

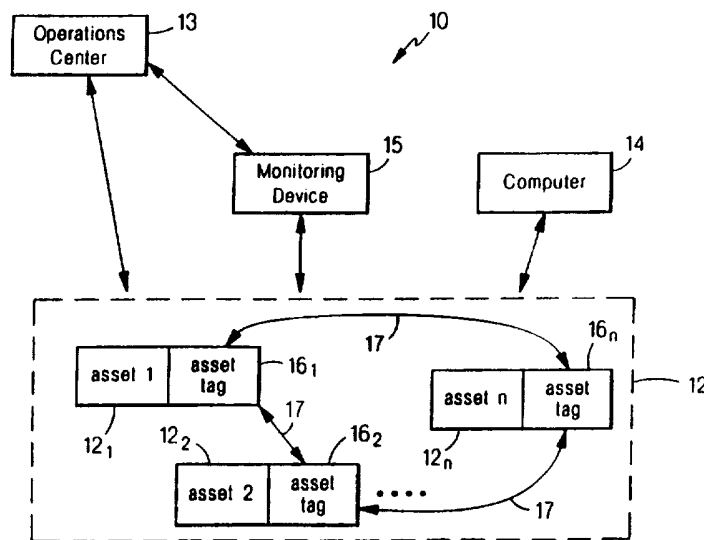


INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁶ : G06F 17/60</p>	<p>A3</p>	<p>(11) International Publication Number: WO 98/01772 (43) International Publication Date: 15 January 1998 (15.01.98)</p>
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<p>(21) International Application Number: PCT/US97/11142 (22) International Filing Date: 26 June 1997 (26.06.97) (30) Priority Data: 08/671,491 26 June 1996 (26.06.96) US (71) Applicant: PAR GOVERNMENT SYSTEMS CORPORATION [US/US]; 8383 Seneca Turnpike, New Hartford, NY 13413-4991 (US). (72) Inventors: WOOLLEY, Louis, A.; 3686 Fountain Street, Clinton, NY 13323 (US). FERRARA, Charles, F.; 9392 Roberts Road, Sauquoit, NY 13456 (US). GREASLEY, Ian; 55 Keefe Road, Camden, NY 13316 (US). WEIMAR, James, H.; 309 Windebank Lane, Minoa, NY 13116 (US). (74) Agent: WALPERT, Gary, A.; Fish & Richardson P.C., 225 Franklin Street, Boston, MA 02110-2804 (US).</p>	<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 26 February 1998 (26.02.98)</p>
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(54) Title: MANAGING ASSETS WITH ACTIVE ELECTRONIC TAGS



(57) Abstract

An object (121) in a storage area or moving vehicle (126) is monitored by attaching an electronic tag (16) on the object (12). An electronic device (15) detects the presence of the object (12) by communicating with the tag (16) while the object (12) is in storage or is being moved by the vehicle (126). The tags (16) may also determine the location of an attached object (12) and may reroute the object (12) if it deviates from a given shipping schedule. A group of objects (12) is monitored by two electronic tags (16), each attached to an object (12) in the group. Each tag (16) has circuitry (102) for communicating information related to an object (12) in the group to a second tag (16). Each tag (16) also includes a memory (104) connected to the circuitry that is capable of storing the information, and a controller (100) connected to the memory (104) and the circuitry (102).

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/11142

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(6) : G06F 17/60
 US CL : 705/28; 235/375,385; 340/825.54; 364/400,550; 395/651; 705/29
 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)
 U.S. : 705/28; 235/375,385; 340/825.54; 364/400,550; 395/651; 705/29

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 practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3,426,326 A (GOLDSTEIN) 04 February 1969, see columns 1-3.	1-60
X	US 4,918,425 A (GREENBERG ET AL) 17 April 1990, see abstract.	41-45 & 55-57
A	US 5,030,807 A (LANDT ET AL) 09 July 1991, see abstract.	1-60
A	US 5,113,344 A (KELLOGG ET AL) 12 May 1992, see abstract.	1-60
X	US 5,151,684 A (JOHNSEN) 29 September 1992, see abstract.	41-45 & 55-57
X	US 5,153,583 A (MURDOCH) 06 October 1992, see abstract.	41-45 & 55-57

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

* Special categories of cited documents:	*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
A document defining the general state of the art which is not considered to be of particular relevance	*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
B earlier document published on or after the international filing date	*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
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)	*A*	document member of the same patent family
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		

Date of the actual completion of the international search 10 NOVEMBER 1997	Date of mailing of the international search report 23 DEC 1997
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Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer EDWARD R. COSIMANO Telephone No. (703) 308-9783
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/11142

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,469,363 A (SALIGA) 21 November 1995, see abstract.	41-45, 55-57 & 59
X	US 5,517,194 A (CARROLL ET AL) 14 May 1996, see abstract.	41-45 & 55-57
X	US 5,521,602 A (CARROLL ET AL) 28 May 1996, see abstract.	41-45 & 55-57
X, P	US 5,528,232 A (VERMA ET AL) 18 June 1996, see abstract.	41-46, 55-57 & 59
A, E	US 5,546,540 A (WHITE) 13 August 1996, see abstract.	1-60

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/11142

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international 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:

Please See Extra 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.:
1-60

- 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/US97/11142

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

1. This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

1.1 Group I, claim(s) 1-60, drawn to an inventory system that uses tags with internal memory and which intercommunicate.

1.2 Group II, claim(s) 61-65, drawn to determining the shape and topology of network of nodes.

1.3 The inventions listed as Groups I & II do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

1.4 The inventions of Group I & II are not related as a single category, since the determination of the topology of a set of nodes (Group II) is unrelated to the inventory/tagging invention of Group I.