System and Method for Ad Hoc Network Access Employing the Distributed Election of a Shared Transmission Schedule

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BACKGROUND

Many scheduling algorithms for time division multiple access (TDMA) have proposed to achieve collision-free transmissions of data frames within each time-slot of a single communication channel in multi-hop packet radio networks. A scheduled-access approach consists of establishing transmission schedules in a way that eliminates collisions and achieving efficient spatial reuse of the available bandwidth. Efficient scheduling with channel reuse can render much higher channel utilization than fixed assignment approaches, such as TDMA and frequency division multiple access (FDMA).

TECHNOLOGY DESCRIPTION

Scientists at the University of California, Santa Cruz have developed a novel topology-dependant TDMA method that acts as a collision-free medium access control (MAC) protocol that resolves contentions for time division multiple access (TDMA) for a single communication channel. By employing distributed election of a shared transmission schedule, the system can allow for collision-free access and increase the use of bandwidth.

APPLICATIONS

- Communication networks: a system that allows collision-free channel access within an ad hoc network while maximizing the use of available bandwidth

ADVANTAGES

- Increases bandwidth utilization via competition for empty-time slots
- Provides collision-free access and priority-based channel access within ad hoc networks for high performance

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	7,046,639	05/16/2006	2000-383

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OTHER INFORMATION

KEYWORDS

Ad hoc networks, network access, shared transmission, communication networks, collision-free channel access,, Cat3

CATEGORIZED AS

- **Communications**
  - Networking
  - Other
- **Computer**
  - Other

RELATED CASES

2000-383-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Differentiating Congestion Vs. Random Loss: A Method For Improving TCP Performance Over Wireless Links
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- Tree-Based Ordered Multicasting in Computer Networks

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