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## Dynamic power adjustment for reducing identification time in RFID systems

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This paper presents a dynamic power adjustment (DPA) scheme for a reader to speedily read tags' identification codes in a RFID system. By using TDMA frames, the proposed DPA can adaptively increase or decrease the transmission power in a reader. There are three states in a TDMA slot: Successful read, collision, and idle. Based on the three states, a factor to adjust the transmission power is computed by considering two aspects. The first aspect increases the power to read more tags if the number of idle state far exceeds the number of collision state. The second aspect cut power to reduce the number of tag readings if the number of idle state is much smaller than the number of collision state. The proposed DPA is simulated using NS-2. In the simulation, we design three topologies which place tags in three different distributions, even, random, and hot-spot. From the simulation results, we demonstrate that the proposed DPA takes much less time in tag identification, particularly when tags are placed in hot-spot distribution.

### Biography

Tsang-Ling Sheu received the PhD degree in Computer Engineering from the Department of Electrical and Computer Engineering, Penn State University, University Park, Pennsylvania, USA, in 1989. From September 1989 to July 1995, he worked with IBM Corporation at Research Triangle Park, North Carolina, USA. In August 1995, he became an Associate Professor, and was promoted to Full Professor in January 2006 at the Dept. of Electrical Engineering, National Sun Yat-Sen University, Kaohsiung, Taiwan. His research interests include wireless networks, mobile communications, and multimedia networking. He was the recipient of the 1990 IBM outstanding paper award. He is a Senior Member of the IEEE, and the IEEE Communications Society.

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