

Exhibit 4



US008380383B2

(12) **United States Patent**
Preston

(10) **Patent No.:** **US 8,380,383 B2**
(45) **Date of Patent:** **Feb. 19, 2013**

(54) **DISTRIBUTED VEHICLE CONTROL SYSTEM**

(75) Inventor: **Dan A. Preston**, Bainbridge Island, WA (US)

(73) Assignee: **Eagle Harbor Holdings, LLC**, Bainbridge Island, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **13/447,793**

(22) Filed: **Apr. 16, 2012**

(65) **Prior Publication Data**

US 2012/0204059 A1 Aug. 9, 2012

Related U.S. Application Data

(63) Continuation of application No. 12/483,214, filed on Jun. 11, 2009, which is a continuation of application No. 11/462,958, filed on Aug. 7, 2006, now Pat. No. 7,778,739, which is a continuation of application No. 09/841,915, filed on Apr. 24, 2001, now Pat. No. 7,146,260.

(51) **Int. Cl.**
G01C 22/00 (2006.01)

(52) **U.S. Cl.** **701/24**

(58) **Field of Classification Search** 717/167-178; 701/22, 24, 33, 1; 712/10, 11, 16, 17; 340/825.72
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,995,318 A	8/1961	Cocharo
3,812,468 A	5/1974	Wollum et al.
4,303,978 A	12/1981	Shaw
4,528,563 A	7/1985	Takeuchi
4,558,460 A	12/1985	Tanaka
4,591,976 A	5/1986	Webber
4,735,274 A	4/1988	Good et al.

4,829,434 A	5/1989	Karmel
4,835,537 A	5/1989	Manion
4,907,159 A	3/1990	Mauge
4,931,930 A	6/1990	Shyu et al.
5,008,678 A	4/1991	Herman
5,027,432 A	6/1991	Skala
5,031,330 A	7/1991	Stuart
5,045,937 A	9/1991	Myrick
5,111,401 A	5/1992	Everett, Jr.
5,115,245 A	5/1992	Wen
5,243,640 A	9/1993	Hadley et al.
5,245,909 A	9/1993	Corrigan
5,287,199 A	2/1994	Zoccolillo
5,303,297 A	4/1994	Hillis
5,339,086 A	8/1994	DeLuca
5,341,301 A	8/1994	Shirai
5,438,361 A	8/1995	Coleman
5,471,214 A	11/1995	Faibish
5,485,892 A	1/1996	Fujita

(Continued)

FOREIGN PATENT DOCUMENTS

DE	3125161	1/1983
DE	4237987	5/1994

(Continued)

OTHER PUBLICATIONS

Robert Bosch GmbH, "CAN Specification, Version 2.0," Sep. 1991.

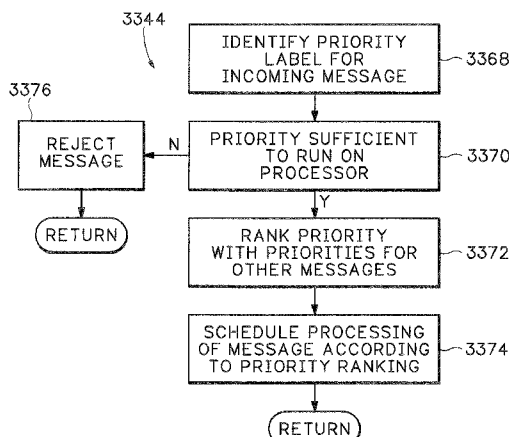
(Continued)

Primary Examiner — Ricky Ngo
Assistant Examiner — Phuongchau B Nguyen

(57) **ABSTRACT**

A distributed vehicle control system comprising a secure real-time executive running as a distributed abstraction of both the application and the operating system, where the SRE comprises a message manager, security manager, critical data manager, configuration manager, and multi-processor task control manager and is configured to control how the processors communicate with each other, how the processors are initiated, how the processors start tasks, and how priorities are set for messages.

32 Claims, 21 Drawing Sheets



US 8,380,383 B2

Page 2

U.S. PATENT DOCUMENTS						
			6,326,903	B1	12/2001	Gross
5,506,963	A	4/1996	6,327,536	B1	12/2001	Tsuji
5,532,706	A	7/1996	6,362,748	B1	3/2002	Huang
5,552,773	A	9/1996	6,370,449	B1	4/2002	Razavi et al.
5,572,201	A	11/1996	6,374,286	B1	4/2002	Gee
5,579,219	A *	11/1996	6,382,897	B2	5/2002	Mattio
5,581,462	A	12/1996	6,389,340	B1	5/2002	Rayner
5,585,798	A	12/1996	6,405,132	B1	6/2002	Breed
5,617,085	A	4/1997	6,408,174	B1	6/2002	Steijer
5,646,612	A	7/1997	6,417,782	B1	7/2002	Darnall
5,661,811	A	8/1997	6,421,429	B1	7/2002	Merritt
5,742,141	A	4/1998	6,429,789	B1	8/2002	Kiridena
5,749,060	A	5/1998	6,429,812	B1	8/2002	Hoffberg
5,751,211	A	5/1998	6,430,164	B1 *	8/2002	Jones et al. 370/313
5,754,123	A	5/1998	6,433,679	B1	8/2002	Schmid
5,761,320	A	6/1998	6,442,485	B2	8/2002	Evans
5,786,998	A	7/1998	6,445,308	B1	9/2002	Koike
5,787,246	A	7/1998	6,449,541	B1	9/2002	Goldberg et al.
5,872,508	A	2/1999	6,452,484	B1	9/2002	Drori
5,907,293	A	5/1999	6,463,373	B2	10/2002	Suganuma
5,915,214	A	6/1999	6,484,080	B2	11/2002	Breed
5,943,427	A	8/1999	6,493,338	B1	12/2002	Preston
5,956,016	A	9/1999	6,496,107	B1	12/2002	Himmelstein
5,956,250	A *	9/1999	6,496,689	B1	12/2002	Keller
5,957,985	A	9/1999	6,505,100	B1	1/2003	Stuempfle
5,963,092	A	10/1999	6,515,595	B1	2/2003	Obradovich
5,964,822	A	10/1999	6,522,875	B1	2/2003	Dowling
5,966,658	A	10/1999	6,526,335	B1	2/2003	Treyz et al.
5,969,598	A	10/1999	6,559,773	B1	5/2003	Berry
5,974,554	A	10/1999	6,571,136	B1 *	5/2003	Staiger 700/48
5,977,906	A	11/1999	6,574,734	B1	6/2003	Colson et al.
5,983,092	A	11/1999	6,584,403	B2	6/2003	Bunn
5,983,161	A	11/1999	D479,228	S	9/2003	Sakaguchi et al.
6,009,330	A	12/1999	6,614,349	B1	9/2003	Proctor et al.
6,028,537	A	2/2000	6,615,137	B2	9/2003	Lutter
6,028,548	A	2/2000	6,616,071	B2	9/2003	Kitamura
6,037,860	A	3/2000	6,622,083	B1	9/2003	Knockcart
6,052,632	A	4/2000	6,629,033	B2	9/2003	Preston
6,054,950	A	4/2000	6,641,087	B1	11/2003	Nelson
6,060,989	A	5/2000	6,647,270	B1	11/2003	Himmelstein
6,061,002	A	5/2000	6,647,328	B2 *	11/2003	Walker 701/36
6,061,709	A	5/2000	6,670,912	B2	12/2003	Honda
6,097,285	A	8/2000	6,675,081	B2	1/2004	Shuman
6,097,314	A	8/2000	6,678,892	B1	1/2004	Lavelle et al.
6,128,608	A	10/2000	6,681,121	B1	1/2004	Preston
6,144,336	A	11/2000	6,690,681	B1	2/2004	Preston
6,148,261	A	11/2000	6,708,100	B2	3/2004	Russell
6,150,961	A	11/2000	6,714,139	B2	3/2004	Saito
6,154,123	A	11/2000	6,718,187	B1 *	4/2004	Takagi et al. 455/569.2
6,161,071	A	12/2000	6,725,031	B2	4/2004	Watler
6,163,711	A	12/2000	6,734,799	B2	5/2004	Munch
6,166,627	A	12/2000	6,738,697	B2	5/2004	Breed
6,167,253	A	12/2000	6,748,278	B1	6/2004	Maymudes et al.
6,169,894	B1	1/2001	6,765,495	B1	7/2004	Dunning et al.
6,175,728	B1	1/2001	6,771,208	B2	8/2004	Lutter
6,175,782	B1	1/2001	6,771,629	B1	8/2004	Preston
6,181,994	B1	1/2001	6,778,073	B2	8/2004	Lutter
6,182,006	B1 *	1/2001	6,778,924	B2	8/2004	Hanse
6,195,760	B1	2/2001	6,782,315	B2	8/2004	Lu
6,202,027	B1	3/2001	6,785,551	B1	8/2004	Richard
6,203,366	B1	3/2001	6,792,351	B2	9/2004	Lutter
6,204,804	B1	3/2001	6,799,092	B2	9/2004	Lu
6,226,389	B1	5/2001	6,816,458	B1	11/2004	Kroon
6,233,468	B1	5/2001	6,876,642	B1	4/2005	Adams
6,236,652	B1	5/2001	6,892,230	B1	5/2005	Gu et al.
6,240,365	B1	5/2001	6,895,238	B2	5/2005	Newell
6,243,450	B1	6/2001	6,895,240	B2	5/2005	Laursen
6,243,645	B1	6/2001	6,901,057	B2	5/2005	Rune
6,247,079	B1	6/2001	6,920,129	B2	7/2005	Preston
6,252,544	B1	6/2001	6,925,368	B2	8/2005	Funkhouser et al.
6,275,231	B1	8/2001	6,937,732	B2	8/2005	Ohmura
D448,366	S	9/2001	6,952,155	B2	10/2005	Himmelstein
6,292,109	B1	9/2001	6,972,669	B2	12/2005	Saito
6,292,747	B1	9/2001	6,993,511	B2	1/2006	Himmelstein
6,294,987	B1	9/2001	7,000,469	B2	2/2006	Foxlin
6,297,732	B2	10/2001	7,006,950	B1	2/2006	Greiffenhagen
6,298,302	B2	10/2001	7,024,363	B1	4/2006	Comerford

US 8,380,383 B2

Page 3

7,089,206	B2	8/2006	Martin	
7,092,723	B2	8/2006	Himmelstein	
7,103,646	B1	9/2006	Suzuki	
7,120,129	B2	10/2006	Ayyagari	
7,123,926	B2	10/2006	Himmelstein	
7,146,260	B2	12/2006	Preston	
7,151,768	B2	12/2006	Preston	
7,158,842	B2	1/2007	Ohmura	
7,158,956	B1	1/2007	Himmelstein	
7,164,662	B2	1/2007	Preston	
7,171,189	B2	1/2007	Bianconi	
7,187,947	B1	3/2007	White	
7,206,305	B2	4/2007	Preston	
7,207,042	B2	4/2007	Smith	
7,215,965	B2	5/2007	Fournier et al.	
7,216,347	B1	5/2007	Harrison et al.	
7,221,669	B2	5/2007	Preston	
7,239,949	B2	7/2007	Lu	
7,249,266	B2	7/2007	Margalit	
7,257,426	B1*	8/2007	Witkowski et al.	455/569.2
7,269,188	B2	9/2007	Smith	
7,272,637	B1	9/2007	Himmelstein	
7,274,988	B2	9/2007	Mukaiyama	
7,277,693	B2	10/2007	Chen	
7,283,567	B2	10/2007	Preston	
7,283,904	B2	10/2007	Benjamin	
7,286,522	B2	10/2007	Preston	
7,317,696	B2	1/2008	Preston	
7,337,650	B1	3/2008	Preston	
7,343,160	B2	3/2008	Morton	
7,375,728	B2	5/2008	Donath	
7,379,707	B2	5/2008	DiFonzo	
7,411,982	B2	8/2008	Smith	
7,418,476	B2	8/2008	Salesky	
7,450,955	B2	11/2008	Himmelstein	
7,484,008	B1	1/2009	Gelvin	
7,493,645	B1	2/2009	Tranchina	
7,506,020	B2	3/2009	Ellis	
7,508,810	B2	3/2009	Moinzadeh	
7,509,134	B2	3/2009	Fournier et al.	
7,587,370	B2	9/2009	Himmelstein	
7,596,391	B2	9/2009	Himmelstein	
7,599,715	B2	10/2009	Himmelstein	
7,610,331	B1	10/2009	Genske	
7,664,315	B2	2/2010	Woodfill	
7,681,448	B1	3/2010	Preston	
7,733,853	B2	6/2010	Moinzadeh et al.	
7,747,281	B2	6/2010	Preston	
7,848,763	B2	12/2010	Fournier et al.	
7,891,004	B1*	2/2011	Gelvin et al.	701/24
7,924,934	B2	4/2011	Birmingham	
7,966,111	B2	6/2011	Moinzadeh et al.	
7,979,095	B2	7/2011	Birmingham	
7,983,310	B2	7/2011	Hirano et al.	
8,014,942	B2	9/2011	Moinzadeh et al.	
8,036,201	B2	10/2011	Moinzadeh et al.	
8,036,600	B2	10/2011	Garrett et al.	
8,068,792	B2	11/2011	Preston et al.	
8,108,092	B2	1/2012	Phillips et al.	
2001/0009855	A1	7/2001	L'Anson	
2001/0048749	A1*	12/2001	Ohmura et al.	455/345
2002/0012329	A1	1/2002	Atkinson	
2002/0070852	A1*	6/2002	Trauner et al.	340/438
2002/0085043	A1	7/2002	Ribak	
2002/0098878	A1	7/2002	Mooney et al.	
2002/0123325	A1	9/2002	Cooper	
2002/0144010	A1	10/2002	Younis	
2003/0060188	A1	3/2003	Gidron	
2004/0162064	A1	8/2004	Himmelstein	
2004/0164228	A1	8/2004	Fogg	
2005/0009506	A1	1/2005	Smolentzov	
2005/0070221	A1	3/2005	Upton	
2005/0130656	A1	6/2005	Chen	
2005/0153654	A1	7/2005	Anderson	
2005/0251328	A1	11/2005	Merwe et al.	
2005/0260984	A1	11/2005	Karabinis	
2005/0275505	A1	12/2005	Himmelstein	

2007/0115897	A1	5/2007	Chen
2007/0260372	A1	11/2007	Langer
2007/0260373	A1	11/2007	Langer et al.
2009/0090592	A1	4/2009	Mordukhovich

FOREIGN PATENT DOCUMENTS

DE	19647283	A1	5/1997
DE	19922608		11/2000
DE	19931161		1/2001
EP	0355490	B1	2/1990
EP	0 441 576		8/1991
EP	0473866	A2	3/1992
EP	0 841 648		5/1998
EP	0841648		5/1998
JP	10-076115		10/1999
JP	2000207691		7/2000
KR	1999-021740		3/1999
WO	WO9624229		8/1996
WO	WO9908436		2/1999
WO	WO9957662		11/1999
WO	WO9965183		12/1999
WO	WO 0029948		5/2000
WO	WO0040038		7/2000
WO	WO0130061		4/2001
WO	WO0158110		8/2001
WO	WO/03/033092		4/2003

OTHER PUBLICATIONS

Wang, Z. et al. "A Message Priority Assignment Algorithm for CAN-based Networks," in CSC '92 Proceedings of the 1992 ACM Annual Conference on Communications, Mar. 1992.

Fay-Wolfe, et al., "Real-Time CORBA," IEEE Transactions on Parallel and Distributed Systems, vol. 11, Issue 10 (Oct. 2000).

Husein et al., "A Priority Based Service Algorithm for Use in Time-Critical and Integrated Services Networks," Proceedings of IEEE Singapore International Conference, vol. 1, pp. 93-97, 1993.

Release 1 Specification Set from the Automotive Multimedia Interface Collaboration (AMI-C), Jan. 2001.

Open Services Gateway Initiative (OSGi) Service Gateway Specification Release 1.0, May 2000.

Ellis, S. M., "Dynamic Software Reconfiguration for Fault-Tolerant Real-Time Avionic Systems," Microprocessor and Microsystems, Proceedings of the 1996 Avionics Conference and Exhibition, vol. 21, issue 1, pp. 29-39, Jul. 1997.

Peter Walzer, and Hans-Wilhelm Grove, "Integrated Research Volkswagen (IRVW) Futura," Passenger Car Meeting and Exposition, Dearborn, Michigan, Sep. 17-20, 1990.

Nace, W. & Koopman, P., "A Product Family Based Approach to Graceful Degradation," Proceedings of DIPES 2000, International IFIP WG 10.3/WG 10.4/WG 10.5 Workshop on, Distributed and Parallel Embedded Systems, Paderborn University, Germany, Oct. 18-19, 2000.

Meredith Beveridge, "M.S. Project Report, Jini on the Control Area Network (CAN): A Case Study in Portability Failure", Department of Electrical and Computer Engineering, Carnegie Mellon University, Phil Koopman—advisor, Mar. 2001.

Universal Serial Bus Specification, Revision 1.1, Compaq, Intel, Microsoft and NEC, Sep. 23, 1998.

Universal Serial Bus Specification, Revision 2.0, Compaq, Hewlett-Packard, Intel, Lucent, Microsoft, NEC and Philips, Apr. 27, 2000.

Tindell, Ken, et al, "A CAN Communications Concept with Guaranteed Message Latencies", Oct. 1998.

Robinson, Ralph L., "An Open Versus Closed Architecture for Multimedia Systems," Proceedings of the 2000 International Congress on Transportation Electronics, pp. 445-450, Oct. 2000.

Y. Chubachi and H. Okagaki, "The Development of Traffic Information System Using AutoPC," Proceedings of the 2000 International Congress on Transportation Electronics, pp. 81-88, Oct. 2000.

M. Tchorowski and J. Mate, "Avionics and Automotive bandwagon flying together on the infotonics Highway," Proceedings of the 1998 International Congress on Transportation Electronics, pp. 351-354,

US 8,380,383 B2

Page 4

- Yen, H.W., et al., "Information Security and Integrity in Network Vehicle," Proceedings of the 1998 International Congress on Transportation Electronics, pp. 319-323, Oct. 1998.
- Minagawa, Shoichi, et al., "Open Architectural Car Multimedia Platform," Proceedings of the 1998 International Congress on Transportation Electronics, pp. 198-194 Oct. 1998.
- Kanemitsu, Dean et al. "Productivity's Next Dimension—The Mobile Office Computing Platform," Proceedings of the 2000 International Congress on Transportation Electronics, pp. 159-165, Oct. 2000.
- Bhaskaran, Parvathy, "Reinventing the Car Radio for the Internet—the iRadio™," Proceedings of the 2000, International Congress on Transportation Electronics, pp. 147-153, Oct. 2000.
- Buckley, Stephen, et al., "The Car as a Peripheral—Adapting a Portable Computer to a Vehicle Intranet," Proceedings of the 1998 International Congress on Transportation Electronics, pp. 211-217, Oct. 1998.
- Arnold, Ken, et al., "The Jini Specification," Publisher Addison-Wesley, 1999.
- Powers, Chuck, et al., Today's Electronics in Today's Vehicles, Proceedings of the 1998 International Congress on Transportation Electronics, pp. 195-200, Oct. 1998.
- Vaught, Mark A., "Phone-Activated Auto-Muting Circuit," Jan. 1990.
- Clarion Co. Ltd., "Clarion AutoPC 310C Owner's Manual," 1998.
- Clarion, "2002 Clarion Product Catalog Car Audio, Multimedia, Marine, and Security Retail Products," 2002.
- Clarion Co., Ltd., "Joyride Quick Reference Guide," 2000-2001.
- Joyride, Windows CE System Software User's Manual, 1999-2001.
- Lind, R., et al., "The Network Vehicle—A Glimpse into the Future of Mobile Multi-Media," IEEE AES Systems Magazine, Sep. 1999.
- Bluetooth ESDP for UPnP, prepared by Arun Ayyagan, Jan. 31, 2001.
- First Amended Complaint and Answer from *Eagle Harbor Holdings, LLC*, and *Mediustech, LLC*, v. *Ford Motor Company*, Washington Western District Court, Case No. 3:11-CV-05503-BHS, Case filed: Jun. 30, 2011.
- Exhibits and Modules from *Eagle Harbor Holdings, LLC*, and *Mediustech, LLC*, v. *Ford Motor Company*, Washington Western District Court, Case No. 3:11-CV-05503-BHS, Case filed: Jun. 30, 2011.
- A. Das, R. Fierro, V. Kumar, J. Ostrowski, J. Spletzer, and C. Taylor, "A Framework for Vision Based Formation Control", IEEE Transactions on Robotics and Automation, vol. 18, Nov. 5, 2001, pp. 1-13.
- Ada 95 Transition Support—Lessons Learned, Sections 3, 4, and 5, CACI, Inc.—Federal, Nov. 15, 1996, 14 pages.
- AMIC. Architecture specification release 1, 2001; 35 pages.
- Bluetooth Doc; Advance Audio Distribution Profile Specification; Adopted version 1.0; dated May 22, 2003; 75 pages.
- Bluetooth Doc; Audio/Video Remote Control Profile; Version 1.0 Adopted; dated May 22, 2003; 52 pages.
- Bluetooth Hands-free Profile 1.5 Nov. 25, 2005.
- Bluetooth Specification version 1.1; Feb. 22, 2001; 452 pages.
- Boeing News Release, "Boeing Demonstrates JSF Avionics Multi-Sensor Fusion", Seattle, WA, May 9, 2000, pp. 1-2.
- Boeing Statement, "Chairman and CEO Phil Condit on the JSF Decision", Washington, D.C., Oct. 26, 2001, pp. 1-2.
- Counterair: The Cutting Edge, Ch. 2 "The Evolutionary Trajectory The Fighter Pilot—Here to Stay?" AF2025 v3c8-2, Dec. 1996, pp. 1-7.
- Counterair: The Cutting Edge, Ch. 4 "The Virtual Trajectory Air Superiority without an "Air"Force?" AF2025 v3c8-4, Dec. 1996, pp. 1-12.
- Embedded Bluetooth Migrates to Lisbon and Seattle; 11 pages; Jan. 23, 2008.
- Green Hills Software, Inc., "The AdaMULTI 2000 Integrated Development Environment," Copyright 2002, printed Jul. 9, 2002; 7 pages.
- H. Chung, L. Ojeda, and J. Borenstein, "Sensor Fusion for Mobile Robot Dead-reckoning with a Precision-calibrated Fiber Optic Gyroscope", 2001 IEEE International Conference on Robotics and Automation, Seoul, Korea, May 21-26, 2001, pp. 1-6.
- Hitachi Automated Highway System (AHS), Automotive Products, Hitachi, Ltd., Copyright 1994-2002, 8 pages.
- IEEE Standard for Information Technology—POSIX Based Supercomputing Application Environment Profile; Jun. 14, 1995, 72 pages.
- ISIS Project: Sensor Fusion, Linkoping University Division of Automatic Control and Communication Systems in cooperation with SAAB (Dynamics and Aircraft), 2001, 18 pages.
- J. Takezaki, N. Ueki, T. Minowa, H. Kondoh, "Support System for Safe Driving—A Step Towards ITS Autonomous Driving—", Hitachi Review, vol. 49, Nov. 3, 2000, pp. 1-8.
- Joint Strike Fighter Terrain Database, ets-news.com "Simulator Solutions" 2002, 3 pages.
- Luttge, Karsten; "E-Charging API: Outsource Charging to a Payment Service Provider"; IEEE; 2001 (pp. 216-222).
- M. Chantler, G. Russel, and R. Dunbar, "Probabilistic Sensor Fusion for Reliable Workspace Sensing", Fourth IARP workshop on Underwater Robotics, Genoa, Nov. 1992, pp. 1-14.
- MSRC Redacted Proposal, 3.0 Architecture Development, Aug. 29, 2002; pp. 1-43.
- MyGig User Guide.
- Powerpoint Presentation by Robert Allen—Boeing Phantom Works entitled "Real-Time Embedded Avionics System Security and COTS Operating Systems", Open Group Real-Time Forum, Jul. 18, 2001, 16 pages.
- Product description of Raytheon Electronic Systems (ES), Copyright 2002, pp. 1-2.
- Product description of Raytheon RT Secure, "Development Environment", Copyright 2001, pp. 1-2.
- Product description of Raytheon RT Secure, "Embedded Hard Real-Time Secure Operating System", Copyright 2000, pp. 1-2.
- S.G. Goodridge, "Multimedia Sensor Fusion for Intelligent Camera Control and Human-Computer Interaction", Dissertation submitted to the Graduate Faculty of North Carolina State University in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Electrical Engineering, Raleigh, NC, 1997, pp. 1-5.
- Specification of the Bluetooth System v1.0.B; Dec. 1, 1999.
- Specification of the Bluetooth System v1.1; Feb. 22, 2001.
- TNO FEL Annual Review 1998: Quality works, Observation Systems Division; "The Whole is More Than the Sum of its Parts"; 16 pages.
- Vehicle Dynamics Lab, University of California, Berkeley, funded by BMW, current members: D. Caveney and B. Feldman, "Adaptive Cruise Control", at least as early as 2002, printed Jul. 2, 2002; 17 pages.
- Stirling A: "Mobile Multimedia platforms" Vehicular Technology Conference Fall 2000. IEEE VTS Fall VTC2000. 52nd Vehicular Technology Conference (CAT. No. 00CH37152).
- Nusser R. et al.: "Bluetooth-based wireless connectivity in an automotive environment" Vehicular Technology Conference Fall 2000. IEEE VTS Fall VTC2000 52nd Vehicular Technology Conference (Cat. No. 00CH37152).
- Martins e f v et al. "design of an OS9 operating system extension for a message-passing multiprocessor" Microprocessors and Microsystems, IPC Business Press LT. London, BG, vol. 21, No. 9, Apr. 1, 1998, pp. 533-543.
- Gutierrez Garcia JJ et al. "Minimizing the effects of jitter in distributed hard real-time systems" Journal of Systems Architecture, Elsevier Science Publishers BV., Amsterdam, NL, vol. 41, No. 6/7. Dec. 15, 1996, pp. 431-447.
- International Search Report for PCT/US02/020402; Mailing date Apr. 3, 2003.
- International Search Report for PCT/US02/020403; Mailing date Jan. 27, 2003.
- International Search Report for PCT/US02/016364; Mailing date Feb. 14, 2003.
- International Search Report for PCT/US02/016371; Mailing date Aug. 18, 2003.

* cited by examiner

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.