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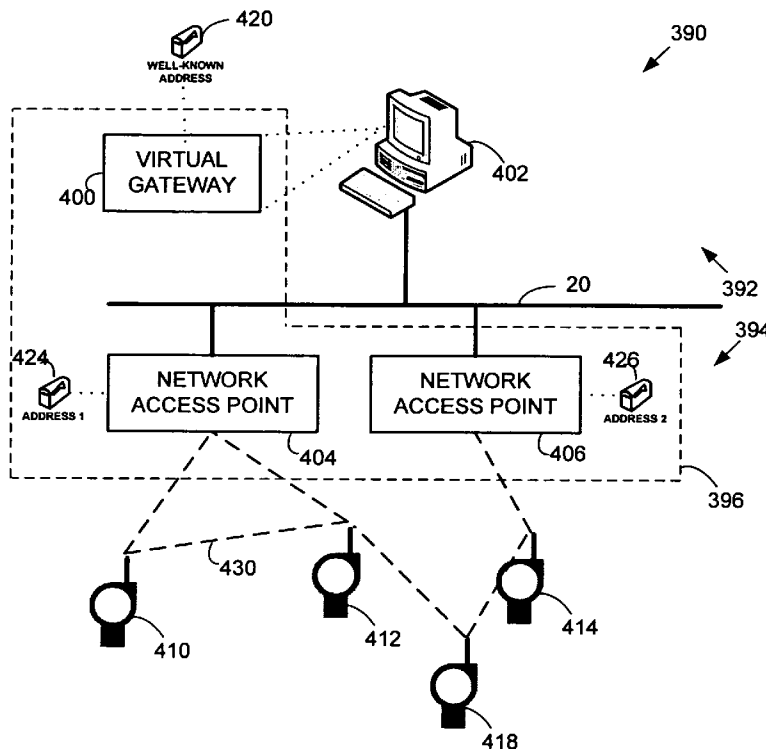
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(54) Title: A WIRELESS GATEWAY IN A PROCESS CONTROL ENVIRONMENT SUPPORTING A WIRELESS COMMUNICATION PROTOCOL



(57) Abstract: A wireless gateway for use in a process control environment includes a wireless interface for communicating with a first wireless network using a first wireless communication protocol, such that the wireless network includes a plurality of field devices operating in the process control environment. The wireless gateway further includes a host interface for communicating with an external host disposed outside the wireless network using a second communication protocol and a protocol translator to enable an exchange of data between the first interface and the second interface.

FIG. 10

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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)

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

Korean Utility Models and applications for Utility Models since 1975  
Japanese Utility Models and applications for Utility Models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKIPASS(KIPO internal) &amp; Keyword : GATEWAY, SENSOR, PROTOCOL

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,891,838 B1 (THOMAS D. PETITE et al.) 10 May 2005 See abstract, column 6 line 30 ~ column 7 line 57, column 17 line 16 ~ column 18 line 20	1, 2, 5 - 33
A	US 2005/0030968 A1 (MARK J. RICH et al.) 10 February 2005 See abstract, paragraph [0023] ~ paragraph [0026]	1 - 33

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

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"&amp;" document member of the same patent family

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## INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6,891,838 B1	10.05.2005	AT 352805 T	15.02.2007
		AU 1604601 A	06.06.2001
		AU 2001-16046 A1	06.06.2001
		AU 2001-79241 A1	18.02.2002
		AU 2001-79249 A1	18.02.2002
		AU 2001-81214 A1	18.02.2002
		BR 0015528 A	25.02.2003
		CA 2391372 A1	17.05.2001
		DE 60033178 D1	15.03.2007
		EP 1236075 A2	04.09.2002
		EP 1236075 B1	24.01.2007
		PA 02004732 A	14.10.2003
		US 6437692 B1	20.08.2002
		US 6747557 B1	08.06.2004
		US 6836737 B2	28.12.2004
		US 6914893 B2	05.07.2005
		US 7053767 B2	30.05.2006
		US 7263073 B2	28.08.2007
		US 7295128 B2	13.11.2007
		US 2002-0125998 A1	12.09.2002
		US 2005-043059 A1	24.02.2005
		US 2006-0181406 A1	17.08.2006
		US 6437692 B1	20.08.2002
		US 6747557 B1	08.06.2004
		US 6836737 B2	28.12.2004
		US 6914533 B2	05.07.2005
		US 6914893 B2	05.07.2005
		US 7053767 B2	30.05.2006
		WO 01-35190 A2	17.05.2001
		WO 01-35190 B1	10.01.2002
		WO 02-13412 A1	14.02.2002
		WO 02-13413 A1	14.02.2002
		WO 02-13413 A8	11.07.2002
		WO 02-13414 A1	14.02.2002
US 2005/0030968 A1	10.02.2005	CA 2534375 A1	17.02.2005
		EP 1652351 A2	03.05.2006
		JP 2007-502056 T	01.02.2007
		KR 10-2007-0029612 A	14.03.2007
		WO 2005-015845 A2	17.02.2005