



Session Title: Using IEC 61850 and IEEE WAVE Standards in Ad-Hoc Networks for Electric Vehicle Charging Management

Paul Nsonga



Biography: Paul Nsonga (S'16) received his B. Science degree in Information Technology from Sikkim Manipal University, Gangtok, India in 2012 and the M. Science in Information Technology degree from Carnegie Mellon University, Pittsburgh, PA, USA in 2016. His research interests include wireless Ad Hoc networks, privacy, Electric Vehicles, power system communications and smart grid.

S. M. Suhail Hussain



Biography: S. M. Suhail Hussain (S'11) received B.Tech. degree in Electrical & Electronics Engineering from Sri Venkateswara University, Tirupati, India, in 2010 and the M.Tech. degree from Jawaharlal Nehru Technological University, Anantapur, India in 2013. He is currently pursuing the Ph.D. degree in electrical engineering at Jamia Millia Islamia (a Central University), New Delhi, India. His research interest includes microgrid, power system communications and smart grid. Mr. Suhail was a recipient of IEEE Standards Education Grant approved by the IEEE Standards Education Committee for implementing project and submitting a student application paper in 2014-15.

Ikbal Ali



Biography: Ikbal Ali (M'04, SM'11) graduated from Aligarh Muslim University, Aligarh, received the M.Tech. degree from the Indian Institute of Technology, Roorkee, India and has a Ph.D. in Electrical Engineering. Presently, he is Associate Professor in the Department of Electrical Engineering, Jamia Millia Islamia (A Central University), New Delhi. As principle investigator, Dr. Ali is executing research projects on Substation Automation, Micro-grid and IEC 61850 based utility automation funded from DST, AICTE, JMI and IEEE Standards Education Society. His research interests are in IEC 61850 based utility automation, substation communication networks architecture and smart grid.

Taha Selim Ustun



Biography: Taha Selim Ustun received his Ph.D. degree in electrical engineering from Victoria University, Melbourne, VIC, Australia. He is an Assistant Professor of Electrical Engineering with the School of Electrical and Computer Engineering, Carnegie-Mellon University, Pittsburgh, PA, USA. His research interests include power systems protection, communication in power networks, distributed generation, microgrids, and smartgrids. He has over 40 publications that appeared in international peer-reviewed journals and conferences. He is a reviewer in reputable journals and has taken active roles in organizing international conferences and chairing sessions. He delivered talks for World Energy Council, Waterloo Global Science Initiative, European Union Energy Initiative (EUEI) and Qatar Foundation. He has also been invited to run short courses in Africa, India and China.

Abstract: As Electric Vehicles (EVs) grow in popularity in developed countries, their integration within the Internet of Things (IoT) domain is envisaged. When fitted with wireless sensors and communication devices, On-Board Units (OBUs) for example, EVs have the ability to establish links with their surroundings. In this regard, EVs could communicate with Road Side Units (RSUs) in Intelligent Transport Systems (ITSs) and smartgrid. This paper proposes an EV charging load management scheme based on

communication between EVs and RSU modeled on the IEEE Wireless Access in Vehicular Environments (WAVE) standard and EV communication with charging stations (CSs) modeled on the IEC 61850 power utility automation and communication standard. Communication and service models of EVs communication with RSUs and CSs based on the IEEE WAVE and IEC 61850 standards are developed. An EV charge scheduling algorithm based on communication among EVs, ITS components like RSUs and smartgrid components like CSs is also presented.