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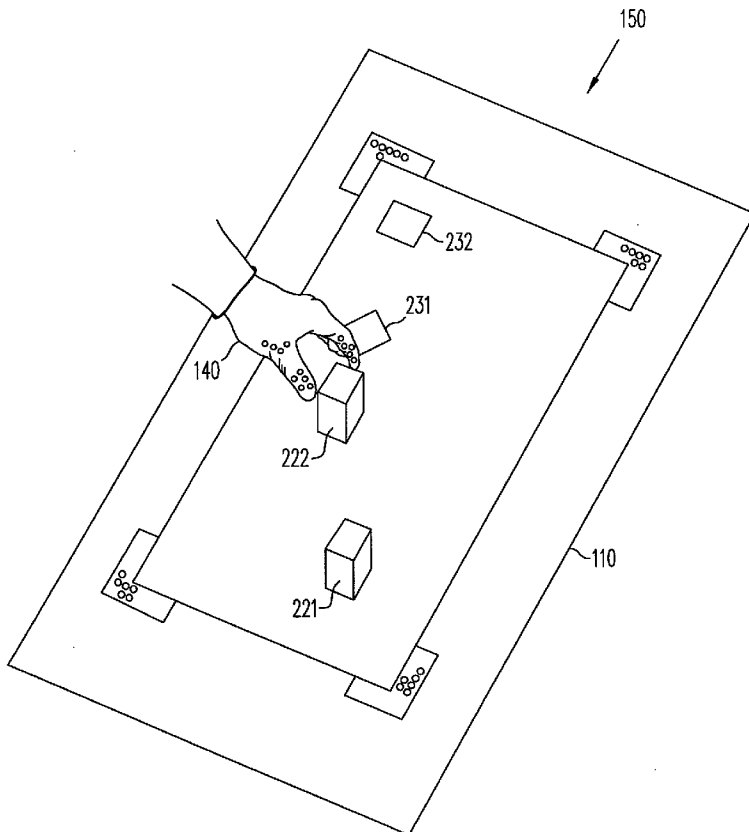
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[Continued on next page]

(54) Title: SYSTEMS AND METHODS FOR UPDATING DYNAMIC THREE-DIMENSIONAL DISPLAY WITH USER INPUT



(57) Abstract: A dynamic three-dimensional image can be modified in response to poses or gestures, such as hand gestures, from a user. In one implementation, the gestures are made by a user who selects objects in the three-dimensional image. The gestures can include indications such as pointing at a displayed object, for example, or placing a hand into the volume of space occupied by the three-dimensional image to grab one or more of the displayed objects. In response to the gestures, the three-dimensional display is partially or completely redrawn, for example by an alteration or repositioning of the selected objects. In one implementation, a system simulates the dragging of a displayed three-dimensional object by a user who grabs and moves that object.

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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

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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)
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	US 2004/046736 A1 (PRYOR TIMOTHY R [CA] ET AL) 11 March 2004 (2004-03-11) paragraph [0003] paragraph [0114] - paragraph [0116] paragraphs [0224], [0248], [0293] paragraph [0345] - paragraph [0365] paragraph [0417] - paragraph [0422] paragraph [429435] paragraph [0520] - paragraph [0522]; figures	1-50
X	US 6 750 848 B1 (PRYOR TIMOTHY R [CA]) 15 June 2004 (2004-06-15) column 2, line 42 - line 49 column 3, line 34 - column 4, line 15 column 11, line 35 - column 12, line 36 ----- -/--	1-50

Further documents are listed in the continuation of Box C.

See patent family annex.

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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>US 7 190 496 B2 (KLUG MICHAEL A [US] ET AL) 13 March 2007 (2007-03-13) cited in the application column 13, line 39 - line 56 column 15, line 26 - line 33 column 15, line 60 - last line column 18, line 15 - column 19, line 20; figures</p> <p style="text-align: center;">-----</p>	1-50
X	<p>US 2006/187196 A1 (UNDERKOFFLER JOHN S [US] ET AL) 24 August 2006 (2006-08-24) cited in the application paragraph [0011] paragraph [0022] - paragraph [0033] paragraph [0040] - paragraph [0044] paragraph [0053] - paragraph [0055] paragraph [0067] - paragraph [0086] paragraphs [0109], [0118]; figures</p> <p style="text-align: center;">-----</p>	1-50
X	<p>US 6 195 104 B1 (LYONS DAMIAN M [US]) 27 February 2001 (2001-02-27) column 3, line 33 - column 4, line 47 column 6, line 9 - line 14 column 11, line 45 - line 60 column 12, line 38 - line 41; figures</p> <p style="text-align: center;">-----</p>	1-50
X	<p>TOVI GROSSMAN ET AL.: "MULTI-FINGER GESTURAL INTERACTION WITH 3D VOLUMETRIC DISPLAYS" PROCEEDINGS OF THE 17TH ANNUAL ACM SYMPOSIUM ON USER INTERFACE SOFTWARE AND TECHNOLOGY, vol. 6, no. 2, 24 October 2004 (2004-10-24), - 27 October 2004 (2004-10-27) pages 61-70, XP008104295 Santa Fe, NM, USA cited in the application page 63, right-hand column, last paragraph - page 64, left-hand column, paragraph 1 page 64, right-hand column, last paragraph - page 65, left-hand column, paragraph 1 page 66, left-hand column, last paragraph page 67, left-hand column, paragraph 2 page 67, right-hand column, last paragraph page 69, right-hand column, paragraph 4 - last paragraph; figures</p> <p style="text-align: center;">-----</p>	1-50

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 2004046736	A1	11-03-2004	US 6720949 B1	13-04-2004
US 6750848	B1	15-06-2004	US 2005012720 A1	20-01-2005
US 7190496	B2	13-03-2007	US 2008030819 A1	07-02-2008
			US 2005052714 A1	10-03-2005
			WO 2005010623 A2	03-02-2005
US 2006187196	A1	24-08-2006	EP 1851750 A2	07-11-2007
			KR 20070116794 A	11-12-2007
			NO 20074200 B	07-11-2007
			WO 2006086508 A2	17-08-2006
US 6195104	B1	27-02-2001	EP 0960368 A2	01-12-1999
			WO 9934276 A2	08-07-1999
			JP 2001517345 T	02-10-2001
			JP 2009037594 A	19-02-2009