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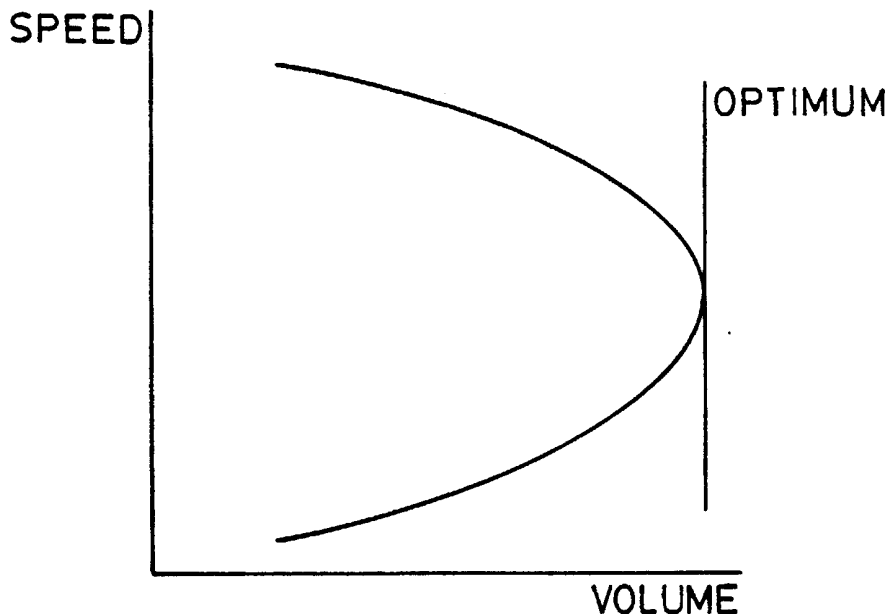
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- (72) Inventors; and
- (75) Inventors/Applicants (for US only): NATHANSON, Martin [CA/CA]; 29 Southvale Drive, Toronto, Ontario M4G 1G1 (CA). NADER, Frederick [US/US]; 28382 Harwich, Farmington Hills, MI 48334 (US).
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- (74) Agents: BROWN, Peter et al.; McCarthy Tetrault, P.O. Box 48, TD Bank Tower, TD Centre, Toronto, Ontario M5K 1E6 (CA).
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09/556,289	24 April 2000 (24.04.2000)	US
- (71) Applicant (for all designated States except US): PAX-GRID TELEMETRIC SYSTEMS INC. [CA/CA]; 29 Southvale Drive, Toronto, Ontario M4G 1G1 (CA).
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European

[Continued on next page]

(54) Title: VEHICULAR TELEMETRY



(57) Abstract: The present invention provides a system for reporting on-board diagnostic data from mobile vehicles to regulatory agencies whose mandate it is to ensure compliance with environmental emissions and safety standards. The system comprises three (3) principal components: (i) an enhanced Hybrid Network Radio, enabled for both IEEE 802 wireless LAN connectivity and Mobile IP; (ii) an IEEE 802 Access Point, configured as an IPv6 Router and enabled for Mobile IP to support the functionality of foreign mobility agent; and (iii) a "cluster intelligence" module, incorporated in the same mobile device as the Hybrid Network Radio, using the Automotive Telemetry Protocol (ATP) to enable vehicles to exchange telemetry data with each other over an ad-hoc IEEE 802.11 network.



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patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

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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.

INTERNATIONAL SEARCH REPORT

Int. Application No
PCT/CA 00/00712

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L12/28 H04L12/56 H04Q7/38

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 H04Q

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)

WPI Data, PAJ, 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	WO 98 58512 A (SIEMENS AG ;ROLM SYSTEMS (US)) 23 December 1998 (1998-12-23) abstract page 1, line 7 -page 10, line 4 page 10, line 24 -page 14, line 3 page 15, line 5 - line 25 page 16, line 16 -page 17, line 23 claim 1	1,4-6,8, 10-13, 25,26, 34,39, 42-44
Y	---	2,3,40, 41
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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
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- *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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01.03.2001

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

Vaskimo, K

INTERNATIONAL SEARCH REPORT

International Application No

PCT/CA 00/00712

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 96 28947 A (NOKIA MOBILE PHONES LTD ;VAZVAN BEHRUZ (FI); JORMALAINEN JANNE (US) 19 September 1996 (1996-09-19)</p> <p>page 1, line 4 -page 4, line 32 page 5, line 29 -page 7, line 23 page 8, line 33 -page 9, line 34 page 10, line 25 -page 11, line 14 page 13, line 11 - line 16 page 15, line 32 -page 16, line 9 page 19, line 19 -page 20, line 21 claims 1-5</p>	<p>1, 4-6, 8, 10-13, 25, 26, 34, 39, 42-44</p>
Y	<p>---</p>	<p>2, 3, 40, 41</p>
X	<p>US 5 886 988 A (OTTERSTEN BJOERN E ET AL) 23 March 1999 (1999-03-23)</p> <p>abstract column 1, line 16 -column 7, line 17 column 13, line 45 - line 52</p>	<p>1, 5, 6, 8, 10-13, 25, 26, 34, 39, 44</p>
Y	<p>---</p>	<p>2-4, 40-42</p>
Y	<p>WO 98 29975 A (CELLPORT LABS INC) 9 July 1998 (1998-07-09)</p> <p>page 1, line 3 -page 8, line 26 page 9, line 9 -page 10, line 6 page 11, line 7 -page 12, line 5 page 24, line 25 -page 25, line 16</p>	<p>2, 4, 35, 40, 42</p>
A	<p>---</p>	<p>1, 5, 6, 11, 25, 34, 39, 43, 44</p>
Y	<p>EP 0 701 337 A (MITSUBISHI ELECTRIC CORP) 13 March 1996 (1996-03-13)</p> <p>abstract page 2, line 5 -page 6, line 20 page 29, line 54 -page 34, line 15</p>	<p>2, 35, 40</p>
A	<p>---</p>	<p>1, 6, 11, 25, 34, 39, 44</p>
Y	<p>WO 99 14897 A (ERICSSON TELEFON AB L M) 25 March 1999 (1999-03-25)</p> <p>page 1, line 4 -page 12, line 19 page 15, line 3 -page 16, line 5 page 31, line 3 - line 26 page 32, line 15 - line 19 page 35, line 26 -page 36, line 14</p>	<p>3, 9, 41</p>
A	<p>---</p>	<p>1, 6, 25, 34, 39, 44</p>
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INTERNATIONAL SEARCH REPORT

Int. Patent Application No
PCT/CA 00/00712

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 768 531 A (LIN ISABEL Y) 16 June 1998 (1998-06-16) column 1, line 7 -column 3, line 11 column 5, line 32 - line 53 column 10, line 14 - line 24	3, 9, 41
A	-----	1, 6, 25, 34, 39, 44
A	US 5 854 985 A (LEEDOM JR CHARLES M ET AL) 29 December 1998 (1998-12-29) column 1, line 8 -column 3, line 62 column 19, line 12 -column 20, line 38 claims 1,7	1, 4-6, 25, 34, 39, 42-44
A	----- US 5 802 502 A (MANNING MICHAEL ROBERT WISTOW ET AL) 1 September 1998 (1998-09-01) column 1, line 5 -column 2, line 58 column 8, line 11 - line 20 column 12, line 61 -column 13, line 11 column 17, line 3 - line 30 claims 1-4, 6, 8, 9, 15, 16, 23, 32, 35, 36, 40, 42 -----	1, 4-6, 25, 34, 39, 42-44

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA 00/00712

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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 II Observations where unity of invention is lacking (Continuation of item 2 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.:

1-6, 8-13, 25, 26, 34, 35, 39-44

Remark on Protest

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

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. Claims: 1-6,8-13,25,26,34,35,39-44,
as far as relating to the first invention

A communications method between a mobile node and an access point, where a plurality of links are provided between said mobile and said access point, costs of each link are measured, where data is transmitted accross the link with the least costs, and where spread spectrum communications are used.

2. Claims: 6,7,14,15,
as far as relating to the second invention

A communications method between a mobile node and an access point, where a plurality of links are provided between said mobile and said access point, costs of each link are measured, where data is transmitted accross the link with the least costs, and where the mobile nodes are Internet addressable.

3. Claims: 16-24,56

A communications network for communicating between a plurality of vehicles, where a station first broadcasts an enquiry, then receives replies from other stations, and finally carries out the communication.

4. Claims: 31-33

A method of communicating between vehicles, where the communicating stations utilize SNMP protocol.

5. Claims: 36-38

An extension of a hybrid packet network, that comprises an interface to a wireless data link integrated in a hybrid network radio, a wireless access point acting as a router, a foreign mobility agent implementing Mobile IP, an interface to a non-wireless subnetwork, and a cluster intelligence module.

6. Claims: 27-30,45-55,57-63

A vehicle communications system comprising plural onboard communications devices and structures.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

INTERNATIONAL SEARCH REPORT

Information on patent family members

Int. Patent Application No

PCT/CA 00/00712

Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
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