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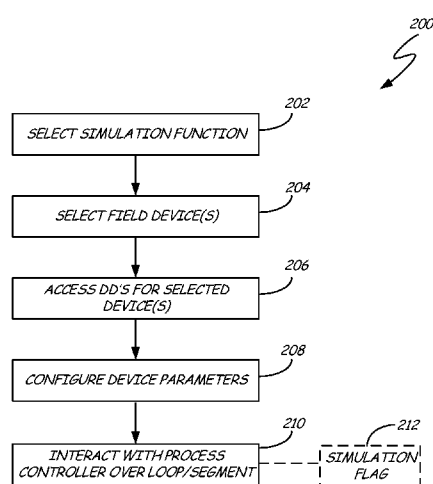
(54) **Title:** HANDHELD FIELD MAINTENANCE TOOL WITH FIELD DEVICE SIMULATION CAPABILITY

FIG. 4

(57) **Abstract:** A handheld field maintenance tool (52, 102) and associated method (200) are provided. The handheld field maintenance tool (52, 102) includes a process communication module (121, 138) configured to communicate in accordance with a process industry communication standard. A controller (130) is coupled to the process communication module (121, 138) and is configured to access a device description (206) relative to a selected simulated field device. A user interface (156) is configured to receive a user input relative to a parameter of the simulated field device. The controller (130) generates communication through the process communication module (121, 138) to simulate the selected field device based on the user input.



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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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)
G05B

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)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/193287 A1 (LEFEBVRE MARTINE [FR] ET AL) 30 September 2004 (2004-09-30) the whole document	1-11
X	WO 2009/074544 A1 (ENDRESS & HAUSER PROCESS SOLUT [CH]; DE GROOT VINCENT [DE]; HAEHNICHE) 18 June 2009 (2009-06-18) page 1, line 32 - page 10, line 30 page 14, line 5 - page 16, line 21 page 17, line 26 - page 18, line 14	1-11
X	US 2010/114347 A1 (DHEENATHAYALAN PRABU [IN] ET AL) 6 May 2010 (2010-05-06) paragraph [0006] - paragraph [0009] paragraph [0024] - paragraph [0051] paragraph [0063] claim 1 figures 2,3	1-11
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Further documents are listed in the continuation of Box C.



See patent family annex.

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Date of the actual completion of the international search

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International application No

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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	DE 10 2009 028195 A1 (FLOWTEC AG [CH]) 17 February 2011 (2011-02-17) the whole document -----	1-11
A	EP 1 916 582 A1 (ABB RESEARCH LTD [CH]) 30 April 2008 (2008-04-30) paragraph [0008] - paragraph [0018] -----	1-3,8,9
A	DE 102 45 176 A1 (ENDRESS & HAUSER PROCESS SOLUT [CH]) 1 April 2004 (2004-04-01) the whole document -----	1,8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2011/045680

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2004193287 A1	30-09-2004	AT 419569 T	15-01-2009
		AU 2003301778 A1	07-06-2004
		CN 1711512 A	21-12-2005
		DE 10251503 A1	09-06-2004
		EP 1558975 A1	03-08-2005
		RU 2296360 C2	27-03-2007
		US 2004193287 A1	30-09-2004
		WO 2004042482 A1	21-05-2004

WO 2009074544 A1	18-06-2009	DE 102007059671 A1	25-06-2009
		WO 2009074544 A1	18-06-2009

US 2010114347 A1	06-05-2010	NONE	

DE 102009028195 A1	17-02-2011	NONE	

EP 1916582 A1	30-04-2008	AT 433142 T	15-06-2009
		EP 1916582 A1	30-04-2008
		US 2008177396 A1	24-07-2008

DE 10245176 A1	01-04-2004	AT 412927 T	15-11-2008
		AU 2003273847 A1	23-04-2004
		DE 10245176 A1	01-04-2004
		EP 1543391 A1	22-06-2005
		WO 2004031874 A1	15-04-2004
