Keynote Speech 4: Digital Transition in Precision Agriculture

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Abstract. Digital agriculture is revolutionizing the global agricultural sector, aiming to optimize productivity, enhance competitiveness, and mitigate the negative effects on the environment. Precision agriculture, on one hand, is increasingly being adopted in larger areas, while the process of digital transition involves monitoring crops and incorporating artificial intelligence and other technologies to enable more efficient management practices. Therefore, it is crucial to showcase the manifold benefits of digitalization to farmers, ensuring the development of a sustainable and competitive agricultural sector. Furthermore, obtaining accurate and up-to-date information about farming sites offers significant advantages to researchers, the educational community, and even promotes the emergence of agricultural tourism. This speech aims to explore diverse approaches that facilitate the adoption of digitalization in agriculture. Disruptive technologies such as Low Power Wireless Area Networks (LPWAN) can be combined with other established short-range wireless technologies within a heterogeneous network. Additionally, the integration of multispectral images, 3D point-cloud maps, and AI-powered algorithms capable of processing massive amounts of data (AI and Big Data) can create a comprehensive system that enhances vital aspects such as the sustainability of agricultural activities, reduction in the utilization of natural resources, and increased public awareness of these issues. The exchange of knowledge between farmers and experts will yield valuable recommendations to support their transition to more ecologically sustainable farming practices.

Biography. Dr. Sandra Sendra (sansenco@upv.es) received her degree of Technical Engineering in Telecommunications in 2007. She received her M.Sc. of Electronic Systems Engineering in 2009 and her Ph.D. in electronic engineering (Dr. Ing.) in 2013. Currently, she is an associate professor at the Polytechnic University of Valencia (Spain) and academic director of a Bachelor's Degree in the same university. She is Cisco Certified Network Associate Instructor since 2009 and HP-ATA instructor since 2015. She is chair of the Membership development section inside the IEEE Spain Section for the term 2022-2023 and she has been vocal inside the IEEE Spain Section for the term 2020-2021, and active member inside the IEEE WIE Spain for the term 2016-2018. She has authored 6 book chapters and 2 books. She has more than 170 research papers published in national and international conferences, and international journals (more than 65 with JCR – Impact index Clarivate Analytics). She has been the co-editor of 10 conference proceedings and guest editor of several international journals. She has been involved in more than 120 Program committees of international conferences, and more than 50 organization and steering committees. She has been involved in 18 research projects related to the development of a WSN for environmental monitoring. She has been the general chair (or co-chair) of 4 International conferences. Her research interests, but no limited, include saving energy techniques in electronic circuits, sensor deployment, WSN, UWSN and the application of these technologies for environmental monitoring.