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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.

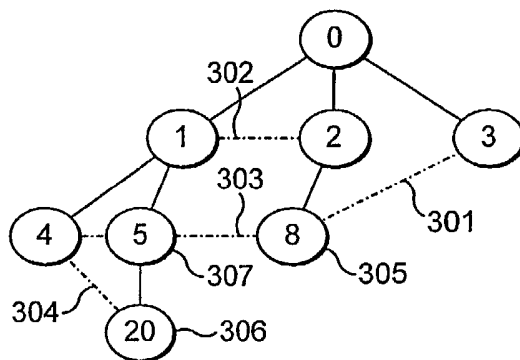
(54) Title: SYSTEM AND METHOD FOR WIRELESS MESH NETWORKING

Generation 0

Generation 1

Generation 2

Generation 3



(57) Abstract: According to an embodiment of the invention, there is disclosed a method of operating a wireless mesh network. The method comprises: seeding the network from a first node; allocating a network address to each member node of the network to form a tree-like structure of nodes, such that the network address is reversibly derived from the network address of the member node from which it is derived in the tree-like structure; and mapping out cross-branch network connections between nodes that are determined not to be immediate neighbour nodes

according to the addresses of the tree-like structure. Further related system embodiments are also disclosed.

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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB2004/002321

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 7 H04L29/12 H04L12/56 H04L12/28 H04L12/24

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)  
 IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)  
 EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	W0 02/076028 A (MOTOROLA INC) 26 September 2002 (2002-09-26)	1,3-7, 10,11, 17-23
Y	abstract page 1, line 17 - page 2, line 24 page 5, line 13 - page 10, line 15; figures 2-5 page 10, line 36 - page 12, line 17; figure 9 page 13, line 5 - page 16, line 35; figures 10-14 page 19, line 19 - page 20, line 17 ----- -/--	2

Further documents are listed in the continuation of box C.       Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family
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Date of the actual completion of the international search  <b>27 September 2004</b>	Date of mailing of the international search report  <b>11. 01. 2005</b>
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Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer  <b>Gavriliu, B-A</b>
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INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB2004/002321

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>HESTER L ET AL: "neuRFon - netform: a self-organizing wireless sensor network" IEEE, 14 October 2002 (2002-10-14), pages 364-369, XP010610905 page 366, column 1, line 6 - page 367, column 2, line 11 page 368, column 1, line 55 - page 369, column 1, line 27</p> <p style="text-align: center;">-----</p>	2
A	<p>KOTA S L ET AL: "Survivable planar internetwork (SPIN) for multimedia communications" IEEE, 30 September 1990 (1990-09-30), pages 311-317, XP010002793 page 316, column 1, line 21 - column 2, line 12</p> <p style="text-align: center;">-----</p>	6,7
A	<p>ANDREW S. TANENBAUM: "Computer Networks; pages 348-351" 1996, PRENTICE HALL PTR , UPPER SADDLE RIVER, NEW JERSEY 07458, USA , XP002297621 ISBN: 0-13-349945-6 the whole document</p> <p style="text-align: center;">-----</p>	6,7

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB2004/002321

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-7, 10, 11, 17-23

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International Application No. PCT/ GB2004/ 002321

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-7,10,11,17-23

A method for limiting the complexity of tree-like structure of network nodes (claim 2).

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2. claims: 8,9 (depending on claim 1)

Method of operating battery-powered devices and mains-powered devices (claim 8).

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3. claims: 12-16 (depending on claim 1)

Method for using a management interface (claim 12).

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB2004/002321

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 02076028	A	26-09-2002	US 2003235158 A1	25-12-2003
			DE 10296466 T5	22-04-2004
			EP 1378095 A1	07-01-2004
			WO 02076028 A1	26-09-2002
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