Abstract

The IEEE has standardized the 802.11 protocol for Wireless Local Area Networks. The primary medium access control (MAC) technique of 802.11 is called distributed coordination function (DCF). DCF is a carrier sense multiple access with collision avoidance (CSMA/CA) scheme with binary exponential backoff algorithm (BEB). DCF describes two techniques to
employ for packet transmission: the two-way handshaking technique called basic access mechanism and an optional four way handshaking technique, known as request-to-send/clear-to-send (RTS/CTS) mechanism. In wireless networks, the energy consumed to transmit bits across a wireless link, is a critical design parameter. The Constant backoff Window Algorithm (CWA) is the modification of the IEEE 802.11 BEB algorithm, which is used to control the contention window in the case of collisions, in order to provide a better Throughput and Energy efficiency. The new algorithm has been tested against the legacy IEEE 802.11 through matlab simulation. The tests have shown significant improvements in performance in throughput and energy efficiency using CWA compared to the original BEB algorithm.

Reference


Index Terms

Computer Science

Communications

Wireless
Key words
IEEE 802.11  Throughput  Energy efficiency
DCF