Abstract

The increasing interest in wireless ad-hoc networks built by the portable devices equipped with short-range wireless network interfaces. IEEE 802. 15. 1 WPAN (Bluetooth) and IEEE 802. 11b WLAN (Wi-Fi) are most popular and emerging wireless technologies. These technologies migrates wired system applications into the wireless domain. Applications includes, computing, sensing, and communication. In Bluetooth multichannel environment, the master essentially controls the channel. While accessing wireless medium, devices will encounter very high rate of interference, because of an absence of coordination between independent masters. Study of interference in multichannel environment is important because it affects the throughput of the
Simulation and Throughput Analysis of Multiple IEEE 802.15.1 Devices in Presence of Interference

wireless system. This paper focuses on the effect of co-channeled multiple Bluetooth devices on a carrier-sense multiple-access (CSMA)–based wireless local area network (WLAN). The CSMA protocol is considered for WLANs, and the probability of error of a WLAN packet is calculated in the presence of interfering Bluetooth packets. Simulations have been used to correlate the analytical results, which indicate that the presence of just one fully loaded interfering Bluetooth multiple devices reduces the throughput with longer packet transmissions.

References

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Index Terms

Computer Science  Wireless Communication

Keywords

Bluetooth  Ber  Interference  Frequency Hopping  Performance