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Space-enabled Future Smart Cities: A Review of Technologies and Resources

Abstract: Satellite-enabled applications and services have continued to enhance the global economy and sustainable development on a daily basis. It is predicted that capability-based space satellite missions and applications will revolutionise the emergence of smart cities in 5 to 10 years from now. The various stakeholders in the space community (including the satellite industry, military, civilians, government, corporate organisations, educational and research institutions, agencies and ICT practitioners) have embraced the challenges of the requirements of space-enabled smart cities. This has resulted in an unprecedented increase in the number of new international space entrants, collaborative research and technology developments and product offerings for innovative services. The ultimate global experience is a growing seamless merging of adaptive space assets with terrestrial assets. Current and emerging digital and RF/microwave engineering systems have championed the majority of the innovative services proposed for the future intelligent cities. It is essential to investigate the existing and emerging systems technologies, multifunctional network platforms and protocols, space segment assets and ground segment resources and how they can be integrated and optimised to provide commercially cost-effective, sustainable, reliable, capability-based and real-time services for future smart cities.

Biography: Sunday Coockey Ekpo obtained his Bachelor of Engineering (BEng (Hons.)) in Electrical & Electronic Engineering at the Federal University of Uyo, Nigeria in 2001. In September 2008, he graduated with a MSc in Communication Engineering at The University of Manchester, United Kingdom and proceeded for a PhD in Electrical & Electronic Engineering at the same institution. He has published over 30 internationally peer-reviewed and refereed technical papers in the fields of RF & microwave communication systems engineering and space satellite systems design and engineering. His research interests also span space missions modelling, spacecraft payload design, adaptive space-based sensor networks modelling, antennas and propagation engineering and multicriteria optimisation of engineering systems. Sunday is a regular peer-reviewer of technical publications for journals and conferences in his area of expertise and allied fields. Furthermore, his professional and academic practice and experience encompass engineering consulting, aerodrome/aviation engineering, field engineering services procurement, knowledge transfer partnership, R&D engineering and higher education lecturing. He is also a member of the Institute of Electrical & Electronic Engineers, Institution of Engineering and Technology, American Institute of Aeronautics and Astronautics, Applied Computational Electromagnetics Society, Nigerian Society of Engineers, International Association of Engineers, Society of Satellite Professionals International and Higher Education Academy. Sunday has served as a member of several International Technical Programme Committees of refereed conferences (including the Annual International IEEE Systems Conference (San Diego, California, USA, 2013), (Ottawa, Ontario, Canada, 2014) and (Vancouver, British Columbia, Canada, 2015); Design and Performance of Network on Chip 2015 conference; International Symposium of Web of Things and Big Data 2015). He is also a regular chair and organiser of technical sessions at conferences including the 9th International Symposium on Communication Systems, Networks & Digital Signal Processing, 2014, Manchester, UK; and the 30th and 31st

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