A system and method for a media access control (MAC) scheduling algorithm having a distributed, self-coordinating approach to provide fairness and service differentiation in an ad hoc network by using control RTS/CTS messages carrying node status information. A local scheduling algorithm uses the overheard RTS/CTS information with attributes specifying nodes' status to maximize the awareness of the neighborhood status for a multi-channel system where data and ACK messages are transmitted through different data channels. If the system uses a single channel, the corresponding information may be carried by using DATA or ACK messages. The algorithm measures the offered load, carried load, and backlogged load in the neighborhood to adjust the channel access timer to provide use fairness among different nodes, different links, and different streams. The algorithm can further both calculate the priority level based on the node queue status, and calculate the priority level based on the neighbor status, to break the contention tiers and enable the service differentiation.
before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
   IPC(7) : H04J 3/16; H04B 7/005
   US CL : 370/236,278
   According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
   Minimum documentation searched (classification system followed by classification symbols)
   Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

C. DOCUMENTS CONSIDERED TO BE RELEVANT
   Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No.
   X US 6,404,756 B1 (WHITEHILL et al) 11 June 2002 (11.06.2002), Abstract; Figs. 3-5; Col. 6-7, lines 30-8; Col. 17, lines 13-16 and 23-38; Col. 2, lines 25-55; Col. 1, lines 25-51 1-7
   A, P US 2004/0109299 A1 (GARCIA-LUNA-ACEVES) 27 May 2004 (27.05.2004), entire disclosure
   A, P US 2003/0057409 A1 (KENNEDY) 25 May 2004 (25.05.2004), entire disclosure
   A US 6,556,382 B1 (REDI) 29 April 2003 (29.04.2003), entire disclosure

Further documents are listed in the continuation of Box C. See patent family annex.

Date of the actual completion of the international search 18 August 2005 (18.08.2005)

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### C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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<th>Relevant to claim No.</th>
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<tr>
<td>A</td>
<td>US 6,198,728 B1 (HULYALKAR et al) 06 March 2001 (06.03.2001), entire disclosure</td>
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<tr>
<td>A</td>
<td>US 5,844,905 A (MCKAY et al) 01 December 1998 (01.12.1998), entire disclosure</td>
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