IFIP Networking 2024 1571040039
2024 IFIP Networking Conference (IFIP Networking)

# The Next Wave of IoT – Extreme IoT

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***Abstract*—In this interactive and thought-provoking session, we will embark on a captivating exploration of the remarkable world of systems that have some extreme characteristics. These systems hold immense potential to benefit us even in applications that confront extreme limits. While the Internet of Things (IoT) has already revolutionized our interaction with technology by connecting everyday objects to the digital world, this lecture takes us beyond conventional boundaries. We will dive deeper into the realm of extreme IoT, where we push the limits and discover how IoT can thrive and excel in environments with traditional constraints. We will explore various aspects, including crucial factors such as battery life, longevity, delay, and the challenging environmental conditions in which these systems must operate. By challenging the status quo, we uncover novel solutions that overcome these hurdles and unleash the true potential of sensors and radios. Prepare to be inspired as we present real-world examples and showcase research that demonstrates the transformative power of this field. Through this interactive session, we will, together, engage, ponder, and envision the future possibilities that lie within the realm of extreme IoT.**

## Bio

R Venkatesha Prasad is an associate professor at the Networked Systems group of Delft University of Technology (TU Delft). Between 2005 and 2012, he was a senior researcher and adjunct faculty at TU Delft. At TU Delft, he has supervised 21 PhD students (19 graduated, 2 ongoing) and 62 MSc students. He has (co-)authored more than 300 publications in peer-reviewed international transactions/journals, Patents, and conferences in the areas of Tactile Internet, Internet of Things (IoT), Cyber Physical Systems (CPS), Energy-harvesting, 60 GHz mmWave networks, Smart energy systems, Personal networks, Cognitive Radios and Voice over Internet Protocol (VoIP). He has been successful in acquiring and executing several European and Dutch national projects in the areas of IoT, Future home networks (60 GHz), Smart-energy systems, Personal networks, and Cognitive Radios. Venkatesha Prasad received his 4TU University Teaching Qualification diploma with excellence in 2014. Recognizing his research contributions to IoT, he has been selected as an IEEE Communication Society (ComSoc) Distinguished Lecturer on the Internet of Things for the period 2016-2018. He has been contributing significantly to valorizing research to practice by contributing to standards on Cognitive radios and Tactile Internet. He is currently the vice-chair of the IEEE Tactile Internet standardization group. He is also leading many IEEE activities through positions on standards boards (secretary in the ComSoc standards board) and technical committees (vice-chair of the cognitive networking committee in 2013-16). He is on the editorial board of many international transactions and magazines and is a regular TPC member for many prestigious journals and conferences. He was responsible for the signing of the MoU between IISc - TU Delft and he is anchoring the Indian Space Research Organization (ISRO) and TU Delft cooperation. He was the Deputy Project Director for Lunar Zebro – a moon rover project. He is a senior member of IEEE and ACM. He is a Fellow of IETE. He completed his PhD from IISc, Bangalore, India in 2003. During his PhD research, a scalable VoIP conferencing platform was designed. His thesis work led to a start-up venture, Esqube Communication Solutions. While at Esqube, eight patent applications and three PCT applications were filed along with his colleagues. He was instrumental in Esqube's selection as top 100 IT innovators in India in 2006 by NASSCOM and the top 100 promising companies in Asia by RedHerring in 2008. Recently, he led a student team to win the worldwide Airbus challenge – Fly Your Ideas (2019).

978-3-903176-63-8/24/$31.00 ©2024 IEEE