Graduate Seminar (EEL 6936)
Department of Electrical Engineering
http://ee.eng.usf.edu/Grad_Seminar

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Friday, December 6th, 2013, 12:55-1:55 p.m.
Chemistry Building, Room 111 (CHE 111)

Long-Range, Passive Wireless Monitoring Using the Harmonic Radar Technique

Abstract

Global society is increasingly dependent upon larger and more complex networks of civil infrastructure that are costly to maintain. These infrastructures, especially those for transportation, are often subjected to long-term deterioration that can lead to severe consequences on the public safety and economy. This necessitates continuous assessment of infrastructure health. However existing active and passive sensing technologies have different issues and are not reliable enough to provide infrastructure health assessment. Hence the objective of this research is to develop an alternative class of wireless sensor hardware that is both passive and has a sufficient communication range to enable a wide range of deeply embedded sensing applications, i.e., and thereby support different remote monitoring capabilities.

Biography

Ibrahim T. Nassar received the B.S. degree from the Jordan University of Science and Technology, Irbid, Jordan, and the M.S. degree from University of South Florida, Tampa, in 2008 and 2010, respectively, all in electrical engineering. In 2009 he joined the WAMI lab at the University of South Florida as a Graduate Research Assistant where he is currently pursuing his doctoral degree in electrical engineering and technology management. His research is focused on the design and development of 3-D compact, wireless sensors for passive remote monitoring. He is currently investigating new methods for calibrating and identifying the sensors remotely, and for fabricating the 3D devices using digital additive manufacturing. His research interests also include non-dispersive phase shifters based on metamaterial techniques and mechanically-reconfigurable antennas. Nassar is one of the recipients of the IEEE MTT-S Graduate Fellowship in Spring 2013. He also received the best student paper award at IEEE WAMICON in April 2013 and the IMAPS student award in 2012. He is the inventor/co-inventor of 6 pending U.S. patents and has 17 published and to-be-published IEEE journal and conference papers.