

A TOKEN BASED CODE DIVISION MULTIPLE ACCESS MAC PROTOCOL FOR WIRELESS AD HOC NETWORKS

M.Sc. Thesis by

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Abstract

In this thesis, to support real-time communications, a hybrid Token-CDMA MAC protocol that is based on one transceiver, is proposed. Unlike the conventional token based MAC protocols, in the proposed MAC scheme the token is used to distribute CDMA codes in the network. The token scheme provides guaranteed access for each node in the network, and CDMA scheme is implemented to support multiple simultaneous data transmissions. The reason for using the token based protocol is that, it has special timing properties and solid mathematical foundations.

Important features of this proposed MAC scheme are that it uses one transceiver for each node which decreases the hardware cost, provides real time guarantees and exploits the availability of multiple transmissions.