in some small complex items using 3D photogrammetry scanner. This data was transferred first as a CAD or Solid Works geometry and subsequently transferred to domains geometry useful for ANSYS or COMSOL simulation software. These models with high-resolution bring the simulations closer to real prototypes. Wireless sensors were installed for temperature and humidity monitoring. The analyses of the energy efficiencies of the prototype were performed. The photovoltaic system was for use in crop areas where there was no access to the urban electric network.

In the Sixth and last article of this issue, titled “Information Technology Infrastructure For Smart Tourism in Da Nang City: IT Infrastructure for Smart Tourism” authored by Nguyen Ha Huy Cuong and Trinh Cong Duy. In this manuscript, they focus on a smart tourism system that has an essential role in using information and communication technology to form an intelligent tourism ecosystem, build a high-quality tourism industry to serve tourists, contributing to sustainable economic development. In line with current tourism development needs, a database should be built in the direction of integrating the most substantial information possible. The information contained in it should cover many aspects of the visitors’ requirements, including location and spatial relations as well as to object specification features. In order to have a brilliant tourism environment, certain investments in database development are essential for localities that want to develop this trend. The database is built for smart tourism based on GIS (Geographic Information Systems) is a new direction with the development of IT infrastructure, not outside of building smart cities.

I am sure that these six papers will make this a new issue in the International Journal of Hyperconnectivity and the Internet of Things (IJHIoT) Volume 05 No 01 (2021). At this juncture, I am thankful to the Editorial board member for their timely support in the review. I am also grateful to Ms. Alexis Miller, without her continued support, it was not possible to complete the issue well on time.

I am looking forward to receiving your unpublished research work for Volume 05 No 02 (2021).

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Editor-in-Chief
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