INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	141	7450114	B2	2008-11-11	Anwar	
	142	7464110	B2	2008-12-09	Pyhalammi et al.	
	143	7479949	B2	2009-01-20	Jobs et al.	
	144	7665043	B2	2010-02-16	Kho	
	145	7818691	B2	2010-10-19	Irvine	
	146	7880724	B2	2011-02-01	Nguyen et al.	
	147	7996878	B1	2011-08-09	Basso et al.	
	148	8022941	B2	2011-09-20	Smoot	
	149	8120625	B2	2012-02-21	Hinckley	
	150	8127141	B2	2012-02-28	Hypponen	
	151	8434020	B2	2013-04-30	Martyn	

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20010000668	A1	2001-05-03	Bodnar	
	2	20010002694	A1	2001-06-07	Nakazawa et al.	
	3	20010017934	A1	2001-08-30	Paloniemi et al.	
	4	20010022579	A1	2001-09-20	Hirabayashi	
	5	20010026268	A1	2001-10-04	Ito	
	6	20010028344	A1	2001-10-11	Iwamoto et al.	
	7	20010028365	A1	2001-10-11	Ludolph	
	8	20010030641	A1	2001-10-18	Suzuki	
	9	20010043189	A1	2001-11-22	BRISEBOIS MICHEL A. et al.	

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16796880
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	First Named Inventor	Magnus Goertz
	Art Unit	N/A
	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	10	20010043198	A1	2001-11-22	Ludtke	
	11	20010055006	A1	2001-12-27	Sano et al.	
	12	20020002326	A1	2002-01-03	Causey James D. III et al.	
	13	20020015064	A1	2002-02-07	Robotham John S. et al.	
	14	20020027549	A1	2002-03-07	Hirshberg	
	15	20020029341	A1	2002-03-07	Juels et al.	
	16	20020046315	A1	2002-04-18	Miller et al.	
	17	20020046353	A1	2002-04-18	Kishimoto	
	18	20020054153	A1	2002-05-09	Arnold	
	19	20020060699	A1	2002-05-23	DAgostini	
	20	20020063696	A1	2002-05-30	Kubo et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	21	20020075244	A1	2002-06-20	Tani et al.	
	22	20020080183	A1	2002-06-27	Johnson et al.	
	23	20020109677	A1	2002-08-15	Taylor	
	24	20020109843	A1	2002-08-15	Ehsani et al.	
	25	20020135619	A1	2002-09-26	ALLPORT	
	26	20020171691	A1	2002-11-21	Currans Kevin G. et al.	
	27	20020173300	A1	2002-11-21	Shtivelman et al.	
	28	20020175900	A1	2002-11-28	Armstrong	
	29	20020191029	A1	2002-12-19	Gillespie David W. et al.	
	30	20030002809	A1	2003-01-02	Jian	
	31	20030010043	A1	2003-01-16	Ferragut	

EFS Web 2.1.18

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	32	20030013483	A1	2003-01-16	Ausems Michiel R. et al.	
	33	20030014239	A1	2003-01-16	Ichbiah Jean D. et al.	
	34	20030016253	A1	2003-01-23	Aoki Paul M. et al.	
	35	20030030656	A1	2003-02-13	Ang et al.	
	36	20030043207	A1	2003-03-06	Duarte	
	37	20030076306	A1	2003-04-24	Zadesky et al.	
	38	20030095102	A1	2003-05-22	Kraft et al.	
	39	20030098803	A1	2003-05-29	Gourgey et al.	
	40	20030122787	A1	2003-07-03	Zimmerman et al.	
	41	20030122882	A1	2003-07-03	Kho	
	42	20030179189	A1	2003-09-25	Lira	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Magnus Goertz
	Art Unit	N/A
	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	43	20030179239	A1	2003-09-25	Lira	
	44	20030182628	A1	2003-09-25	Lira	
	45	20030206162	A1	2003-11-06	Roberts	
	46	20030234346	A1	2003-12-25	Kao	
	47	20040001101	A1	2004-01-01	Trajkovic et al.	
	48	20040021643	A1	2004-02-05	Hoshino et al.	
	49	20040021681	A1	2004-02-05	Liao	
	50	20040046791	A1	2004-03-11	Davis et al.	
	51	20040046960	A1	2004-03-11	Wagner et al.	
	52	20040100510	A1	2004-05-27	Milic-Frayling et al.	
	53	20040119763	A1	2004-06-24	Mizobuchi et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Magnus Goertz
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	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	54	20040125143	A1	2004-07-01	Deaton et al.	
	55	20040141010	A1	2004-07-22	Fitzmaurice George W. et al.	
	56	20040233179	A1	2004-11-25	Lira	
	57	20050035956	A1	2005-02-17	Sinclair Michael J. et al.	
	58	20050091612	A1	2005-04-28	Stabb Charles W. et al.	
	59	20050104860	A1	2005-05-19	McCreary et al.	
	60	20050122308	A1	2005-06-09	Bell et al.	
	61	20050165615	A1	2005-07-28	Minar	
	62	20050174473	A1	2005-08-11	Morgan Frederick M. et al.	
	63	20050198582	A1	2005-09-08	Hennum Erik F. et al.	
	64	20050253818	A1	2005-11-17	Nettamo	

EFS Web 2.1.18

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	65	20050271319	A1	2005-12-08	Graham	
	66	20060001654	A1	2006-01-05	Smits	
	67	20060010394	A1	2006-01-12	Chaudhri et al.	
	68	20060048073	A1	2006-03-02	Jarrett et al.	
	69	20060161870	A1	2006-07-20	Hotelling et al.	
	70	20060161871	A1	2006-07-20	Hotelling et al.	
	71	20060229509	A1	2006-10-12	Al-Ali et al.	
	72	20070005449	A1	2007-01-04	Mathew et al.	
	73	20070024598	A1	2007-02-01	Miller et al.	
	74	20070082707	A1	2007-04-12	Flynt et al.	
	75	20070084989	A1	2007-04-19	Lange et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Magnus Goertz
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	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	76	20070101291	A1	2007-05-03	Forstall et al.	
	77	20070146318	A1	2007-06-28	Juh et al.	
	78	20070150842	A1	2007-06-28	Chaudhri et al.	
	79	20070152984	A1	2007-07-05	Ording et al.	
	80	20070263822	A1	2007-11-15	Chang et al.	
	81	20080008472	A1	2008-01-10	Dress et al.	
	82	20080012850	A1	2008-01-17	Keating III	
	83	20080013913	A1	2008-01-17	Lieberman et al.	
	84	20080036743	A1	2008-02-14	Westerman et al.	
	85	20080055273	A1	2008-03-06	Forstall	
	86	20080068353	A1	2008-03-20	Lieberman et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	87	20080086703	A1	2008-04-10	Flynt et al.	
	88	20080093542	A1	2008-04-24	Lieberman et al.	
	89	20080100593	A1	2008-05-01	Skillman et al.	
	90	20080111797	A1	2008-05-15	LEE	
	91	20080117176	A1	2008-05-22	KO et al.	
	92	20080117183	A1	2008-05-22	Yu et al.	
	93	20080121442	A1	2008-05-29	Boer et al.	
	94	20080122792	A1	2008-05-29	Izadi et al.	
	95	20080122796	A1	2008-05-29	Jobs et al.	
	96	20080122803	A1	2008-05-29	Izadi et al.	
	97	20080136785	A1	2008-06-12	Baudisch et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

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	First Named Inventor	Magnus Goertz
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	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	98	20080136790	A1	2008-06-12	Hio	
	99	20080158174	A1	2008-07-03	Land et al.	
	100	20080165190	A1	2008-07-10	MIN et al.	
	101	20080168404	A1	2008-07-10	Ording	
	102	20080192025	A1	2008-08-14	Jaeger et al.	
	103	20080211779	A1	2008-09-04	Pryor	
	104	20080259053	A1	2008-10-23	Newton	
	105	20080297409	A1	2008-12-04	Klassen et al.	
	106	20080297487	A1	2008-12-04	HOTELLING et al.	
	107	20090006418	A1	2009-01-01	OMalley	
	108	20090027357	A1	2009-01-29	Morrison	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Attorney Docket Number	AEQUITAS.P001

	109	20090031208	A1	2009-01-29	ROBINSON	
	110	20090058833	A1	2009-03-05	Newton	
	111	20090064055	A1	2009-03-05	Chaudhri et al.	
	112	20090066673	A1	2009-03-12	Molne et al.	
	113	20090096994	A1	2009-04-16	Smits	
	114	20090187840	A1	2009-07-23	MOOSAVI	
	115	20090192849	A1	2009-07-30	Hughes et al.	
	116	20090285383	A1	2009-11-19	Tsuei	
	117	20100031203	A1	2010-02-04	Morris et al.	
	118	20100138295	A1	2010-06-03	Caron et al.	
	119	20100182136	A1	2010-07-22	Pryor	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Attorney Docket Number	AEQUITAS.P001

	120	20110030502	A1	2011-02-10	LATHROP	
	121	20110239155	A1	2011-09-29	Christie	
	122	20010015719	A1	2001-08-23	Van EE et al.	
	123	20070055926	A1	2007-03-08	Christiansen	
	124	20090007017	A1	2009-01-01	Anzures et al.	
	125	20110145753	A1	2011-06-16	Prakash	

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	1	0330767	EP	A1	1989-09-06	Pioneer Electric Corporation		
	2	0513694	EP	A2	1992-11-19	Sony Corporation		
	3	0618528	EP	A1	1994-10-05	International Business Machines Corporation		

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Magnus Goertz
	Art Unit	N/A
	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	4	0703525	EP	A1	1996-03-27	Aisan Aw Co. Ltd.		
	5	86/00446	WO	A1	1986-01-16	AMP Incorporated		
	6	86/00447	WO	A1	1986-01-16	AMP Incorporated		
	7	01/02949	WO	A1	2001-01-11	Li		
	8	02/095668	WO	A1	2002-11-28	Palm Inc.		
	9	03/038592	WO	A1	2003-05-08	Goertz		
	10	2006/020304	WO	A2	2006-02-23	Apple Computer Inc.		
	11	2009/008786	WO	A1	2009-01-15	Neonode Inc.		

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	US Provisional Patent Application Number 60365160, filed on 19 March 2002 by Luigi Lira	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	2	US Provisional Patent Application Number 60365161, filed on 19 March 2002 by Luigi Lira	
	3	US Provisional Patent Application Number 60365197, filed on 19 March 2002 by Luigi Lira	
	4	US Provisional Patent Application Number 60368988, filed on 2 April 2002 by Luigi Lira	
	5	US Provisional Patent Application Number 60913352, filed on 23 April 2007 by Costa et al.	
	6	US Provisional Patent Application Number 61020702, filed on 11 January 2008 by Hughes et al.	
	7	ERIC A. BIER , MAUREEN C. STONE , KEN FISHKIN , WILLIAM BUXTON , THOMAS BAUDEL, A Taxonomy Of See-Through Tools, Proceeding of the CHI '95 Mosaic of Creativity, May 7-11, 1995, pages 411-412, ACM, Denver, Colorado, USA.	
	8	ERIC A. BIER , MAUREEN C. STONE , KEN FISHKIN , WILLIAM BUXTON , THOMAS BAUDEL, A Taxonomy Of See-Through Tools, Conference on Human Factors in Computing Systems, CHI 1994, Boston, Massachusetts, USA, April 24-28, 1994, Proceedings, pages 358-364. ACM, NY, NY, USA.	
	9	CARLSON, JEFF, Visual Quickstart Guide Palm Organizers. Peachpit Press. 2000. Berkeley, CA. Pages xiii, 12, 25, 26, 28-30, 40, 47, 246 and 253.	
	10	CHRISTIAN HEIDE DAMM, KLAUS MARIUS HANSEN, MICHAEL THOMSEN, Tool Support for Cooperative Object-Oriented Design: Gesture Based Modeling on an Electronic Whiteboard, Proceeding of the CHI '00 Conference on Human Factors in Computing Systems, April 1-6, 2000, pages 518-525, ACM, NY, NY, USA.	
	11	DULBERG, ET AL., An Imprecise Mouse Gesture for the Fast Activation of Controls. Interact 1999. Pages 1-8.	
	12	BEVERLY L. HARRISON, KENNETH P. FISHKIN, ANUJ GUJAR, CARLOS MOCHON, ROY WANT, Squeeze Me, Hold Me, Tilt Me! An Exploration of Manipulative User Interfaces, Proceeding of the CHI '98 Conference on Human Factors in Computing Systems, April 18-23, 1998, pages 17-24, ACM, Los Angeles, California, USA.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Magnus Goertz
	Art Unit	N/A
	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	13	HODGES, S., IZADI, S., BUTLER, A., RRUSTEMI A., BUXTON, B., "ThinSight: Versatile Multitouch Sensing for Thin Form-Factor Displays." UIST'07, October 7-10, 2007. <http://www.hci.iastate.edu/REU09/pub/main/telerobotics_team_papers/thinsight_versatile_multitouch_sensing_for_thin_formfactor_displays.pdf>	
	14	IAN JERMYN, ALAIN MAYER, FABIAN MONROSE, MICHAEL K. REITER, AND AVIEL D. RUBIN, The Design And Analysis Of Graphical Passwords, Proceedings of the 8th USENIX Security Symposium, Washington, D.C., USA, August 23–26, 1999.	
	15	KARLSON ET AL., AppLens and LaunchTile: Two Designs for One-Handed Thumb Use on Small Devices, CHI 2005	
	16	Kenwood KVT-911DVD Instruction Manual, 2001, Japan.	
	17	GORDON P. KURTENBACH, ABIGAIL J. SELLEN AND WILLIAM A. S. BUXTON, An Empirical Evaluation of Some Articulatory and Cognitive Aspects of Marking Menus, Human-Computer Interaction, Volume 8 Issue 1, March 1993, Pages 1-23, L. Erlbaum Associates Inc. Hillsdale, NJ, USA.	
	18	GORDON KURTENBACH AND WILLIAM BUXTON, The Limits Of Expert Performance Using Hierarchic Marking Menus, Proceedings from INTERCHI 93 - Conference on Human Factors in Computing Systems, Pages 482-487, ACM, NY, NY, USA.	
	19	GORDON KURTENBACH AND WILLIAM BUXTON, User Learning and Performance with Marking Menus, Proceedings from CHI 94 - Conference on Human Factors in Computing Systems, Pages 258-264, ACM, NY, NY, USA.	
	20	I. SCOTT MACKENZIE AND R. WILLIAM SOUKOREFF, Text Entry for Mobile Computing: Models and Methods, Theory and Practice, Human-Computer Interaction, 2002, Volume 17, Pages 147-198, L. Erlbaum Associates Inc. Hillsdale, NJ, USA.	
	21	Mankoff, J., & Abowd, G. A. (1998). Cirrin: A word-level unistroke keyboard for pen input. Proceedings of the UIST 98 Symposium on User Interface Software and Technology. New York: ACM.	
	22	MYERS, BRAD A., Mobile Devices for Control, Mobile HCI 2002, LNCS 2411, pp. 1–8, 2002, Springer-Verlag Berlin Heidelberg 2002	
	23	MYERS, BRAD A., ET AL., Two-Handed Input Using a PDA And a Mouse, CHI Letters volume 2 · issue 1, CHI 2000 1-6 APRIL 2000	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Magnus Goertz
	Art Unit	N/A
	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	24	MYERS, BRAD A., Using Handhelds and PCs Together, Communications of the ACM, November 2001/Vol. 44, No. 11, ACM 2001	
	25	ELIZABETH D. MYNATT, TAKEO IGARASHI, W KEITH EDWARDS AND ANTHONY LAMARCA, Flatland: New Dimensions in Office Whiteboards, Proceeding of the CHI '99 Conference on Human Factors in Computing Systems, May 15-20, 1999, pages 346-353, ACM, Pittsburgh, PA, USA.	
	26	ANTTI PIRHONEN, STEPHEN BREWSTER AND CHRISTOPHER HOLGUIN, Gestural and Audio Metaphors as a Means of Control for Mobile Devices, Proceedings of the SIGCHI conference on Human factors in computing systems: Changing our world, changing ourselves, Pages 291-298, ACM New York, NY, USA.	
	27	PLAISANT, C., WALLACE, D. (1992): Touchscreen Toggle Design. In: Bauersfeld, Penny, Bennett, John, Lynch, Gene (eds.) Proceedings of the ACM CHI 92 Human Factors in Computing Systems Conference June 3-7, 1992, Monterey, California. pp. 667-668.	
	28	POGUE, DAVID, Palm Pilot: The Ultimate Guide, 2nd Edition, 1999. O'Reilly and Associates, Inc.. Pages 1-17, 19, 27-36, 38-47, 80, 113, 494, 507, 509, 519-520.	
	29	Southern Belle, Nancy Drew - Message in a Haunted Mansion - Walkthrough, Adventure Lantern, available at http://www.adventurelantern.com/walkthroughs/nancydrew3/nancydrew3.htm (posted Oct. 2006)	
	30	STREITELMEIER, JULIE, "Palm m100." The Gadgeteer. 2000. <http://www.the-gadgeteer.com/review/palm_m100_review> pages 1-8.	
	31	DAVID A. CARR, Specification of Interface Interaction Objects, CHI '94 Proceedings of the SIGCHI conference on Human factors in computing systems, Pages 372 - 378, 1994. ACM New York, NY, USA.	
	32	DAVID A. CARR, NINAD JOG, HARSHA PREM KUMAR, MARKO TEITTINEN, AND CHRISTOPHER ALBER, Using Interaction Object Graphs To Specify Graphical Widgets, Tech. Rep. ISR-TR-94-69, September 1994. Institute for Systems Research, University of Maryland, College Park, MD.	
	33	GORDON P. KURTENBACH, The Design and Evaluation of Marking Menus, 1993. Doctoral Thesis, Graduate Department of Computer Science, University of Toronto.	
	34	CATHERINE PLAISANT AND DANIEL WALLACE, Touchscreen Toggle Switches: Push or Slide? Design Issues and Usability Study, Tech. Rep. CAR-TR-521, November, 1990. Human-Computer Interaction Laboratory,Center for Automation Regards, Dept. of Psychology, University of Maryland, College Park, MD.	

EFS Web 2.1.18

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16796880
	Filing Date	2020-02-20
	First Named Inventor	Magnus Goertz
	Art Unit	N/A
	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	35	MICHAEL MCGUFFIN, NICOLAS BURTNYK, AND GORDON KURTENBACH, FaST Sliders: Integrating Marking Menus and the Adjustment of Continuous Values, Proc. Graphics Interface, May 2002, pp. 35 - 42.	
	36	Launch 'em 3.02, October 8, 2001, Synergy Solutions Inc. Pages 1 - 20.	
	37	"Launch 'em 1.53", 11 December 1998, downloaded from http://www.5star-shareware.com/PDA/Palm/Utilities/launchem.html	
	38	swipe_readme.txt, 8 May 2001, downloaded in swipe.zip from http://web.archive.org/web/20010508013439/http://www.samsungshop.co.yu/palm/swipe.zip	
	39	"SwitchHack 1.62",17 January, 2001, downloaded from http://web.archive.org/web/200101170650/http://www.deskfree.com/switchhack.html	
	40	VENOLIA ET AL., "T-Cube: A Fast, Self-Disclosing Pen-Based Alphabet." April 24, 1994. Pages 265-270.	
	41	"Desk Accessories", 18 October 2000, downoaded from http://web.archive.org/web/20001018025151/http://www.doublebang.com/resources/da.html	
	42	WAGNER, RICHARD, "Professing iPhone and iPod touch Programming: Building Applications for Mobile Safari, Wiley Publishing. Pp. ii and 113 (Jan. 2008)	
	43	MARK A. TAPIA AND GORDON KURTENBACH, Some Design Refinements and Principles on the Appearance and Behavior of Marking Menus, UIST '95, pp. 189 – 195. ACM New York, NY, USA.	
	44	ADAMB et al., Any advice on using DD to drag-pan an overflow:hidden (a la Google maps) [online forum thread], Sencha Inc., available at http://www.sencha.com/form/showthread.php?35505 (first post March 20, 2008)	
	45	KECKEROO et al., Large image-small window [online forum thread], Sencha Inc., available at http://www.sencha.com/forum/showthread.php?35505(first post May 14, 2008)	

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	Attorney Docket Number	AEQUITAS.P001

	46	Swedish Patent Application Number SE0103835-5, Pekskärm för mobiltelefon realiserad av displayenhet med ljussändande och ljuspulsmottagande enheter, filed by NEONODE AB on November 2, 2001.	
	47	https://memory-alpha.fandom.com/wiki/PADD downloaded on June 20, 2019.	
	48	Notice of allowance received for US patent application no. 10/315,250 mailed on December 1, 2011, 8 pages.	
	49	Non-final Office action received for US patent application no. 10/315,250 mailed on June 7, 2011, 5 pages.	
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SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Marc A. Berger/	Date (YYYY-MM-DD)	2020-02-24
Name/Print	Marc A. Berger	Registration Number	44029

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
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Application Number	16796880
Filing Date	2020-02-20
First Named Inventor	Magnus Goertz
Art Unit	2174
Examiner Name	N/A
Attorney Docket Number	AEQUITAS.P001

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5818437	A	1998-10-06	Grover et al.	
	2	7126583	B1	2006-10-24	Breed	
	3	7889180	B2	2011-02-15	Byun et al.	

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	1	20020026483	A1	2002-02-28	Isaacs et al.	
	2	20020034281	A1	2002-03-21	Isaacs et al.	
	3	20070242057	A1	2007-10-18	Zadesky et al.	

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	1	IBM, Simon Says "Here's How!", 1994, pages 1 - 70 (Year: 1994)	
	2	3Com PalmPilot Handbook, 1997, pages 1 - 200 (Year: 1997)	
	3	Non-final Office action received for US patent application no. 16/127,238 mailed on March 5, 2020, 18 pages.	

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Name/Print	Marc A. Berger	Registration Number	44029

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	20	Non-final Office action received for US patent application no. 12/486,033 mailed on April 2, 2012, 51 pages.	
	21	Final Office action received for US patent application no. 12/486,033 mailed on March 27, 2013, 45 pages.	
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	25	Preliminary Amendment for US patent application no. 13/310,755, filed on December 28, 2011	
	26	Notice of Allowance for US patent application no. 14/324,166 mailed on June 5, 2018, 7 pages.	
	27	Non-final Office action for US patent application no. 14/324,166 mailed on September 26, 2017, 22 pages.	
	28	Final Office action for US patent application no. 14/324,166 mailed on May 5, 2017, 18 pages.	
	29	Non-final Office action for US patent application no. 14/324,166 mailed on August 25, 2016, 11 pages.	
	30	Non-final Office action received for US patent application no. 14/886,048 mailed on October 4, 2018, 48 pages.	
	31	Final Office action received for US patent application no. 14/886,048 mailed on August 22, 2019, 39 pages.	

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The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

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A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Marc A. Berger/	Date (YYYY-MM-DD)	2020-02-24
Name/Print	Marc A. Berger	Registration Number	44029

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

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Application 16/796880 - Other Searches

Source	Search Expression	Date
Google Web (http://www.google.com)	ibm bell south simon says here's how users manual	7/20/2020
InnovationQ Plus (https://iq.ip.com)	US20180292960	8/13/2020

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16796880
Filing Date	2020-02-20
First Named Inventor	Magnus Goertz
Art Unit	2174
Examiner Name	N/A
Attorney Docket Number	AEQUITAS.P001

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	Filing Date	2020-02-20
	First Named Inventor	Magnus Goertz
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	Examiner Name	N/A
	Attorney Docket Number	AEQUITAS.P001

	1	US Provisional Patent Application Number 60430338, filed on 20 November 2002 by Daniel Suraqui	
	2	US Provisional Patent Application Number 60257524, filed on 21 December 2000 by David Taylor	

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Examiner Signature	/CONRAD R PACK/	Date Considered	05/25/2020

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Name/Print	Marc A. Berger	Registration Number	44029

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) ss
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CERTIFICATION

This is to certify that the attached translation is, to the best of my knowledge and belief, a true and accurate translation from Japanese into English of the attached Published Patent Application No. 2002-55750, dated August 10, 2000.

Jeff Cureton, Senior Managing Editor

Sworn to and subscribed before me
this 9th day of September, 2020.

KRISTEN DUFFY
NOTARY PUBLIC-STATE OF NEW YORK
No. 01DU6121852
Qualified In Queens County
My Commission Expires 01-31-2021

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APPLE 1005

GOOGLE EXHIBIT 1043
GOOGLE v. NEONODE
IPR2021-01041

(19) **Japanese Patent Office (JP)**

(12) **Published Unexamined Patent Application (A)**

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Examination Request: Not yet made Number of Claims: 24 OL (Total 37 pages)

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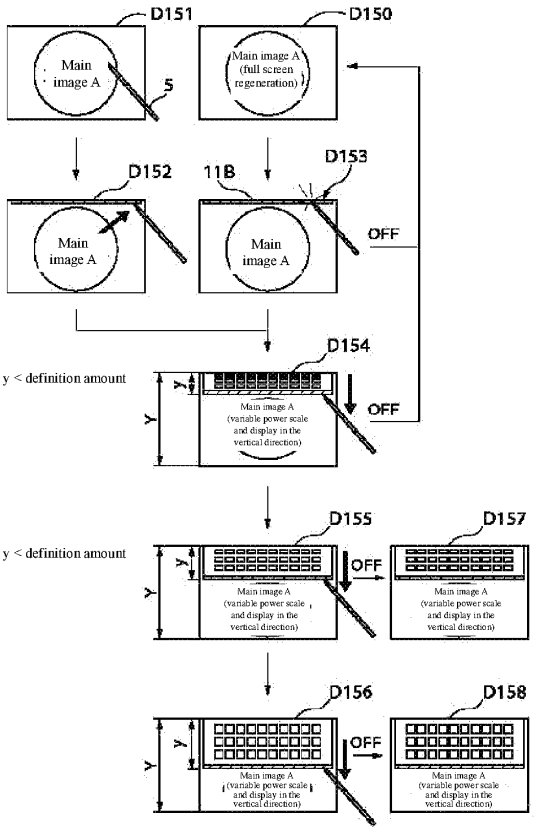
Continue to last page

(54) [NAME OF THE INVENTION] Information processing device, function list display means, and storage medium

(57) [ABSTRACT]

[Problem to Be Solved] To simultaneously display a menu and a main image in a small image display part without hindering any editing work.

[Means for Solving the Problem] The coordinate designation of a predetermined area 11B is performed by an input device 05 (D153), and successively the coordinate designation is continued by the input device 05, and when the designated coordinates are changed to almost the central direction of an image display part (D154~D156), a menu corresponding to the predetermined area 11B is displayed on the image display part according to the changing amounts of the designated coordinates. At the same time, a main image A displayed on the image display part immediately before the menu is displayed is variable power reduced according to the display amounts of the menu, and then displayed on the image display part (D154~D156).



[SCOPE OF PATENT CLAIMS]

[Claim 1] An information processing device, wherein in such an information processing device equipped with an image display part surrounded by a frame forming a level difference and a coordinate designation means for designating a coordinate position on the screen in this image display part, there are

multiple predetermined areas on the aforesaid image display part provided near the aforesaid frame;

multiple function lists which contain multiple function items respectively that were set corresponding to each of the aforesaid multiple predetermined areas;

a function list display means enabling that when the coordinate designation of any one of the aforesaid multiple designated areas was performed by the aforesaid coordinate designation means, and successively the coordinate designation was continued by the aforesaid coordinate designation means, and at the same time, this designated coordinate changed to almost the central direction of the aforesaid image display part, the function list corresponding to the predetermined area where the aforesaid coordinate designation was performed will be displayed on the aforesaid image display part according to the amount of the aforesaid change of the designated coordinates; and

a main image display means enabling that the main image displayed on the aforesaid image display part by the aforesaid function list display means immediately before the function list is displayed by the aforesaid function list display means will be variable power reduced corresponding to the display amount of the function list displayed by the aforesaid function list display means, and then displayed on the aforesaid image display part.

[Claim 2] An information processing device described in claim 1, wherein the aforesaid frame forms a square shape, and

the aforesaid main image display means will variable power reduce the shape of the aforesaid main image immediately before being displayed in accordance with the aspect ratio of the display area that remains when the function list is displayed by the aforesaid function list display means on the screen of the aforesaid image display part.

[Claim 3] An information processing device described in claim 2, wherein if the function list displayed by the aforesaid function list display means is pulled out in the vertical direction of the aforesaid frame and then displayed, the aforesaid main image display means will variable power reduce the shape of the aforesaid main image immediately before being displayed in the aforesaid vertical direction; and, on the other hand, if the function list displayed by the aforesaid function list display means is pulled out in the horizontal direction of the aforesaid frame and then displayed, the aforesaid main image display means will variable power reduce the shape of the aforesaid main image immediately before being displayed in the aforesaid horizontal direction.

[Claim 4] An information processing device described in any one claim from claims 1 to 3, wherein the user selects a function based on the function list displayed by the aforesaid function list display means, and by executing this selected function, the editing process of the main image displayed by the aforesaid main image display means can be performed.

[Claim 5] An information processing device described in any one claim from claims 1 to 4, wherein the aforesaid coordinate designation means includes a contactor that comes into contact with the screen of the aforesaid image display part,

and the aforesaid multiple predetermined areas include the area where when the aforesaid contactor moves on the screen of the aforesaid image display part and comes into contact with the aforesaid frame, the aforesaid contactor will be located on the screen of the aforesaid image display part.

[Claim 6] An information processing device described in claim 5, wherein the aforesaid frame forms a square shape,

and the aforesaid multiple predetermined areas will be located near four sides of the aforesaid frame.

[Claim 7] An information processing device described in claims 5 or 6, wherein the aforesaid frame forms a square shape,

and the aforesaid multiple predetermined areas will be located near four corners of the aforesaid frame.

[Claim 8] An information processing device described in any one claim from claims 1 to 7, wherein the aforesaid information processing device is a portable information processing terminal.

[Claim 9] An information processing device described in any one claim from claims 1 to 8, wherein multiple function items representing multiple information processing functions provided by the aforesaid information processing device are pre-classified according to the predetermined classification criteria to form multiple groups, and each group corresponds to each of the aforesaid multiple function lists.

[Claim 10] An information processing device described in claim 9, wherein the aforesaid classification criteria will be the frequency of use of the functions.

[Claim 11] An information processing device described in any one claim from claims 1 to 10, wherein the aforesaid function list display means will extract a change amount component in a predetermined direction from the change amount of the aforesaid designated coordinate, pull out the image of the function list corresponding to the aforesaid coordinate-designated predetermined area in the aforesaid predetermined direction only for the pull-out amount corresponding to the aforesaid extracted change amount component, and then display this image on the aforesaid image display part.

[Claim 12] An information processing device described in claim 11, wherein when the coordinate designation by the aforesaid coordinate designation means was cancelled, and if the aforesaid extracted change amount component is larger than the predetermined value, the aforesaid function list display means will maintain the pull-out display of the aforesaid function list only for the aforesaid pull-out amount.

[Claim 13] An information processing device described in claims 11 or 12, wherein when the coordinate designation by the aforesaid coordinate designation means was cancelled, and if the aforesaid extracted change amount component is less than the predetermined value, the aforesaid function list display means will stop displaying the aforesaid function list.

[Claim 14] An information processing device described in any one claim from claims 1 to 13, wherein in the function list corresponding to the aforesaid coordinate-designated predetermined area, the aforesaid function list display means will display all the function items constituting this function list on the aforesaid image display part after being variable power reduced in the vertical and horizontal directions corresponding to the change amount of the aforesaid designated coordinate.

[Claim 15] An information processing device described in claims 1 to 13, wherein in the function list corresponding to the aforesaid coordinate-designated predetermined area, the aforesaid function list display means will reduce and display all the function items that constitute the function list on the aforesaid image display part in case of any change amount of the aforesaid designated coordinate.

[Claim 16] An information processing device described in any one claim from claims 1 to 13, wherein in each of the aforesaid multiple function list, the aforesaid function list display means will set the display priority in advance for multiple function items that constitute the function list, and preferentially display the function items with aforesaid high priority in the aforesaid function list on

the aforesaid image display part, corresponding to the change amount of the aforesaid designated coordinate.

[Claim 17] A function list display means, wherein in such a function list display means to be applied to the information processing device and equipped with an image display part surrounded by a frame forming a level difference, a coordinate designation means for designating a coordinate position on the screen in this image display part, multiple predetermined areas on the aforesaid image display part provided near the aforesaid frame, and multiple function lists which contain multiple function items respectively that were set corresponding to each of the aforesaid multiple predetermined areas, there are

a function list display step enabling that when the coordinate designation of any one of the aforesaid multiple designated areas was performed by the aforesaid coordinate designation means, and successively the coordinate designation was continued by the aforesaid coordinate designation means, and at the same time, this designated coordinate changed to almost the central direction of the aforesaid image display part, the function list corresponding to the predetermined area where the aforesaid coordinate designation was performed will be displayed on the aforesaid image display part according to the amount of the aforesaid change of the designated coordinates; and

a main image display step enabling that the main image displayed on the aforesaid image display part by the aforesaid function list display step immediately before the function list is displayed by the aforesaid function list display step will be variable power reduced corresponding to the display amount of the function list displayed by the aforesaid function list display step, and then displayed on the aforesaid image display part.

[Claim 18] A function list display means described in claim 17, wherein the aforesaid frame forms a square shape,

and the aforesaid main image display step will variable power reduce the shape of the aforesaid main image immediately before being displayed in accordance with the aspect ratio of the display area that remains when the function list is displayed by the aforesaid function list display step on the screen of the aforesaid image display part.

[Claim 19] A function list display means described in claim 18, wherein if the function list displayed by the aforesaid function list display step is pulled out in the vertical direction of the aforesaid frame and then displayed, the aforesaid main image display step will variable power reduce the shape of the aforesaid main image immediately before being displayed in the aforesaid vertical direction; and, on the other hand, if the function list displayed by the aforesaid function list display step is pulled out in the horizontal direction of the aforesaid frame and then displayed, the aforesaid main image display step will variable power reduce the shape of the aforesaid main image immediately before being displayed in the aforesaid horizontal direction.

[Claim 20] A function list display means described in any one claim from claims 17 to 19, wherein the user selects a function based on the function list displayed by the aforesaid function list display step, and by executing this selected function, the editing process of the main image displayed by the aforesaid main image display step can be performed.

[Claim 21] A storage medium, wherein in such a computer-readable storage medium which stored, as a program, a function list display means to be applied to the information processing device and equipped with an image display part surrounded by a frame forming a level difference, a coordinate designation means for designating a coordinate position on the screen in this image display part, multiple predetermined areas on the aforesaid image display part provided near the aforesaid frame, and multiple function lists which contain multiple function items respectively that were set corresponding to each of the aforesaid multiple predetermined areas, the function list display means has a function list display step enabling that when the coordinate designation of any one of the aforesaid multiple designated areas was performed by the aforesaid coordinate designation means, and successively the coordinate designation was continued by the aforesaid coordinate designation means, and at the same time, this designated coordinate changed to almost the central direction of the aforesaid image display part, the function list corresponding to the predetermined area where the aforesaid coordinate designation was performed will be displayed on the aforesaid image display part according to the amount of the aforesaid change of the designated coordinates; and

a main image display step enabling that the main image displayed on the aforesaid image display part by the aforesaid function list display step immediately before the function list is displayed by the aforesaid function list display step will be variable power reduced corresponding to the display amount of the function list displayed by the aforesaid function list display step, and then displayed on the aforesaid image display part.

[Claim 22] A storage medium described in claim 21, wherein the aforesaid frame forms a square shape,

and the aforesaid main image display step will variable power reduce the shape of the aforesaid main image immediately before being displayed in accordance with the aspect ratio of the display area that remains when the function list is displayed by the aforesaid function list display step on the screen of the aforesaid image display part.

[Claim 23] A storage medium described in claim 22, wherein if the function list displayed by the aforesaid function list display step is pulled out in the vertical direction of the aforesaid frame and then displayed, the aforesaid main image display step will variable power reduce the shape of the aforesaid main image immediately before being displayed in the aforesaid vertical direction; and, on the other hand, if the function list displayed by the aforesaid function list display step is pulled out in the horizontal direction of the aforesaid frame and then displayed, the aforesaid main image display step will variable power reduce the shape of the aforesaid main image immediately before being displayed in the aforesaid horizontal direction.

[Claim 24] A storage medium described in any one claim from claims 21 to 23, wherein the user selects a function based on the function list displayed by the aforesaid function list display step, and by executing this selected function, the editing process of the main image displayed by the aforesaid main image display step can be performed.

[DETAILED DESCRIPTION OF THE INVENTION]

[0001]

[Technical field to which the invention belongs] This invention is related to an information processing device, a function list display means, and a storage medium, and to be more specific, it is related to an information processing device equipped with an image display part surrounded by a frame forming a level difference and a coordinate designation means for designating a coordinate position on the screen at the image display part, a function list display means to be applied to this information processing device, and a storage medium storing a program for executing this function list display means.

[0002]

[Conventional technology] In a conventional notebook-sized portable information terminal, it is to operate the hard keys on the exterior of the main body or the touch-sensitive keys on the liquid crystal display to select the functions that can be executed by the portable information terminal and then execute those functions.

[0003] In addition, in a personal computer equipped with a large screen display (hereinafter referred to as "personal computer"), by using a mouse cursor or pointing device to select buttons and soft keys that use icons that are always displayed on the screen of the display and symbolically represent the function of the button, a list (menu) of functions that can be executed on a personal computer will be pulled out, and when a desired function is selected from the list, the selected function will be executed. The list of functions which are pulled out in this way is called a pull-down menu or a pull-up menu.

[0004]

[Problems to be solved by the invention] When such pull-down menus or pull-up menus are applied to a conventional portable information terminal with a narrow display screen, the menu will cover the main image that should be displayed. For this reason, there is no choice but to accept the result that the menu will be displayed as small as possible, and the menu has unfavorably covered a part of the main image. However, if a small menu is displayed, it will be difficult to read; on the contrary, if a large menu is displayed, there is a problem that many areas of the main image have been unfavorably covered by the menu. This problem increases as the number of function items included in the menu increases.

[0005] By the way, there may be a case when it is desired to display the menu and the main image simultaneously to perform an editing work, but in such a case, even if the menu doesn't cover the whole main image, the menu only hides a part of the main image, if there is important information in the hidden part, it will hinder editing work. Therefore, in such a case, it is not preferable that the main image is partially covered.

[0006] This invention has been made in view of such kind of problems, and the purpose of this invention is to provide an information processing device, a function list display means, and a storage medium that does not hinder any editing work even if a menu and a main image are simultaneously displayed at a small image display part.

[0007]

[Means for solving the problems] In order to achieve the above purpose, according to the invention of claim 1, it is an information processing device, wherein in such an information processing device equipped with an image display part surrounded by a frame forming a level difference and a coordinate designation means for designating a coordinate position on the screen in this image display part, it has multiple predetermined areas on the aforesaid image display part provided near the aforesaid frame; multiple function lists which contain multiple function items respectively that were set corresponding to each of the aforesaid multiple predetermined areas; a function list display means enabling that when the coordinate designation of any one of the aforesaid multiple designated areas was performed by the aforesaid coordinate designation means, and successively the coordinate designation was continued by the aforesaid coordinate designation means, and at the same time, this designated coordinate changed to almost the central direction of the aforesaid image display part, the function list corresponding to the predetermined area where the aforesaid coordinate designation was performed will be displayed on the aforesaid image display part according to the amount of the aforesaid change of the designated coordinates; and

a main image display means enabling that the main image displayed on the aforesaid image display part by the aforesaid function list display means immediately before the function list is displayed by the aforesaid function list display means will be variable power reduced corresponding to the display amount of the function list displayed by the aforesaid function list display means, and then displayed on the aforesaid image display part.

[0008] In addition, according to the invention of claim 17, it is a function list display means, wherein in such a function list display means to be applied to the information processing device and equipped with an image display part surrounded by a frame forming a level difference, a coordinate designation means for designating a coordinate position on the screen in this image display part, multiple predetermined areas on the aforesaid image display part provided near the aforesaid frame, and multiple function lists which contain multiple function items respectively that were set corresponding to each of the aforesaid multiple predetermined areas, it has a function list display step enabling that when the coordinate designation of any one of the aforesaid multiple designated areas was performed by the aforesaid coordinate designation means, and successively the coordinate designation was continued by the aforesaid coordinate designation means, and at the same time, this designated coordinate changed to almost the central direction of the aforesaid image display part, the function list corresponding to the predetermined area where the aforesaid coordinate designation was performed will be displayed on the aforesaid image display part according to the amount of the aforesaid change of the designated coordinates; and a main image display step enabling that the main image displayed on the aforesaid image display part by the aforesaid function list display step immediately before the function list is displayed by the aforesaid function list display step will be variable power reduced corresponding to the display amount of the function list displayed by the aforesaid function list display step, and then displayed on the aforesaid image display part.

[0009] Furthermore, according to the invention of claim 21, it is a storage medium, wherein in such a computer-readable storage medium which stored, as a program, a function list display means to be applied to the information processing device and equipped with an image display part surrounded by a frame forming a level difference, a coordinate designation means for designating a coordinate position on the screen in this image display part, multiple predetermined areas on the aforesaid image display part provided near the aforesaid frame, and multiple function lists which contain multiple function items respectively that were set corresponding to each of the aforesaid multiple predetermined areas, the function list display means has a function list display step enabling that when the coordinate designation of any one of the aforesaid multiple designated areas was performed by the aforesaid coordinate designation means, and successively the coordinate designation was continued by the aforesaid coordinate designation means, and at the same time, this designated coordinate changed to almost the central direction of the aforesaid image display part, the function list corresponding to the predetermined area where the aforesaid coordinate designation was performed will be displayed on the aforesaid image display part according to the amount of the aforesaid change of the designated coordinates; and a main image display step enabling that the main image displayed on the aforesaid image display part by the aforesaid function list display step immediately before the function list is displayed by the aforesaid function list display step will be variable power reduced corresponding to the display amount of the function list displayed by the aforesaid function list display step, and then displayed on the aforesaid image display part.

[0010]

[Embodiment of the invention] Hereafter, embodiments of this invention will be explained with reference to the figures.

[0011] (1st embodiment) FIG. 1 is a front view which shows the

constitution of the 1st embodiment of the portable information processing device according to this invention; FIG. 2 is a top view of the portable information processing device shown in FIG. 1; FIG. 3 is a rear view of the portable information processing device shown in FIG. 1; and FIG. 4 is a transverse sectional view taken along the line A-A' of the portable information processing device shown in FIG. 3.

[0012] The portable information processing device 01 is a notebook-sized portable information terminal (PDA) that is mounted with an image display screen 09 with the capability to display full-color image information in high definition, and receives the coordinate instructions mainly from a pen-type input device 05.

[0013] On the front side shown in FIG. 1, a camera part 07 and a microphone 06 that records sound data have been configured.

[0014] A shutter switch 08 has been configured on the upper surface side shown in FIG. 2. The shutter switch 08 is constituted with a 2-stage switch, when the 1st-stage switch is turned on, the camera will be in a shooting standby state, and the finder image information will be displayed on the image display screen 09. Then, when the 2nd-stage switch is turned on, shooting is performed and the image is recorded.

[0015] The back side shown in FIG. 3 is a side on which the operation is mainly performed when the user uses the portable information processing device 01. The touch panel sensor 11 on the image display screen 09 is touched by the pen-type input device 05, the coordinate is designated by this touch, and various functions can be selected. 10 is the speaker.

[0016] As shown in the cross-sectional view of FIG. 4, the touch panel sensor 11 has been constituted by being surrounded by the exterior cover member 04, and the exterior cover member 04 has formed a level difference for the touch panel sensor 11 so that when the input device 05 is moved along the top surface of the touch panel sensor 11, it will hit the exterior cover member 04.

[0017] FIG. 5 is a figure which shows the constitution of a touch panel sensor.

[0018] On the touch panel sensor 11, an image display area 11E and the menu display trigger areas 11A to 11D are provided. The pull-out menu display trigger areas 11A to 11D are respectively located near the touch panel sensor 11 which is in contact with the exterior cover member 04. By this way, when the input device 05 was moved along the upper surface of the touch panel sensor 11 and hit the exterior cover member 04, the input device 05 will be located at any of the pull-out menu display trigger areas 11A to 11D. Moreover, the coordinate definition of the pull-out menu display trigger areas 11A to 11D is determined by the shape of the pen tip of the input device 05, etc., and when the input device 05 is abutted on the exterior cover member 04, the coordinate range detected by the touch panel sensor 11 is defined with some margin. Each predefined coordinate information of the pull-out menu display trigger areas 11A to 11D has been registered in the ROM; when the coordinate information generated by the input device 05 was detected, it is verified through comparing with the coordinate information registered in the ROM and when it is determined that the coordinate information generated by the input device 05 exists in the pull-out menu display trigger areas 11A to 11D, it will become in the standby state for starting the display of the pull-out menu to be described later, furthermore, when it is detected that the input device 05 was scrolled toward the center of the touch panel sensor 11, the pull-out menu will be displayed.

[0019] FIG. 6 is a figure which shows the pull-out menu displayed on the image display screen 09.

[0020] In order to display a menu of the names of many processing functions of the portable information processing device 01 on the image display screen 09, these various processing functions are classified into four categories in advance and assigned to A to D classification menus. Then, when any of the pull-out menu display trigger areas 11A to 11D was selected by the input device 05, the corresponding one of the A to D classification menus will be displayed as a "pull-out menu" on the image display screen 09.

[0021] Corresponding to the specifications of the portable information processing device 01 and the product concept, the contents to be laid out in the pull-out menu may be a list of buttons based on icons or text display, and an example in which icons and characters are written together can be expected.

[0022] As a specific example of functions stored in the A to D classification menus, in the A classification menu, a search function that searches for a desired image from the images that have been taken and saved in the past is summarized; in the B classification menu, the character input function that adds characters to the image is summarized; and in the C classification menu, the processing and editing function that adds special effects to the image are summarized. Moreover, the B classification menu is displayed as a pull-out menu in the image display screen 09, various functional processes can be performed, so by placing the B classification menu at a location at the top of the image display screen 09 to be described later with reference to FIG. 7, when writing to an image or selecting a function, it will be possible to prevent the input device 05 or hand from hiding the image.

[0023] In the D classification menu, the functions that specify the save destination of the data of image that has undergone the image processing, such as saving and organizing functions, etc., are summarized.

[0024] FIG. 7 is a figure which shows the screen of an image display screen 09 in which the B classification menu was displayed as a pull-out menu.

[0025] When the input device 05 is slid toward the center of the screen while the coordinate designation of the pull-out menu display trigger area 11B is being performed with the input device 05, the B classification menu will be displayed as the pull-out menu 11b. In the pull-out menu 11b, the function buttons by the icons or characters corresponding to each function will be laid out.

[0026] As described above, when the user designates one of the pull-out menu display trigger areas 11A to 11D using the input

device 05 according to the required function and scrolls, it will be possible to display the menu including the required function. While the user is repeatedly using the pull-out menu display trigger areas 11A to 11D, it will be possible to remember the major classification categories of each area.

[0027] Moreover, the number of icons and buttons shown in FIG. 7 is set according to the size of the screen, and is not limited to the number shown in FIG. 7. In addition, for the pull-out menu display trigger areas 11A to 11D, it is also fine to separately use the setting to always have these areas displayed in advance on the image display screen 09, or the setting not to always display, but to display only when the predetermined area of the image display screen 09 was designated by the input device 05. Furthermore, it is also fine to distinguish the pull-out menu display trigger areas 11A to 11D from each other by changing patterns or colors.

[0028] Moreover, in the following explanation, as shown in FIG. 5, the horizontal direction of the screen of the image display screen 09 is treated as the X axis, the vertical direction is treated as the Y axis, and the pull-out amounts of the pull-out menu are treated as x and y, respectively.

[0029] FIG. 8 is a block figure which shows the system constitution of a portable information processing device 01.

[0030] As described above, by touching the soft button on the screen of the image display screen 09 with the input device 05, the coordinate on the touch panel sensor 11 can be detected, and according to the detected coordinate information, the CPU21 will execute various functions based on the operating system stored in the ROM25.

[0031] In addition, the image input from CCD22 of the camera part 07 and the audio information input from the microphone 06 are recorded in the flash memory 24 by the shutter switch 08, and stored in RAM23 according to various processing procedures of the program stored in the ROM25. The stored information is later regenerated with the image display screen 09 or the speaker 10, and it will be possible to regenerate the desired image or sound arbitrarily through multiple search means by GUI operation instructed from the coordinate position on the touch panel sensor 11 by touching the input device 05.

[0032] The image information will be edited/processed by various methods such as adding the image arbitrarily to the regenerated image information using the RAM23 or adding characters by the word processing function, etc.

[0033] FIG. 9 is a flow chart which shows the outline of the overall operation procedures in the portable information processing device 01.

[0034] When the main power supply is turned on (YES in S11), the images taken in the past are regenerated and it will become a display state possible to be viewed like an album (S12).

[0035] In this state, there is a button (hard key) operation (S13), and if it is the process of the power switch, the power can be turned off. If that is the operation (half press) of the 1st-stage switch SW1 of the shutter switch 08 (S14), the image will be displayed on the viewfinder (S15), and if that is the operation (fully press) of the 2nd-stage switch SW2 of the shutter switch 08 (S16), the image taken will be stored in the flash memory 24 (S17).

[0036] After the process of step S15 or step S17 or the process of step S12, when the GUI function button was selected and operated by the input device 05 (S18), corresponding to the selected function, search (S19), character input (S20), processing/editing (S21), saving/organizing (S22), etc. will be executed.

[0037] This invention is related to the display of a menu containing various GUI function buttons.

[0038] FIGS. 10 and 11 are the flow charts which show the processing procedures at the time of displaying the pull-out menu; FIG. 12 is a figure which shows the display screen in the processing process of displaying the pull-out menu (to be more specific, the screen in case of selecting and displaying the B classification menu). Hereafter, the invention will be explained along the steps shown in FIGS. 10 and 11 while referring to FIG. 12 as needed.

[0039] First, to briefly explain the processing procedures at the time of displaying the pull-out menu, the definition coordinate of the pull-out menu display trigger areas 11A to 11D on the touch panel sensor 11 has been registered in the ROM25 in advance. When it was detected that these areas were touched by the input device 05, the detected coordinate data will be verified through comparing with the definition coordinate registered in the ROM25, and the pull-out menu corresponding to the pull-out menu display trigger area to be operated will be selected, and it will become a display standby state. When the detected coordinate is continuously updated by dragging the input device 05 toward the center of the image display screen 09, the pull-out menu will be pulled out in the dragged direction accompanying with the dragging. If the detection information goes OFF (the input device 05 will no longer be in contact with the touch panel sensor 11 and the coordinate will no longer be detected), the pull-out menu will continue to be displayed on the dragged position. Here, "OFF" means that the touch panel sensor 11 will no longer be in contact with the input device 05 and the coordinate will no longer be detected. In the following explanation, "OFF" with the same meaning will be used.

[0040] First, in step S101, a photo image or the like will be displayed using the full screen of the image display screen 09. The screen D1 in FIG. 12 shows the screen of the image display screen 09 at this time. Next, in step S102, the position coordinate on the touch panel sensor 11 touched by the input device 05 will be detected.

[0041] In step S103, it is determined whether or not the coordinate value detected in step S102 is included in any of the pull-out menu display trigger areas 11A to 11D. If it is not included, standby until

it is included. Moreover, as shown on screens D3 and D4 in FIG. 12, when the detected coordinate value existed in areas other than the pull-out menu display trigger areas 11A to 11D, was continuously updated without going OFF, and after that, was moved to any of the pull-out menu display trigger areas 11A to 11D, the coordinate information before reaching any of the pull-out menu display trigger areas 11A to 11D will be treated as invalid. In addition, as shown on screen D2 in FIG. 12, even if the detected coordinate value is included in one of the pull-out menu display trigger areas 11A to 11D, if it went OFF, the process will return to step S101.

[0042] In step S104, it is determined whether or not the detected coordinate value is included in any of the pull-out menu display trigger areas 11A to 11D, and if it is included in the pull-out menu display trigger areas 11A and 11D, the process will proceed to step S105, and if it is included in the pull-out menu display trigger areas 11B and 11C, the process will proceed to step S112.

[0043] In steps S105 and S112, the selected pull-out menu display trigger area is highlighted and displayed, and at the same time, an electronic sound such as a beep is generated as a key reception sound to notify the user of the selection. Moreover, if it went OFF during this period, the process will return to step S101.

[0044] In this way, the user only needs to roughly operate the wide pull-out menu display trigger area 11A to 11D with the input device 05, it will be possible to display the desired menu.

[0045] Next, for example, while the input device 05 was in contact with the pull-out menu display trigger area 11B and the input device 05 was in contact with the touch panel sensor 11 without being released, if this input device is slid toward the center of the image display screen 09, as shown on screens D5 to D8 in FIG. 12, the B classification menu will be pulled out accompanying with the motion of the input device 05. This will be explained below along steps S113 to S118 in FIGS. 10 and 11.

[0046] First, in step S113, only the Y coordinate value of the coordinate values detected by making the input device 05 come into contact with the menu display trigger areas 11B and 11C will be monitored. Here, since the pull-out menu display trigger areas 11B and C are selected, the X-axis information will be ignored and only the Y-axis information will be reflected in the processing. The user can roughly drag downward the input device 05 without having to worry about exactly dragging vertically, and the user's intention can be reflected. Generally, the direction of dragging is slightly deviated from the vertical direction depending on whether the dominant hand is left or right; for example, in case of a right-handed user, drag a little to the left from the vertical direction, that is, with a vector from the upper right to the lower left. In addition, in case of a left-handed user, drag with a vector from the upper left to the lower right. However, by adopting a method of reflecting only the change value of the Y-axis information, it will become possible to reflect the intention of the user without being influenced by the above habit.

[0047] In step S114, the display amount of the pull-out menu will be updated according to the Y coordinate value generated by the input device 05. Moreover, for the maximum pull-out amount of the pull-out menu that can be pulled out, although the definition can be changed corresponding to the specifications, in this embodiment, it is defined as up to the center position of the display area.

[0048] Moreover, in a period when the menu pull-out amount y is less than the defined amount, if it became OFF as shown on screen D5 in FIG. 12, the process of pulling out the menu will be cancelled midway and the process will return to step S101 (S115). In addition, after the menu pull-out amount y exceeded the predetermined definition amount, when it became OFF as shown on screen D6 in FIG. 12, at that position, the process of pulling out the pull-out menu will be stopped and it can be used as it is (S116). Furthermore, when the menu pull-out amount y exceeded the maximum pull-out amount, the process of pulling out the pull-out menu will be stopped, the maximum pull-out amount will be maintained (S117), and the detected coordinate value will be ignored (S118).

[0049] Moreover, different from the above-mentioned embodiment, when the change speed of the detected coordinate value in the course of processing as shown on screens D2, D5 and D6 in FIG. 12 is detected and the change speed is high, even if it goes OFF by the process as shown on screen D6 in FIG. 12, it is also fine to move to the process as shown on screen D9 in FIG. 12 instead of the process as shown on screen D8 in FIG. 12.

[0050] When the input device 05 selects the menu display trigger areas 11A and 11D, similarly, in step S106, only the X coordinate value of the coordinate values detected by making the input device 05 come into contact with the menu display trigger areas 11A and 11d will be monitored. Here, the Y-axis information will be ignored and only the X-axis information will be reflected in the processing.

[0051] In step S107, the display amount of the pull-out menu will be updated corresponding to the X coordinate value generated by the input device 05.

[0052] Moreover, in a period when the menu pull-out amount x is less than the defined amount, if it became OFF, the process of pulling out the menu will be cancelled midway and the process will return to step S101 (S108). In addition, after the menu pull-out amount x exceeded the predetermined definition amount, when it became OFF, at that position, the process of pulling out the pull-out menu will be stopped and it can be used as it is (S109). Furthermore, when the menu pull-out amount x exceeded the maximum pull-out amount, the process of pulling out the pull-out menu will be stopped, the maximum pull-out amount will be maintained (S110), and the detected coordinate value will be ignored (S111).

[0053] FIGS. 13 and 14 are the flow charts which show the processing procedures for closing the displayed pull-out menu; FIG. 15 is a figure which shows the display screen in the processing process which closes the pull-out menu (to be more specific, the screen in the case when the B classification menu was selected). Hereafter, it will be explained along the steps as shown in FIGS. 13 and 14 while referring to FIG. 15 as needed.

[0054] First, as shown on screen D11 in FIG. 15, the pull-out menu will be displayed at the maximum pull-out amount (S201). Next, in step S202, the position coordinate on the touch panel sensor 11 touched by the input device 05 will be detected.

[0055] In step S203, it is determined whether or not the coordinate value detected in step S102 is included in any of the pull-out menu display trigger areas 11A to 11D. If it is not included, as shown on screen D13 in FIG. 15, it is determined whether or not the specific function button (GUI function button) in the pull-out menu was selected by the input device 05 (S210); if it is selected, the selected function will be processed (S211). If it is not selected, the process will return to step s203 and the reception standby state will be sustained. Moreover, as shown on screens D12 and D14 in FIG. 15, when only the detected coordinate value changed and entered the pull-out menu display trigger area, the detected coordinate values up to that point will be ignored and it will become the standby state from that point. This is a method for the purpose of reliably receiving the user's intention even in case of a rough operation.

[0056] In step S203, when it is determined that the detected coordinate value is included in any of the pull-out menu display trigger areas 11A to 11D (screen D14 in FIG. 15), in step S204, it is determined whether the detected coordinate value is included in any of the pull-out menu display trigger areas 11A to 11D; if it is included in the pull-out menu display trigger areas 11A and 11D, the process will proceed to step S205, and if it is included in the pull-out menu display trigger areas 11B and 11C, the process will proceed to step S212.

[0057] In steps S205 and S212, the selected pull-out menu display trigger area is highlighted and displayed, and at the same time, an electronic sound such as a beep is generated as a key reception sound to notify the user of the selection. Moreover, if it went OFF during this period, the process will return to step S203.

[0058] Next, when the input device 05 selects the menu display trigger areas 11B and 11C, in step S213, only the Y coordinate value of the coordinate values detected by making the input device 05 come into contact the menu display trigger areas 11B and 11C will be monitored. The X-axis information will be ignored, and only Y-axis information will be reflected in processing. Moreover, as shown on screen D15 in FIG. 15, the case when the input device 05 is dragged downward and the menu pull-out amount y increases will be ignored.

[0059] In step S214, the display amount of the pull-out menu will be updated according to the Y coordinate value generated by the input device 05.

[0060] Moreover, while the menu pull-out amount y exceeds the predetermined definition amount, if it became OFF as shown on screen D16 in FIG. 15, the display state will be maintained as shown on screen D17 in FIG. 15 (S215). In addition, after the menu pull-out amount y became smaller than the predetermined definition amount, if it became OFF as shown on screen D18 in FIG. 15, it will be regarded as that the user intends to turn off the display of the pull-out menu, and as shown on screen D19 in FIG. 15, the pull-out menu display will be stopped (S216).

[0061] On the other hand, in step S204, when it is determined that the input device 05 selects the menu display trigger areas 11A and 11D, in step S206, only the X coordinate value of the coordinate values detected by making the input device 05 come into contact with the pull-out menu display trigger areas 11A and 11D will be monitored. The Y-axis information will be ignored and only the X-axis information will be reflected in processing.

[0062] In step S207, the display amount of the pull-out menu will be updated corresponding to the X coordinate value generated by the input device 05.

[0063] Moreover, if it became OFF while the menu pull-out amount x exceeded the predefined definition amount, the display state will be maintained (S208). In addition, after the menu pull-out amount x became smaller than the predetermined definition amount, if it became OFF, it will be regarded as that the user intends to turn off the display of the pull-out menu, and the pull-out menu display will be stopped (S209).

[0064] Moreover, in the above-mentioned embodiment, the user drags the pull-out menu to stop the display of the pull-out menu, but instead of this operation, it is also fine to provide a button with a closing function possible to stop the display of the pull-out menu by clicking on this button only.

[0065] Furthermore, similar to the case of starting the display of the pull-out menu, if the change speed of the detected coordinate value in the course of processing as shown on screens D12, D14 and D16 in FIG. 15 is detected and the change speed is high, even if it goes OFF by the process as shown on screen D16 in FIG. 15, it is also fine to move to the process as shown on screen D19 in FIG. 15 instead of the process as shown on screen D17 in FIG. 15.

[0066] FIG. 16 is a flow chart which shows the processing procedures for determining the size of a pull-out menu corresponding to the pull-out amount. In addition, FIG. 17 is a figure which shows the screen of the A classification menu displayed corresponding to the pull-out amount; FIG. 18 is a figure which shows the screen of the B classification menu displayed corresponding to the pull-out amount. In FIGS. 17 and 18, the pull-out menu display trigger areas 11A to 11D are shown on the four sides for the purpose of making it easier to understand, but it is not limited to the case that the four areas are necessarily displayed. Hereafter, it will be explained along the steps as shown in FIG. 16 while referring to FIGS. 17 and 18 as needed.

[0067] Because steps S301, S302, S303, and S307 in FIG. 16 have the same contents as steps S103, S104, S106 and S112 as shown in FIG. 10, respectively, their explanations are omitted.

[0068] When the A classification menu is selected, in step S304, the size of the pull-out menu is variable power reduced and then displayed in the horizontal direction at a ratio of the X coordinate position (pull-out amount x) to the maximum pull-out amount. The screen D34 in FIG. 17 shows the A classification menu at the maximum pull-out amount position, for example, if the pull-out amount x on screen D33 in FIG. 17 became 3/4 of the maximum pull-out amount on screen D34 in FIG. 17, in the Y direction, the A classification menu on screen D33 in FIG. 17 was the same as screen D34 in FIG. 17, but in the X direction, it will be displayed as an image reduced to 3/4 when compared to screen D34 in FIG. 17. The display area of the button will also be reduced in the horizontal direction accordingly, in addition, the display style of the contents of the A classification menu changes to either only icons or both icons and characters, corresponding to the pull-out amount x.

[0069] If the pull-out amount x is updated, the display ratio will be updated (S305), and when the input device 05 is separated from the touch panel sensor 11 at the position midway before reaching the maximum pull-out amount position, the pull-out menu display will be maintained at that position. Then, when the pull-out amount x exceeds the maximum pull-out amount, the pull-out menu display will be maintained at the maximum pull-out amount position (S306).

[0070] Next, if the B classification menu is selected, in step S308, the size of the pull-out menu will be variable power reduced and then displayed in the vertical direction at a ratio of the Y coordinate position (pull-out amount y) to the maximum pull-out amount. The screen D38 in FIG. 18 shows the B classification menu at the maximum pull-out amount position, for example, if the pull-out amount y on screen D37 in FIG. 18 was 3/4 of the maximum pull-out amount on screen D38 in FIG. 18, in the X direction, the B classification menu on screen D38 in FIG. 18 was the same as screen D38 in FIG. 18, but in the Y direction, it will be displayed as an image reduced to 3/4 when compared to screen D38 in FIG. 18. The display area of the button will also be reduced in the vertical direction accordingly.

[0071] If the pull-out amount y is updated, the display ratio will be updated (S309), and when the input device 05 is separated from the touch panel sensor 11 at a position midway before reaching the maximum pull-out amount position, the pull-out menu display will be maintained at that position. Then, when the pull-out amount y exceeds the maximum pull-out amount, the pull-out menu display will be maintained at the maximum pull-out amount position (S310).

[0072] Moreover, in the above explanation, it was explained using the A and B classification menus as the examples, but the same procedures will be also applicable to the C and D classification menus. Furthermore, in the case of closing the pull-out menu display, the procedures in the reverse direction of the process as shown in FIG. 16 will proceed.

[0073] FIG. 19 is a figure which shows the screen of the image display screen 09 for the purpose of explaining the relationship between the pull-out menu display trigger areas 11A to 11D and the A to D classification menus.

[0074] In the screen of image display screen 09, depending on which of the pull-out menu display trigger areas 11A to 11D is selected by the input device 05, the pull-out direction of the pull-out menu, the received coordinate information and the direction of processing of image to be variable power reduced according to layout in menu will differ.

[0075] The screen D41 shows the pull-out menu display trigger area 11A to be selected when pulling out the A classification menu and the pull-out direction, and the screen D42 shows the state in which the A classification menu was fully pulled out to the maximum pull-out amount position.

[0076] The screen D41 shows the pull-out menu display trigger area 11A to be selected when pulling out the A classification menu and the pull-out direction, and the screen D42 shows the state in which the A classification menu was fully pulled out to the maximum pull-out amount position.

[0077] The screen D43 shows the pull-out menu display trigger area 11B to be selected when pulling out the B classification menu and the pull-out direction, and the screen D44 shows the state in which the B classification menu was fully pulled out to the maximum pull-out amount position.

[0078] The screen D45 shows the pull-out menu display trigger area 11C to be selected when pulling out the C classification menu and the pulling direction, and the screen D46 shows the state in which the C classification menu was fully pulled out to the maximum pull-out amount position.

[0079] The screen D47 shows the pull-out menu display trigger area 11D to be selected when pulling out the D classification menu and the pulling direction, and the screen D48 shows the state in which the D classification menu was fully pulled out to the maximum pull-out amount position.

[0080] The pull-out menu as shown in FIG. 19 is an example in the above explanation, and the number and size of icons in the pull-out menu will differ corresponding to the number of functions and the size of the image display screen 09.

[0081] (2nd embodiment) Next, the 2nd embodiment will be explained.

[0082] Because the constitution of the 2nd embodiment is basically the same as the constitution of the 1st embodiment, in the explanation of the 2nd embodiment, the constitution of the 1st embodiment will be diverted for use.

[0083] In the 2nd embodiment, the content of the control process performed by the portable information processing device 01 will be different from that in the 1st embodiment.

[0084] FIG. 20 is a flow chart which shows the processing procedures of displaying the pull-out menu in the 2nd embodiment. In this display process, the stage display will be performed corresponding to the priority of the functions. FIG. 21 is a figure which shows the ranges a, b, c on the screen of the image display screen 09; FIG. 22 is a figure which shows the screen of the A classification menu displayed corresponding to the pull-out amount; FIG. 23 is a figure which shows the screen of the B classification

menu displayed corresponding to the pull-out amount; and FIG. 24 is a figure which shows the screen of the C classification menu displayed corresponding to the pull-out amount. Hereafter, it will be explained along the steps of the flow chart as shown in FIG. 20 while referring to FIGS. 21-24 as needed.

[0085] First, when the overview is explained, if there are too many items in the pull-out menu that can be listed at one time, there will be a case that the user may become confused about the selection and the usability may become worse. In such a case, in the 2nd embodiment, the number of items that can be listed is limited, and the functional items will be displayed in two stages or three stages in descending order of priority. In other words, within each pull-out menu, the functional items are laid out and displayed in descending order of frequency of use from the one closer to the pull-out menu display trigger area. This will make it possible to select a function item that is frequently used by pulling out the first column only.

[0086] For example, in FIG. 22, items A-1, A-2 and A-3 as shown on screens D52 and D53 are the most frequently used function items, and items A-4, A-5 and A-6 as shown on screen D53 are the function items that are used less frequently than items A-1, A-2 and A-3. In this way, it will be possible to organize and use the pull-out menu like a desk drawer.

[0087] The maximum number of items displayed in the pull-out menu will differ depending on the size of the screen and the function of the icon. For example, in case of the A and C classification menus, a maximum of six items will be displayed, and in case of the B classification menu, a total of 30 items equaling to vertical 3 × horizontal 10 will be displayed. In case of the B classification menu, it can be expected that the color palette function will be laid out. In addition, in case of the B classification menu, the display steps in three stages will be added corresponding to the number of columns.

[0088] In the flow chart in FIG. 20, the A classification menu has been shown as an example. Because steps S401, S402 and S403 have the same contents as steps S103, S104 and S106 as shown in FIG. 10, their explanations will be omitted.

[0089] If the input device 05 is moving and the detected X coordinate value is changing, and when only the position of the pull-out menu display trigger area was updated, the detected X coordinate value became OFF, the layout in the pull-out menu will be determined and displayed corresponding to the detected X coordinate value immediately before OFF.

[0090] First, in step S404, if the detected X coordinate value went OFF in the range a as shown in FIG. 21, the screen D51 in FIG. 22 will be displayed.

[0091] In addition, in step S405, if the detected X coordinate value went OFF in the range b as shown in FIG. 21, the screen D52 in FIG. 22 will be displayed.

[0092] In addition, in step S406, if the detected X coordinate value went OFF in the range c as shown in FIG. 21, the screen D53 in FIG. 22 will be displayed.

[0093] Moreover, when the input device 05 moved and exceeded the boundaries of the ranges a, b, and c, a buzzer sound will be sent to notify the user.

[0094] Moreover, as the number of columns of function items laid out in the pull-out menu increases, the number of ranges a, b, and c will also increase and be subdivided, but the basic mechanism is the same. In case of closing the display of the pull-out menu, similarly, it can also be closed in a stage-wise manner. Other B, C, D classification menus can also be displayed by the same procedures.

[0095] (3rd embodiment) Next, the 3rd embodiment will be explained.

[0096] Because the constitution of the 3rd embodiment is basically the same as the constitution of the 1st embodiment, in the explanation of the 3rd embodiment, the constitution of the 1st embodiment will be diverted for use.

[0097] In the 3rd embodiment, the content of the control process performed by the portable information processing device 01 will be different from that in the 1st embodiment.

[0098] FIG. 25 is a flow chart which shows the processing procedures of displaying the pull-out menu in the 3rd embodiment. In this display process, expansion of the maximum pull-out amount will be performed. FIG. 26 is a figure which shows the screen of the A classification menu displayed on the screen of the image display screen 09 corresponding to the pull-out amount. First, referring to FIG. 26, the features of the 3rd embodiment will be explained.

[0099] In the 3rd embodiment, the pull-out menu will be displayed by maximally using the entire display area of the image display screen 09, and more functional items will be displayed.

[0100] In the above-mentioned 1st embodiment, the maximum display amount of the pull-out menu was set to the central position of the image display screen 09 (half display area), but the reason for such setting is the consideration about the purpose of trying not to hide the image that should be originally displayed on the image display screen 09. However, depending on the nature of the function item, there is also a case that the original display image may not necessarily have to be displayed, rather, it may be necessary to improve the list of function items in the pull-out menu.

[0101] For example, in case of the search function, the original display image is not needed, and in this case, as shown on screens D65 and D69 in FIG. 26, the entire display area of the image display screen 09 will be used for displaying the pull-out menu. On the other hand, in case of the image editing function, the original display image is necessary, and in this case, the original display image and the pull-out menu will be displayed simultaneously. The maximum display amount of the pull-out menu in this case is 1/2 of the screen of the image display screen 09.

[0102] Moreover, in this embodiment, in the upper and lower B and C classification menus, because function items that are frequently selected while seeing the displayed image are stored, the B and C classification menus can be pulled out to half of the screen of the image display screen 09, and the left and right A and D classification menus can be pulled out to the entire display area of the image display screen 09.

[0103] Even in case of trying to pull out the pull-out menu to the entire display area of the image display screen 09, there can be a method as shown on screens D62 to D65 in FIG. 25 in which all function items are displayed in the pull-out menu regardless of the pull-out amount, and a method as shown on screens D66 to D69 in FIG. 25 in which the number of function items displayed in the pull-out menu is changed in a stage-wise manner according to the pull-out amount. It is fine to select and implement either method depending on the nature of the functional item, and it is also fine to allow the user to freely select either method.

[0104] In the flow chart in FIG. 25, the A classification menu has been shown as an example. Because steps S501, S502 and S503 have the same contents as steps S103, S104 and S106 as shown in FIG. 10, their explanations will be omitted.

[0105] In step S504, the display position of the pull-out menu display trigger area 11A is updated corresponding to the detected X coordinate value generated by the contact of the input device 05, and at the same time, the function items accompanied by such update will be displayed. At this time, when the input device 05 goes OFF, such display state will be maintained.

[0106] In addition, the step S505 shows the display process of the pull-out menu when the input device 05 moved in the direction opposite to the moving direction in the step S504, and even in this case, the display position of the pull-out menu display trigger area 11A will be updated corresponding to the detected X coordinate value, and the function items accompanied by such update will be displayed. At this time, when the input device 05 goes OFF, such display state will be maintained.

[0107] Then, when the input device 05 further moves in the movement direction in step S505 and the detected X coordinate value x becomes smaller than the predetermined definition amount, the display of the pull-out menu will be stopped (S506).

[0108] In other words, in the 3rd embodiment, the definition of the maximum pull-out amount is not provided, and the entire display area of the image display screen 09 can be used for displaying the pull-out menu.

[0109] (4th embodiment) Next, the 4th embodiment will be explained.

[0110] Because the constitution of the 4th embodiment is basically the same as the constitution of the 1st embodiment, in the explanation of the 4th embodiment, the constitution of the 1st embodiment will be diverted for use.

[0111] In the 4th embodiment, the content of the control process performed by the portable information processing device 01 will be different from that in the 1st embodiment.

[0112] FIG. 27 is a flow chart which shows the processing procedures of displaying the pull-out menu in the 4th embodiment. In this display process, the number of pull-out menus will increase from four to eight. FIG. 28 is a figure which shows the increased pull-out menu displayed on the screen of the image display screen 09. First, referring to FIG. 28, the features of the 4th embodiment will be explained.

[0113] In the 1st embodiment, the pull-out menu display trigger areas 11A to 11D are provided on the four sides of the image display screen 09, but in the 4th embodiment, in order to further increase the number of categories of functional items, four corners of the image display screen 09 as shown on screen D70 in FIG. 28 will be used as the trigger areas a, b, c and d.

[0114] In other words, four corner positions of the image display screen 09 that avoided the pull-out menu display trigger areas 11A to 11D are set as trigger areas a, b, c and d, and functions that are rarely used such as special settings, etc. (for example, detailed settings, user settings, etc.) will be assigned to these areas.

[0115] The pull-out menu display trigger areas 11A to 11D for pulling out the normally used function items will have a large display area so that they can be easily touched by the input device 05; on the contrary, the trigger areas a, b, c and d will have a small display area so as not to be easily displayed due to an erroneous operation or the like. Moreover, because the input device 05 hits the level difference around the image display screen 09, it will be possible to easily select the trigger areas a, b, c and d when the selection operation was consciously performed.

[0116] Referring to the flow chart in FIG. 27, the process for displaying the a classification detailed menu by selecting the trigger area a will be explained in particular. Moreover, because steps S601, S602, S603, S604 and S605 have the same contents as steps S101, S102, 103, S104 and S105 as shown in FIG. 10, respectively, their explanations will be omitted. However, in steps S603 to S605, the pull-out menu display trigger areas 11A to 11D are replaced by the trigger areas a, b, c and d, respectively.

[0117] In step S606, the display position of the diagonal bar 30 will be determined and displayed corresponding to the detected coordinate value generated by the contact of the input device 05. In other words, as shown on screen D72 in FIG. 28, when the detected coordinate values of the X-axis and Y-axis were treated as x and y using the position of the trigger area a as the base point, from the detected coordinate values x and y, the one with the larger absolute value will be detected, and the display position of the diagonal bar 30 will be determined according to this detected value. Specifically, along a diagonal line extending 45 degrees from the base point, a diagonal bar 30 extending in a direction perpendicular to the diagonal line will be displayed at a position separated from the base point by a distance corresponding to the detected value. Then, when the input device 05 became OFF, if the above detected value is within the predetermined value, the process will return to screen D70 in FIG. 28, and if the detected value exceeds the predetermined value, as shown on screen D73 in FIG. 28, the display state will be maintained as it is.

[0118] In addition, in steps S607 and S608, if the detected value

exceeds the maximum pull-out amount, as shown on screen D74 in FIG. 28, the display state will be maintained at the maximum pull-out amount position. Then, even when the input device 05 became OFF, as shown on screen D75 in FIG. 28, the display state will be maintained at the maximum pull-out amount position.

[0119] The display process during the course of being pulled out is the same as the display process in the 1st embodiment.

[0120] (5th embodiment) Next, the 5th embodiment will be explained.

[0121] Because the constitution of the 5th embodiment is basically the same as the constitution of the 1st embodiment, in the explanation of the 5th embodiment, the constitution of the 1st embodiment will be diverted for use.

[0122] In the 5th embodiment, the content of the control process performed by the portable information processing device 01 is similar to that in the 4th embodiment.

[0123] FIG. 29 is a flow chart which shows the processing procedures of displaying the pull-out menu in the 5th embodiment. Also, in this display processing, similar to the 4th embodiment, the number of pull-out menus will increase from four to eight. FIG. 30 is a figure which shows the increased pull-out menu displayed on the screen of the image display screen 09. Hereafter, while referring to FIG. 30, the features of the 5th embodiment will be explained along the steps of the flow chart as shown in FIG. 29.

[0124] In the flow chart of FIG. 29, because steps S701, S702, S703 and S704 have the same contents as steps S601, S602, 603 and S604 shown in FIG. 27, respectively, their explanations will be omitted. However, in steps S703 to S704, the pull-out menu display trigger areas 11A to 11D will be replaced by trigger areas a, b, c and d, respectively. Moreover, in the flow chart of FIG. 29, the process of displaying the a classification detailed menu by selecting the trigger area a will be explained in particular.

[0125] In step S705, when the coordinates of trigger area a are detected by the touch of the input device 05, as shown on screen D82 in FIG. 30, the start button for the settings menu will be pop-up displayed, this part will be highlighted and displayed, and at the same time, a buzzer sound will be generated. Moreover, if the input device 05 went OFF here, the process will return to step S701.

[0126] In such pop-up display state, as shown on screen D83 in FIG. 30, when the input device 05 is slid to the upper right and reaches the inside of the start button area (S706) and then goes OFF, the menu display process related to the start button will be executed, and the detailed settings menu as shown on screen D84 in FIG. 30 will be displayed (S707).

[0127] In order to close the detailed settings menu, after the coordinate designation was performed near the "Settings" character as shown on screen D84 in FIG. 30 with the input device 05, the input device 05 will be moved to the region of the trigger area a. Moreover, it is also fine to lay out a close button somewhere on screen D84 in FIG. 30.

[0128] Moreover, also in the 5th embodiment, it is possible to divide the basic menu into a maximum of four categories and the other four detailed settings menus, but it is based on the premise that the display of this detailed menu is less frequently used and less likely to cause erroneous operation, so it is desirable to keep the number of detailed menus to about two from the viewpoint of ease of use.

[0129] FIG. 31 is a figure which shows the other example of display of the increased pull-out menu displayed on the screen of the image display screen 09.

[0130] Further, considering the ease of use, even if the number of detailed menus is limited to two, it is desirable that the positions of two detailed menus can be changed corresponding to the dominant hand of the user. In other words, it is necessary to change the display position according to the principle that the stroke direction that is natural for a right-handed person is lower left → upper right (screen D87 in FIG. 31), and the stroke direction that is natural for a left-handed person is upper left → lower right (screen D88 in FIG. 31), and a display position as shown on screen D85 in FIG. 31 will be assigned for use by the right-handed person, and a display position as shown on screen D86 in FIG. 31 will be assigned for use by the left-handed person.

[0131] When comparing to the operation method of simply selecting a soft button on the screen with the input device as in the conventional device, by frequently using operations to slide on the screen to process the command after selection, such display of menu considering the dominant hand will be realized.

[0132] (6th embodiment) Next, the 6th embodiment will be explained.

[0133] Because the constitution of the 6th embodiment is basically the same as the constitution of the 1st embodiment, in the explanation of the 6th embodiment, the constitution of the 1st embodiment will be diverted for use.

[0134] In the 6th embodiment, multiple pull-out menus can be displayed on the image display screen 09 simultaneously. In other words, it is a method that can be applied to the case when the screen size of the image display screen 09 is large, and it will be possible to display two, three or four pull-out menus simultaneously.

[0135] First, in case of displaying two pull-out menus simultaneously, corresponding to the positional relationship between two menus to be pulled out, it is distinguished into a relationship in the right-angled direction (adjacent position) and a relationship in the parallel direction (confronting position), and there are display patterns of four types of positional relationships in the right-angled direction and two types of positional relationships in the parallel direction. Furthermore, the display method differs depending on the order of pulling out the menu, and the display method of the menu displayed first will be influenced by the menu to be pulled out later.

[0136] Hereafter, for the convenience of explanation, the maximum pull-out amount is explained as half of the screen, but it is not limited to this amount, in addition, as shown in the aforesaid each embodiment, the display of the pull-out menu may be retained at any position during the course of being pulled out, and it is also fine

to expand the maximum pull-out amount to the full screen depending on the specifications.

[0137] FIG. 32 is a flow chart which shows the processing procedures of simultaneously displaying two to four pull-out menus in the 6th embodiment.

[0138] In step S801, any one of the A to D classification menus will be displayed.

[0139] Next, when any one of the A to D classification menus except the pull-out menu displayed in step S801 was selected by the input device 05, as shown in step S802, the subsequent process will be divided by the positional relationship between two pull-out menus. In other words, if the positional relationship between two pull-out menus is the relationship in the parallel direction (confronting position), the process will proceed to step S803; and if the relationship is in the right-angled direction (adjacent position), the process will proceed to step S805.

[0140] If the pull-out menu displayed later was continuously pulled out, in step S803, while keeping the distance between two pull-out menus constant, the pull-out menu displayed first will be variable power reduced and then displayed in the same axis direction. Then, in step S804, the size of the pull-out menu displayed later will be fixed when it became 1/4 of the screen.

[0141] In step S805, if the pull-out menu displayed later was continuously pulled out, the pull-out menu displayed first will be variable power reduced and then displayed in the pull-out direction of the pull-out menu to be displayed later. Then, in step S806, the size of the pull-out menu displayed later will be fixed when it became 1/2 of the screen.

[0142] FIGS. 33 and 34 are the flow charts which show the concrete procedures of the processing procedures as shown in FIG. 32. In addition, FIGS. 35-38 are the figures which show two pull-out menus displayed simultaneously on the screen of the image display screen 09 corresponding to the pull-out amount; FIGS. 39-42 are the figures which show three pull-out menus displayed simultaneously on the screen of the image display screen 09 corresponding to the pull-out amount; and FIGS. 43-46 are the figures which show four pull-out menus displayed simultaneously on the screen of the image display screen 09 corresponding to the pull-out amount. Moreover, the numbers written on the pull-out menus in FIGS. 35-46 are numbers indicating the order of pulling out the menus, and are not displayed as images. Hereafter, while referring to FIGS. 35-46 as needed, it will be explained along the steps as shown in FIGS. 33 and 34.

[0143] First, in step S901, the A classification menu will be first pulled out and displayed.

[0144] Next, when any one of the B to D classification menus was selected by the input device 05 (S902), as shown in step S903, the subsequent process will be divided by the positional relationship between two pull-out menus.

[0145] If the D classification menu (tool) is selected, there is a relation in the parallel direction (confronting position), so the process will proceed to step S904, and if the D classification menu (tool) was continuously pulled out, while keeping the distance between the D classification menu (tool) constant, a classification menu (tool) will be variable power reduced and then displayed in the X-axis direction. This is shown on screens D109 to D111 in FIG. 37.

[0146] Next, in step S905, when any one of the B and C classification menus was selected by the input device 05 as three pull-out menus [sic], if the B classification menu (tool) is selected, the process will proceed to step S907; the B classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction, and at the same time, the A classification menu (tool) and D classification menu (tool) which have already been displayed will be variable power reduced and then displayed in the Y-axis direction corresponding to the pull-out amount in the Y-axis direction of the B classification menu (tool). This is shown on screens D125 to D127 in FIG. 41.

[0147] In addition, in step S905, when the C classification menu was selected by the input device 05, the process will proceed to step S908; the C classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction, and at the same time, the A classification menu (tool) and D classification menu (tool) that have already been displayed will be variable power reduced and then displayed in the Y-axis direction corresponding to the pull-out amount in the Y-axis direction of the C classification menu (tool).

[0148] Next, in step S909, when the 4th classification menu was selected by the input device 05, if it is the C classification menu (tool), the process will proceed to step S910, and the C classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction. This is shown on screens D138 to D140 in FIG. 45.

[0149] In addition, in step S909, when the 4th classification menu was selected by the input device 05, if it is the B classification menu (tool), the process will proceed to step S911, and the B classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction.

[0150] Return to step S902, when any one of the B to D classification menus was selected by the input device 05 as the 2nd pull-out menu, if the B or C classification menu (tool) is selected, because there is a relationship in the right-angled direction with the A classification menu (tool) (adjacent position), the process will proceed to steps S912 and S913.

[0151] If the B classification menu (tool) is selected, in step S912, the B classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction, and at the same time, the A classification menu (tool) which has already been displayed will be variable power reduced and then displayed in the Y-axis direction corresponding to the pull-out amount in the Y-axis direction of the B classification menu (tool). This is shown on

screens D101 to D103 in FIG. 35.

[0152] In addition, if the C classification menu (tool) is selected, in step S913, the C classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction, and at the same time, the A classification menu (tool) which has already been displayed will be variable power reduced and then displayed in the Y-axis direction corresponding to the pull-out amount in the Y-axis direction of the C classification menu (tool).

[0153] Next, in step S914, when three pull-out menus were selected by the input device 05, as shown in step S915, the subsequent process will be divided by the positional relationship with the 2nd pull-out menu.

[0154] If the 2nd pull-out menu is the B classification menu (tool) and the 3rd pull-out menu is the C classification menu (tool), or if the 2nd pull-out menu is a C classification menu (tool) and the 3rd pull-out menu is a B classification menu (tool), because there is a relationship in the parallel direction (confronting position), the process will proceed to step S916; and if the C or B classification menu (tool) was continuously pulled out, the C or B classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction, and at the same time, the B or C classification menu (tool) that has already been displayed will be variable power reduced and then displayed in the Y-axis direction corresponding to the pull-out amount in the Y-axis direction of the C or B classification menu (tool). Then, the A classification menu (tool) will only be moved in position and will not be variable power reduced. This is shown on screens D117 to D119 in FIG. 39.

[0155] On the other hand, if the 3rd pull-out menu is a D classification menu (tool), because there is a relationship in the right-angled direction (adjacent position) with the 2nd pull-out menu, the process will proceed to step S917, and when the D classification menu (tool) was continuously pulled out, the D classification menu (tool) will be displayed corresponding to the pull-out amount in the X-axis direction, and at the same time, the B or C classification menu (tool) which has already been displayed will be variable power reduced and displayed in the Y-axis direction. Then, the A classification menu (tool) will be variable power reduced and then displayed corresponding to the pull-out amount of the D classification menu (tool) while maintaining a constant distance from the D classification menu (tool). Only the position will be moved corresponding to the pull-out amount in the X-axis direction, but the menu will not be variable power reduced. This is shown on screens D121 to D123 in FIG. 40.

[0156] Next, in step S918, when the 4th classification menu was selected by the input device 05, if it is the D classification menu (tool), the process will proceed to step S919, and the D classification menu (tool) will be displayed corresponding to the pull-out amount in the X-axis direction.

[0157] In addition, in step S918, when the 4th classification menu was selected by the input device 05, if it is the B classification menu (tool), the process will proceed to step S920, and the B classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction.

[0158] FIGS. 35 and 36 show the cases when two pull-out menus are in a relationship of the right-angled direction (adjacent position). For two pull-out menus shown on screens D100 to D103 in FIG. 35 and two pull-out menus shown on screens D104 to D107 in FIG. 36, even if the positional relationship of each of the two pull-out menus is the same, the method of being displayed will differ depending on the order of pulling out the menu. The display of the menu that was pulled out later has priority, and the menu that was pulled out later will be displayed normally inside the menu, and accordingly, the display of the menu that was pulled out first will be affected. In other words, as shown on screen D101 in FIG. 35, in a state in which the A classification menu has already been pulled out, when the B classification menu in the right-angled positional relationship is pulled out as shown on screen D102, the Y-axis direction of the A classification menu will be variable power reduced and then displayed corresponding to the pull-out amount of the B classification menu, and as shown on screen D103, the B classification menu will be fixed at the maximum pull-out amount (half the screen).

[0159] It is also fine that only the shape of the display content in the A classification menu is reduced, but the display content itself may be changed. For example, on screen D101, icons and characters may be displayed together in the A classification menu, and on screen D103, the type of information may be changed corresponding to the display area so that only the icons will be displayed in the A classification menu.

[0160] In addition, in FIG. 36, as shown on screen D104, in a state in which the B classification menu has already been pulled out, when the A classification menu in the right-angled positional relationship is pulled out, as shown on screen D106, the B classification menu will be reduced corresponding to the pull-out amount in the X-axis direction of the A classification menu, and as shown on screen D107, the pull-out of the A classification menu will be fixed at a position of the maximum pull-out amount (half of screen).

[0161] FIGS. 37 and 38 show the cases when two pull-out menus are in a relationship of the parallel direction (confronting position).

[0162] As shown on screen D108 of FIG. 37, in a state in which the A classification menu is being displayed, if a D classification menu in a parallel positional relationship is about to be pulled out, as shown on screens D110 and D111, the A classification menu will be variable power reduced corresponding to the pull-out amount of the D classification menu while keeping the distance between two pull-out menus constant. By this way, a certain amount of the display area of the image which should be originally displayed will be always secured, and the pull-out menu and the original display image will be always displayed simultaneously.

[0163] FIG. 38 shows the case when two pull-out menus are in the upper and lower positions, which will be processed in the same way as in FIG. 37.

[0164] FIGS. 39 and 40 show the cases when three pull-out menus

are displayed simultaneously, if the 2nd pull-out menu is in the relation of the right-angled direction (adjacent position) with the 1st pull-out menu. FIG. 39 shows the case when the 3rd pull-out menu is in a relationship of the parallel direction (confronting position) with the 2nd pull-out menu, and FIG. 40 shows the case when the 3rd pull-out menu is in a relationship of the right-angled direction (adjacent position) with the 2nd pull-out menu.

[0165] In FIG. 39, as shown on screens D117 to D119, the A classification menu will be displayed in a reduced size in the Y-axis direction, and while such state was being secured, the C classification menu will be pulled out, and at the same time, the B classification menu will be reduced and displayed. The distance between the B classification menu and C classification menu will be always secured at a constant value.

[0166] In FIG. 40, as shown on screens D121 to D123, at the same time when the D classification menu is pulled out, the A classification menu and B classification menu will be reduced and then displayed in the X-axis direction. For the distance in the X-axis direction between the D classification menu and the A classification menu, a constant value will be always secured.

[0167] FIGS. 41 and 42 show the cases when three pull-out menus are displayed simultaneously, if the 2nd pull-out menu is in a relationship of the parallel direction (confronting position) with the 1st pull-out menu. FIG. 41 shows the case when the 3rd pull-out menu is the B classification menu, and FIG. 40 shows the case when the 3rd pull-out menu is the A classification menu.

[0168] In FIG. 41, as shown on screens D125 to D127, as the B classification menu is pulled out, both the A classification menu and D classification menu that have already been displayed will be reduced and displayed in the direction of the Y axis.

[0169] In FIG. 42, as shown on screens D129 to D131, as the A classification menu is pulled out, both the B classification menu and C classification menu that have already been displayed will be reduced and displayed in the direction of the X axis.

[0170] FIGS. 43-46 show the case when four pull-out menus are displayed simultaneously.

[0171] FIG. 43 shows the case when the remaining D classification menu was pulled out as a continuation of the state as shown on screen D119 in FIG. 39.

[0172] FIG. 44 shows the case when the remaining C classification menu was pulled out as a continuation of the state as shown on screen D123 in FIG. 40.

[0173] FIG. 45 shows the case when the remaining C classification menu was pulled out as a continuation of the state as shown on screen D127 in FIG. 41.

[0174] FIG. 46 shows the case when the remaining D classification menu was pulled out as a continuation of the state as shown on screen D131 in FIG. 42.

[0175] Moreover, in whichever display of pull-out menu, if it is desired to close one of the pull-out menus, regardless of the pull-out sequential order, the coordinate in the corresponding pull-out menu can be selected by the input device 05 and dragged as it is toward the direction of a position before pulling out each menu.

[0176] (7th embodiment) Next, the 7th embodiment will be explained.

[0177] Because the constitution of the 7th embodiment is basically the same as the constitution of the 1st embodiment, in the explanation of the 7th embodiment, the constitution of the 1st embodiment will be diverted for use.

[0178] In the 7th embodiment, the shape of the main image to be originally displayed will be distorted corresponding to the pull-out amount of the pull-out menu.

[0179] FIG. 47 is a flow chart which shows the processing procedures relating to display of the pull-out menu in the 7th embodiment and deformation of the shape of the main image accompanying with the display of the pull-out menu. FIG. 48 is a figure which shows the screen displayed on the image display screen 09 in the processing process of displaying the pull-out menu. FIG. 48 mainly shows an example of the case of displaying the B classification menu. Hereafter, it will be explained along the steps as shown in FIG. 47 while referring to FIG. 48 as needed.

[0180] The main image A as shown in FIG. 48 is, for example, a photo image, a sentence, or a mixture of an image and a sentence. The cases of a regeneration image that has already been stored in the built-in memory, or a finder image captured by CCD of a camera part in the shooting standby state can also be expected.

[0181] In the flow chart of FIG. 47, because steps S1001, S1002, S1003, S1004, S1005, S1006, S1009 and S1010 have the same contents as steps S101, S102, S103, S104, S105, S106, S112 and S113 shown in FIG. 10, respectively, their explanations will be omitted.

[0182] When the pull-out menu display trigger area 11B is selected and the detected value (pull-out amount) y of the Y-axis coordinate is continuously changed after the selection, in step S1011, the B classification menu will be displayed corresponding to the pull-out amount y, and at the same time, the main image A will be variable power reduced and then displayed in the Y-axis direction at a ratio of the value (Y−y) to the full screen size Y in the Y-axis direction (screens D154 and D155 in FIG. 48). Moreover, if the input device 05 goes OFF during this period and the pull-out amount y is smaller than the predetermined definition amount, the state will return from the state as shown on screen D154 in FIG. 48 to the state as shown on screen D150, and if the pull-out amount y is larger than the predetermined definition amount, the state as shown on screen D155 in FIG. 48 will be maintained (screen D157 in FIG. 48).

[0183] Then, when the pull-out amount y increased further, in step S1012, the B classification menu will be fixed at the maximum pull-out amount (half the screen size in the Y-axis direction), in addition, the main image A will also be maintained at a size that is variable power reduced to 1/2 in the Y-axis direction (screen D156 in FIG. 48). Moreover, in this case, when the input device 05 goes OFF, the state of screen D156 in FIG. 48 will be maintained (screen D158

in FIG. 48).

[0184] In the above explanation, the case of displaying the B classification menu is used as an example, but the case of displaying the C classification menu is also the same.

[0185] Next, when the pull-out menu display trigger areas 11A, D are selected and the detected value (pull-out amount) x of the X axis coordinate is continuously changed after the selection, in step S1007, the A, D classification menus will be displayed corresponding to the pull-out amount x, and at the same time, the main image A will be variable power reduced and then displayed in the X-axis direction at a ratio of the value (X-x) to the full screen size X in the X-axis direction. Moreover, if the input device 05 goes OFF during this period, and if the pull-out amount x is smaller than the predetermined definition amount, the screen will return to the state of displaying the main image A only, and if the pull-out amount y is larger than the predetermined definition amount, the current screen state at that time will be maintained.

[0186] And, when the pull-out amount x increases further, in step S1008, the A and D classification menus will be fixed at the maximum pull-out amount (half the screen size in the X axis direction), in addition, the main image A will also be maintained at a size that is variable power reduced to 1/2 in the X-axis direction. Moreover, in this case, when the input device 05 goes OFF, the state of screen at that time will be maintained.

[0187] FIG. 49 is a flow chart which shows the processing procedures for closing the displayed pull-out menu, and FIG. 50 is a figure which shows the display screen (to be more specific, the screen when the B classification menu was selected) in the processing process of closing the pull-out menu. Hereafter, it will be explained along the steps shown in FIG. 49 while referring to FIG. 50 as needed.

[0188] First, in step S1101, as shown on screen D160 in FIG. 50, a pull-out menu is displayed and the main image A is transformed according to the pull-out amount of the displayed pull-out menu. When the input device 05 comes into contact with the touch panel sensor 11 of the image display screen 09 in this state, the coordinate value will be detected (S1102). It is determined whether or not the detected coordinate value is within the pull-out menu display trigger area (S1103), and if it becomes a value within the pull-out menu display trigger area, the process will proceed to step S1104, and if it does not become such a value, the process will proceed to step S1109. Moreover, when the determination result in step S1103 is affirmative (YES), the state may change from the state of screen D160 in FIG. 50 to the state of screen D163 directly, or enter the state of screen D163 from the state of screen D161 in FIG. 50 after sliding the input device 05 without releasing from the touch panel sensor 11 of the image display screen 09.

[0189] In step S1109, as shown on screen D162 in FIG. 50, when one of the function buttons in the pull-out menu is selected by the input device 05 (S1109), the function corresponding to that button will be executed (S1110), and the processing result will be reflected in the main image A. Moreover, in this state, when the input device 0504 was slid in the direction of the arrow as shown on screen D164 in FIG. 50, such operation will be ignored. In addition, if the input device 05 goes OFF in this state, the process will return to step S1103.

[0190] In step S1104, it is determined which of the pull-out menu display trigger areas 11A to 11D the detected coordinate value is included in. If the value is included in the pull-out menu display trigger area 11A or D, the process will proceed to step S1105, and if the value is included in the pull-out menu display trigger areas 11B or C, the process will proceed to step S1111.

[0191] In step S1111, the selected pull-out menu display trigger area is highlighted and displayed, and at the same time, a buzzer sounds to indicate that a menu has been selected. In addition, in this state, if the input device 05 goes OFF, the process will return to step S1103. Then, in step S1112, among the detected coordinate values, only the Y coordinate value will be monitored and the X coordinate value will be ignored. Here too, if the input device 05 goes OFF, the process will return to step S1103.

[0192] Next, in step S1113, the pull-out menu is displayed corresponding to the pull-out amount y, and at the same time, the main image A will be variable power reduced and then displayed in the Y-axis direction at a ratio of the value (Y−y) to the full screen size Y in the Y-axis direction (screens D165 and D167 in FIG. 50). Moreover, if the input device 05 goes OFF during this period and the pull-out amount y is larger than the predetermined definition amount, the state of screen D165 in FIG. 50 will be maintained (screen D166 in FIG. 50), and if the pull-out amount y is smaller than the predetermined definition amount, the state will shift from screen D167 in FIG. 50 to screen D168 in which the main image A is displayed on the full screen.

[0193] Furthermore, when the pull-out amount y decreases and it becomes a state on screen D169 shown in FIG. 50, it will shift to a state on screen D170 in which the main image A is displayed on the full screen (S1114). Of course, even if the input device 05 goes OFF, it will shift to a state on screen D170.

[0194] On the other hand, in step S1104, if it is determined that the detected coordinate value is included in the pull-out menu display trigger area 11A or D, in step S1105, the selected pull-out menu display trigger area will be highlighted and displayed, and at the same time, a buzzer sounds to indicate that the menu has been selected. In addition, when the input device 05 goes OFF in this state, the process will return to step S1103. Then, in step S1106, among the detected coordinate values, only the X coordinate value will be monitored and the Y coordinate value will be ignored. Here too, if the input device 05 goes OFF, the process will return to step S1103.

[0195] Next, in step S1107, the pull-out menu is displayed corresponding to the pull-out amount x, and at the same time, the main image A will be variable power reduced and then displayed in the X-axis direction at a ratio of the value (X−x) to the full screen size X in the X-axis direction. Moreover, if the input device 05 goes OFF during this period and the pull-out amount x is larger than the predetermined definition amount, such display state will be

maintained, and if the pull-out amount x is smaller than the predetermined definition amount, it will shift to a state in which the main image A is displayed on the full screen.

[0196] Furthermore, when the pull-out amount x decreases and become 0, it will shift to a state in which the main image A is displayed on the full screen (S1108). Of course, even if the input device 05 goes OFF, it will shift to a state in which the main image A is displayed on the full screen.

[0197] Moreover, among four trigger areas, depending on which pull-out menu is pulled out, the method for displaying the reduced size of image A will differ. This will be explained with reference to FIG. 51.

[0198] FIG. 51 is a figure which shows the screen of the image display screen 09 for the purpose of explaining the relationship between the storage position of a pull-out menu and the main image A.

[0199] For example, on screen D184 in FIG. 51, on which the pull-out menu display trigger area 11B was selected with the input device 05 to pull out the B classification menu, the list of the colors of characters to be written on the main image A with the input device 05 is laid out in the B classification menu like a color palette. In the state of this screen D184, while the pull-out menu was still in a state that it was pulled out, it will be possible to select a color and write characters on the main image A, and it will be possible to continue writing while changing the color during writing. In this case, when the pull-out menu is closed, the characters may be displayed on the main image A at a ratio at the time of being written, in addition, when the main image A returns to the original ratio, the characters may be scaled in the vertical direction at the same ratio.

[0200] Furthermore, on screens D182, D184, D186 and D188, if it is desired to display the main image A at the original aspect ratio, it is also fine to return to the original state by a method like dragging the corner of the scaled main image A, etc. As a result of this, for example, if this operation is performed in the state on screen D184, it will become a state like screen D193 in FIG. 53 to be described later.

[0201] Moreover, the 7th embodiment may also be applied to the 6th embodiment.

[0202] (8th embodiment) Next, the 8th embodiment will be explained.

[0203] Because the constitution of the 8th embodiment is basically the same as the constitution of the 1st embodiment, in the explanation of the 8th embodiment, the constitution of the 1st embodiment will be diverted for use.

[0204] In the 8th embodiment, even if the pull-out menu is pulled out, the aspect ratio of the main image that should be displayed originally can be maintained constant.

[0205] FIG. 52 is a flow chart which shows the processing procedures of the main image display accompanying with the display of the pull-out menu in the 8th embodiment. FIG. 53 is a figure which shows the screen displayed on the image display screen 09 in the processing process of displaying the pull-out menu. FIG. 53 shows an example of displaying the B classification menu. Hereafter, it will be explained along the steps shown in FIG. 52 while referring to FIG. 53 as needed.

[0206] The main image A as shown in FIG. 48 is, for example, a photo image, a sentence, or a mixture of an image and a sentence. The cases of a regeneration image that has already been stored in the built-in memory, or a finder image captured by CCD of a camera part in the shooting standby state can also be expected.

[0207] In the flow chart of FIG. 52, because steps S1201, S1202, S1203, S1204, S1205, S1206, S1209 and S1210 have the same contents as steps S101, S102, S103, S104, S105, S106, S112 and S113 as shown in FIG. 10, respectively, their explanations will be omitted.

[0208] When the pull-out menu display trigger area 11B is selected, and then the detected value (pull-out amount) y of the Y-axis coordinate is continuously changed, in step S1211, the B classification menu will be displayed corresponding to the pull-out amount y, and at the same time, it will be variable power reduced and then displayed while maintaining the aspect ratio of the main image A (screens D191 and D192 in FIG. 53). Moreover, if the input device 05 goes OFF during this period, the screen state at that time will be maintained.

[0209] Then, when the pull-out amount y increased further, in step S1212, the B classification menu will be fixed at the maximum pull-out amount (half the screen size in the Y-axis direction), in addition, the main image A will also be maintained at a size that is variable power reduced to 1/2 in both the X-axis direction and the Y-axis direction (screen D193 in FIG. 53). Moreover, in this case, when the input device 05 goes OFF, the state of screen D193 in FIG. 53 will be maintained.

[0210] In the above explanation, the case of displaying the B classification menu is used as an example, but the case of displaying the C classification menu is also the same.

[0211] Next, when the pull-out menu display trigger areas 11A, D are selected and the detected value (pull-out amount) x of the X axis coordinate is continuously changed after the selection, in step S1207, the A, D classification menus will be displayed corresponding to the pull-out amount x, and at the same time, it will be variable power reduced and then displayed while maintaining the aspect ratio of the main image A. Moreover, if the input device 05 goes OFF during this period, the state of the screen at that time will be maintained.

[0212] And, when the pull-out amount x increases further, in step S1208, the A and D classification menus will be fixed at the maximum pull-out amount (half the screen size in the X axis direction), in addition, the main image A will also be maintained at a size that is variable power reduced to 1/2 in both the X-axis direction and the Y-axis direction. Moreover, in this case, when the input device 05 goes OFF, the main image A will be also maintained at a size that was variable power reduced to 1/2 in both the X-axis direction and the Y-axis direction.

[0213] Moreover, the 8th embodiment may also be combined with other embodiments to allow the user to arbitrarily select any one of the methods depending on the operation setting or the operation means performed while pressing any button.

[0214] Furthermore, it is also fine to display the main image A as

shown in FIG. 54.

[0215] FIG. 54 is a figure which shows a screen displayed on the image display screen 09 for the purpose of explaining a display method different from the display method of the main image A shown in FIG. 53.

[0216] In other words, on screens D195 to D197 of the image display screen 09, the shape and aspect ratio of the main image A will not be changed at all, and the pull-out menu will be displayed over the main image A in a form of being covered. This display method of the main image A has a deficiency that a part of the main image A has unfavorably become missing, but if a CPU that can perform arithmetic processing at extremely high speed is not mounted, this display method will be effective.

[0217] Moreover, in this display method, while the input device 05 is in contact with the touch panel sensor 11, the pull-out menu will overlap with the main image A, on the other hand, when the input device 05 goes OFF, the main image A will be reduced and then displayed in the pull-out direction of the pull-out menu. For example, if became OFF in the state as shown on screen D195, after the required processing time elapsed, the state will switch to screen D198. In addition, when the input device became OFF in a state as shown on screen D196, after the required processing time elapsed, the state will switch to screen D199. Furthermore, when the input device became OFF in a state as shown on screen D197, after the required processing time elapsed, the state will switch to screen D200.

[0218] (9th embodiment) Next, the 9th embodiment will be explained.

[0219] Because the constitution of the 9th embodiment is basically the same as the constitution of 1st embodiment, in the explanation of the 9th embodiment, the constitution of the 1st embodiment will be diverted for use.

[0220] In the 9th embodiment, a display method of the "partial cut-out help in the pull-out menu" will be adopted as a display method of the pull-out menu.

[0221] FIGS. 55 and 56 are the flow charts which show the processing procedures of displaying the pull-out menu in the 9th embodiment. FIG. 57 is a figure which shows the pull-out menu in the 9th embodiment displayed on the image display screen 09. FIG. 58 is a figure which shows the B to D classification menus displayed on the image display screen 09 in the 9th embodiment. Hereafter, it will be explained along the steps shown in FIGS. 55 and 56 while referring to FIGS. 57 and 58 as needed.

[0222] In each of the above-mentioned embodiments, because it is not possible to grasp the function items described in each pull-out menu until the pull-out menu is displayed, it is necessary for each user to remember in advance what kind of function items are included in each menu. In order to avoid such annoyance, in the 9th embodiment, an auxiliary function for mastering the pull-out menu without hesitation will be added to the pull-out menu display process of the 1st embodiment.

[0223] In other words, generally, in case of a personal computer, etc., by simply placing a pointing device such as a mouse on an icon, etc. that corresponds to a function, a balloon that briefly explains what kind of function the icon corresponds to will be displayed. However, in this embodiment, instead of a balloon for explaining such a function, with the same expression as the time when the pull-out menu is displayed, a part of the pull-out menu will be cut out and then displayed as the "partial cut-out help in the pull-out menu," so as to make it easy to check the contents of the pull-out menu.

[0224] The process shown in FIG. 55 is a process added to the pull-out menu display process of the 1st embodiment as described above, and step S1301 in FIG. 55 performs the same process as step S103 in FIG. 10.

[0225] Next, in step S1302, it is determined whether or not the execution of the function of the "partial cut-out help in the pull-out menu" has been set in advance. If it has not been set, the process will proceed to step S104 onward in FIG. 10.

[0226] On the other hand, if the execution of the function of the "partial cut-out help in the pull-out menu" has been set in advance, the process will proceed to step S1303; and it is determined whether the detected coordinate value is included in any of the pull-out menu display trigger areas 11A to 11D, if it is included in the pull-out menu display trigger area 11A or 11D, the process will proceed to step S1305, and if it is included in the pull-out menu display trigger area 11B or 11C, the process will proceed to step S1311.

[0227] In step S1305, the Y coordinate value of the position where the input device 05 is in contact with the pull-out menu display trigger area 11A or 11D is detected, and the functional item having a Y coordinate value closest to the detected Y coordinate value will be displayed. This is shown on screen D202 in FIG. 57, using the pull-out menu display trigger area 11A touched by the input device 05 as an example. From this state, when the input device 05 is slid up and down along the exterior frame on the pull-out menu display trigger area 11A, the state will be like screens D203 to D205 in FIG. 57. In this way, it is possible to check the contents without displaying all the pull-out menus, and when the desired function item could not be found, it is possible to search other pull-out menus in a similar way. Hereafter, the image that forms a part of the pull-out menu displayed on screens D202 to D205 in FIG. 57 is called a "cut-out help."

[0228] In this way, when the desired function item is found and the input device 05 goes OFF, in step S1306, it is determined whether or not a predetermined time (2 to 3 seconds) has elapsed after input device OFF. If the predetermined time has not elapsed, the process will proceed to step S1307, and the input device 05 will select the function item (icon) in the cut-out help before the predetermined time elapsed. By this way, in step S1308, the display of the cut-out help will be stopped, and the function corresponding to the selected function item (icon) will be executed.

[0229] Moreover, in step S1306, when it is determined that the predetermined time has passed, in step S1309, the cut-out help

display will be stopped.

[0230] On the other hand, in step S1311, the X coordinate value of the position where the input device 05 is in contact with the pull-out menu display trigger area 11B or 11C is detected, and the function item having an X coordinate value closest to the detected X coordinate value will be displayed.

[0231] In this way, when the desired function item is found and the input device 05 goes OFF, in step S1312, it is determined whether or not a predetermined time (2 to 3 seconds) has elapsed after input device OFF. If the predetermined time has not elapsed, the process will proceed to step S1313, and the input device 05 will select the function item (icon) in the cut-out help before the predetermined time elapsed. By this way, in step S1314, the display of the cut-out help will be stopped, and the function corresponding to the selected function item (icon) will be executed.

[0232] Moreover, in step S1312, when it is determined that the predetermined time has passed, in step S1315, the cut-out help display will be stopped.

[0233] In FIG. 58, the cut-out help when the pull-out menu display trigger area 11B, 11C, or 11D is touched by the input device 05 will be displayed. Moreover, the illustration of the icon of the contents of the cut-out help is omitted. In addition, the arrow indicates the sliding direction of the input device 05.

[0234] Furthermore, another embodiment based on the 9th embodiment will be explained with reference to FIG. 59. In other words, a display example of another pull-out help when the pull-out help shown in the 9th embodiment cannot be displayed as described above due to some constraint condition is shown.

[0235] FIG. 59 is a figure which shows each pull-out menu in another embodiment based on the 9th embodiment. All the screens D211 to D215 on the image display screen 09 shown here are the display examples when the coordinate designation of the pull-out menu display trigger area 11A was performed.

[0236] On screen D211, a little more display area of the pull-out help is secured. This will make it easier to see the contents of the pull-out help.

[0237] On screen D212, similar to the 3rd embodiment explained with reference to FIG. 26, in the 9th embodiment, the cut-out help that is expected when the maximum pull-out amount was expanded has also been shown.

[0238] On screen D213, all the function items in the pull-out menu will be displayed in the pull-out help without sliding the input device 05 in the pull-out menu display trigger area.

[0239] On screen D214, only the character notation of the name of the function item is performed in the pull-out help. This will minimize the reduction in the display area of the main image A.

[0240] On screen D215, assuming a case that it is not possible to slide the input device 05 within the pull-out menu display trigger area, the scroll buttons in the pull-out help will be laid out in software.

[0241] (Other embodiments) It is also fine to combine each embodiment explained above as appropriate.

[0242] In addition, in each of the above-mentioned embodiments, the portable information processing device 01 was explained as a portable information terminal of which the size is a notebook size, but the application of this invention is not limited thereto; this invention is also applicable to a large image display screen which may be different in the operation method, but has another pointing device as an operation means, an eyepiece viewfinder, or the like.

[0243] In addition, this invention can also be applied to a device accompanying with a screen of image display such as a still camera, a video camera, a notebook computer, a head mounted display, a car navigation system, or the like.

[0244] In addition, this invention can also be applied to a stationary personal computer, a workstation, or the like. For example, in the case of a personal computer, the mouse will be slid in any direction including up, down, left and right, and when the cursor reached the edge on the screen, the bar for the purpose of pulling out the pull-out menu at the display position will be displayed. Then, this invention can be applied by incorporating an operation method of dragging the mouse to the central direction from that state. In this case, there is the merit or advantage that the list of functional items can be displayed quickly and the user can adjust the amount of display area arbitrarily.

[0245] In addition, in case of a device equipped with the so-called cross keys, in which mechanical switches are laid out in a cross shape in the up, down, left, and right directions, by pressing either up, down, left or right, one of the pull-out menus is selected, and combining an operation method that when finger is released from the cross key, the pull-out menu will be displayed in a fixed manner after it was pulled out, the user may use either the input device 05 or the cross key to operate according to the usage situation.

[0246] In addition, in each of the above-mentioned embodiments, the pull-out menu can be stopped without stages at any pull-out position during pull-out, but instead of this, it is also fine to limit in advance the pull-out position which can be stopped to multiple positions. This will make the display processing speed of the pull-out menu even faster.

[0247] Furthermore, it is needless to say that this invention can also be achieved by supplying the storage medium which stored the program code of the software for realizing the functions of the above-mentioned embodiments to the system or device, and making the computer (or CPU or MPU) of the said system or device read and execute the program code stored in the storage medium.

[0248] In this case, the program code itself which was read from the storage medium will realize the function of each of the above-mentioned embodiments, and the storage medium which stored the program code will constitute this invention.

[0249] As the storage medium for the purpose of supplying the program code, for example, a floppy disk, a hard disk, an optical disk, a magneto-optical disk, a CD-ROM, a CD-R, a magnetic tape, a non-volatile memory card, a ROM, etc. can be used.

[0250] In addition, it is needless to say that this invention also includes the case that by executing the program code which was read by the computer, not only the functions of each of the above-mentioned embodiments can be realized, but also based on the instructions of the said program code, the OS etc. running on the computer will perform a part or all of the actual processing, and the functions of the above-mentioned embodiments will be realized by such processing.

[0251] Furthermore, it is needless to say that this invention also includes the case that after the program code which was read from the storage medium was written in the memory provided in the function expansion board inserted into the computer or the function expansion unit connected to the computer, based on the instructions of the program code, a CPU or the like provided in the function expansion board or function expansion unit will perform a part or all of the actual processing, and the functions of the above-mentioned embodiments will be realized by such processing.

[0252]

[Effect of the invention] As described in detail above, according to this invention, when the coordinate designation of one of multiple predetermined areas was performed by the coordinate designation means, and successively the coordinate designation was continued by the aforesaid coordinate designation means, and at the same time, this designated coordinate changed to almost the central direction of the image display part, the function list corresponding to the aforesaid coordinate-designated predetermined area will be displayed on the aforesaid image display part corresponding to the change amount of the aforesaid designated coordinate. At the same time, the main image displayed on the aforesaid image display part immediately before the aforesaid function list is displayed will be variable power reduced corresponding to the display amount of the aforesaid function list and then displayed on the aforesaid image display part.

[0253] By this way, even if the function list and the main image are displayed simultaneously at the small image display part, since the main image is all displayed, the editing work will not be hindered.

[0254] In addition, the main image is variable power reduced and displayed in real time in synchronization with the movement of pulling out and displaying the function list, and when the change in the designated coordinate generated by the coordinate designation means had stopped, the process of pulling out the function list and variable-power-reducing the main image will also stop at the same time.

[0255] Thus, even while the function list is being displayed, the main image will be displayed without being covered and hidden, the whole main image to be processed can be seen, and as a result of this, when a function in the function list was selected and executed, it will be possible to immediately grasp the result of processing on the main image by executing that function, and if the result is not as intended, it will be possible to smoothly cancel or change.

[BRIEF DESCRIPTION OF THE DRAWINGS]

[FIG. 1] A front view which shows the constitution of the 1st embodiment of the portable information processing device according to this invention.

[FIG. 2] A top view of the portable information processing device shown in FIG. 1.

[FIG. 3] A rear view of the portable information processing device shown in FIG. 1.

[FIG. 4] A transverse sectional view taken along the line A-A' of the portable information processing device shown in FIG. 3.

[FIG. 5] A figure which shows the constitution of a touch panel sensor.

[FIG. 6] A figure which shows the pull-out menu displayed on the image display screen.

[FIG. 7] A figure which shows the screen of an image display screen in which the B classification menu was displayed as a pull-out menu.

[FIG. 8] A block figure which shows the system constitution of a portable information processing device.

[FIG. 9] A flow chart which shows the outline of the overall operation procedures in the portable information processing device.

[FIG. 10] A flow chart (1/2) which shows the processing procedures at the time of displaying the pull-out menu.

[FIG. 11] A flow chart (2/2) which shows the processing procedures at the time of displaying the pull-out menu.

[FIG. 12] A figure which shows the display screen in the processing process of displaying the pull-out menu (to be more specific, the screen in case of selecting and displaying the B classification menu).

[FIG. 13] A flow chart (1/2) which shows the processing procedures for closing the displayed pull-out menu.

[FIG. 14] A flow chart (2/2) which shows the processing procedures for closing the displayed pull-out menu.

[FIG. 15] A figure which shows the display screen in the processing process which closes the pull-out menu (to be more specific, the screen in the case when the B classification menu was selected).

[FIG. 16] A flow chart which shows the processing procedures for determining the size of a pull-out menu corresponding to the pull-out amount.

[FIG. 17] A figure which shows the screen of the A classification menu displayed corresponding to the pull-out amount.

[FIG. 18] A figure which shows the screen of the B classification menu displayed corresponding to the pull-out amount.

[FIG. 19] A figure which shows the screen of the image display screen for the purpose of explaining the relationship between the pull-out menu display trigger area and the A to D classification menus.

[FIG. 20] A flow chart which shows the processing procedures of displaying the pull-out menu in the 2nd embodiment.

[FIG. 21] A figure which shows the ranges a, b and c on the screen of the image display screen.

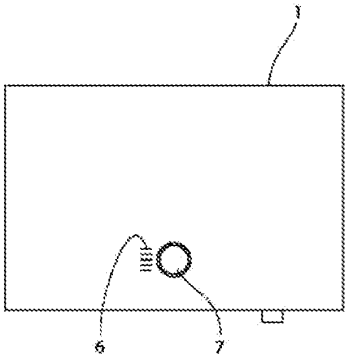
[FIG. 22] A figure which shows the screen of the A classification menu displayed corresponding to the pull-out amount.

[FIG. 23] A figure which shows the screen of the B classification menu displayed corresponding to the pull-out amount.

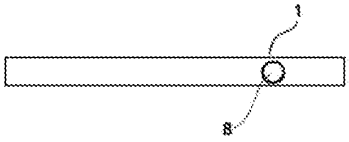
[FIG. 24] A figure which shows the screen of the C classification menu displayed corresponding to the pull-out amount.
[FIG. 25] A flow chart which shows the processing procedures of displaying the pull-out menu in the 3rd embodiment.
[FIG. 26] A figure which shows the screen of the A classification menu displayed on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 27] A flow chart which shows the processing procedures of displaying the pull-out menu in the 4th embodiment.
[FIG. 28] A figure which shows the increased pull-out menu displayed on the screen of the image display screen.
[FIG. 29] A flow chart which shows the processing procedures of displaying the pull-out menu in the 5th embodiment.
[FIG. 30] A figure which shows the increased pull-out menu displayed on the screen of the image display screen.
[FIG. 31] A figure which shows the other example of display of the increased pull-out menu displayed on the screen of the image display screen.
[FIG. 32] A flow chart which shows the processing procedures of simultaneously displaying two to four pull-out menus in the 6th embodiment.
[FIG. 33] A flow chart (1/2) which shows the concrete procedures of the processing procedures as shown in FIG. 32.
[FIG. 34] A flow chart (2/2) which shows the concrete procedures of the processing procedures as shown in FIG. 32.
[FIG. 35] The 1st figure which shows two pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 36] The 2nd figure which shows two pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 37] The 3rd figure which shows two pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 38] The 4th figure which shows two pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 39] The 1st figure which shows three pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 40] The 2nd figure which shows three pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 41] The 3rd figure which shows three pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 42] The 4th figure which shows three pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 43] The 1st figure which shows four pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 44] The 2nd figure which shows four pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 45] The 3rd figure which shows four pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 46] The 4th figure which shows four pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 47] A flow chart which shows the processing procedures relating to display of the pull-out menu in the 7th embodiment and deformation of the shape of the main image accompanying with the display of the pull-out menu.
[FIG. 48] A figure which shows the screen displayed on the image display screen in the processing process of displaying the pull-out menu.
[FIG. 49] A flow chart which shows the processing procedures for closing the displayed pull-out menu.
[FIG. 50] A figure which shows the display screen (to be more specific, the screen when the B classification menu was selected) in the processing process of closing the pull-out menu.
[FIG. 51] A figure which shows the screen of the image display screen for the purpose of explaining the relationship between the storage position of a pull-out menu and the main image A.
[FIG. 52] A flow chart which shows the processing procedures of the main image display accompanying with the display of the pull-out menu in the 8th embodiment.
[FIG. 53] A figure which shows the screen displayed on the image display screen in the processing process of displaying the pull-out menu.
[FIG. 54] A figure which shows a screen displayed on the image display screen for the purpose of explaining a display method different from the display method of the main image A shown in FIG. 53.
[FIG. 55] A flow chart (1/2) which shows the processing procedures of displaying the pull-out menu in the 9th embodiment.
[FIG. 56] A flow chart (2/2) which shows the processing procedures of displaying the pull-out menu in the 9th embodiment.
[FIG. 57] A figure which shows the pull-out menu in the 9th embodiment displayed on the image display screen.
[FIG. 58] A figure which shows the B to D classification menus displayed on the image display screen in the 9th embodiment.
[FIG. 59] A figure which shows each pull-out menu in another embodiment based on the 9th embodiment.
[EXPLANATION ABOUT THE REFERENCE NUMERALS]
01 portable information processing device (information processing device)
04 exterior cover member (frame)
05 input device (coordinate designation means)
06 microphone

07 camera part
08 shutter switch
09 image display screen (image display part)
10 speaker
11 touch panel sensor (coordinate designation means)
11A~11D menu display trigger area (predetermined area)
11E image display area
11b pull-out menu (function list)
21 CPU (function list display means, main image display means)
22 CCD
23 RAM
24 flash memory
25 ROM

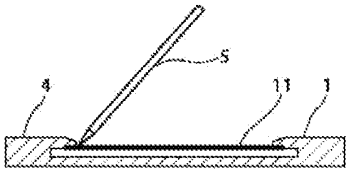
[FIG. 1]



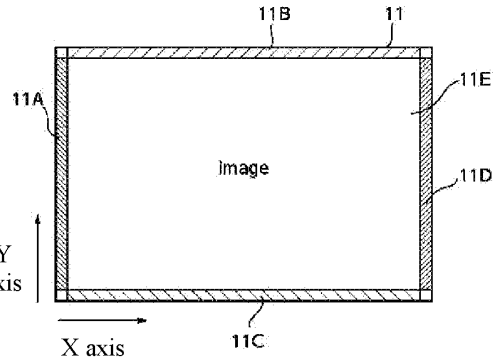
[FIG. 2]



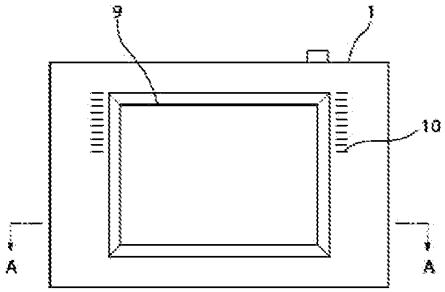
[FIG. 4]



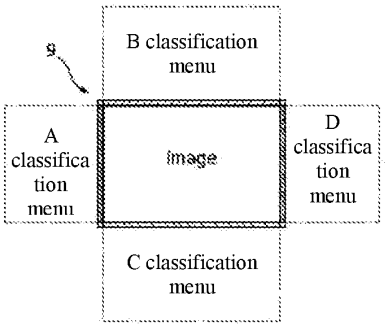
[FIG. 5]



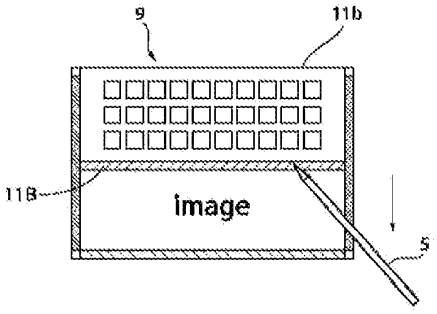
[FIG. 3]



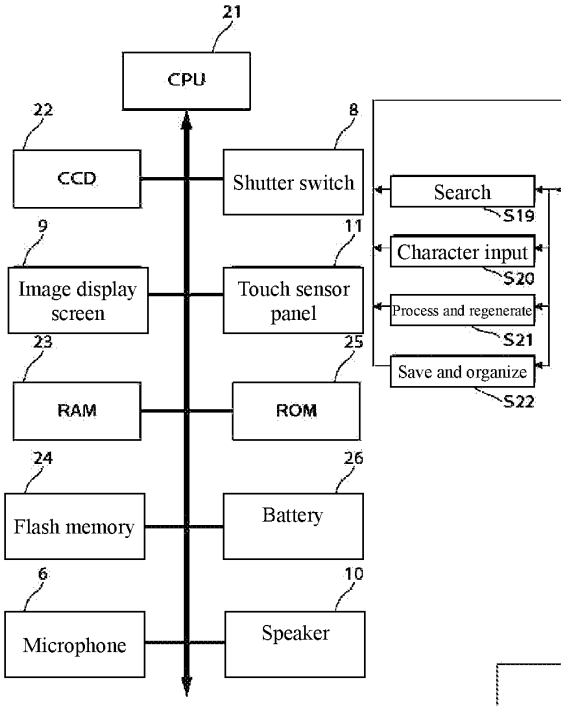
[FIG. 6]



[FIG. 7]

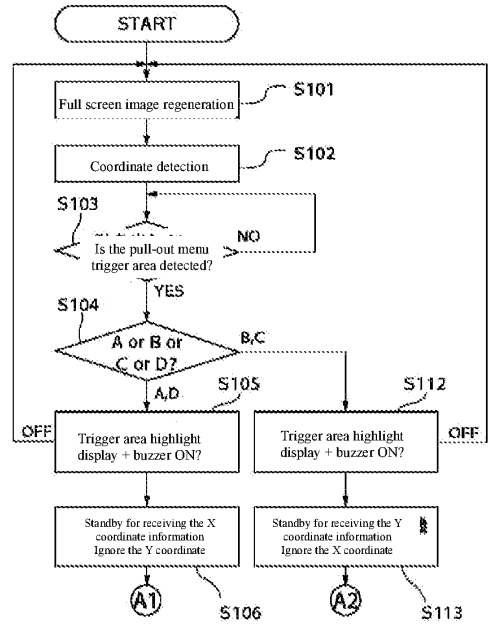


[FIG. 8]

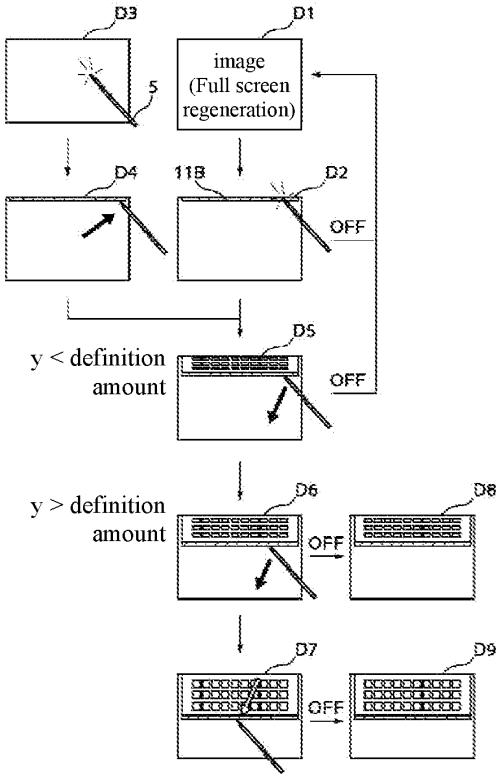


[FIG. 9]

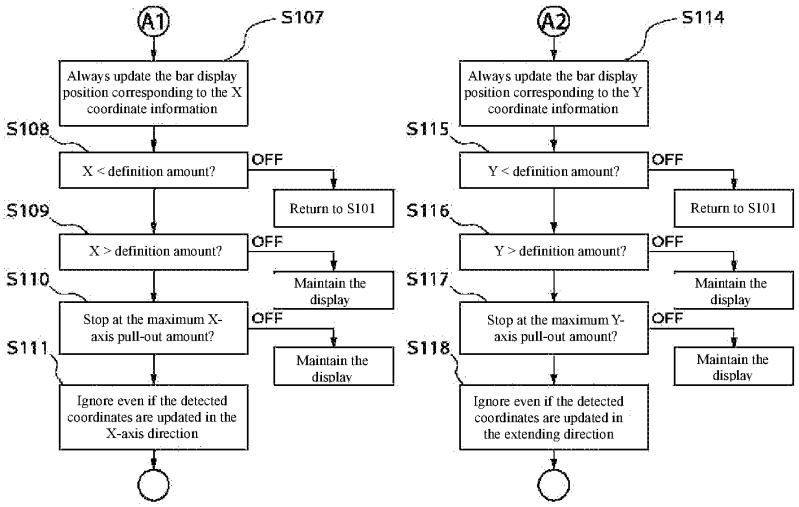
[FIG. 10]



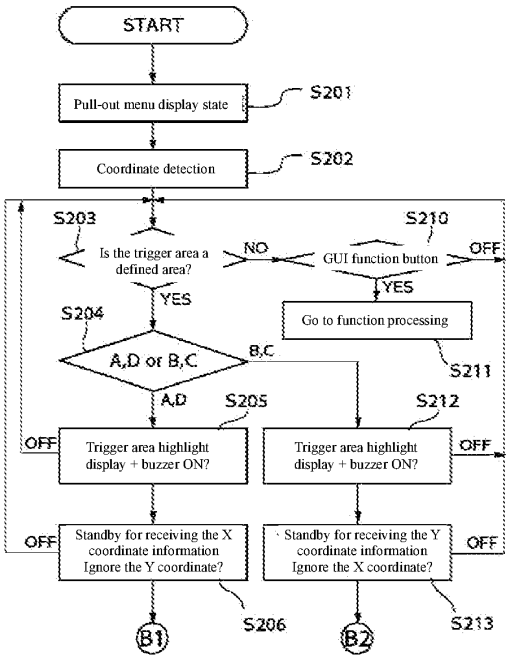
[FIG. 12]



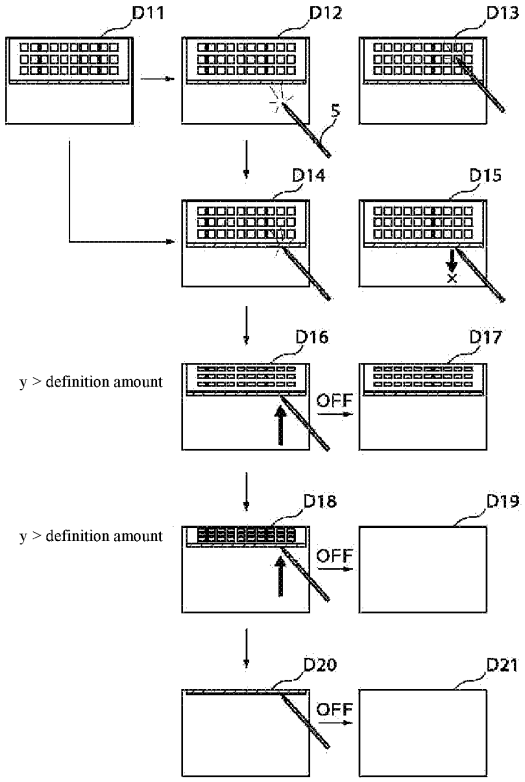
[FIG. 11]



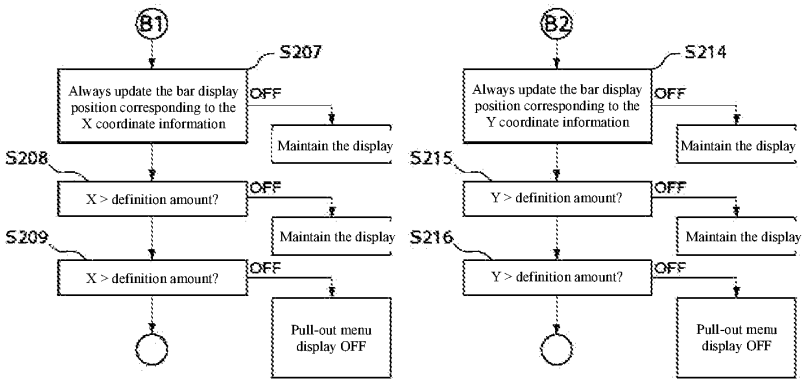
[FIG. 13]



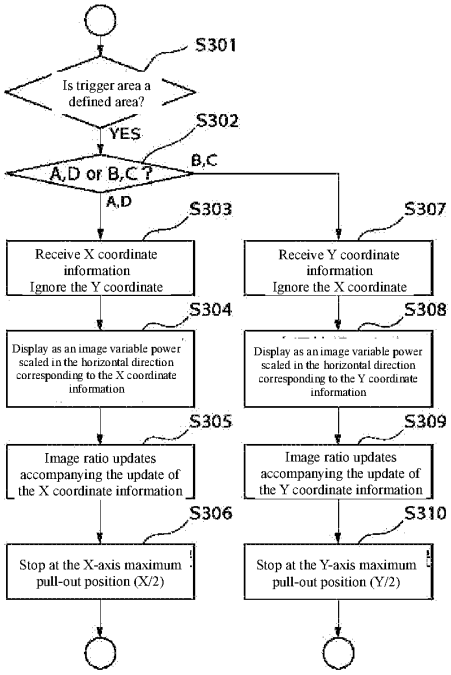
[FIG. 15]



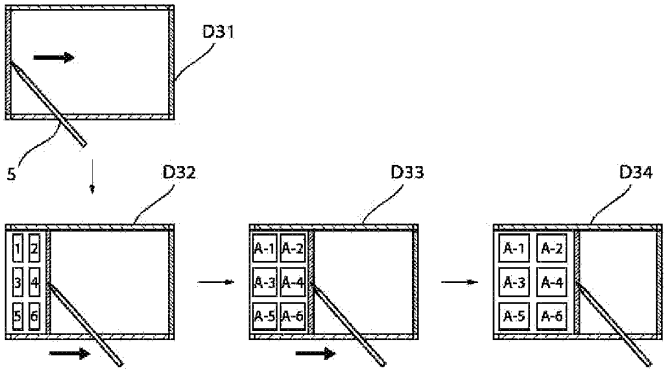
[FIG. 14]



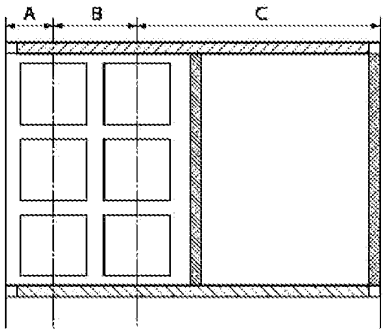
[FIG. 16]



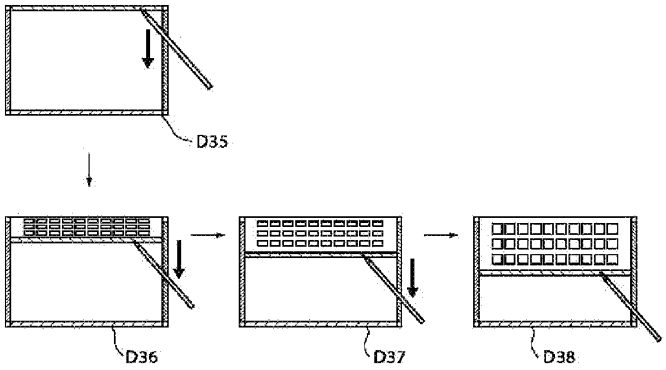
[FIG. 17]



[FIG. 21]

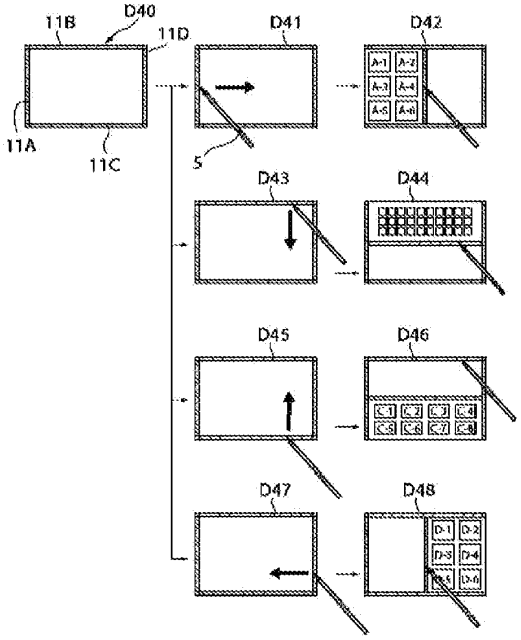


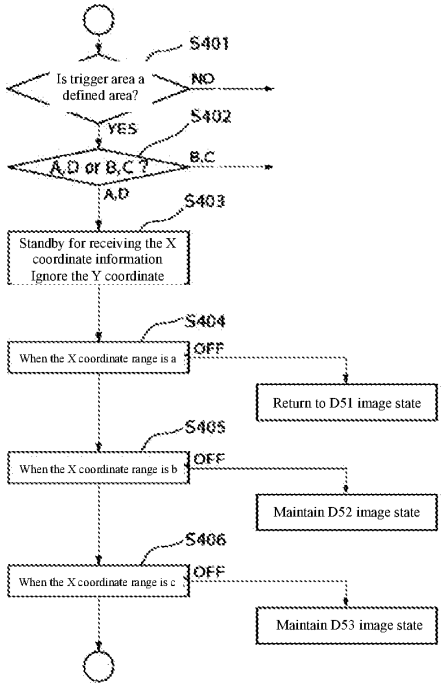
[FIG. 18]



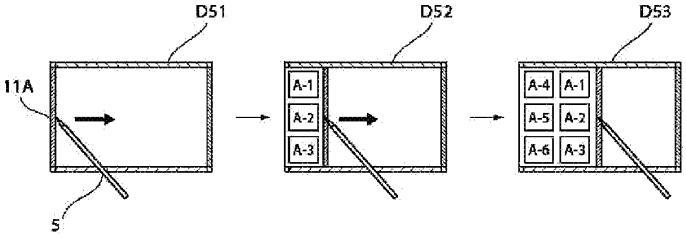
[FIG. 19]

[FIG. 20]

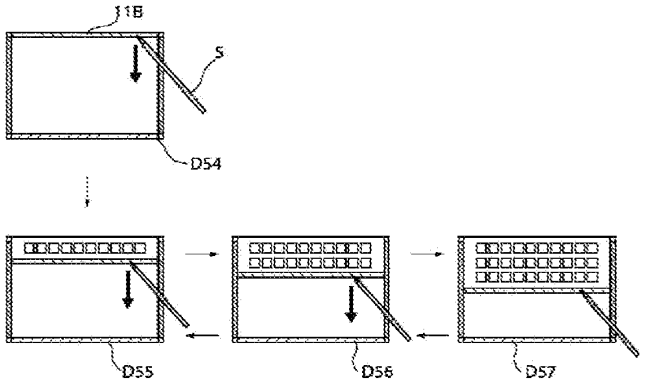




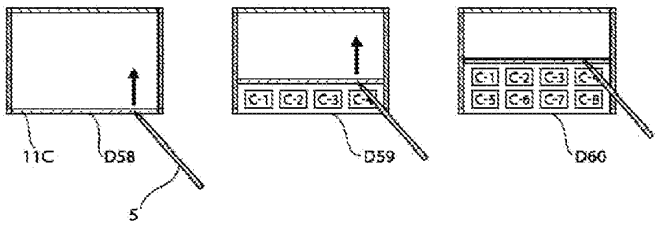
[FIG. 22]



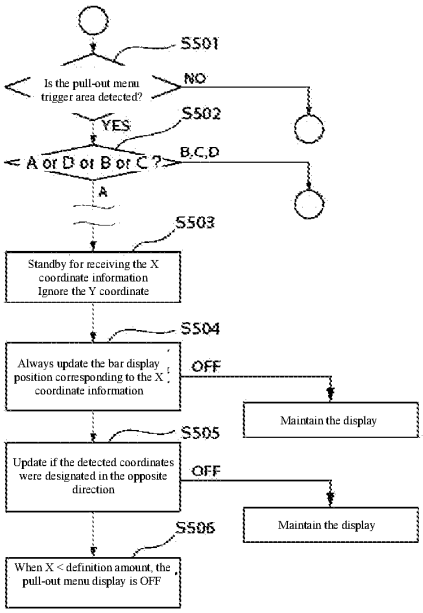
[FIG. 23]



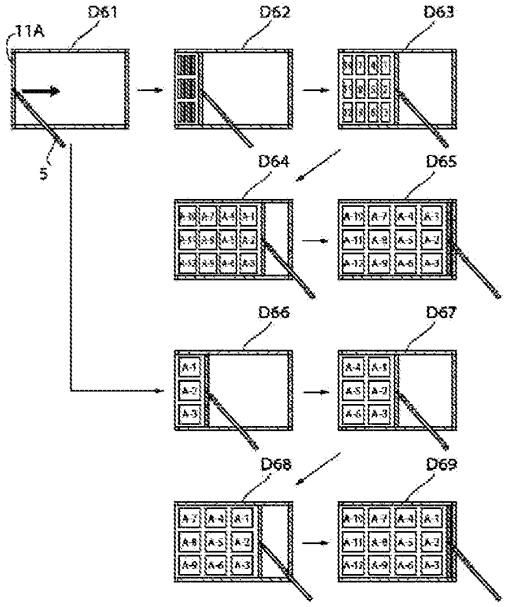
[FIG. 24]



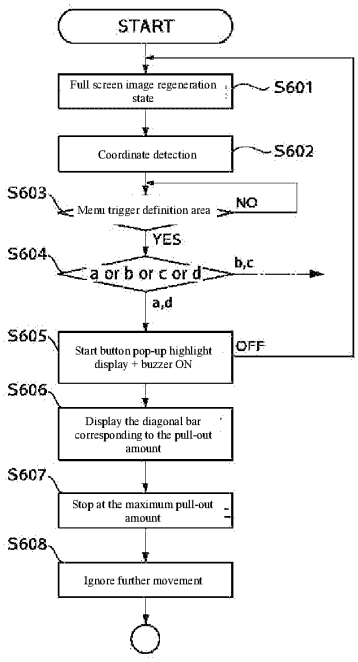
[FIG. 25]



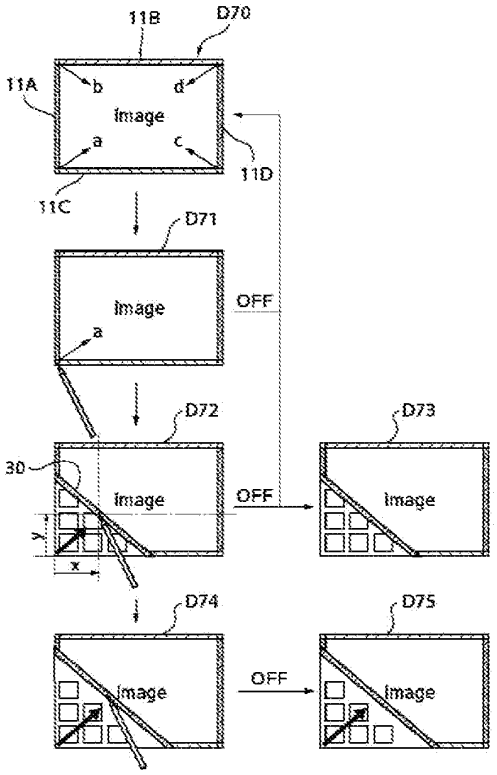
[FIG. 26]



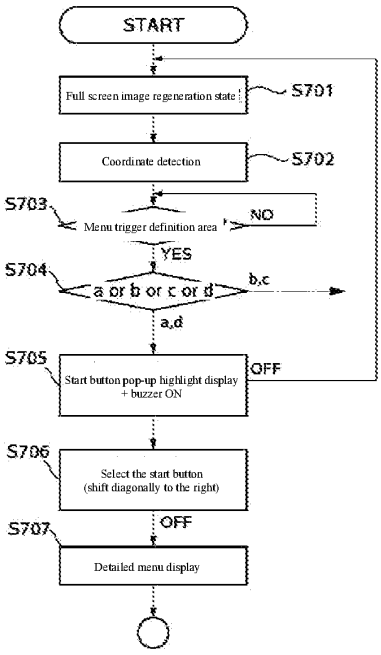
[FIG. 27]



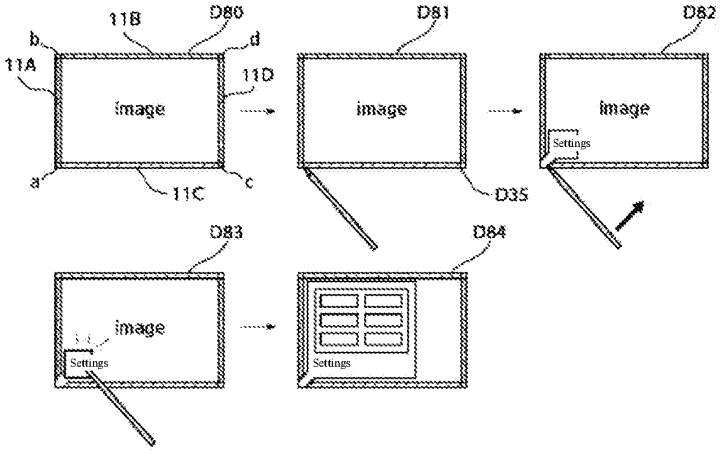
[FIG. 28]



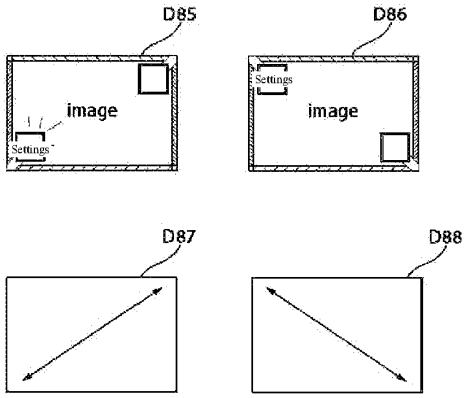
[FIG. 29]



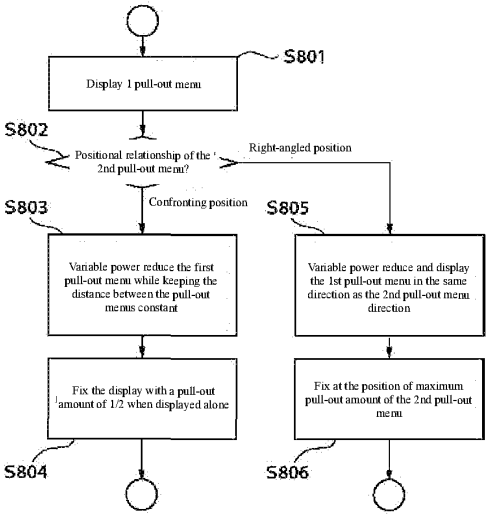
[FIG. 30]



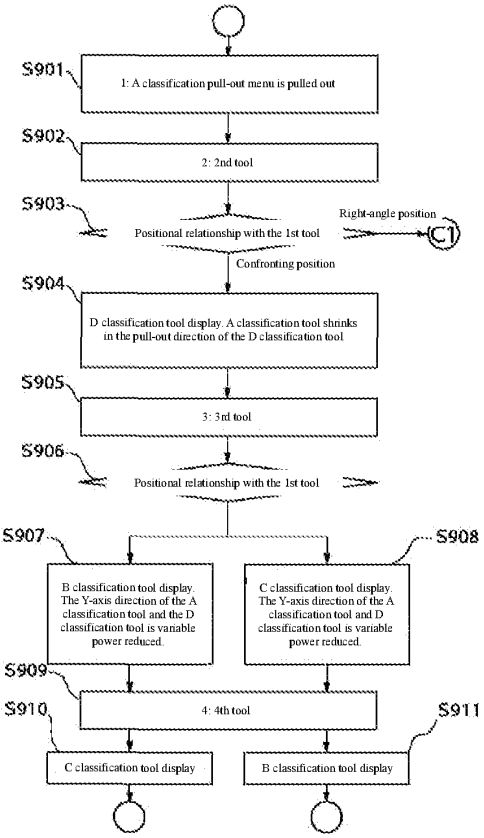
[FIG. 31]



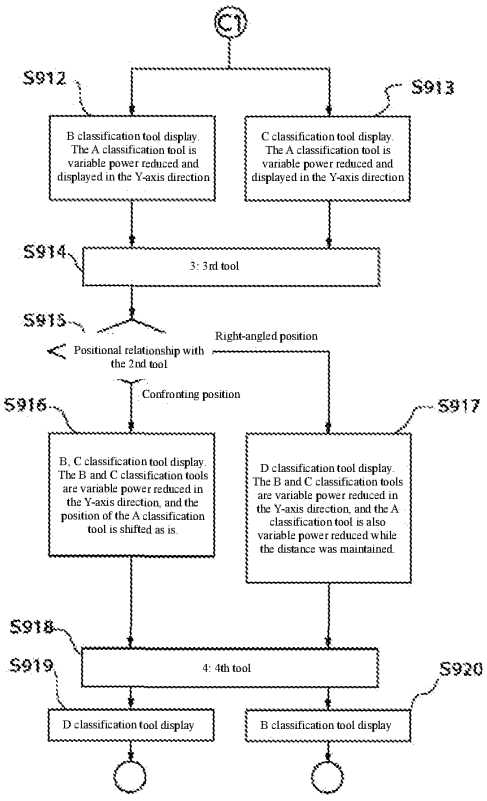
[FIG. 32]



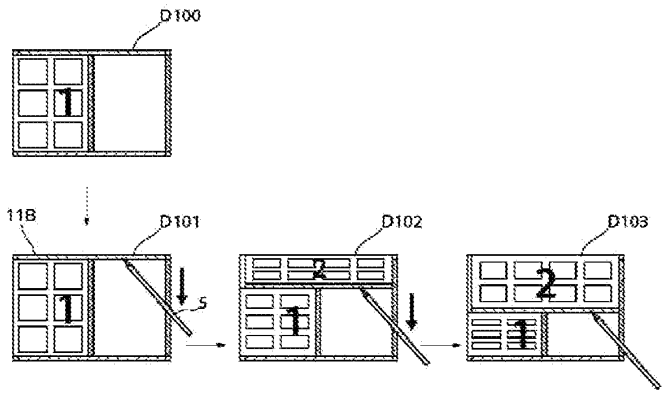
[FIG. 33]



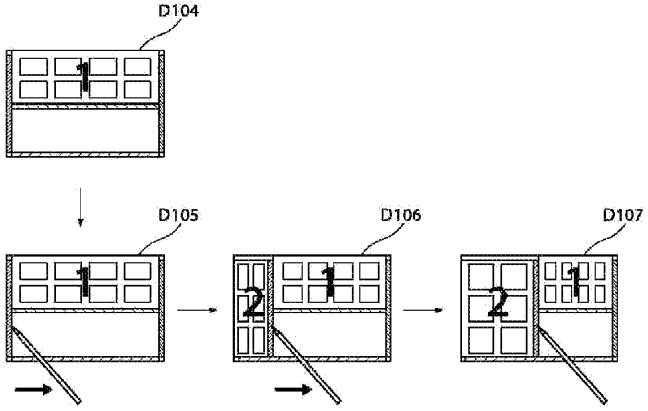
[FIG. 34]



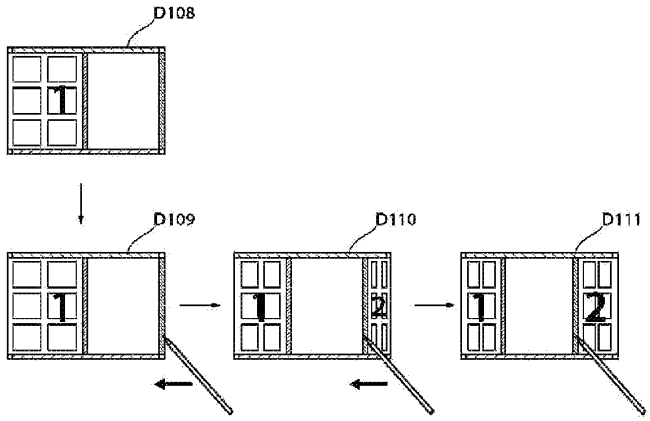
[FIG. 35]



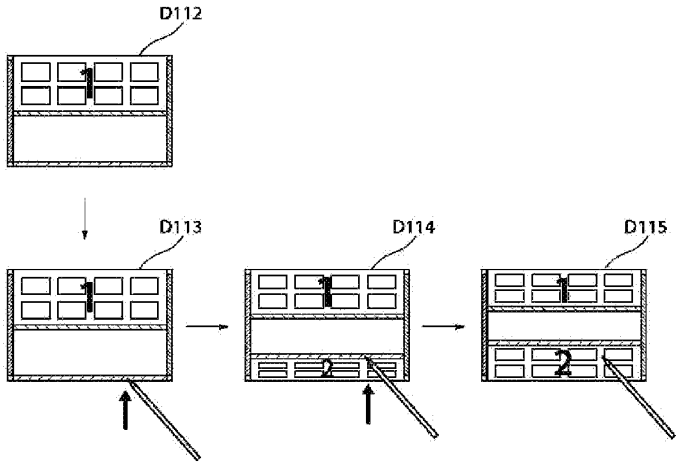
[FIG. 36]



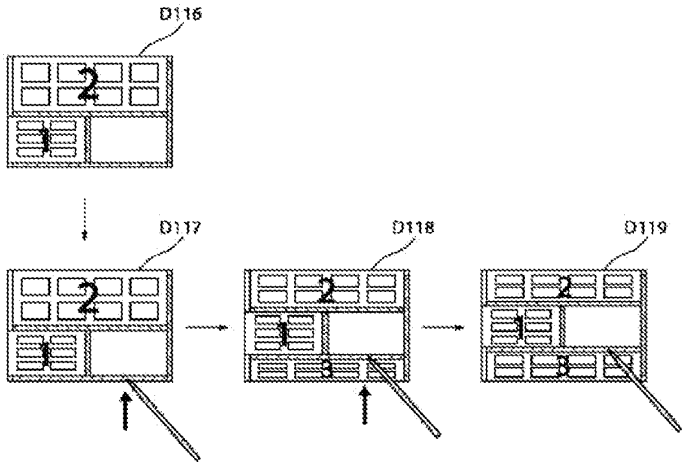
[FIG. 37]



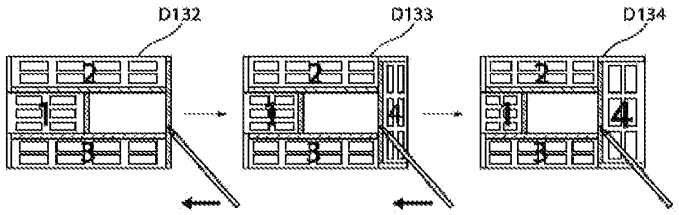
[FIG. 38]



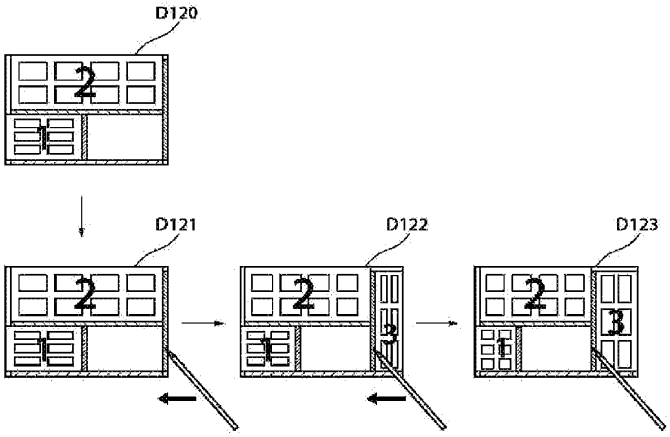
[FIG. 39]



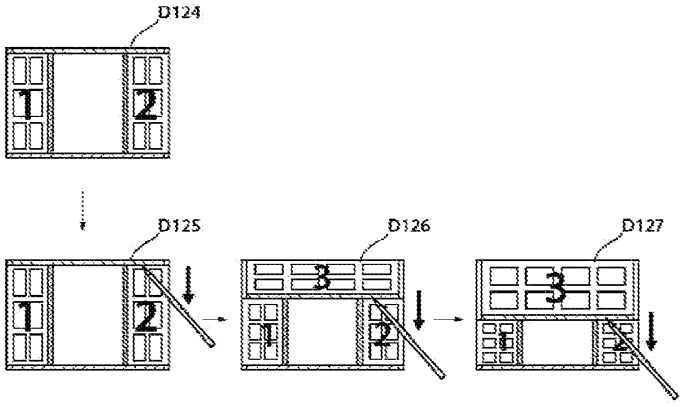
[FIG. 43]



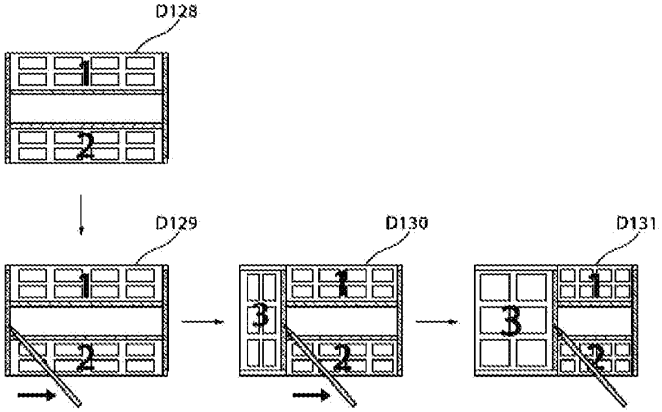
[FIG. 40]



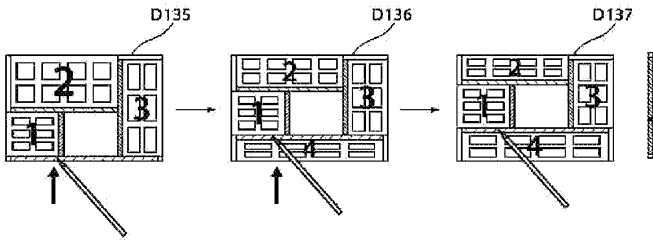
[FIG. 41]



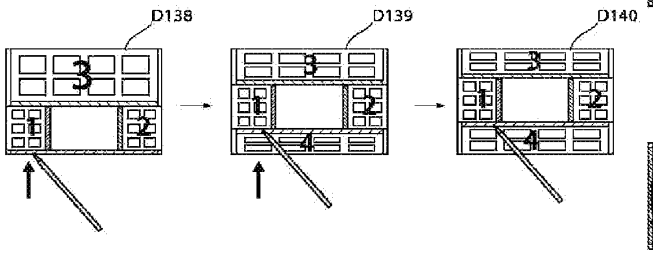
[FIG. 42]



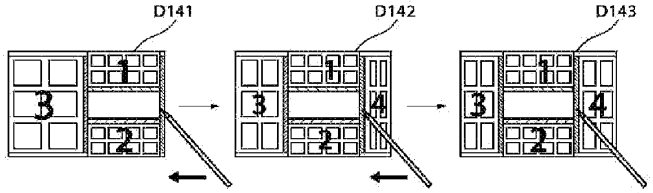
[FIG. 44]



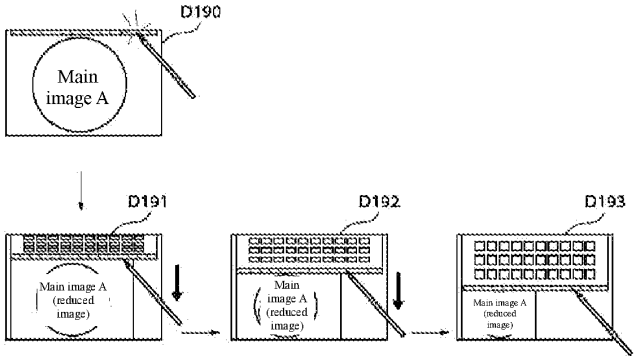
[FIG. 45]



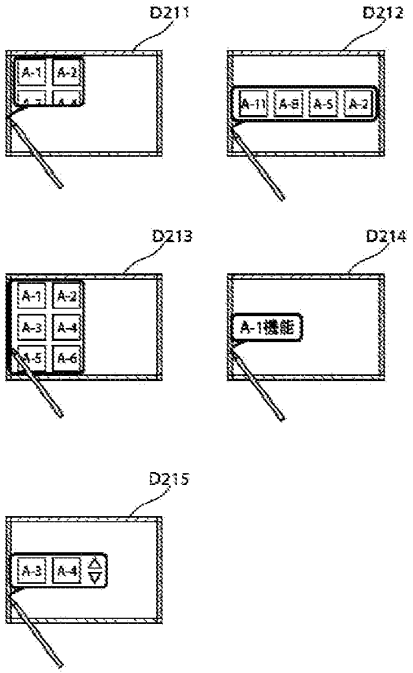
[FIG. 46]



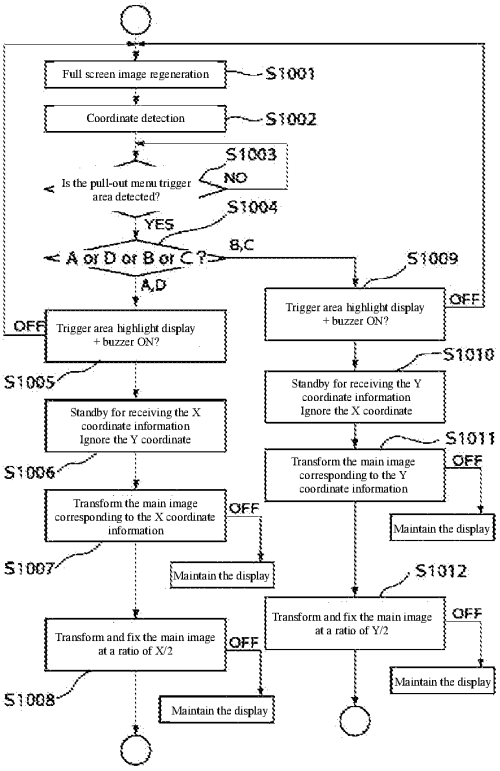
[FIG. 53]



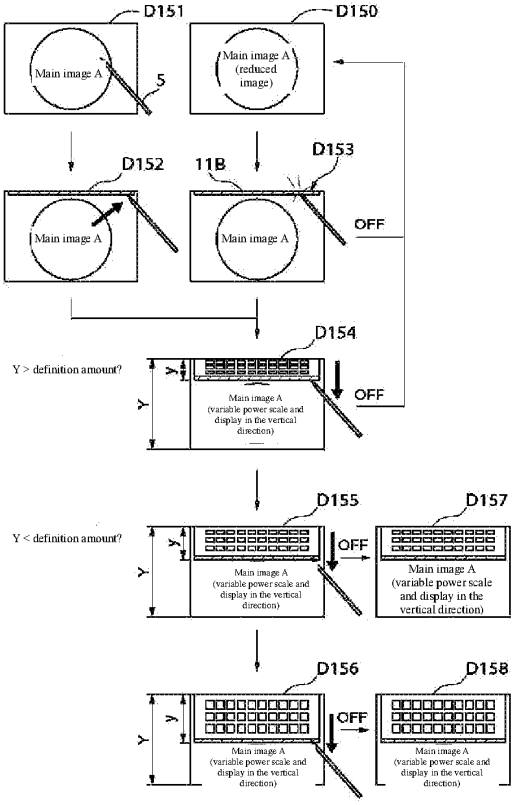
[FIG. 59]



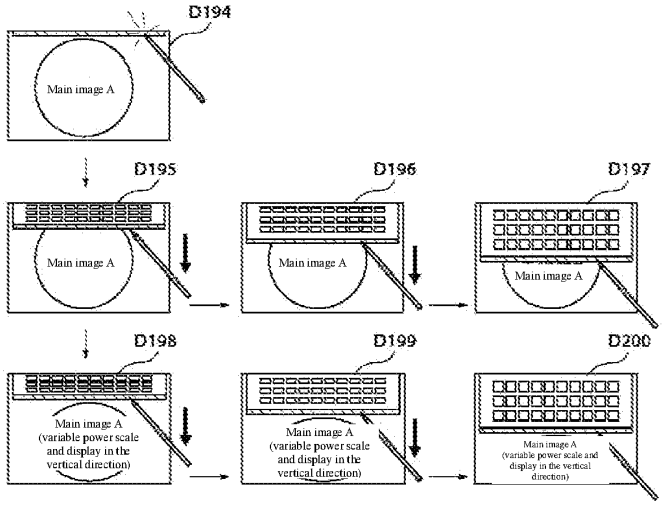
[FIG. 47]



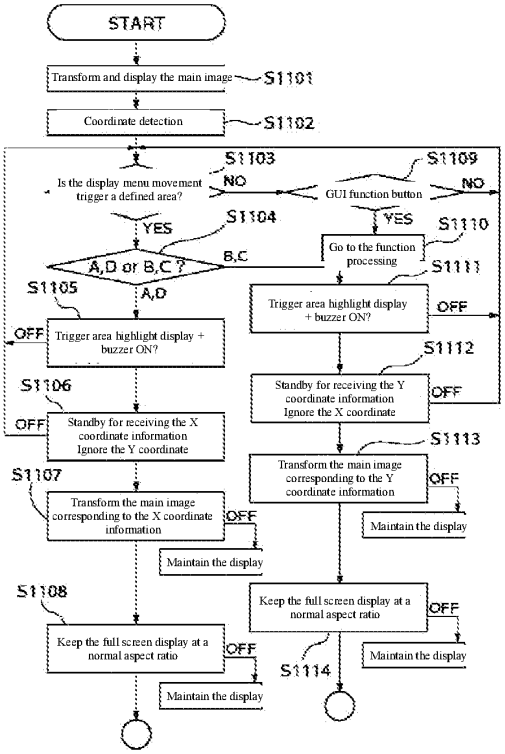
[FIG. 48]



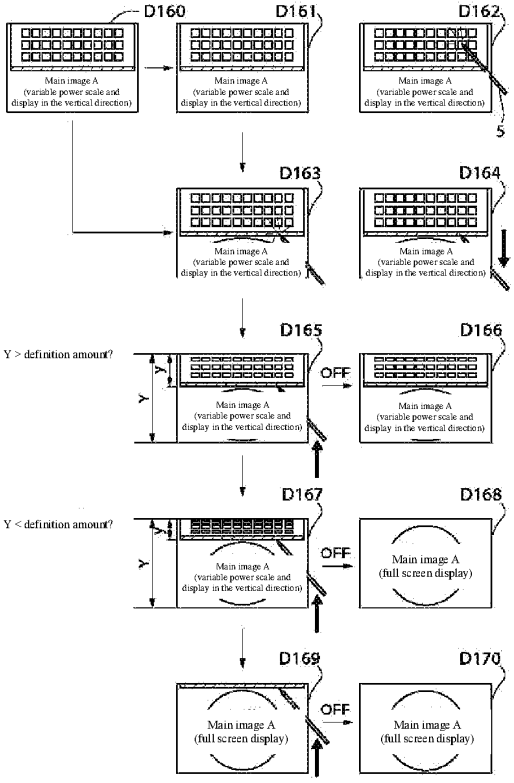
[FIG. 54]



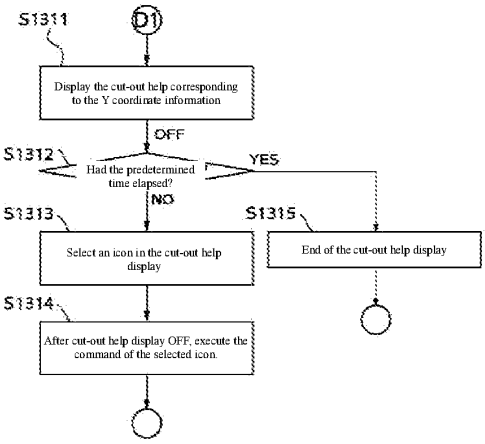
[FIG. 49]



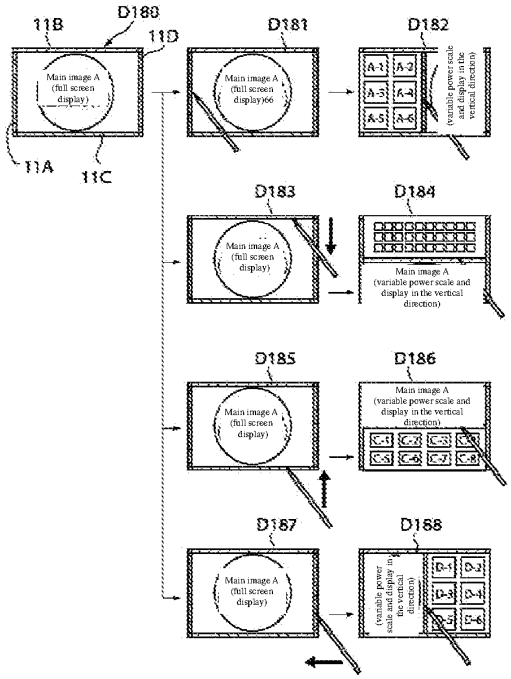
[FIG. 50]



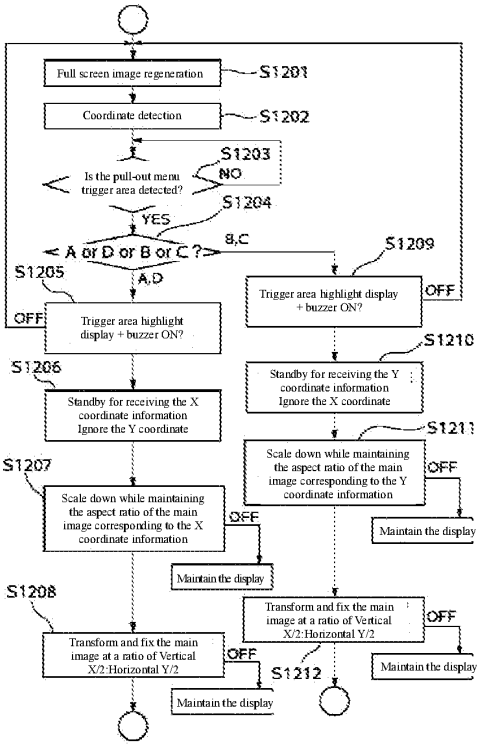
[FIG. 56]



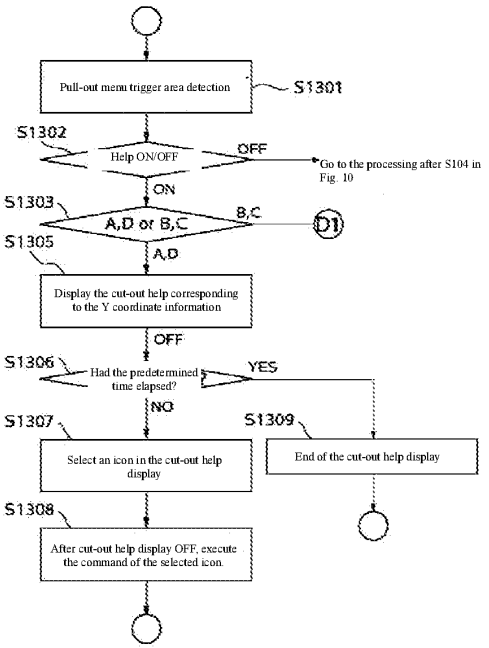
[FIG. 51]



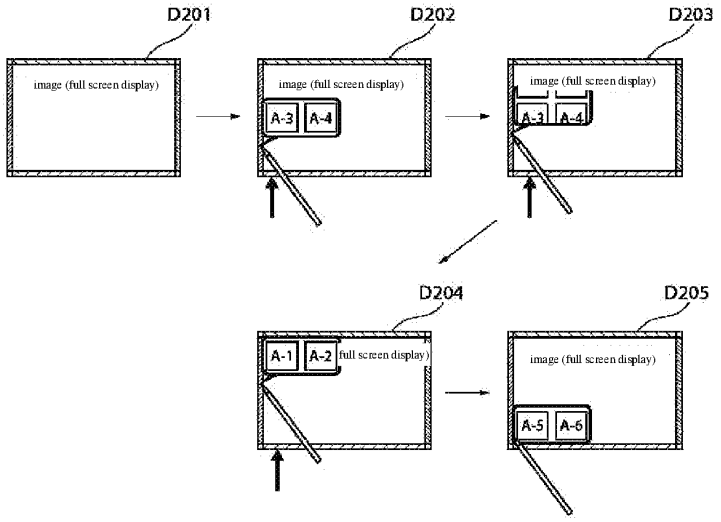
[FIG. 52]



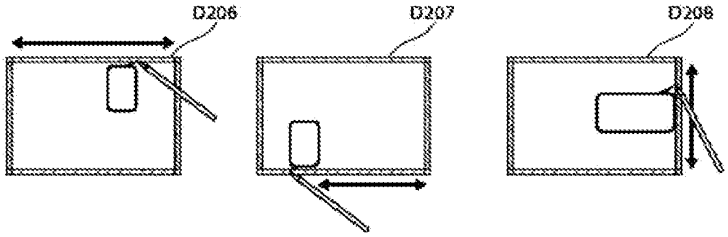
[FIG. 55]



[FIG. 57]



【図５８】



Continued from front page:

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	６５５		６５５Ｂ

審査請求　未請求　請求項の数24　ＯＬ　（全 37 頁）

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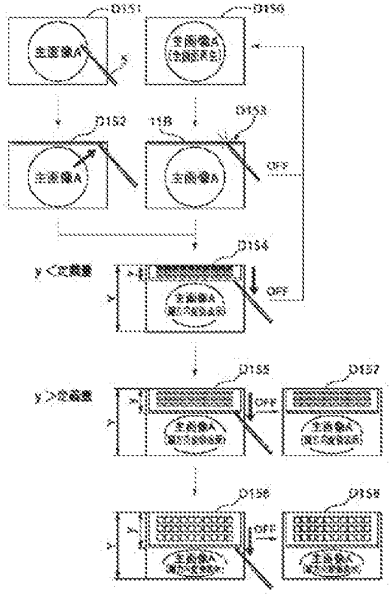
最終頁に続く

(54)【発明の名称】　情報処理装置、機能一覧表表示方法、及び記憶媒体

(57)【要約】
【課題】　小さな画像表示部にメニューと主画像と全同時に表示しても画像作業に支障をきたさないようにする。
【解決手段】　入力デバイス０５によって所定領域１１Ｂが座標指定され（Ｄ１５１）、引き続き、入力デバイス０５によって座標指定が継続されるとともに、該指定された座標が画像表示部のほぼ中央方向に変化したとき（Ｄ１５４～Ｄ１５６）、所定領域１１Ｂに対応するメニューを、前記指定座標の変化量に応じて画像表示部に表示する。同時に、前記メニューが表示される直前に画像表示部に表示されていた主画像Ａを、前記メニューの表示量に応じて変倍縮小して画像表示部に表示する（Ｄ１５４～Ｄ１５６）。



【特許請求の範囲】
【請求項１】　筐体を成す枠体で囲まれた画像表示部と、該画像表示部における画面上の座標位置を指定する座標指定手段とを備えた情報処理装置において、
前記枠体の近傍に設けられた前記画像表示部上の複数の所定領域と、
前記複数の所定領域にそれぞれ対応して設定された、各々が複数の機能項目を含む複数の機能一覧表と、
前記座標指定手段によって前記複数の所定領域のいずれかが座標指定され、引き続き、前記座標指定手段によって座標指定が継続されるとともに、該指定された座標が前記画像表示部のほぼ中央方向に変化したとき、前記座標指定された所定領域に対応する機能一覧表を、前記指定座標の変化量に応じて前記画像表示部に表示する機能一覧表表示手段と、
前記機能一覧表表示手段によって機能一覧表が表示される直前に前記画像表示部に表示されていた主画像を、前記機能一覧表表示手段によって表示された機能一覧表の表示量に応じて変倍縮小して前記画像表示部に表示する主画像表示手段とを有することを特徴とする情報処理装置。
【請求項２】　前記枠体は４角形を成し、
前記主画像表示手段は、前記画像表示部の画面において前記機能一覧表表示手段によって機能一覧表が表示された場合に残る表示領域の縦横比に合わせて、前記直前の主画像の形状を変倍縮小することを特徴とする請求項１記載の情報処理装置。
【請求項３】　前記主画像表示手段は、前記機能一覧表表示手段によって表示された機能一覧表が前記枠体の縦方向に引き出されて表示される場合には、前記直前の主画像の形状を前記縦方向に変倍縮小し、一方、前記機能一覧表表示手段によって表示された機能一覧表が前記枠体の横方向に引き出されて表示される場合には、前記直前の主画像の形状を前記横方向に変倍縮小することを特徴とする請求項２記載の情報処理装置。
【請求項４】　前記機能一覧表表示手段によって表示された機能一覧表を基にユーザーが機能の選択を行い、該選択された機能が実行されることにより、前記主画像表示手段によって表示された主画像に対して編集処理が行われることを特徴とする請求項１乃至請求項３のいずれかに記載の情報処理装置。
【請求項５】　前記座標指定手段は前記画像表示部の画面上に接触する接触子を含み、
前記複数の所定領域は、前記接触子が前記画像表示部の画面上を移動して前記枠体に当接したときに前記接触子が前記画像表示部の画面上で位置する領域を含むことを特徴とする請求項１乃至請求項４のいずれかに記載の情報処理装置。
【請求項６】　前記枠体は４角形を成し、
前記複数の所定領域は前記枠体の４辺近傍に位置することを特徴とする請求項５記載の情報処理装置。
【請求項７】　前記枠体は４角形を成し、
前記複数の所定領域は前記枠体の４角近傍に位置することを特徴とする請求項５または請求項６記載の情報処理装置。
【請求項８】　前記情報処理装置は携帯型情報処理端末であることを特徴とする請求項１乃至請求項７のいずれかに記載の情報処理装置。
【請求項９】　前記情報処理装置が備える複数の情報処理機能を表す複数の機能項目が、所定の分類基準に応じて予め分類されて複数のグループを形成し、各グループが前記複数の機能一覧表の各々に対応することを特徴とする請求項１乃至請求項８のいずれかに記載の情報処理装置。
【請求項１０】　前記分類基準は機能の使用頻度であることを特徴とする請求項９記載の情報処理装置。
【請求項１１】　前記機能一覧表表示手段は、前記指定座標の変化量から所定方向の変化量成分を抽出し、該抽出された変化量成分に応じた引き出し量だけ、前記座標指定された所定領域に対応する機能一覧表の画像を前記所定方向へ引き出して前記画像表示部に表示することを特徴とする請求項１乃至請求項１０のいずれかに記載の情報処理装置。
【請求項１２】　前記機能一覧表表示手段は、前記座標指定手段による座標指定が解除されたとき、前記抽出された変化量成分が所定値よりも大きいならば、前記引き出し量だけの前記機能一覧表の引き出し表示を維持することを特徴とする請求項１１記載の情報処理装置。
【請求項１３】　前記機能一覧表表示手段は、前記座標指定手段による座標指定が解除されたとき、前記抽出された変化量成分が前記所定値以下であれば、前記機能一覧表の引き出し表示を停止することを特徴とする請求項１１または請求項１２記載の情報処理装置。
【請求項１４】　前記機能一覧表表示手段は、前記座標指定された所定領域に対応する機能一覧表において該機能一覧表を構成する全部の機能項目を、前記指定座標の変化量に応じて縦横変倍縮小して前記画像表示部に表示することを特徴とする請求項１乃至請求項１３のいずれかに記載の情報処理装置。
【請求項１５】　前記機能一覧表表示手段は、前記座標指定された所定領域に対応する機能一覧表において該機能一覧表を構成する全部の機能項目を、前記指定座標のいずれの変化量においても前記画像表示部に縮小表示することを特徴とする請求項１乃至請求項１３のいずれかに記載の情報処理装置。
【請求項１６】　前記複数の機能一覧表の各々において、機能一覧表を構成する複数の機能項目に表示の優先度を予め設定し、
前記機能一覧表表示手段は、前記指定座標の変化量に応じて、前記機能一覧表における前記優先度の高い機能項

目を優先して前記画像表示部に表示することを特徴とする請求項１乃至請求項１３のいずれかに記載の情報処理装置。

【請求項１７】　段差を成す枠体で囲まれた画像表示部と、該画像表示部における画面上の座標位置を指定する座標指定手段と、前記枠体の近傍に設けられた前記画像表示部上の複数の所定領域と、前記複数の所定領域にそれぞれ対応して設定された、各々が複数の機能項目を含む複数の機能一覧表とを備えた情報処理装置に適用される機能一覧表表示方法において、

前記座標指定手段によって前記複数の所定領域のいずれかが座標指定され、引き続き、前記座標指定手段によって座標指定が継続されるとともに、該指定された座標が前記画像表示部のほぼ中央方向に変化したとき、前記座標指定された所定領域に対応する機能一覧表を、前記指定座標の変化量に応じて前記画像表示部に表示する機能一覧表表示ステップと、

前記機能一覧表表示ステップによって機能一覧表が表示される直前に前記画像表示部に表示されていた主画像を、前記機能一覧表表示ステップによって表示された機能一覧表の表示量に応じて変倍縮小して前記画像表示部に表示する主画像表示ステップとを有することを特徴とする機能一覧表表示方法。

【請求項１８】　前記枠体は４角形を成し、

前記主画像表示ステップは、前記画像表示部の画面において前記機能一覧表表示ステップによって機能一覧表が表示された場合に残る表示領域の縦横比に合わせて、前記直前の主画像の形状を変倍縮小することを特徴とする請求項１７記載の機能一覧表表示方法。

【請求項１９】　前記主画像表示ステップは、前記機能一覧表表示ステップによって表示された機能一覧表が前記枠体の縦方向に引き出されて表示される場合には、前記直前の主画像の形状を前記縦方向に変倍縮小し、一方、前記機能一覧表表示ステップによって表示された機能一覧表が前記枠体の横方向に引き出されて表示される場合には、前記直前の主画像の形状を前記横方向に変倍縮小することを特徴とする請求項１８記載の機能一覧表表示方法。

【請求項２０】　前記機能一覧表表示ステップによって表示された機能一覧表を基にユーザーが機能の選択を行い、該選択された機能が実行されることにより、前記主画像表示ステップによって表示された主画像に対して編集処理が行われることを特徴とする請求項１７乃至請求項１９のいずれかに記載の機能一覧表表示方法。

【請求項２１】　段差を成す枠体で囲まれた画像表示部と、該画像表示部における画面上の座標位置を指定する座標指定手段と、前記枠体の近傍に設けられた前記画像表示部上の複数の所定領域と、前記複数の所定領域にそれぞれ対応して設定された、各々が複数の機能項目を含む複数の機能一覧表とを備えた情報処理装置に適用される機能一覧表表示方法をプログラムとして記憶した、コンピュータにより読み出し可能な記憶媒体において、

前記機能一覧表表示方法が、

前記座標指定手段によって前記複数の所定領域のいずれかが座標指定され、引き続き、前記座標指定手段によって座標指定が継続されるとともに、該指定された座標が前記画像表示部のほぼ中央方向に変化したとき、前記座標指定された所定領域に対応する機能一覧表を、前記指定座標の変化量に応じて前記画像表示部に表示する機能一覧表表示ステップと、

前記機能一覧表表示ステップによって機能一覧表が表示される直前に前記画像表示部に表示されていた主画像を、前記機能一覧表表示ステップによって表示された機能一覧表の表示量に応じて変倍縮小して前記画像表示部に表示する主画像表示ステップとを有することを特徴とする記憶媒体。

【請求項２２】　前記枠体は４角形を成し、

前記主画像表示ステップは、前記画像表示部の画面において前記機能一覧表表示ステップによって機能一覧表が表示された場合に残る表示領域の縦横比に合わせて、前記直前の主画像の形状を変倍縮小することを特徴とする請求項２１記載の記憶媒体。

【請求項２３】　前記主画像表示ステップは、前記機能一覧表表示ステップによって表示された機能一覧表が前記枠体の縦方向に引き出されて表示される場合には、前記直前の主画像の形状を前記縦方向に変倍縮小し、一方、前記機能一覧表表示ステップによって表示された機能一覧表が前記枠体の横方向に引き出されて表示される場合には、前記直前の主画像の形状を前記横方向に変倍縮小することを特徴とする請求項２２記載の記憶媒体。

【請求項２４】　前記機能一覧表表示ステップによって表示された機能一覧表を基にユーザーが機能の選択を行い、該選択された機能が実行されることにより、前記主画像表示ステップによって表示された主画像に対して編集処理が行われることを特徴とする請求項２１乃至請求項２３のいずれかに記載の記憶媒体。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、情報処理装置，機能一覧表表示方法，及び記憶媒体に関し、特に、段差を成す枠体で囲まれた画像表示部と、該画像表示部における画面上の座標位置を指定する座標指定手段とを備えた情報処理装置，該情報処理装置に適用される機能一覧表表示方法，及び該機能一覧表表示方法を実行するプログラムを記憶した記憶媒体に関する。

【０００２】

【従来の技術】従来の手帳サイズの携帯型情報端末では、本体外装上のハードキーや液晶ディスプレイ上のタッチセンサー式のキーを操作して、携帯型情報端末で実行可能な機能を選択し、その機能を実行させるようにし

ている。

【０００３】また、大画面ディスプレイを搭載したパーソナルコンピュータ（以下「パソコン」とよぶ）では、ディスプレイの画面上に常に表示されたアイコンと呼ばれる、そのボタンの機能を象徴的に表すイラストを用いたボタンやソフトキーを、マウスカーソルやポインティングデバイスにより選択することにより、パソコンで実行可能な機能の一覧表（メニュー）を引き出し、その中から所望の機能を選択し、その機能を実行させるようにしている。こうして引き出された機能の一覧表をプルダウンメニューまたはプルアップメニューと呼んでいる。

【０００４】

【発明が解決しようとする課題】こうしたプルダウンメニューまたはプルアップメニューを、表示画面が狭い従来の携帯型情報端末において応用した場合、メニューが、本来表示されるべき主画像を覆ってしまう。このため、メニューをできるだけ小さく表示するとともに、メニューが主画像の一部を覆ってしまうことを容認する他ない。しかし、メニューを小さく表示すると見づらくなり、一方、メニューを大きく表示すると、主画像の多くの面積がメニューで覆われてしまうという不具合がある。この不具合は、メニューに含まれる機能項目数が多くなるにつれて増大する。

【０００５】ところで、メニューと主画像とを同時に表示して編集作業を行いたい場合があるが、こうした場合には、仮えメニューが主画像の全部を覆っていなくても、メニューが主画像の一部を隠しているだけで、隠れた部分に重要な情報が存在すれば、編集作業に支障をきたす。したがって、こうした場合には、主画像が一部でも覆われることは好ましくない。

【０００６】本発明はこのような問題点に鑑みてなされたものであって、小さな画像表示部にメニューと主画像とを同時に表示しても編集作業に支障をきたさないようにした情報処理装置、機能一覧表表示方法、及び記憶媒体を提供することを目的とする。

【０００７】

【課題を解決するための手段】上記目的を達成するために、請求項１記載の発明によれば、段差を成す枠体で囲まれた画像表示部と、該画像表示部における画面上の座標位置を指定する座標指定手段とを備えた情報処理装置において、前記枠体の近傍に設けられた前記画像表示部上の複数の所定領域と、前記複数の所定領域にそれぞれ対応して設定された、各々が複数の機能項目を含む複数の機能一覧表と、前記座標指定手段によって前記複数の所定領域のいずれかが座標指定され、引き続き、前記座標指定手段によって座標指定が継続されるとともに、該指定された座標が前記画像表示部のほぼ中央方向に変化したとき、前記座標指定された所定領域に対応する機能一覧表を、前記指定座標の変化量に応じて前記画像表示部に表示する機能一覧表表示手段と、前記機能一覧表表示手段によって機能一覧表が表示される直前に前記画像表示部に表示されていた主画像を、前記機能一覧表表示手段によって表示された機能一覧表の表示量に応じて変倍縮小して前記画像表示部に表示する主画像表示手段とを有することを特徴とする。

【０００８】また、請求項１７記載の発明によれば、段差を成す枠体で囲まれた画像表示部と、該画像表示部における画面上の座標位置を指定する座標指定手段と、前記枠体の近傍に設けられた前記画像表示部上の複数の所定領域と、前記複数の所定領域にそれぞれ対応して設定された、各々が複数の機能項目を含む複数の機能一覧表とを備えた情報処理装置に適用される機能一覧表表示方法において、前記座標指定手段によって前記複数の所定領域のいずれかが座標指定され、引き続き、前記座標指定手段によって座標指定が継続されるとともに、該指定された座標が前記画像表示部のほぼ中央方向に変化したとき、前記座標指定された所定領域に対応する機能一覧表を、前記指定座標の変化量に応じて前記画像表示部に表示する機能一覧表表示ステップと、前記機能一覧表表示ステップによって機能一覧表が表示される直前に前記画像表示部に表示されていた主画像を、前記機能一覧表表示ステップによって表示された機能一覧表の表示量に応じて変倍縮小して前記画像表示部に表示する主画像表示ステップとを有することを特徴とする。

【０００９】さらに、請求項２１記載の発明によれば、段差を成す枠体で囲まれた画像表示部と、該画像表示部における画面上の座標位置を指定する座標指定手段と、前記枠体の近傍に設けられた前記画像表示部上の複数の所定領域と、前記複数の所定領域にそれぞれ対応して設定された、各々が複数の機能項目を含む複数の機能一覧表とを備えた情報処理装置に適用される機能一覧表表示方法をプログラムとして記憶した、コンピュータにより読み出し可能な記憶媒体において、前記機能一覧表表示方法が、前記座標指定手段によって前記複数の所定領域のいずれかが座標指定され、引き続き、前記座標指定手段によって座標指定が継続されるとともに、該指定された座標が前記画像表示部のほぼ中央方向に変化したとき、前記座標指定された所定領域に対応する機能一覧表を、前記指定座標の変化量に応じて前記画像表示部に表示する機能一覧表表示ステップと、前記機能一覧表表示ステップによって機能一覧表が表示される直前に前記画像表示部に表示されていた主画像を、前記機能一覧表表示ステップによって表示された機能一覧表の表示量に応じて変倍縮小して前記画像表示部に表示する主画像表示ステップとを有することを特徴とする。

【００１０】

【発明の実施の形態】以下、本発明の実施の形態を、図面を参照して説明する。

【００１１】（第１の実施の形態）図１は、本発明に係る携帯型情報処理装置の第１の実施の形態の構成を示す

正面図であり、図２は、図１に示す携帯型情報処理装置の上面図であり、図３は、図１に示す携帯型情報処理装置の背面図であり、図４は、図３に示す携帯型情報処理装置におけるＡ－Ａ'横断面図である。

【００１２】携帯型情報処理装置０１は、フルカラー画像情報を高精細表示できる性能を備えた画像表示ディスプレイ０９を実装し、主にペン式の入力デバイス０５によって座標指示を受ける手帳サイズの携帯情報端末（ＰＤＡ）である。

【００１３】図１に示す正面側には、カメラ部０７と音データを収録するマイク０６とが配置されている。

【００１４】図２に示す上面側にはシャッタースイッチ０８が配置されている。シャッタースイッチ０８は２段階のスイッチで構成され、１段目のスイッチオンで撮影待機状態となり、画像表示ディスプレイ０９にファインダー画像情報が表示される。そして２段目のスイッチオンで撮影が行われ、画像を記録する。

【００１５】図３に示す背面側は、携帯型情報処理装置０１をユーザーが使用する際、主に操作が行われる側である。ペン式の入力デバイス０５により画像表示ディスプレイ０９上のタッチパネルセンサー１１がタッチされ、これによって座標が指示され、各種機能が選択される。１０はスピーカーである。

【００１６】図４の横断面図に示すように、タッチパネルセンサー１１は外装カバー部材０４に取り囲まれた構成となっており、入力デバイス０５をタッチパネルセンサー１１の上面に沿って移動させると外装カバー部材０４に突き当たるように、タッチパネルセンサー１１に対して外装カバー部材０４が段差となっている。

【００１７】図５はタッチパネルセンサー１１の構成を示す図である。

【００１８】タッチパネルセンサー１１には、イメージ表示用のエリア１１Ｂとメニュー表示トリガーエリア１１Ａ～１１Ｄとが設けられる。引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄは、タッチパネルセンサー１１が外装カバー部材０４に接する付近にそれぞれ位置する。これにより、入力デバイス０５をタッチパネルセンサー１１の上面に沿って移動させ、外装カバー部材０４に突き当たったとき、入力デバイス０５が引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに位置することになる。なお、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄの座標定義は、入力デバイス０５のペン先の形状などから決められ、入力デバイス０５が外装カバー部材０４に突き当てられた時にタッチパネルセンサー１１で検出される座標範囲に少し余裕幅を持たせて定義する。引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄの予め定義された各座標情報はＲＯＭ内に登録されており、入力デバイス０５による座標情報を検出した際、ＲＯＭ内に登録された座標情報と照合し、入力デバイス０５による座標情報が引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄ内に存在すると判定された場合に、後述する引き出しメニューの表示起動の待機状態となり、さらに入力デバイス０５がタッチパネルセンサー１１の中央へ向けてスクロールされたことが検出されると、引き出しメニューを表示することになる。

【００１９】図６は、画像表示ディスプレイ０９に表示される引き出しメニューを説明する図である。

【００２０】画像表示ディスプレイ０９に、携帯型情報処理装置０１の持つ多数の処理機能の名称をメニュー表示するために予め、それらの多数の処理機能を大きく４つのカテゴリーに分類し、Ａ～Ｄ分類メニューに割り当てる。そして、入力デバイス０５によって引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかが選択されたときに、Ａ～Ｄ分類メニューのうち対応のものを「引き出しメニュー」として、画像表示ディスプレイ０９に表示するようにする。

【００２１】引き出しメニュー内にレイアウトされる内容は、携帯型情報処理装置０１の仕様や商品コンセプトに応じて、アイコンやテキスト表示をベースとしたボタンの一覧だったり、アイコンと文字の併記等の例が想定される。

【００２２】Ａ～Ｄ分類メニューに収納される具体的な機能例として、Ａ分類メニューには、過去に撮影され保存されている画像の中から所望の画像を検索する検索機能をまとめ、Ｂ分類メニューには、画像に対して文字を付加する文字入力機能をまとめ、Ｃ分類メニューには、画像に対して特殊効果を付加する加工・編集機能をまとめる。なお、Ｂ分類メニューは引き出しメニューとして画像表示ディスプレイ０９に表示されたまま、各種機能処理が行われるので、Ｂ分類メニューが、図７を参照して後述するように画像表示ディスプレイ０９の上部に位置することで、画像に書き込みを行ったり、機能を選択する際に、入力デバイス０５や手が画像を隠すことが防止される。

【００２３】Ｄ分類メニューには、画像処理が行われた画像データの保存先を指定する機能、例えば保存・整理機能などをまとめる。

【００２４】図７は、Ｂ分類メニューが引き出しメニューとして表示された画像表示ディスプレイ０９の画面を示す図である。

【００２５】引き出しメニュー表示トリガーエリア１１Ｂを入力デバイス０５で座標指示したまま、画面中央へ向けて入力デバイス０５をスライドさせると、Ｂ分類メニューが引き出しメニュー１１ｂとして表示される。引き出しメニュー１１ｂには、各機能に対応するアイコンや文字による機能ボタンがレイアウトされる。

【００２６】以上のように、ユーザーは必要な機能に応じて、入力デバイス０５を用いて引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかを指定し、ス

クロールすることによって、必要な機能を含むメニューを表示することができる。ユーザー設引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄを繰り返し使っているうちに、各エリアの大分類カテゴリーを覚えることができる。

【００２７】なお、図７で示すアイコンやボタンの数は、画面の大きさによって設定されるものであり、図７に示す数に限定されるものではない。また、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄは、画像表示ディスプレイ０９に常時表示しておく設定と、通常は表示せずに、入力デバイス０５により画像表示ディスプレイ０９の所定エリアを指定した時のみ表示する設定とを使い分けるようにしてもよい。更に、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄは、互いにパターンを変えたり、色を変えたりして、互いに区別をつけるようにしてもよい。

【００２８】なお、以降の説明では、図５に示す通り、画像表示ディスプレイ０９の画面横方向をＸ軸、上下方向をＹ軸とし、引き出しメニューの引き出し量をそれぞれｘ，ｙとする。

【００２９】図８は、携帯型情報処理装置０１のシステム構成を示すブロック図である。

【００３０】前述のように、画像表示ディスプレイ０９の画面上のソフトボタンを入力デバイス０５により触れることによって、タッチパネルセンサー１１上の座標が検出され、検出された座標情報に従い、ＣＰＵ２１が、ＲＯＭ２５に格納されたオペレーションシステムに基づき各種機能を実行する。

【００３１】また、カメラ部０７のＣＣＤ２２から入力された画像やマイク０６から入力された音声情報を、シャッタースイッチ０８により フラッシュメモリー２４に記憶し、ＲＯＭ２５に格納されたプログラムの各種処理手順に従ってＲＡＭ２３に収納する。収納された情報は後に画像表示ディスプレイ０９やスピーカー１０で再生され、入力デバイス０５接触によるタッチパネルセンサー１１上の座標位置から指示するＧＵＩ操作による複数の検索手段を経て、必要とする画像や音声を任意に再生することが可能である。

【００３２】再生した画像情報に対して、ＲＡＭ２３を使って任意に画像を書き足したり、ワープロ機能により文字を追加したりするなど、多様な方法により画像情報を編集・加工する。

【００３３】図９は、携帯型情報処理装置０１における全体の動作手順の概要を示すフローチャートである。

【００３４】メイン電源が起動されると（Ｓ１１でＹＥＳ）、過去に撮影された写真が再生されて、アルバムのように一覧できる表示状態になる（Ｓ１２）。

【００３５】この状態において、ボタン（ハードキー）操作がある（Ｓ１３）、それが電源スイッチの操作であれば電源が切られる。それがシャッタースイッチ０８の１段目のスイッチＳＷ１の操作（半押し）であれば（Ｓ１４）、ファインダーへの画像表示を行い（Ｓ１５）、シャッタースイッチ０８の２段目のスイッチＳＷ２の操作（全押し）があれば（Ｓ１６）、撮影画像をフラッシュメモリー２４に格納する（Ｓ１７）。

【００３６】ステップＳ１５若しくはステップＳ１７の処理、または、ステップＳ１２の処理の後、入力デバイス０５によってＧＵＩ機能ボタンが選択操作された場合（Ｓ１８）、その選択された機能に応じて、検索（Ｓ１９）、文字入力（Ｓ２０）、加工・編集（Ｓ２１）、保存・整理（Ｓ２２）などを実行する。

【００３７】本発明は、各種ＧＵＩ機能ボタンを収納したメニューの表示に関する。

【００３８】図１０及び図１１は、引き出しメニューを表示する際の処理手順を示すフローチャートであり、図１２は、引き出しメニューを表示する処理過程における表示画面（特に、３分類メニューを選択して表示する場合の画面）を示す図である。以下、図１２を適宜参照しながら、図１０及び図１１に示すステップに沿って説明する。

【００３９】まず、引き出しメニューを表示する際の処理手順を概略説明すると、あらかじめタッチパネルセンサー１１上の引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄの定義座標をＲＯＭ２５に登録しておく。それらのエリアを入力デバイス０５によって接触されたことが検出された場合、検出座標データをＲＯＭ２５に登録された定義座標と照合して、操作対象となった引き出しメニュー表示トリガーエリアに対応する引き出しメニューが選択され、表示待機状態になる。画像表示ディスプレイ０９の中央部へ向けた入力デバイス０５のドラッグによって、検出座標が連続的に更新されると、それに伴って引き出しメニューがドラッグされた方向に引き出される。検出情報がＯＦＦ（タッチパネルセンサー１１に対する入力デバイス０５の接触がなくなり、座標が検出されなくなる）されると、引き出しメニューはドラッグされた位置で表示を継続する。ここで、「ＯＦＦ」とは、タッチパネルセンサー１１に対する入力デバイス０５の接触がなくなり、座標が検出されなくなることを指す。以下の説明においても「ＯＦＦ」を同じ意味において使用する。

【００４０】まず、ステップＳ１０１で、画像表示ディスプレイ０９の全画面を使って写真画像などを表示する。図１２の画面Ｄ１はこのときの画像表示ディスプレイ０９の画面を示す。次に、ステップＳ１０２で、入力デバイス０５によって接触されたタッチパネルセンサー１１上の位置座標を検出する。

【００４１】ステップＳ１０３で、ステップＳ１０２で検出された座標値が、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに含まれるか否かを判断する。含まれない場合、含まれるまで待機する。なお、

図１２の画面Ｄ３，Ｄ４のように，検出座標値が，引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄ以外のエリアに存在し，ＯＦＦされずに連続的に更新され，その後に引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに移動した場合，引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに到達する前の座標情報は無効扱いとなる。また，図１２の画面Ｄ２のように，検出座標値が，引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄの１つに含まれても，ＯＦＦされた場合はステップＳ１０１へ戻る。

【００４２】ステップＳ１０４では，検出座標値が引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに含まれるかを判断し，引き出しメニュー表示トリガーエリア１１Ａ，１１Ｄに含まれるならばステップＳ１０５へ，引き出しメニュー表示トリガーエリア１１Ｂ，１１Ｃに含まれるならばステップＳ１１２へ進む。

【００４３】ステップＳ１０５，Ｓ１１２では，選択された引き出しメニュー表示トリガーエリアをハイライト表示し，同時にキー受け付け音としてピピッなどの電子音を発生させ，選択されたことをユーザーに知らせる。なお，この間にＯＦＦされた場合はステップＳ１０１へ戻る。

【００４４】こうして，ユーザーは広い引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄ内を入力デバイス０５で大雑把に操作するだけで，目的のメニューを表示させることが可能となる。

【００４５】次に，例えば，入力デバイス０５が引き出しメニュー表示トリガーエリア１１Ｂに接触したまま，入力デバイス０５をタッチパネルセンサー１１に接したまま離さないで，画像表示ディスプレイ０９の中央部へ向けてスライドさせると，図１２の画面Ｄ５～Ｄ８のように，入力デバイス０５の動きに伴ってＢ分類メニューが引き出される。これを，図１０及び図１１のステップＳ１１３～Ｓ１１８に沿って以下に説明する。

【００４６】まず，ステップＳ１１３において，入力デバイス０５がメニュー表示トリガーエリア１１Ｂ，１１Ｃに接触することによって検出される座標値のＹ座標値だけを監視する。ここでは，引き出しメニュー表示トリガーエリア１１Ｂ，Ｃが選択されているので，Ｘ軸情報は無視され，Ｙ軸情報のみ，処理に反映される。ユーザーは入力デバイス０５を正確に垂直方向にドラッグすることを意識しなくても，大雑把に下方向へドラッグすることでその意図を反映させることができる。一般的に，利き手が左右のどちらかによってドラッグする方向が垂直方向から若干ずれるが，例えば，右利きユーザーの場合は垂直方向よりやや左寄り，つまり右上から左下へのベクトルでドラッグする。また，左利きはその逆で左上から右下へのベクトルでドラッグする。しかし，Ｙ軸情報の変化値のみ反映させる方法をとることによって，以上のような癖に影響されずにユーザーの意図を反映させることが可能となる。

【００４７】ステップＳ１１４では，入力デバイス０５によるＹ座標値に応じて引き出しメニューの表示量を更新する。なお，引き出しメニューの最も引き出し可能な最大引き出し量は，仕様に応じての定義を変えることはできるが，本実施の形態では，表示領域の中心位置までと定義する。

【００４８】なお，メニュー引き出し量ｙが所定の定義量に満たない間に，図１２の画面Ｄ５に示すようにＯＦＦになった場合は，メニュー引き出しの処理は途中でキャンセルされ，ステップＳ１０１に戻る（Ｓ１１５）。また，メニュー引き出し量ｙが所定の定義量を越えた後で，図１２の画面Ｄ６に示すようにＯＦＦになった場合は，その位置で引き出しメニューの引き出しは停止され，そのまま使用できる（Ｓ１１６）。さらに，メニュー引き出し量ｙが最大引き出し量を越えた場合，引き出しメニューの引き出しを停止し，最大引き出し量を維持し（Ｓ１１７），検出座標値を無視する（Ｓ１１８）。

【００４９】なお，上記実施の形態とは違い，図１２の画面Ｄ２，Ｄ５，Ｄ６のような処理経過における検出座標値の変化速度を検出し，変化速度が高速である場合は，図１２の画面Ｄ６の処理でＯＦＦされても，図１２の画面Ｄ８の処理に移らず，図１２の画面Ｄ９の処理に移るようにしてもよい。

【００５０】入力デバイス０５がメニュー表示トリガーエリア１１Ａ，１１Ｄを選択している場合，同様に，ステップＳ１０６において，入力デバイス０５がメニュー表示トリガーエリア１１Ａ，１１ｄに接触することによって検出される座標値のＸ座標値だけを監視する。ここでは，Ｙ軸情報は無視され，Ｘ軸情報のみ，処理に反映される。

【００５１】ステップＳ１０７では，入力デバイス０５によるＸ座標値に応じて引き出しメニューの表示量を更新する。

【００５２】なお，メニュー引き出し量ｘが所定の定義量に満たない間にＯＦＦになった場合は，メニュー引き出しの処理は途中でキャンセルされ，ステップＳ１０１に戻る（Ｓ１０８）。また，メニュー引き出し量ｘが所定の定義量を越えた後でＯＦＦになった場合は，その位置で引き出しメニューの引き出しは停止され，そのまま使用できる（Ｓ１０９）。さらに，メニュー引き出し量ｘが最大引き出し量を越えた場合，引き出しメニューの引き出しを停止し，最大引き出し量を維持し（Ｓ１１０），検出座標値を無視する（Ｓ１１１）。

【００５３】図１３及び図１４は，表示された引き出しメニューを閉じるための処理手順を示すフローチャートであり，図１５は，引き出しメニューを閉じる処理の過程における表示画面（特に，Ｂ分類メニューが選択されていた場合の画面）を示す図である。以下，図１５を適宜参照しながら，図１３及び図１４に示すステップに沿

って説明する。

【００５４】まず、図１５の画面Ｄ１１のように、引き出しメニューが最大引き出し量で表示されているとする（Ｓ２０１）。次に、ステップＳ２０２で、入力デバイス０５によって接触されたタッチパネルセンサー１１上の位置座標を検出する。

【００５５】ステップＳ２０３で、ステップＳ１０２で検出された座標値が、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに含まれるか否かを判断する。含まれない場合、図１５の画面Ｄ１３に示すように、入力デバイス０５によって引き出しメニュー内の特定機能ボタン（ＧＵＩ機能ボタン）が選択されたか否かを判断し（Ｓ２１０）、選択されていれば、その機能が処理される（Ｓ２１１）。選択されていなければ、ステップｓ２０３へ戻って、受け付け待機状態が持続される。なお、図１５の画面Ｄ１２，Ｄ１４に示すように、検出座標値のみ変化し、引き出しメニュー表示トリガーエリアに入った場合は、それまでの検出座標値は無視し、そこから待機状態になる。これは大雑把な操作でも確実にユーザーの意図を受け付ける為の方法である。

【００５６】ステップＳ２０３で、検出された座標値が引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに含まれると判定された場（図１５の画面Ｄ１４）、ステップＳ２０４で、検出座標値が引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに含まれるかを判断し、引き出しメニュー表示トリガーエリア１１Ａ，１１Ｄに含まれるならばステップＳ２０５へ、引き出しメニュー表示トリガーエリア１１Ｂ，１１Ｃに含まれるならばステップＳ２１２へ進む。

【００５７】ステップＳ２０５，Ｓ２１２では，選択された引き出しメニュー表示トリガーエリアをハイライト表示し、同時にキー受け付け音としてピピッなどの電子音を発生させ、選択されたことをユーザーに知らせる。なお、この間にＯＦＦされた場合はステップＳ２０３へ戻る。

【００５８】つぎに、入力デバイス０５がメニュー表示トリガーエリア１１Ｂ，１１Ｃを選択している場合、ステップＳ２１３において，入力デバイス０５がメニュー表示トリガーエリア１１Ｂ，１１Ｃに接触することによって検出される座標値のＹ座標値だけを監視する。Ｘ軸情報は無視し、Ｙ軸情報のみ、処理に反映する。なお、図１５の画面Ｄ１５に示すように、入力デバイス０５が下方向へドラッグされてメニュー引き出し量ｙが増加している場合は無視する。

【００５９】ステップＳ２１４では、入力デバイス０５によるＹ座標値に応じて引き出しメニューの表示量を更新する。

【００６０】なお、メニュー引き出し量ｙが所定の定義量を越えている間に、図１５の画面Ｄ１６に示すようにＯＦＦになった場合は、図１５の画面Ｄ１７に示すように、その表示状態が維持される（Ｓ２１５）。また、メニュー引き出し量ｙが所定の定義量よりも小さくなった後で、図１５の画面Ｄ１８に示すようにＯＦＦになった場合は、ユーザーが引き出しメニューの表示を消す意図をもっていると見なし、図１８の画面Ｄ１９に示すように、引き出しメニュー表示を止める（Ｓ２１６）。

【００６１】一方，ステップＳ２０４で，入力デバイス０５がメニュー表示トリガーエリア１１Ａ，１１Ｄを選択していると判断された場合，ステップＳ２０６において，入力デバイス０５が引き出しメニュー表示トリガーエリア１１Ａ，１１Ｄに接触することによって検出される座標値のＸ座標値だけを監視する。Ｙ軸情報は無視し、Ｘ軸情報のみ，処理に反映する。

【００６２】ステップＳ２０７では，入力デバイス０５によるＸ座標値に応じて引き出しメニューの表示量を更新する。

【００６３】なお，メニュー引き出し量ｘが所定の定義量を越えている間に、ＯＦＦになった場合は、その表示状態が維持される（Ｓ２０８）。また、メニュー引き出し量ｘが所定の定義量よりも小さくなった後で、ＯＦＦになった場合は、ユーザーが引き出しメニューの表示を消す意図をもっていると見なし、引き出しメニュー表示を止める（Ｓ２０９）。

【００６４】なお、上記実施の形態では，ユーザーが引き出しメニューをドラッグして引き出しメニューの表示を停止するようにしているが、これに代わって、それをクリックするのみで引き出しメニューの表示を停止できる閉じる機能を有したボタンを設けてもよい。

【００６５】さらに、引き出しメニューの表示を起動する場合と同様に、図１５の画面Ｄ１２，Ｄ１４，Ｄ１６のような処理経過における検出座標値の変化速度を検出し、変化速度が高速である場合は、図１５の画面Ｄ１６の処理でＯＦＦされても，図１５の画面Ｄ１７の処理に移らず，図１５の画面Ｄ１９の処理に移るようにしてもよい。

【００６６】図１６は、引き出しメニューの大きさを引き出し量に応じて決定する処理の手順を示すフローチャートである。また、図１７は、引き出し量に応じて表示されるＡ分類メニューの画面を示す図であり、図１８は、引き出し量に応じて表示されるＢ分類メニューの画面を示す図である。図１７及び図１８では、分かりやすくするために、画面上に引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄを示すが，必ずしも４つのエリアが表示されるものと限らない。以下、図１７及び図１８を適宜参照しながら、図１６に示すステップに沿って説明する。

【００６７】図１６においてステップＳ３０１，Ｓ３０２，Ｓ３０３，Ｓ３０７は、図１０に示すステップＳ１０３，Ｓ１０４，Ｓ１０６，Ｓ１１２とそれぞれ同一の内容となっているので，それらの説明を省略する。

【００６８】Ａ分類メニューが選択されている場合、ステップＳ３０４において、引き出しメニューの大きさを、最大引き出し量に対するＸ座標の位置（引き出し量ｘ）の比率で横方向に変倍縮小して表示する。図１７の画面Ｄ３４は最大引き出し量位置におけるＡ分類メニューを示し、例えば、図１７の画面Ｄ３３における引き出し量ｘが、図１７の画面Ｄ３４における最大引き出し量に対して３／４であるとした場合、図１７の画面Ｄ３３におけるＡ分類メニューは、Ｙ方向は図１７の画面Ｄ３４と同じだが、Ｘ方向では、図１７の画面Ｄ３４と比べ、３／４に縮小した画像として表示される。ボタンの表示領域もそれに伴って横方向に縮小され，また、Ａ分類メニューの中身の表示スタイルが，引き出し量ｘに応じてアイコンのみだったり、アイコンと文字の併記だったりと、変化する。

【００６９】引き出し量ｘが更新されれば，表示比率が更新され（Ｓ３０５），最大引き出し量位置に至る途中の位置で、入力デバイス０５をタッチパネルセンサー１１から離すとその位置で引き出しメニュー表示が保持される。そして、引き出し量ｘが最大引き出し量を越えると、引き出しメニュー表示が最大引き出し量位置で保持される（Ｓ３０６）。

【００７０】次に、Ｂ分類メニューが選択されている場合、ステップＳ３０８において，引き出しメニューの大きさを、最大引き出し量に対するＹ座標の位置（引き出し量ｙ）の比率で縦方向に変倍縮小して表示する。図１８の画面Ｄ３８は最大引き出し量位置におけるＢ分類メニューを示し、例えば，図１８の画面Ｄ３７における引き出し量ｙが、図１８の画面Ｄ３８における最大引き出し量に対して３／４であるとした場合、図１８の画面Ｄ３８におけるＢ分類メニューは、Ｘ方向は図１８の画面Ｄ３８と同じだが、Ｙ方向では、図１８の画面Ｄ３８と比べ、３／４に縮小した画像として表示される。ボタンの表示領域もそれに伴って縦方向に縮小される。

【００７１】引き出し量ｙが更新されれば，表示比率が更新され（Ｓ３０９），最大引き出し量位置に至る途中の位置で、入力デバイス０５をタッチパネルセンサー１１から離すとその位置で引き出しメニュー表示が保持される。そして、引き出し量ｙが最大引き出し量を越えると、引き出しメニュー表示が最大引き出し量位置で保持される（Ｓ３１０）。

【００７２】なお、以上においては、Ａ、Ｂ分類メニューを例にあげて説明したが、Ｃ、Ｄ分類メニューも同様の手順が適用される。またなお、引き出しメニュー表示を閉じる場合は、図１６に示す処理の逆向きに手順が進む。

【００７３】図１９は、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄと、引き出されるＡ～Ｄ分類メニューとの関係を説明する画像表示ディスプレイ０９の画面を示す図である。

【００７４】画像表示ディスプレイ０９の画面において、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのうちどれが入力デバイス０５によって選択されるかによって，引き出しメニューの引き出し方向、受け付ける座標情報、メニュー内レイアウトの変倍縮小される画像処理の方向が異なる。

【００７５】画面Ｄ４１は，Ａ分類メニューを引き出す際に選択する引き出しメニュー表示トリガーエリア１１Ａと、その引き出す方向とを示し、画面Ｄ４２はＡ分類メニューを最大引き出し量位置まで引き出し切った状態を示す。

【００７６】画面Ｄ４１は，Ａ分類メニューを引き出す際に選択する引き出しメニュー表示トリガーエリア１１Ａと、その引き出す方向とを示し、画面Ｄ４２はＡ分類メニューを最大引き出し量位置まで引き出し切った状態を示す。

【００７７】画面Ｄ４３は，Ｂ分類メニューを引き出す際に選択する引き出しメニュー表示トリガーエリア１１Ｂと、その引き出す方向とを示し，画面Ｄ４４はＢ分類メニューを最大引き出し量位置まで引き出し切った状態を示す。

【００７８】画面Ｄ４５は，Ｃ分類メニューを引き出す際に選択する引き出しメニュー表示トリガーエリア１１Ｃと、その引き出す方向とを示し，画面Ｄ４６はＣ分類メニューを最大引き出し量位置まで引き出し切った状態を示す。

【００７９】画面Ｄ４７は，Ｄ分類メニューを引き出す際に選択する引き出しメニュー表示トリガーエリア１１Ｄと、その引き出す方向とを示し，画面Ｄ４８はＤ分類メニューを最大引き出し量位置まで引き出し切った状態を示す。

【００８０】図１９に示す引き出しメニューは、説明上の一例であり，それぞれの機能の数や画像表示ディスプレイ０９の大きさに応じて、引き出しメニューの中のアイコンの数，大きさは異なる。

【００８１】（第２の実施の形態）次に第２の実施の形態を説明する。

【００８２】第２の実施形態の構成は、基本的に第１の実施形態の構成と同じであるので、第２の実施形態の説明においては、第１の実施形態の構成を流用する。

【００８３】第２の実施形態では、携帯型情報処理装置０１で行われる制御処理の内容が，第１の実施形態と異なっている。

【００８４】図２０は，第２の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。この表示処理では、機能の優先度に応じて段階表示が行われる。図２１は、画像表示ディスプレイ０９の画面上における範囲ａ，ｂ，ｃを示す図であり，図２２は，引き出し量に応じて表示されるＡ分類メニューの画面を示す図であり、図２３は、引き出し量に応じて表示

される B 分類メニューの画面を示す図であり、図２４は、引き出し量に応じて表示される C 分類メニューの画面を示す図である。以下、図２１～図２４を適宜参照しながら、図２０に示すフローチャートのステップに沿って説明する。

【００８５】まず概要を説明すると、一度に一覧できる引き出しメニュー内の項目数が多すぎると選択に迷ってしまい、使い勝手を悪くする場合がある。そのような場合を想定し、第２の実施形態では、一覧できる項目数を制限し、優先度の高いものから順に２段階や３段階に分けて機能項目を表示するようにする。すなわち、各引き出しメニュー内は、引き出しメニュー表示トリガーエリアに近い方から使用頻度の高い順に機能項目をレイアウトして表示する。これにより、一列目を引き出しただけで使用頻度の高い機能項目を選択することが可能になる。

【００８６】例えば、図２２において、画面Ｄ５２，Ｄ５３に示す項目Ａ－１，Ａ－２，Ａ－３は、最もよく使用される機能項目であり、画面Ｄ５３に示す項目Ａ－４，Ａ－５，Ａ－６は、項目Ａ－１，Ａ－２，Ａ－３に比べれば使用頻度の低い機能項目である。このように、引き出しメニューが、机の引き出しのように整理して使うことが可能となる。

【００８７】引き出しメニュー内に表示される最大項目数は、画面の大きさ、アイコンの機能によって異なる。例えば、Ａ，Ｃ分類メニューでは最大６項目を表示し、Ｂ分類メニューでは、縦３×横１０の３０項目を表示する。Ｂ分類メニューでは、色のパレット機能をレイアウトすることが想定できる。また、Ｂ分類メニューでは縦の数に応じて３段階の表示ステップをつける。

【００８８】図２０のフローチャートでは、Ａ分類メニューの表示を例に取り上げて示している。ステップＳ４０１，Ｓ４０２，Ｓ４０３は、図１０に示すステップＳ１０３，Ｓ１０４，Ｓ１０６とそれぞれ同一の内容となっているので、それらの説明を省略する。

【００８９】入力デバイス０５が移動していて検出Ｘ座標値が変化している場合、引き出しメニュー表示トリガーエリアの位置のみ更新し、検出Ｘ座標値がＯＦＦになったところで、ＯＦＦ直前の検出Ｘ座標値に対応して引き出しメニュー中のレイアウトを決定し表示する。

【００９０】まずステップＳ４０４で、検出Ｘ座標値が、図２１に示す範囲ａにおいてＯＦＦされた場合は、図２２の画面Ｄ５１を表示する。

【００９１】また、ステップＳ４０５で、検出Ｘ座標値が、図２１に示す範囲ｂにおいてＯＦＦされた場合は、図２２の画面Ｄ５２を表示する。

【００９２】また、ステップＳ４０６で、検出Ｘ座標値が、図２１に示す範囲ｃにおいてＯＦＦされた場合は、図２２の画面Ｄ５３を表示する。

【００９３】なお、入力デバイス０５が移動して範囲ａ，ｂ，ｃの各境界を越えたときには、ブザー音を発信させて、ユーザーにそれを通知する。

【００９４】なお、引き出しメニュー内にレイアウトされる機能項目の列数が増えるにつれて範囲ａ，ｂ，ｃの数も増え、細分化されるが、基本的な仕組みは同様である。引き出しメニューの表示を閉じる場合も、同様に段階的に閉じることができる。他のＢ，Ｃ，Ｄ分類メニューも同様な手順により表示される。

【００９５】（第３の実施の形態）次に第３の実施の形態を説明する。

【００９６】第３の実施形態の構成は、基本的に第１の実施形態の構成と同じであるので、第３の実施形態の説明においては、第１の実施形態の構成を流用する。

【００９７】第３の実施形態では、携帯型情報処理装置０１で行われる制御処理の内容が、第１の実施形態と異なっている。

【００９８】図２５は、第３の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。この表示処理では、最大引き出し量の拡張が行われる。図２６は、引き出し量に応じて画像表示ディスプレイ０９の画面上に表示されるＡ分類メニューの画面を示す図である。まず、図２６を参照して、第３の実施の形態の特徴を説明する。

【００９９】第３の実施形態では、引き出しメニューを画像表示ディスプレイ０９の全表示領域まで最大限に使って表示し、機能項目をより多く表示するようにする。

【０１００】前述した第１の実施形態では、引き出しメニューの最大表示量を画像表示ディスプレイ０９の中心の位置まで（半表示領域）と設定したが、その理由として画像表示ディスプレイ０９に本来表示されるべき画像をできるだけ隠さないようにする配慮があった。しかし、機能項目の性質によっては、必ずしも本来表示画像が表示されている必要はなく、むしろ引き出しメニュー内の機能項目の一覧性を高める方が求められる場合もある。

【０１０１】例えば、検索機能では、本来表示画像は必要でなく、この場合、図２６の画面Ｄ６５，Ｄ６９に示すように、画像表示ディスプレイ０９の全表示領域を引き出しメニューの表示に利用する。一方、画像編集機能では、本来表示画像は必要であり、この場合、本来表示画像と引き出しメニューとを同時に表示するようにする。この場合の引き出しメニューの最大表示量は、画像表示ディスプレイ０９の画面の１／２とする。

【０１０２】なお、本実施の形態では、上下のＢ，Ｃ分類メニューに、本来表示画像を見ながら機能を選択する頻度が高い機能項目を収納するので、Ｂ，Ｃ分類メニューは画像表示ディスプレイ０９の画面の半分まで引き出せるようにし、左右のＡ，Ｄ分類メニューは画像表示ディスプレイ０９の全表示領域まで引き出せるようにする。

【０１０３】引き出しメニューを画像表示ディスプレイ０９の全表示領域まで引き出せるようにする場合でも、図２５の画面Ｄ６２～Ｄ６５に示すように、引き出し量に関係なく、引き出しメニュー内に全部の機能項目を表示する方式と、図２６の画面Ｄ６６～Ｄ６９に示すように、引き出し量に応じて、引き出しメニュー内に表示する機能項目の数を段階的に変える方式とがあり得る。機能項目の性質によってどちらかの方式を選択して実装するようにしてもよいし、あるいはユーザーが両方の方式のいずれかを自由に選択できるようにしてもよい。

【０１０４】図２５のフローチャートでは、Ａ分類メニューの表示を例に取り上げて示している。ステップＳ５０１，Ｓ５０２，Ｓ５０３は、図１０に示すステップＳ１０３，Ｓ１０４，Ｓ１０６とそれぞれ同一の内容となっているので、それらの説明を省略する。

【０１０５】ステップＳ５０４では、入力デバイス０５の接触による検出Ｘ座標値に応じて，引き出しメニュー表示トリガーエリア１１Ａの表示位置を更新するとともに、それに伴った機能項目の表示を行う。このとき，入力デバイス０５がＯＦＦされると，その表示状態を維持する。

【０１０６】また，ステップＳ５０５は、入力デバイス０５が、ステップＳ５０４での移動方向と反対の方向に移動された場合の引き出しメニューの表示処理を示し、この場合でも，検出Ｘ座標値に応じて，引き出しメニュー表示トリガーエリア１１Ａの表示位置を更新するとともに、それに伴った機能項目の表示を行う。このとき、入力デバイス０５がＯＦＦされると，その表示状態を維持する。

【０１０７】そして、入力デバイス０５が、ステップＳ５０５での移動方向に更に移動して、検出Ｘ座標値ｘが所定の定数量よりも小さくなると、引き出しメニューの表示を停止する（Ｓ５０６）。

【０１０８】すなわち，第３の実施の形態では，最大引き出し量の定義を設けず、画像表示ディスプレイ０９の全表示領域を引き出しメニューの表示に使用できるようにする。

【０１０９】（第４の実施の形態）次に第４の実施の形態を説明する。

【０１１０】第４の実施形態の構成は，基本的に第１の実施形態の構成と同じであるので、第４の実施形態の説明においては，第１の実施形態の構成を流用する。

【０１１１】第４の実施形態では，携帯型情報処理装置０１で行われる制御処理の内容が、第１の実施形態と異なっている。

【０１１２】図２７は、第４の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。この表示処理では、引き出しメニューの数が４から８に増加される。図２８は、画像表示ディスプレイ０９の画面上に表示される増加引き出しメニューを示す図である。まず、図２８を参照して、第４の実施の形態の特徴を説明する。

【０１１３】第１の実施の形態では、画像表示ディスプレイ０９の４つの辺に引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄを設けているが、第４の実施の形態では、機能項目のカテゴリー分類数をさらに増やすべく、図２８の画面Ｄ７０に示すような画像表示ディスプレイ０９の４つの角をトリガーエリアａ，ｂ，ｃ，ｄとして利用する。

【０１１４】すなわち、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄを設けた画像表示ディスプレイ０９の４つの角位置をトリガーエリアａ，ｂ，ｃ，ｄとし、該エリアには，特殊な設定など使用頻度の少ない機能（例えば，詳細設定，ユーザー設定など）を割り当てる。

【０１１５】通常使用する機能項目を引き出すための引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄは、入力デバイス０５によって接触しやすいように、表示面積を大きくしているのに対して，トリガーエリアａ，ｂ，ｃ，ｄは，逆に誤操作等で簡単に表示されることがないように、表示面積を小さくしている。なお，画像表示ディスプレイ０９周囲の最差に入力デバイス０５が突き当たるので、トリガーエリアａ，ｂ，ｃ，ｄを意識して選択操作した場合には容易に選択できる。

【０１１６】図２７のフローチャートを参照して，トリガーエリアａを選択操作することによってａ分類詳細メニューが表示される処理を特に説明する。なお，ステップＳ６０１，Ｓ６０２，Ｓ６０３，Ｓ６０４，Ｓ６０５は、図１０に示すステップＳ１０１，Ｓ１０２，１０３，Ｓ１０４，Ｓ１０５とそれぞれ同一の内容となっているので、それらの説明を省略する。ただし、ステップＳ６０３～Ｓ６０５では、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄをトリガーエリアａ，ｂ，ｃ，ｄにそれぞれ読み変えるものとする。

【０１１７】ステップＳ６０６では，入力デバイス０５の接触による検出座標値に応じて斜めバー３０の表示位置を決めて表示する。すなわち、図２８の画面Ｄ７２に示すように、トリガーエリアａの位置を基点にして、Ｘ軸，Ｙ軸の検出座標値をｘ，ｙとしたとき、検出座標値ｘ，ｙのうち、絶対値の大きい方の値を検出し，この検出値に応じて，斜めバー３０の表示位置を決める。具体的には，基点から４５度の方向に延びた斜め線に沿って，基点から検出値に相当する距離だけ離れた位置に，上記斜め線に垂直な方向に延びた斜めバー３９を表示する。そして、入力デバイス０５がＯＦＦになった場合には、上記検出値が所定値以内であれば、図２８の画面Ｄ７０に戻り、上記検出値が所定値を越えていれば、図２８の画面Ｄ７３で示すように、そのままの表示状態を維持する。

【０１１８】また、ステップＳ６０７，Ｓ６０８では、

上記検出値が最大引き出し量を越えていれば、図２８の画面Ｄ７４で示すように、最大引き出し量位置で表示状態を維持する。そして、入力デバイス０５がＯＦＦになった場合でも、図２８の画面Ｄ７５で示すように、最大引き出し量位置で表示状態を維持する。

【０１１９】引き出し途中の表示処理は、第１の実施の形態における表示処理と同様である。

【０１２０】（第５の実施の形態）次に第５の実施の形態を説明する。

【０１２１】第５の実施形態の構成は、基本的に第１の実施形態の構成と同じであるので、第５の実施形態の説明においては、第１の実施形態の構成を流用する。

【０１２２】第５の実施形態では、携帯型情報処理装置０１で行われる制御処理の内容が、第４の実施形態と異なっている。

【０１２３】図２９は、第５の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。この表示処理でも、第４の実施形態と同様に、引き出しメニューの数が４から８に増加される。図３０は、画像表示ディスプレイ０９の画面上に表示される増加引き出しメニューを示す図である。以下、図３０を参照しながら、図２９に示すフローチャートのステップに沿って第５の実施の形態の特徴を説明する。

【０１２４】図２９のフローチャートにおいて、ステップＳ７０１、Ｓ７０２、Ｓ７０３、Ｓ７０４は、図２７に示すステップＳ６０１、Ｓ６０２，６０３、Ｓ６０４とそれぞれ同一の内容となっているので、それらの説明を省略する。ただし、ステップＳ７０３～Ｓ７０４では、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄをトリガーエリアａ，ｂ，ｃ，ｄにそれぞれ読み変えるものとする。なお、図２９のフローチャートでは、トリガーエリアａを選択操作することによってａ分類詳細メニューが表示される処理を特に説明する。

【０１２５】ステップＳ７０５では，入力デバイス０５の接触によってトリガーエリアａが座標検出されると，図３０の画面Ｄ８２に示すように、設定メニューを起動する起動ボタンがポップアップ表示され、この部分がハイライト表示されるとともに、ブザー音が発生する。なお、ここで入力デバイス０５がＯＦＦされれば、ステップＳ７０１へ戻る。

【０１２６】そのポップアップ表示の状態で，図３０の画面Ｄ８３に示すように，入力デバイス０５がやや右斜め上方向へスライドされ、起動ボタン領域内に逐し（Ｓ７０６），ＯＦＦされると、起動ボタンに関連するメニュー表示処理が実行処理され、図３０の画面Ｄ８４に示すような詳細設定メニューが表示される（Ｓ７０７）。

【０１２７】詳細設定メニューを閉じるには、図３０の画面Ｄ８４に示す「設定」文字付近を入力デバイス０５で座標指示した後、入力デバイス０５をトリガーエリアａ領域へ移動する。なお、図３０の画面Ｄ８４のどこかに、閉じるボタンをレイアウトするようにしてもよい。

【０１２８】なお、第５の実施の形態でも、最大４つのカテゴリーの基本メニューと，それ以外の詳細設定メニュー４つのカテゴリーとに分けることが可能であるが、この詳細メニューの表示は、使用頻度が少なく誤操作が起こりにくいことを前提とするので，詳細メニューの数を２つぐらいにとどめておいたほうが、使いやすさの点では望ましい。

【０１２９】図３１は、画像表示ディスプレイ０９の画面上に表示される増加引き出しメニューの他の表示例を示す図である。

【０１３０】さらに使いやすさを考慮すると、詳細メニューの数を２つにとどめた場合でも、その２つの詳細メニューをどの位置に表示するかという点において，ユーザーの利き手に応じて位置を変えられることが望ましい。すなわち，右利きにとって自然なストローク方向は左下→右上（図３１の画面Ｄ８７），左利きにとって自然なストローク方向は左上→右下（図３１の画面Ｄ８８）という原則に応じて表示位置が変えられることが必要であり、右利き用には，図３１の画面Ｄ８５のような表示位置を割り当て，左利き用には、図３１の画面Ｄ８６のような表示位置を割り当てる。

【０１３１】従来装置のように、画面上のソフトボタンを入力デバイスで単に選択する操作方法に比べ、選択した後に画面上をスライドさせてコマンドを処理させる操作を多用することにより、この利き手を考慮したメニューの表示が実現する。

【０１３２】（第６の実施の形態）次に第６の実施の形態を説明する。

【０１３３】第６の実施形態の構成は、基本的に第１の実施形態の構成と同じであるので、第６の実施形態の説明においては、第１の実施形態の構成を流用する。

【０１３４】第６の実施形態では、引き出しメニューを同時に複数、画像表示ディスプレイ０９に表示することができるようにする。すなわち、画像表示ディスプレイ０９の画面サイズが大きい場合に適用可能な方法であり、引き出しメニューを２つ、３つ、または４つ同時に表示することができるようにする。

【０１３５】まず、引き出しメニューを２つ同時に表示する場合、引き出す２つのメニューの位置関係に応じて，直角方向（隣接位置）の関係と平行方向（対面位置）の関係に区別され、それぞれ直角方向は４通り、平行方向は２通りの位置関係の表示パターンがある。さらに引き出す順番によっても表示方法が異なり，先に表示したメニューの表示方法は，後から引き出されるメニューの影響を受ける。

【０１３６】以下説明の都合上、最大引き出し量は画面の半分として説明するが、これに限定されるものではなく、また、前記各実施の形態で示したように、引き出し途中の任意の位置で引き出しメニューの表示を保持した

り、仕様によって任意大引き出し量を全画面まで拡張するようにしてもよい。

【０１３７】図３２は、第６の実施形態における２つ以上４つまでの引き出しメニューの同時表示の処理の手順を示すフローチャートである。

【０１３８】ステップＳ８０１で、Ａ～Ｄ分類メニューのうちのいづれか１つが表示される。

【０１３９】次に、Ａ～Ｄ分類メニューのうち、ステップＳ８０１で表示された引き出しメニューを除くいづれか１つが、入力デバイス０５によって選択された場合に、ステップＳ８０２で示すように、両引き出しメニューの間の位置関係によって、その後の処理が分かれる。すなわち、両引き出しメニューの間の位置関係が、平行方向（対面位置）の関係であるならばステップＳ８０３へ進み、直角方向（隣接位置）の関係であるならばステップＳ８０５へ進む。

【０１４０】後から表示された引き出しメニューが継続的に引き出された場合、ステップＳ８０３では、両引き出しメニューの間の距離を一定に保ちながら、最初に表示された引き出しメニューを同一軸の方向に変倍縮小表示する。そして、ステップＳ８０４では、後から表示された引き出しメニューのサイズが、画面の１／４になったところで固定される。

【０１４１】ステップＳ８０５では、後から表示された引き出しメニューが継続的に引き出された場合、最初に表示された引き出しメニューを、後から表示された引き出しメニューの引き出し方向へ変倍縮小表示する。そして、ステップＳ８０６では、後から表示された引き出しメニューのサイズが、画面の１／２になったところで固定される。

【０１４２】図３３及び図３４は、図３２に示す処理手順の具体的な手順を示すフローチャートである。また、図３５～図３８は、引き出し量に応じて画像表示ディスプレイ０９の画面上に同時に表示される２つの引き出しメニューを示す図であり、図３９～図４２は、引き出し量に応じて画像表示ディスプレイ０９の画面上に同時に表示される３つの引き出しメニューを示す図であり、図４３～図４６は、引き出し量に応じて画像表示ディスプレイ０９の画面上に表示される４つの引き出しメニューを示す図である。なお、図３５～図４６の各引き出しメニュー上に記載されている数字は引き出した順番を示す数字であり、画像表示されるものではない。以下、図３５～図４６を適宜参照しながら、図３３及び図３４に示したステップに沿って説明する。

【０１４３】まずステップＳ９０１で、最初にＡ分類メニューが引き出され表示されたとする。

【０１４４】次に、Ｂ～Ｄ分類メニューのうちのいづれか１つが入力デバイス０５によって選択された場合に（Ｓ９０２）、ステップＳ９０３で示すように、両引き出しメニューの間の位置関係によって、その後の処理が分かれる。

【０１４５】Ｄ分類メニュー（ツール）が選択されていれば、平行方向（対面位置）の関係にあるので、ステップＳ９０４へ進み、Ｄ分類メニュー（ツール）が継続的に引き出された場合、Ｄ分類メニュー（ツール）との間の距離を一定に保ちながら、Ａ分類メニュー（ツール）をＸ軸の方向に変倍縮小表示する。これを、図３７の画面Ｄ１０９～Ｄ１１１に示す。

【０１４６】次にステップＳ９０５で、３つの引き出しメニューとして、Ｂ、Ｃ分類メニューのうちのいづれか１つが入力デバイス０５によって選択された場合に、Ｂ分類メニュー（ツール）が選択されていれば、ステップＳ９０７に進んで、Ｙ軸方向の引き出し量に応じてＢ分類メニュー（ツール）を表示すると同時に、既に表示されているＡ分類メニュー（ツール）とＤ分類メニュー（ツール）とをＹ軸方向に、Ｂ分類メニュー（ツール）のＹ軸方向の引き出し量に応じて変倍縮小表示する。これを、図４１の画面Ｄ１２５～Ｄ１２７に示す。

【０１４７】また、ステップＳ９０５で、Ｃ分類メニューが入力デバイス０５によって選択された場合には、ステップＳ９０８に進んで、Ｙ軸方向の引き出し量に応じてＣ分類メニュー（ツール）を表示すると同時に、既に表示されているＡ分類メニュー（ツール）とＤ分類メニュー（ツール）とをＹ軸方向に、Ｃ分類メニュー（ツール）のＹ軸方向の引き出し量に応じて変倍縮小表示する。

【０１４８】次にステップＳ９０９で、４つ目の分類メニューが入力デバイス０５によって選択された場合に、それがＣ分類メニュー（ツール）であれば、ステップＳ９１０に進んで、Ｙ軸方向の引き出し量に応じてＣ分類メニュー（ツール）を表示する。これを、図４５の画面Ｄ１３８～Ｄ１４０に示す。

【０１４９】また、ステップＳ９０９で、４つ目の分類メニューが入力デバイス０５によって選択された場合に、それがＢ分類メニュー（ツール）であれば、ステップＳ９１１に進んで、Ｙ軸方向の引き出し量に応じてＢ分類メニュー（ツール）を表示する。

【０１５０】ステップＳ９０２に戻って、２つ目の引き出しメニューとして、Ｂ～Ｄ分類メニューのうちのいづれか１つが入力デバイス０５によって選択された場合に、Ｂ，Ｃ分類メニュー（ツール）が選択されていれば、Ａ分類メニュー（ツール）に対して直角方向（隣接位置）の関係にあるので、ステップＳ９１２，Ｓ９１３へ進む。

【０１５１】Ｂ分類メニュー（ツール）が選択されていれば、ステップＳ９１２において、Ｙ軸方向の引き出し量に応じてＢ分類メニュー（ツール）を表示すると同時に、既に表示されているＡ分類メニュー（ツール）をＹ軸方向に、Ｂ分類メニュー（ツール）のＹ軸方向の引き出し量に応じて変倍縮小表示する。これを、図３５の画

面Ｄ１０１～Ｄ１０３に示す。

【０１５２】また、Ｃ分類メニュー（ツール）が選択されていれば、ステップＳ９１３において、Ｙ軸方向の引き出し量に応じてＣ分類メニュー（ツール）を表示すると同時に、既に表示されているＡ分類メニュー（ツール）をＹ軸方向に、Ｃ分類メニュー（ツール）のＹ軸方向の引き出し量に応じて変倍縮小表示する。

【０１５３】次にステップＳ９１４で、３つの引き出しメニューが入力デバイス０５によって選択された場合に、ステップＳ９１５で示すように、２つ目の引き出しメニューとの間の位置関係によって、その後の処理が分かれる。

【０１５４】２つ目の引き出しメニューがＢ分類メニュー（ツール）であって、３つ目の引き出しメニューがＣ分類メニュー（ツール）である場合，または２つ目の引き出しメニューがＣ分類メニュー（ツール）であって、３つ目の引き出しメニューがＢ分類メニュー（ツール）である場合、平行方向（対面位置）の関係にあるので、ステップＳ９１６へ進み，ＣまたはＢ分類メニュー（ツール）が継続的に引き出された場合、Ｙ軸方向の引き出し量に応じてＣまたはＢ分類メニュー（ツール）を表示すると同時に、既に表示されているＢまたはＣ分類メニュー（ツール）をＹ軸方向に、ＣまたはＢ分類メニュー（ツール）のＹ軸方向の引き出し量に応じて変倍縮小表示する。そして、Ａ分類メニュー（ツール）は位置を移動するだけで変倍縮小は行わない。これを、図３９の画面Ｄ１１７～Ｄ１１９に示す。

【０１５５】一方、３つ目の引き出しメニューがＤ分類メニュー（ツール）である場合、２つ目の引き出しメニューに対して直角方向（隣接位置）の関係にあるので、ステップＳ９１７へ進み、Ｄ分類メニュー（ツール）が継続的に引き出された場合、Ｘ軸方向の引き出し量に応じてＤ分類メニュー（ツール）を表示すると同時に、既に表示されているＢまたはＣ分類メニュー（ツール）をＹ軸の方向に変倍縮小表示する。そして、Ａ分類メニュー（ツール）を、Ｄ分類メニュー（ツール）の引き出し量に応じて、Ｄ分類メニュー（ツール）との間の距離を一定に維持したまま、変倍縮小表示する。Ｘ軸方向の引き出し量に応じて位置を移動するだけで変倍縮小は行わない。これを、図４０の画面Ｄ１２１～Ｄ１２３に示す。

【０１５６】次にステップＳ９１８で，４つ目の分類メニューが入力デバイス０５によって選択された場合に、それがＤ分類メニュー（ツール）であれば、ステップＳ９１９に進んで、Ｘ軸方向の引き出し量に応じてＤ分類メニュー（ツール）を表示する。

【０１５７】また、ステップＳ９１８で、４つ目の分類メニューが入力デバイス０５によって選択された場合に、それがＢ分類メニュー（ツール）であれば、ステップＳ９２０に進んで、Ｙ軸方向の引き出し量に応じてＢ分類メニュー（ツール）を表示する。

【０１５８】図３５と図３６とは，２つの引き出しメニューの関係が直角方向（隣接位置）の関係にある場合である。図３５の画面Ｄ１００～Ｄ１０３に示す２つの引き出しメニューと、図３６の画面Ｄ１０４～Ｄ１０７に示す２つの引き出しメニューとは，個々の２つの引き出しメニューの位置関係は同じであっても，引き出す順番によって，表示される方法が異なっている。後から引き出したメニューの表示に優先権があり、後から引き出したメニューはそのメニュー内を通常どおり表示し，それに伴い、最初に引き出したメニューの表示は，その影響を受ける。すなわち、図３５の画面Ｄ１０１に示すように、すでにＡ分類メニューが引き出されている状態で、画面Ｄ１０２に示すように、直角の位置関係にあるＢ分類メニューを引き出す場合は、Ａ分類メニューのＹ軸方向が、Ｂ分類メニューが引き出される量に応じて変倍縮小表示され、画面Ｄ１０３に示すように、Ｂ分類メニューは、最大引き出し量（画面の半分）の位置で固定される。

【０１５９】Ａ分類メニュー内の表示内容は、単純に形状だけが縮小されるか、表示内容自体を変えるようにしてもよい。例えば、画面Ｄ１０１では，Ａ分類メニュー内にアイコンと文字とを併記表示し、画面Ｄ１０３では，Ａ分類メニュー内にアイコンのみを表示するいったように，表示面積に応じて情報の種類を変化させるようにしてもよい。

【０１６０】また図３６において，画面Ｄ１０４に示すように、すでにＢ分類メニューが引き出されている状態で、直角の位置関係にあるＡ分類メニューを引き出す場合は，画面Ｄ１０６に示すように、Ｂ分類メニューを、Ａ分類メニューのＸ軸方向の引き出し量に応じて縮小表示し，画面Ｄ１０７に示すように、Ａ分類メニューの引き出しを最大引き出し量（画面の半分）の位置で固定する。

【０１６１】図３７及び図３８は、２つの引き出しメニューの関係が平行方向（対面位置）の関係にある場合を示す。

【０１６２】図３７の画面Ｄ１０８に示すように、Ａ分類メニューが表示されている状態で、平行位置関係にあるＤ類メニューが引き出されようとしたら，画面Ｄ１１０，Ｄ１１１に示すように，Ｄ分類メニューの引き出し量に応じて、両引き出しメニューの間の距離を一定に保ったまま、Ａ分類メニューが変倍縮小される。これにより、本来表示されるべき画像の表示エリアが常に一定量確保され、引き出しメニューと本来表示画像とが同時に常時表示されることになる。

【０１６３】図３８は、２つの引き出しメニューが上下位置にある場合であり，図３７の場合と同様に処理される。

【０１６４】図３９及び図４０は、２つ目の引き出しメ

ニュー が１つ目の引き出しメニューに対して直角方向（隣接位置）の関係にある場合において、３つの引き出しメニューを同時に表示する場合を示す。図３９は、３つ目の引き出しメニューが２つ目の引き出しメニューに対して平行方向（対面位置）の関係にある場合を示し、図４０は、３つ目の引き出しメニューが２つ目の引き出しメニューに対して直角方向（隣接位置）の関係にある場合を示す。

【０１６５】図３９では画面Ｄ１１７～Ｄ１１９に示すように、Ａ分類メニューはＹ軸方向に縮小表示された状態になっているので、その状態を維持したまま、Ｃ分類メニューを引き出すと同時に、Ｂ分類メニューを縮小表示する。Ｂ分類メニューとＣ分類メニューとの間の距離は一定値を常時維持する。

【０１６６】図４０では画面Ｄ１３１～Ｄ１３３に示すように、Ｄ分類メニューを引き出すと同時に、Ａ分類メニュー及びＢ分類メニューをＸ軸方向に縮小表示する。Ｄ分類メニューとＡ分類メニューとの間のＸ軸方向の距離は一定値を常時維持する。

【０１６７】図４１及び図４２は、２つ目の引き出しメニューが１つ目の引き出しメニューに対して平行方向（対面位置）の関係にある場合において、３つの引き出しメニューを同時に表示する場合を示す。図４１は、３つ目の引き出しメニューがＢ分類メニューである場合を示し、図４０は、３つ目の引き出しメニューがＡ分類メニューである場合を示す。

【０１６８】図４１では画面Ｄ１２５～Ｄ１２７に示すように、Ｂ分類メニューの引き出しに伴い、すでに表示されているＡ分類メニュー、Ｄ分類メニューの両方が同時にＹ軸方向へ向かって縮小表示される。

【０１６９】図４２では画面Ｄ１２９～Ｄ１３１に示すように、Ａ分類メニューの引き出しに伴い、すでに表示されているＢ分類メニュー、Ｃ分類メニューの両方が同時にＸ軸方向へ向かって縮小表示される。

【０１７０】図４３～図４６は、４つの引き出しメニューを同時に表示する場合を示す。

【０１７１】図４３は、図３９の画面Ｄ１１９に示す状態の続きとして残りのＤ分類メニューを引き出した場合を示す。

【０１７２】図４４は、図４０の画面Ｄ１２３に示す状態の続きとして残りのＣ分類メニューを引き出した場合を示す。

【０１７３】図４５は、図４１の画面Ｄ１２７に示す状態の続きとして残りのＣ分類メニューを引き出した場合を示す。

【０１７４】図４６は、図４２の画面Ｄ１３１に示す状態の続きとして残りのＤ分類メニューを引き出した場合を示す。

【０１７５】なお、どの引き出しメニューの表示においても、いずれかの引き出しメニューを閉じたい場合は、引き出した順番にとらわれず、対応する引き出しメニュー内の座標を入力デバイス０５で選択し、そのままもとのメニューの引き出し前の位置方向へドラッグする。

【０１７６】（第７の実施の形態）次に第７の実施の形態を説明する。

【０１７７】第７の実施形態の構成は、基本的に第１の実施形態の構成と同じであるので、第７の実施形態の説明においては、第１の実施形態の構成を流用する。

【０１７８】第７の実施形態では、引き出しメニューの引き出し量に応じて、本来表示されるべき主画像の形状の変形が行われる。

【０１７９】図４７は、第７の実施形態における引き出しメニューの表示と、引き出しメニューの表示に伴う主画像の形状の変形とに関わる処理手順を示すフローチャートである。図４８は、引き出しメニューを表示する処理過程において画像表示ディスプレイ０９に表示される画面を示す図である。図４８では主にＢ分類メニューを表示する場合を例にとっている。以下、図４８を適宜参照しながら、図４７に示すステップに沿って説明する。

【０１８０】図４８に示す主画像Ａは、例えば写真画像であったり、文章だったり、写真と文章とが混在したものであったりする。内蔵メモリーにすでに格納されていた再生画像だったり、撮影待機状態でカメラ部のＣＣＤがとらえたファインダー画像の場合も想定される。

【０１８１】図４７のフローチャートでは、ステップＳ１００１、Ｓ１００２、Ｓ１００３、Ｓ１００４、Ｓ１００５、Ｓ１００６、Ｓ１００９、Ｓ１０１０は、図１０に示すステップＳ１０１、Ｓ１０２、Ｓ１０３、Ｓ１０４、Ｓ１０５、Ｓ１０６、Ｓ１１２、Ｓ１１３とそれぞれ同一の内容となっているので、それらの説明を省略する。

【０１８２】引き出しメニュー表示トリガーエリア１１Ｂが選択され、その後連続的にＹ軸座標の検出値（引き出し量）ｙが変更されると、ステップＳ１０１１において、引き出し量ｙに応じてＢ分類メニューを表示するとともに、Ｙ軸方向の全画面サイズＹに対する量（Ｙ－ｙ）の比率で、主画像ＡをＹ軸方向に変倍縮小して表示する（図４８の画面Ｄ１５４、Ｄ１５５）。なお、この間に入力デバイス０５がＯＦＦされると、引き出し量ｙが所定の定義量よりも小さいならば、図４８の画面Ｄ１５４の状態から画面Ｄ１５０の状態へ戻り、引き出し量ｙが所定の定義量よりも大きいならば、図４８の画面Ｄ１５５の状態を維持する（図４８の画面Ｄ１５７）。

【０１８３】そして、引き出し量ｙが更に増加した場合、ステップＳ１０１２において、Ｂ分類メニューが最大引き出し量（Ｙ軸方向の画面サイズの半分）で固定され、また、主画像ＡもＹ軸方向に１／２に変倍縮小された大きさで保持される（図４８の画面Ｄ１５６）。なお、この場合に入力デバイス０５がＯＦＦされると、図４８の画面Ｄ１５６の状態を維持する（図４８の画面Ｄ

１５８）。

【０１８４】以上の説明は，Ｂ分類メニューを表示することを例にとっているが，Ｃ分類メニューを表示する場合も同様である。

【０１８５】次に，引き出しメニュー表示トリガーエリアＩＩＡ，Ｄが選択され，その後連続的にＸ軸座標の検出値（引き出し量）ｘが変更されると，ステップＳ１００７において，引き出し量ｘに応じてＡ，Ｄ分類メニューを表示するとともに，Ｘ軸方向の全画面サイズＸに対する値（Ｘ－ｘ）の比率で，主画像ＡをＸ軸方向に変倍縮小して表示する。なお，この間に入力デバイス０５がＯＦＦされると，引き出し量ｘが所定の定義量よりも小さいならば，主画像Ａだけを表示する画面の状態へ戻り，引き出し量ｙが所定の定義量よりも大きいならば，そのときの画面の状態を維持する。

【０１８６】そして，引き出し量ｘが更に増加した場合，ステップＳ１００８において，Ａ，Ｄ分類メニューが最大引き出し量（Ｘ軸方向の画面サイズの半分）で固定され，また，主画像ＡもＸ軸方向に１／２に変倍縮小された大きさで保持される。なお，この場合に入力デバイス０５がＯＦＦされると，そのときの画面の状態を維持する。

【０１８７】図４９は，表示された引き出しメニューを閉じるための処理手順を示すフローチャートであり，図５０は，引き出しメニューを閉じる処理の過程における表示画面（特に，Ｂ分類メニューが選択されていた場合の画面）を示す図である。以下，図５０を適宜参照しながら，図４９に示すステップに沿って説明する。

【０１８８】まずステップＳ１１０１で，図５０の画面Ｄ１６０に示すように，引き出しメニューが表示され，表示された引き出しメニューの引き出し量に応じて主画像Ａが変形されているとする。この状態で入力デバイス０５が画像表示ディスプレイ０９のタッチパネルセンサー１１に接触すると，その座標値が検出される（Ｓ１１０２）。検出された座標値が引き出しメニュー表示トリガーエリア内の値になっているか否かを判断し（Ｓ１１０３），引き出しメニュー表示トリガーエリア内の値になっていれば，ステップＳ１１０４へ進み，なっていなければステップＳ１１０９へ進む。なお，ステップＳ１１０３で肯定（ＹＥＳ）の判断になる際に，図５０の画面Ｄ１６０の状態から直接，画面Ｄ１６３の状態になる場合と，図５０の画面Ｄ１６１の状態から，入力入力デバイス０５を画像表示ディスプレイ０９のタッチパネルセンサー１１から離さずにそのままスライドさせて，画面Ｄ１６２の状態になる場合とがある。

【０１８９】ステップＳ１１０９では，図５０の画面Ｄ１６２に示すように，引き出しメニュー内の機能ボタンのいずれかが入力デバイス０５によって選択されると（Ｓ１１０９），そのボタンに対応する機能が実行され（Ｓ１１１０），その処理結果が主画像Ａに反映される。なお，この状態で，図５０の画面Ｄ１６４に示すように入力デバイス０５０４が矢印方向にスライドされた場合，それは無視される。また，この状態で入力デバイス０５がＯＦＦされれば，ステップＳ１１０３へ戻る。

【０１９０】ステップＳ１１０４では，検出座標値が引き出しメニュー表示トリガーエリアＩＩＡ～ＩＩＤのいずれに含まれるかを判断する。引き出しメニュー表示トリガーエリアＩＩＡ，Ｄに含まれるならば，ステップＳ１１０５へ、引き出しメニュー表示トリガーエリアＩＩＢ，Ｃに含まれるならば，ステップＳ１１１１へ進む。

【０１９１】ステップＳ１１１１では，選択された引き出しメニュー表示トリガーエリアがハイライト表示され，同時にブザー発音して，選択されたことを示す。また，この状態で，入力デバイス０５がＯＦＦされると，ステップＳ１１０３へ戻る。そして，ステップＳ１１１２で，検出座標値のうち，Ｙ座標値だけを監視し，Ｘ座標値を無視する。ここでも，入力デバイス０５がＯＦＦされると，ステップＳ１１０３へ戻る。

【０１９２】次にステップＳ１１１３で，引き出し量ｙに応じて引き出しメニューを表示するとともに，Ｙ軸方向の全画面サイズＹに対する値（Ｙ－ｙ）の比率で，主画像ＡをＹ軸方向に変倍縮小して表示する（図５０の画面Ｄ１６５，Ｄ１６７）。なお，この間に入力デバイス０５がＯＦＦされると，引き出し量ｙが所定の定義量よりも大きいならば，図５０の画面Ｄ１６５の状態を維持し（図５０の画面Ｄ１６６），引き出し量ｙが所定の定義量よりも小さいならば，図５０の画面Ｄ１６７の状態から主画像Ａを全画面表示する画面Ｄ１６８の状態へ移る。

【０１９３】さらに、引き出し量ｙが減少して、図５０の画面Ｄ１６９の状態になると，主画像Ａを全画面表示する画面Ｄ１７０の状態へ移る（Ｓ１１１４）。勿論，入力デバイス０５がＯＦＦされても，画面Ｄ１７０の状態へ移る。

【０１９４】一方、ステップＳ１１０４で、検出座標値が引き出しメニュー表示トリガーエリアＩＩＡ，Ｄに含まれると判断されたならば，ステップＳ１１０５で，選択された引き出しメニュー表示トリガーエリアがハイライト表示され，同時にブザー発音して，選択されたことを示す。また，この状態で，入力デバイス０５がＯＦＦされると，ステップＳ１１０３へ戻る。そして，ステップＳ１１０６で、検出座標値のうち、Ｘ座標値だけを監視し，Ｙ座標値を無視する。ここでも，入力デバイス０５がＯＦＦされると，ステップＳ１１０３へ戻る。

【０１９５】次にステップＳ１１０７で，引き出し量ｘに応じて引き出しメニューを表示するとともに，Ｘ軸方向の全画面サイズＸに対する値（Ｘ－ｘ）の比率で，主画像ＡをＸ軸方向に変倍縮小して表示する。なお，この間に入力デバイス０５がＯＦＦされると，引き出し量ｘが所定の定義量よりも大きいならば，その表示状態を維

持し、引き出し量xが所定の定義量よりも小さいならば、主画像Aを全画面表示する画面の状態へ移る。

【０１９６】さらに、引き出し量xが減少して０になると、主画像Aを全画面表示する画面の状態へ移る（Ｓ１１０８）。勿論、入力デバイス０５がＯＦＦされても、主画像Aを全画面表示する画面の状態へ移る。

【０１９７】なお、４つのうち、どの引き出しメニューを引き出すかによって、画像Aの変形縮小表示の方法が異なる。これを図５１を参照して説明する。

【０１９８】図５１は、引き出しメニューの格納位置と主画像Aとの関係を説明するための、画像表示ディスプレイ０９の画面を示す図である。

【０１９９】例えば、引き出しメニュー表示トリガーエリア１１Ｂを入力デバイス０５で選択してＢ分類メニューを引き出した図５１の画面Ｄ１８４では、入力デバイス０５で主画像Aに書き込む文字の色の一覧を、Ｂ分類メニューに色のパレットのようにレイアウトしている。この画面Ｄ１８４の状態では、引き出しメニューを引き出したまま、色を選択して主画像Aに文字の書き込みができ、また途中で色を変更しながらそのまま書き込みが続けられる。この場合、引き出しメニューを閉じると、文字は書かれたときの比率で主画像Aの上に表示するようにしてもよいし、また、主画像Aが元の比率に戻るのとあわせて、文字も同じ比率で縦方向に変倍するようにしてもよい。

【０２００】さらに、画面Ｄ１８２，Ｄ１８４，Ｄ１８６，Ｄ１８８において、主画像Aを元の縦横比率で表示したい場合は、変倍された主画像Aの角をドラッグするなどの方法によって元に戻すようにしてもよい。この結果、例えば、画面Ｄ１８４の状態でこの操作を行うと、後述する図５３の画面Ｄ１９３のようになる。

【０２０１】なお、第７の実施の形態を第６の実施の形態に適用してもよい。

【０２０２】（第８の実施の形態）次に第８の実施の形態を説明する。

【０２０３】第８の実施形態の構成は、基本的に第１の実施形態の構成と同じであるので、第８の実施形態の説明においては、第１の実施形態の構成を流用する。

【０２０４】第８の実施形態では、引き出しメニューが引き出されても、本来表示されるべき主画像の縦横比率が一定に維持される。

【０２０５】図５２は、第８の実施形態における、引き出しメニューの表示に伴なう主画像表示の処理の手順を示すフローチャートである。図５３は、引き出しメニューを表示する処理過程において画像表示ディスプレイ０９に表示される画面を示す図である。図５３ではＢ分類メニューを表示する場合を例にとっている。以下、図５２を適宜参照しながら、図５２に示すステップに沿って説明する。

【０２０６】図４８に示す主画像Aは、例えば写真画像であったり、文章だったり、写真と文章とが混在したものであったりする。内蔵メモリーにすでに格納されていた再生画像だったり、撮影待機状態でカメラ部のＣＣＤがとらえたファインダー画像の場合も想定される。

【０２０７】図５２のフローチャートでは、ステップＳ１２０１，Ｓ１２０２，Ｓ１２０３，Ｓ１２０４，Ｓ１２０５，Ｓ１２０６，Ｓ１２０９，Ｓ１２１０は、図１０に示すステップＳ１０１，Ｓ１０２，Ｓ１０３，Ｓ１０４，Ｓ１０５，Ｓ１０６，Ｓ１１２，Ｓ１１３とそれぞれ同一の内容となっているので、それらの説明を省略する。

【０２０８】引き出しメニュー表示トリガーエリア１１Ｂが選択され、その後連続的にＹ軸座標の検出値（引き出し量）ｙが変更されると、ステップＳ１２１１において、引き出し量ｙに応じてＢ分類メニューを表示するとともに、主画像Aの縦横比率を維持したまま変倍縮小して表示する（図５３の画面Ｄ１９１，Ｄ１９２）。なお、この間に入力デバイス０５がＯＦＦされると、そのときの画面の状態を維持する。

【０２０９】そして、引き出し量ｙが更に増加した場合、ステップＳ１２１２において、Ｂ分類メニューが最大引き出し量（Ｙ軸方向の画面サイズの半分）で固定され、また、主画像AもＸ軸方向、Ｙ軸方向ともに１／２に変倍縮小された大きさで保持される（図５３の画面Ｄ１９３）。なお、この場合に入力デバイス０５がＯＦＦされると、図５３の画面Ｄ１９３の状態を維持する。

【０２１０】以上の説明は、Ｂ分類メニューを表示することを例にとっているが、Ｃ分類メニューを表示する場合も同様である。

【０２１１】次に、引き出しメニュー表示トリガーエリア１１Ａ、Ｄが選択され、その後連続的にＸ軸座標の検出値（引き出し量）ｘが変更されると、ステップＳ１２０７において、引き出し量ｘに応じてＡ，Ｄ分類メニューを表示するとともに、主画像Aの縦横比率を維持したまま変倍縮小して表示する。なお、この間に入力デバイス０５がＯＦＦされると、そのときの画面の状態を維持する。

【０２１２】そして、引き出し量ｘが更に増加した場合、ステップＳ１２０８において、Ａ，Ｄ分類メニューが最大引き出し量（Ｘ軸方向の画面サイズの半分）で固定され、また、主画像AもＸ軸方向、Ｙ軸方向ともに１／２に変倍縮小された大きさで保持される。なお、この場合に入力デバイス０５がＯＦＦされると、主画像AもＸ軸方向、Ｙ軸方向ともに１／２に変倍縮小された大きさで保持される。

【０２１３】なお、第８の実施の形態を他の実施の形態と組み合わせ、操作設定やいづれかのボタンを押しながら行う操作手段によって、ユーザーが任意にどちらかの方法を選択できるようにしてもよい。

【０２１４】さらに、図５４に示すような主画像Aの表

示を行うようにしてもよい。

【０２１６】図５４は、図５３に示す主画像Ａの表示方法と異なる表示方法を説明する，画像表示ディスプレイ０９に表示された画面を示す図である。

【０２１６】すなわち，画像表示ディスプレイ０９の画面Ｄ１９５～Ｄ１９７では，主画像Ａの形状や縦横表示比率は全く変化せずに，その上に引き出しメニューがかぶさる形で表示される。この主画像Ａの表示方法は，主画像Ａの一部が欠けてしまうという欠点をもつが，非常に高速に演算処理をできるＣＰＵを実装していない場合には，この表示方法は有効である。

【０２１７】なお，この表示方法では，入力デバイス０５がタッチパネルセンサー１１に接触している間は，引き出しメニューが主画像Ａに重なり，一方，入力デバイス０５がＯＦＦされると，主画像Ａを引き出しメニューの引き出し方向に縮小表示する。例えば，画面Ｄ１９５の状態でＯＦＦした場合，所要の処理時間を経た後，画面Ｄ１９８に切り換わる。また，画面Ｄ１９６の状態でＯＦＦした場合，所要の処理時間を経た後，画面Ｄ１９９に切り換わる。さらに，画面Ｄ１９７の状態でＯＦＦした場合，所要の処理時間を経た後，画面Ｄ２００に切り換わる。

【０２１８】（第９の実施の形態）次に第９の実施の形態を説明する。

【０２１９】第９の実施形態の構成は，基本的に第１の実施形態の構成と同じであるので，第９の実施形態の説明においては，第１の実施形態の構成を流用する。

【０２２０】第９の実施形態では，引き出しメニューの表示方法として「引き出しメニュー内一部切り出しヘルプ」という表示方法を採用する。

【０２２１】図５５及び図５６は，第９の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。図５７は，画像表示ディスプレイ０９に表示される第９の実施形態における引き出しメニューを示す図であり，特にＡ分類メニューを示す。図５８は，第９の実施形態における画像表示ディスプレイ０９に表示されるＢ～Ｄ分類メニューを示す図である。以下，図５７及び図５８を適宜参照しながら，図５５及び図５６に示すステップに沿って説明する。

【０２２２】上記の各実施の形態では，引き出しメニューを表示するまでは，それぞれの引き出しの中に記載されている機能項目を把握することができないので，ユーザーは，それぞれどのような機能項目が記載されているか，あらかじめ覚えておく必要がある。こうした煩わしさを避けるため，第９の実施形態では，引き出しメニューを逐わず使いこなすための補助的機能を，第１の実施形態の引き出しメニュー表示処理に追加する。

【０２２３】すなわち，パソコンなどでは一般的に，機能に対応するアイコンにマウスなどのポインティングデバイスを置くだけで，そのアイコンがどういう機能に対応するかを，文字で簡潔に説明する吹き出しが表示される。しかし，本実施の形態では，そうした機能を説明する吹き出しではなく，引き出しメニューが表示されたときと同じ表現で，引き出しメニューの一部を切り取って「引き出しメニュー内一部切り出しヘルプ」として表示し，引き出しメニューの中身を簡単に確認できるようにする。

【０２２４】図５５に示す処理は，前述のように第１の実施形態の引き出しメニュー表示処理に追加される処理であり，図５５においてステップＳ１３０１は，図１０のステップＳ１０３と同一の処理を行う。

【０２２５】次に，ステップＳ１３０２で，「引き出しメニュー内一部切り出しヘルプ」の機能の実行があらかじめ設定されているか否かを判断する。設定されていなければ，図１０のステップＳ１０４以降の処理に移る。

【０２２６】一方，「引き出しメニュー内一部切り出しヘルプ」の機能の実行があらかじめ設定されていれば，ステップＳ１３０３に進んで，検出座標値が引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに含まれるかを判断し，引き出しメニュー表示トリガーエリア１１Ａ，１１Ｄに含まれるならばステップＳ１３０５へ，引き出しメニュー表示トリガーエリア１１Ｂ，１１Ｃに含まれるならばステップＳ１３１１へ進む。

【０２２７】ステップＳ１３０５では，引き出しメニュー表示トリガーエリア１１Ａ，１１Ｄにおいて入力デバイス０５が接触している位置のＹ座標値が検出され，そのＹ座標値に最も近いＹ座標値を持つ機能項目を表示される。これを，引き出しメニュー表示トリガーエリア１１Ａが入力デバイス０５によって接触された場合を例にとって，図５７の画面Ｄ２０３に示す。この状態から，引き出しメニュー表示トリガーエリア１１Ａの上を入力デバイス０５が外装フレームに沿って上下方向にスライドされると，図５７の画面Ｄ２０３～Ｄ２０５のようになる。このように，引き出しメニューを全て表示しなくても中身を確認することができ，所望の機能項目が見つからなかった場合は，他の引き出しメニュー内を同様な方法で探すことができる。以下，図５７の画面Ｄ２０２～Ｄ２０５に表示される引き出しメニューの一部を成す画像を「切り出しヘルプ」と呼ぶ。

【０２２８】こうして所望の機能項目が見つかり，入力デバイス０５がＯＦＦされると，ステップＳ１３０６において，ＯＦＦ後に所定時間（２～３秒間）が経過したか否かを判断する。所定時間が経過していなければステップＳ１３０７へ進み，所定時間の経過前に切り出しヘルプ内の機能項目（アイコン）を入力デバイス０５が選択する。これにより，ステップＳ１３０８で，切り出しヘルプの表示を停止するとともに，選択された機能項目（アイコン）に対応する機能が実行される。

【０２２９】なお，ステップＳ１３０６において，所定時間が経過していると判断された場合，ステップＳ１３

０９に進んで、切り出しヘルプの表示を停止する。

【０２３０】一方、ステップＳ１３１１では、引き出しメニュー表示トリガーエリア１１Ｂ，１１Ｃにおいて入力デバイス０５が接触している位置のＸ座標値が検出され、そのＸ座標値に最も近いＸ座標値を持つ機能項目を表示される。

【０２３１】こうして所望の機能項目が見つかり、入力デバイス０５がＯＦＦされると、ステップＳ１３１２において、ＯＦＦ後に所定時間（２～３秒間）が経過したかどうかを判断する。所定時間が経過していなければステップＳ１３１３へ進み、所定時間の経過前に切り出しヘルプ内の機能項目（アイコン）を入力デバイス０５が選択する。これにより、ステップＳ１３１４で、切り出しヘルプの表示を停止するとともに、選択された機能項目（アイコン）に対応する機能が実行される。

【０２３２】なお、ステップＳ１３１２において、所定時間が経過していると判断された場合、ステップＳ１３１５に進んで、切り出しヘルプの表示を停止する。

【０２３３】図５８は、引き出しメニュー表示トリガーエリア１１Ｂ，１１Ｃ，１１Ｄが入力デバイス０５によって接触された場合の切り出しヘルプを表示する。なお、切り出しヘルプの中身のアイコンなどの図示を省略してある。また、矢印は入力デバイス０５のスライド方向を示す。

【０２３４】さらに、第９の実施の形態を基にした他の実施の形態を、図５９を参照して説明する。すなわち、第９の実施の形態に示す引き出しヘルプが、何らかの制約条件により、上述のように表示できない場合の他の引き出しヘルプの表示例を示す。

【０２３５】図５９は，第９の実施の形態を基にした他の実施の形態における各引き出しメニューを示す図である。ここに図示した画像表示ディスプレイ０９の上の画面Ｄ２１１～Ｄ２１５はすべて、引き出しメニュー表示トリガーエリア１１Ａを座標指示した場合の表示例である。

【０２３６】画面Ｄ２１１では、引き出しヘルプの表示領域をもう少し多めに確保している。これによって、引き出しヘルプの中身を見やすくしている。

【０２３７】画面Ｄ２１２では，図２６を参照して説明した第３の実施の形態と同様に、第９の実施の形態でも最大引き出し量を拡張した場合に想定される切り出しヘルプを示している。

【０２３８】画面Ｄ２１３では，引き出しメニュー表示トリガーエリア内で入力デバイス０５がスライドされることなく、引き出しメニュー内の全部の機能項目を引き出しヘルプに表示する。

【０２３９】画面Ｄ２１４では、引き出しヘルプ内に、機能項目の名称の文字表記だけを行う。これによって、主画像Ａの表示面積の減少を最小限に留めるようにする。

【０２４０】画面Ｄ２１５では、引き出しメニュー表示トリガーエリア内で入力デバイス０５をスライドされることが実現できない場合を想定して、引き出しヘルプ内にスクロールボタンをソフト的にレイアウトさせる。

【０２４１】（他の実施の形態）以上説明した各実施の形態を適宜組み合わせるようにしてもよい。

【０２４２】また、上記の各実施の形態において、携帯型情報処理装置０１は、そのサイズが手帳サイズの携帯情報端末であるものとして説明したが、本発明の適用はそれに限られるものではなく、操作方法については異なる点があるが、他のポインティングデバイスを操作手段として有する大画面画像表示ディスプレイや、接眼式のビューファインダーなどにも，本発明は適用可能である。

【０２４３】また，本発明は、スチルカメラ，ビデオカメラ，ノートパソコン，ヘッドマウントディスプレイ，カーナビゲーションシステム等の画像表示画面を伴った機器にも適応可能である。

【０２４４】また，本発明は，据え置き型のパソコンやワークステーションなどにも応用可能である。例えばパソコンの場合、マウスを上下左右の任意方向にスライドさせ、カーソルが画面上の端に到着したら、その表示位置で引き出しメニューを引き出すためのバーを表示する。そして、その状態から中央方向へマウスをドラッグさせるという操作方法を取り入れることで本発明を適用することができる。この場合，機能項目の一覧リストを迅速に表示することができ、ユーザーが表示領域の量を任意に調整できるというメリットがある。

【０２４５】また、メカスイッチが上下左右に十字の形にレイアウトされた、いわゆる十字キーを搭載している装置では、上下左右のいづれかを押すことによって、引き出しメニューのどれかが選択され、十字キーから指を離すと、引き出しメニューが引き出された状態で固定表示を行うという操作方法を併用し、ユーザーが、入力デバイス０５を使って操作する場合と、十字キーを使って操作する場合とを，使用状況に応じて使い分けるようにしてもよい。

【０２４６】また，上記の各実施の形態において、引き出しメニューの引き出し途中では任意の引き出し位置で無段階に止めることができるようにしているが、これに代わって、あらかじめ停止できる引き出し位置を複数箇所に限定するようにしてもよい。これにより，引き出しメニューの表示処理速度をよりいっそう早くできる。

【０２４７】さらに，前述した各実施の形態の機能を実現するソフトウェアのプログラムコードを記録した記憶媒体を、システムあるいは装置に供給し、そのシステムあるいは装置のコンピュータ（またはＣＰＵやＭＰＵ）が記憶媒体に格納されたプログラムコードを読み出して実行することによっても、本発明が達成されることは言うまでもない。

【０２４８】この場合、記憶媒体から読み出されたプログラムコード自体が、前述の各実施の形態の機能を実現することになり、そのプログラムコードを記憶した記憶媒体が本発明を構成することになる。

【０２４９】プログラムコードを供給するための記憶媒体として、例えば、フロッピィディスク、ハードディスク、光ディスク、光磁気ディスク、ＣＤ－ＲＯＭ、ＣＤ－Ｒ、磁気テープ、不揮発性のメモリカード、ＲＯＭなどを用いることができる。

【０２５０】また、コンピュータが読み出したプログラムコードを実行することにより、前述した各実施の形態の機能が実現されるだけでなく、そのプログラムコードの指示に基づき、コンピュータ上で稼働しているＯＳなどが実際の処理の一部または全部を行い、その処理によって前述した各実施の形態の機能が実現される場合も、本発明に含まれることは言うまでもない。

【０２５１】さらに、記憶媒体から読み出されたプログラムコードが、コンピュータに挿入された機能拡張ボードやコンピュータに接続された機能拡張ユニットに備わるメモリに書き込まれた後、そのプログラムコードの指示に基づき、その機能拡張ボードや機能拡張ユニットに備わるＣＰＵなどが実際の処理の一部または全部を行い、その処理によって前述した各実施の形態の機能が実現される場合も、本発明に含まれることは言うまでもない。

【０２５２】

【発明の効果】以上詳述したように本発明によれば、座標指定手段によって複数の所定領域のいずれかが座標指定され、引き続き、前記座標指定手段によって座標指定が継続されるとともに、該指定された座標が画像表示部のほぼ中央方向に変化したとき、前記座標指定された所定領域に対応する機能一覧表を、前記指定座標の変化量に応じて前記画像表示部に表示する。それと同時に、前記機能一覧表が表示される直前に前記画像表示部に表示されていた主画像を、前記機能一覧表の表示量に応じて変倍縮小して前記画像表示部に表示する。

【０２５３】これにより、小さな画像表示部に機能一覧表と主画像とを同時に表示しても、主画像が全て表示されているので、編集作業に支障をきたすことはない。

【０２５４】また、機能一覧表を引き出して表示する動きに連動して、主画像がリアルタイムに変倍縮小表示され、座標指定手段による指定座標の変化が止まったところで、機能一覧表の引き出しも主画像の変倍縮小も同時に止まる。

【０２５５】かくして、機能一覧表を表示している最中でも、主画像が覆い隠されることなく表示され、処理対象の主画像の全体を見ることができ、その結果、機能一覧表の中の機能を選択して実行させた場合に、その機能実行による主画像への処理結果をすぐに把握することができ、意図通りでなかった場合のキャンセルや変更がスムーズに行える。

【図面の簡単な説明】

【図１】本発明に係る携帯型情報処理装置の第１の実施の形態の構成を示す正面図である。

【図２】図１に示す携帯型情報処理装置の上面図である。

【図３】図１に示す携帯型情報処理装置の背面図である。

【図４】図３に示す携帯型情報処理装置におけるＡ－Ａ'横断面図である。

【図５】タッチパネルセンサーの構成を示す図である。

【図６】画像表示ディスプレイに表示される引き出しメニューを示す図である。

【図７】Ｂ分類メニューが引き出しメニューとして表示された画像表示ディスプレイの画面を示す図である。

【図８】携帯型情報処理装置のシステム構成を示すブロック図である。

【図９】携帯型情報処理装置における全体の動作手順の概要を示すフローチャートである。

【図１０】引き出しメニューを表示する際の処理手順を示すフローチャート（１／２）である。

【図１１】引き出しメニューを表示する際の処理手順を示すフローチャート（２／２）である。

【図１２】引き出しメニューを表示する処理過程における表示画面（特に、Ｂ分類メニューを選択して表示する場合の画面）を示す図である。

【図１３】表示された引き出しメニューを閉じるための処理手順を示すフローチャート（１／２）である。

【図１４】表示された引き出しメニューを閉じるための処理手順を示すフローチャート（２／２）である。

【図１５】引き出しメニューを閉じる処理の過程における表示画面（特に、Ｂ分類メニューが選択されていた場合の画面）を示す図である。

【図１６】引き出しメニューの大きさを引き出し量に応じて決定する処理の手順を示すフローチャートである。

【図１７】引き出し量に応じて表示されるＡ分類メニューの画面を示す図である。

【図１８】引き出し量に応じて表示されるＢ分類メニューの画面を示す図である。

【図１９】引き出しメニュー表示トリガーエリアと、引き出されるＡ～Ｄ分類メニューとの関係を説明するための画像表示ディスプレイの画面を示す図である。

【図２０】第２の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。

【図２１】画像表示ディスプレイの画面上における範囲ａ、ｂ、ｃを示す図である。

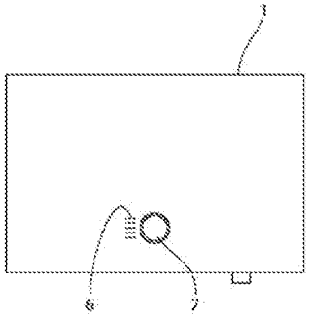
【図２２】引き出し量に応じて表示されるＡ分類メニューの画面を示す図である。

【図２３】引き出し量に応じて表示されるＢ分類メニューの画面を示す図である。

【図２４】引き出し量に応じて表示されるＣ分類メニューの画面を示す図である。
【図２５】第３の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。
【図２６】引き出し量に応じて画像表示ディスプレイの画面上に表示されるＡ分類メニューの画面を示す図である。
【図２７】第４の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。
【図２８】画像表示ディスプレイの画面上に表示される増加引き出しメニューを示す図である。
【図２９】第５の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。
【図３０】画像表示ディスプレイの画面上に表示される増加引き出しメニューを示す図である。
【図３１】画像表示ディスプレイの画面上に表示される増加引き出しメニューの他の表示例を示す図である。
【図３２】第６の実施形態における２つ以上４つまでの引き出しメニューの同時表示の処理の手順を示すフローチャートである。
【図３３】図３２に示す処理手順の具体的な手順を示すフローチャート（１／２）である。
【図３４】図３２に示す処理手順の具体的な手順を示すフローチャート（２／２）である。
【図３５】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される２つの引き出しメニューを示す第１の図である。
【図３６】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される２つの引き出しメニューを示す第２の図である。
【図３７】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される２つの引き出しメニューを示す第３の図である。
【図３８】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される２つの引き出しメニューを示す第４の図である。
【図３９】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される３つの引き出しメニューを示す第１の図である。
【図４０】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される３つの引き出しメニューを示す第２の図である。
【図４１】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される３つの引き出しメニューを示す第３の図である。
【図４２】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される３つの引き出しメニューを示す第４の図である。
【図４３】引き出し量に応じて画像表示ディスプレイの画面上に表示される４つの引き出しメニューを示す第１の図である。
【図４４】引き出し量に応じて画像表示ディスプレイの画面上に表示される４つの引き出しメニューを示す第２の図である。
【図４５】引き出し量に応じて画像表示ディスプレイの画面上に表示される４つの引き出しメニューを示す第３の図である。
【図４６】引き出し量に応じて画像表示ディスプレイの画面上に表示される４つの引き出しメニューを示す第４の図である。
【図４７】第７の実施形態における引き出しメニューの表示と、引き出しメニューの表示に伴う主画像の形状の変形とに関わる処理手順を示すフローチャートである。
【図４８】引き出しメニューを表示する処理過程において画像表示ディスプレイに表示される画面を示す図である。
【図４９】表示された引き出しメニューを閉じるための処理手順を示すフローチャートである。
【図５０】引き出しメニューを閉じる処理の過程における表示画面（特に、Ｂ分類メニューが選択されていた場合の画面）を示す図である。
【図５１】引き出しメニューの格納位置と主画像Ａとの関係を説明するための画像表示ディスプレイの画面を示す図である。
【図５２】第８の実施形態における、引き出しメニューの表示に伴なう主画像表示の処理の手順を示すフローチャートである。
【図５３】引き出しメニューを表示する処理過程において画像表示ディスプレイに表示される画面を示す図である。
【図５４】図５３に示す主画像Ａの表示方法とは異なる表示方法を説明するための画像表示ディスプレイに表示された画面を示す図である。
【図５５】第９の実施形態における引き出しメニューの表示処理の手順を示すフローチャート（１／２）である。
【図５６】第９の実施形態における引き出しメニューの表示処理の手順を示すフローチャート（２／２）である。
【図５７】画像表示ディスプレイに表示される第９の実施形態における引き出しメニューを示す図である。
【図５８】第９の実施形態における画像表示ディスプレイに表示されるＢ～Ｄ分類メニューを示す図である。
【図５９】第９の実施の形態を基にした他の実施の形態における各引き出しメニューを示す図である。
【符号の説明】
０１　携帯型情報処理装置（情報処理装置）
０４　外装カバー部材（枠体）
０５　入力デバイス（座標指定手段）
０６　マイク

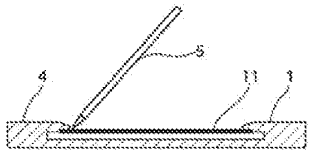
０７　カメラ部
０８　シャッタースイッチ
０９　画像表示ディスプレイ（画像表示部）
１０　スピーカー
１１　タッチパネルセンサー（座標指定手段）
１１Ａ～１１Ｄ　メニュー表示トリガーエリア（所定領域）
１１Ｅ　イメージ表示用エリア
１１ｂ　引き出しメニュー（機能一覧表）
２１　ＣＰＵ（機能一覧表示手段、主画像表示手段）
２２　ＣＣＤ
２３　ＲＡＭ
２４　フラッシュメモリー
２５　ＲＯＭ

【図１】

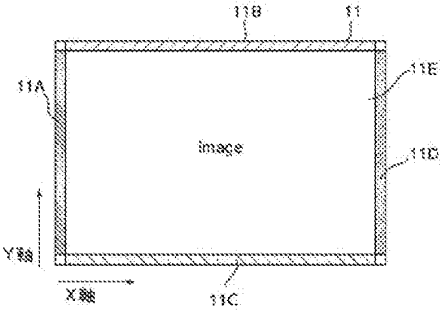


【図２】

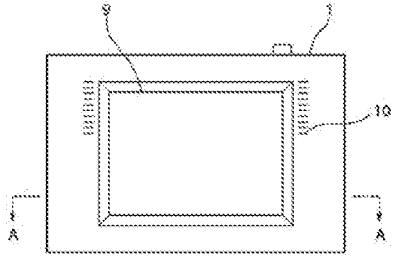
【図４】



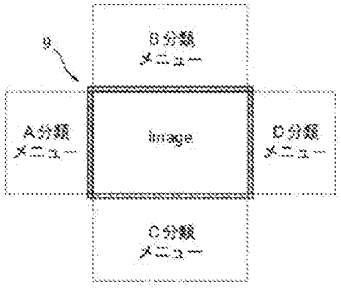
【図５】



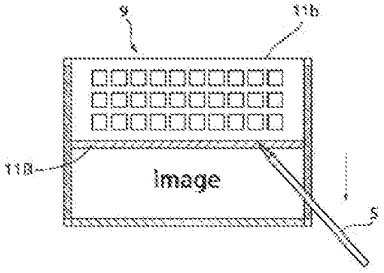
【図３】



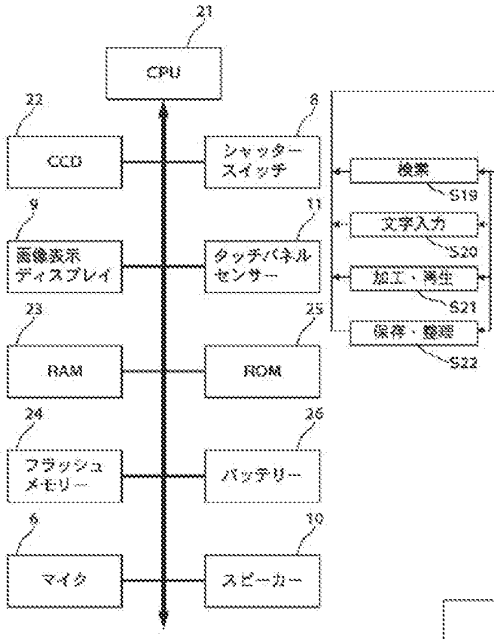
【図６】



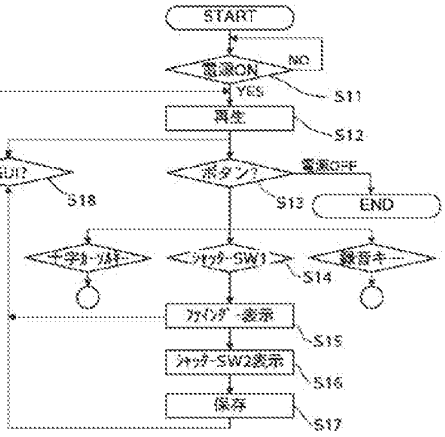
【図７】



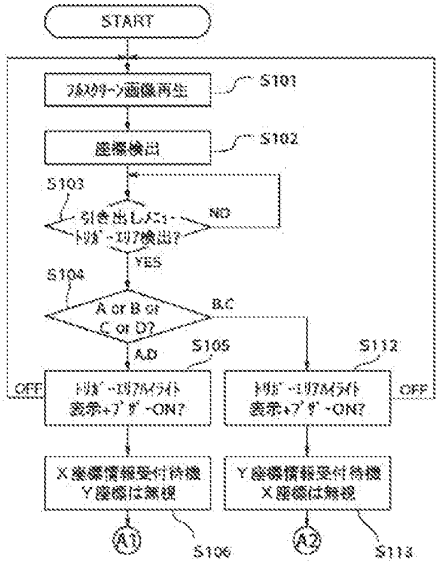
【図８】


21
CPU
22
CCD
8
シャッター スイッチ
検索
S19
GUI?
S18
9
画像表示 ディスプレイ
11
タッチパネル センサー
文字入力
S20
加工・再生
S21
保存・整理
S22
23
RAM
25
ROM
24
フラッシュ メモリー
26
バッテリー
5
マイク
10
スピーカー

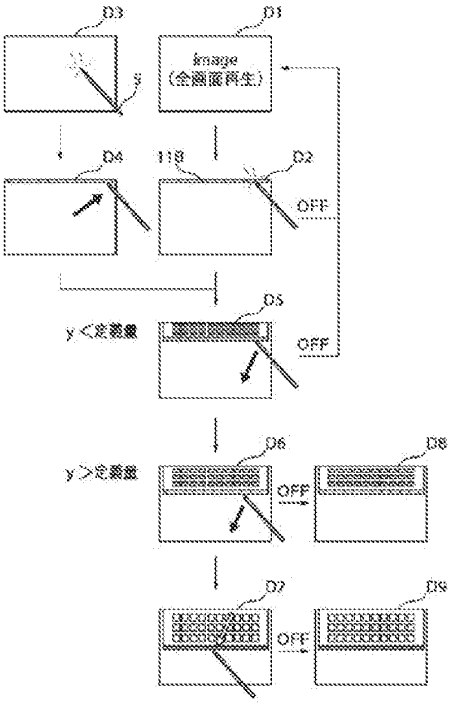
【図９】


START
電源ON
NO
YES
S11
再生
S12
ボタン?
電源OFF
S13
END
ズームバー
シャッターSW1
S14
撮影キー
ファインダー表示
S15
シャッターSW2表示
S16
保存
S17

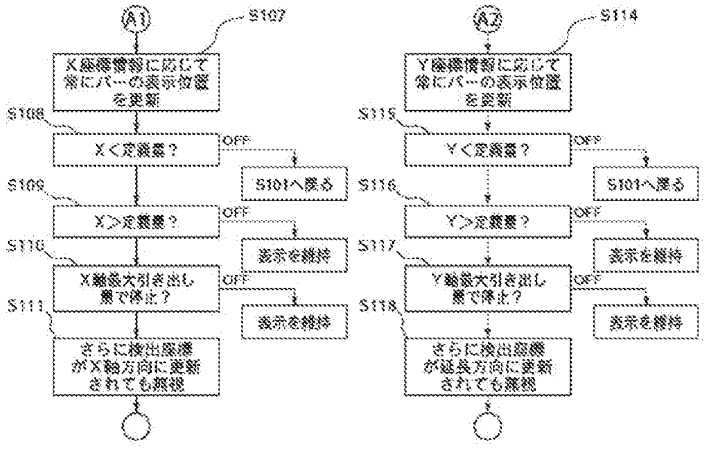
【図１０】


START
S101
S102
S103
NO
YES
S104
A or B or C or D?
B,C
A,D
S105
S112
OFF
X座標情報受け待機 Y座標は無視
Y座標情報受け待機 X座標は無視
A1
A2
S106
S113

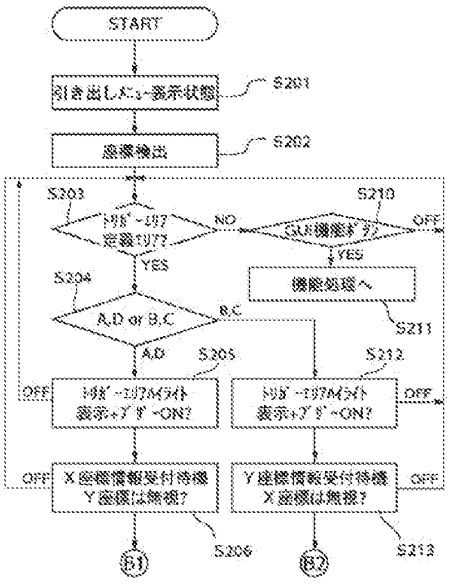
【図１２】


D3
D1
Image
(全画面再生)
D4
118
D2
OFF
D5
x<定義値
x>定義値
D6
D8
D7
D9

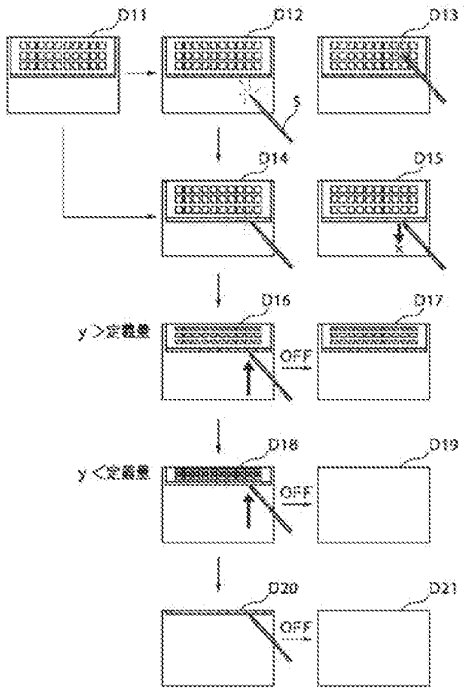
【図１１】



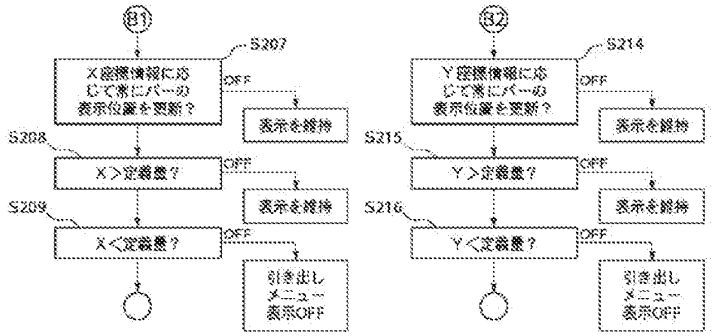
【図１３】



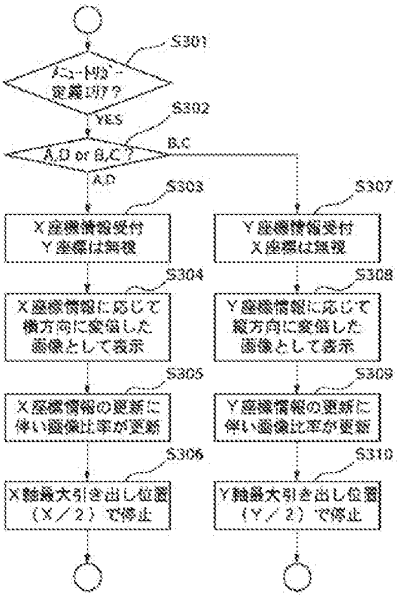
【図１５】



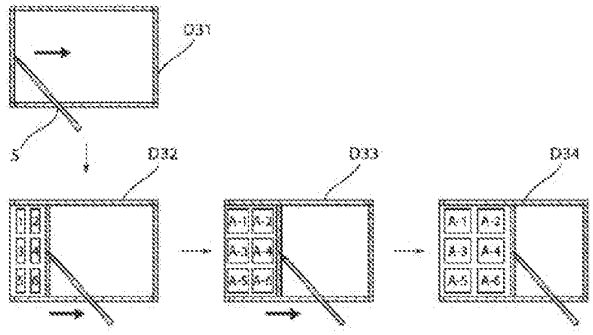
【図１４】



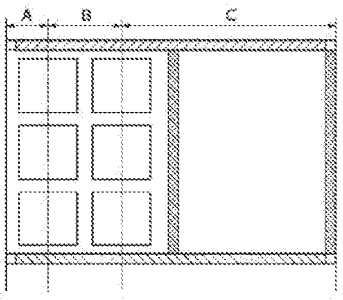
【図１６】



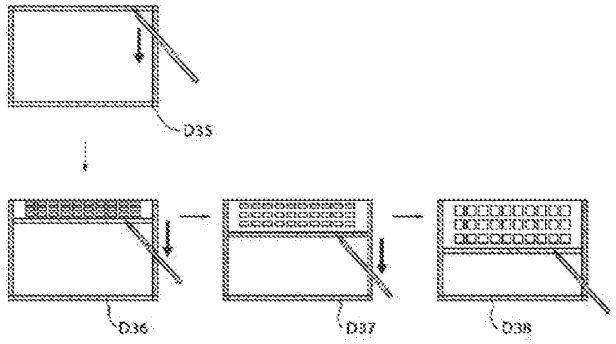
【図１７】



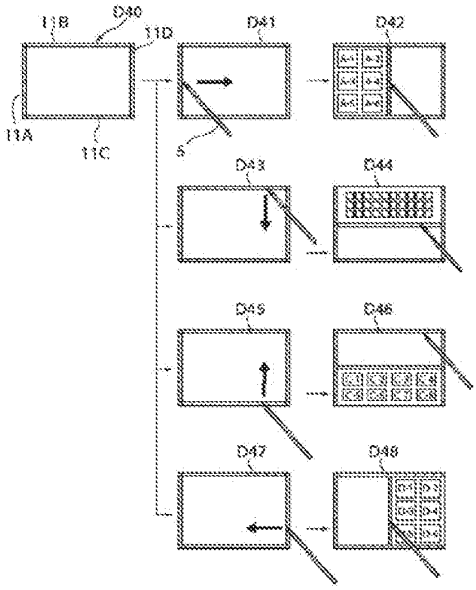
【図２１】



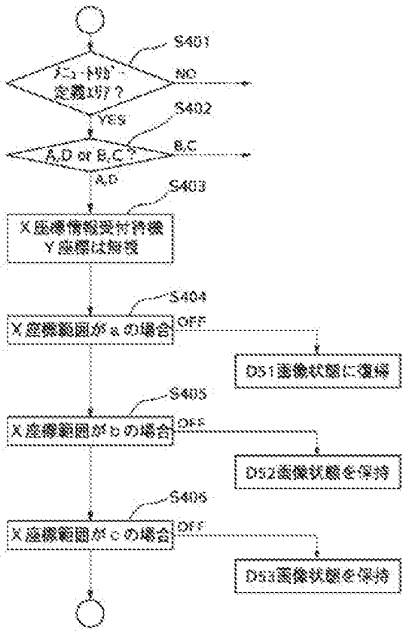
【図１８】



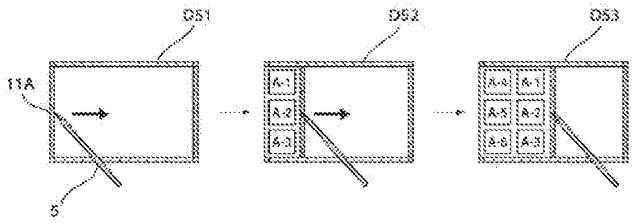
【図１９】



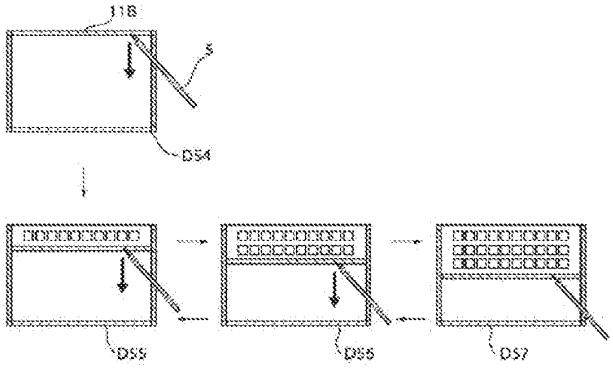
【図２０】



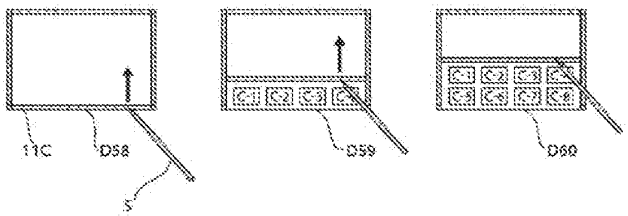
【図２２】



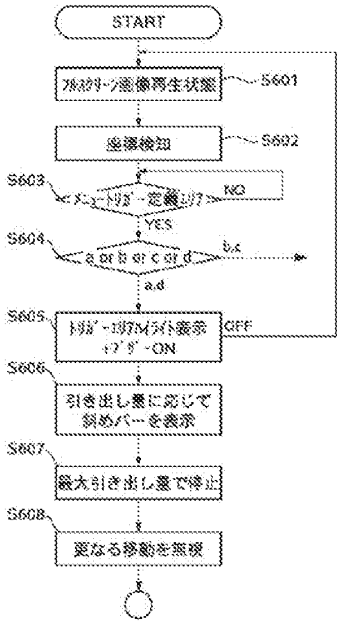
【図２３】



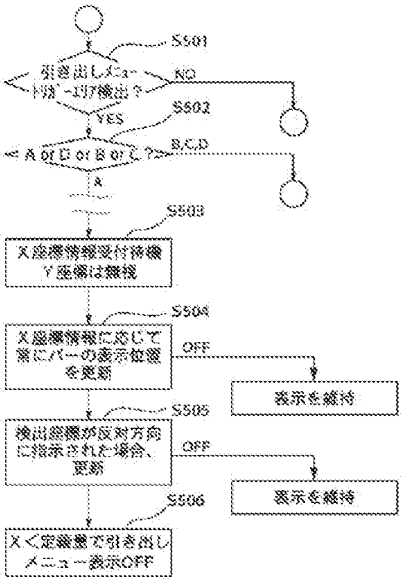
【図２４】



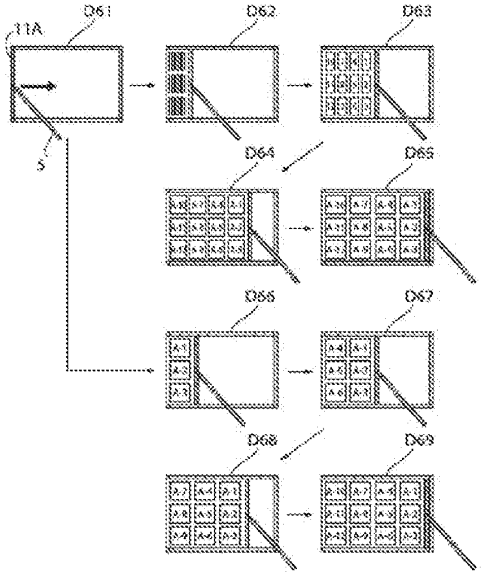
【図２７】



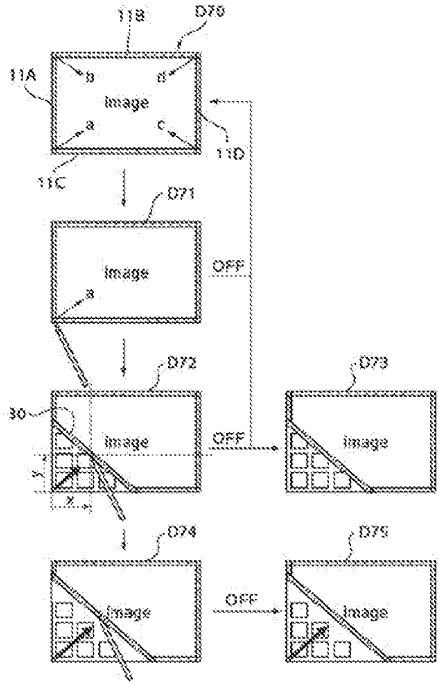
【図２５】



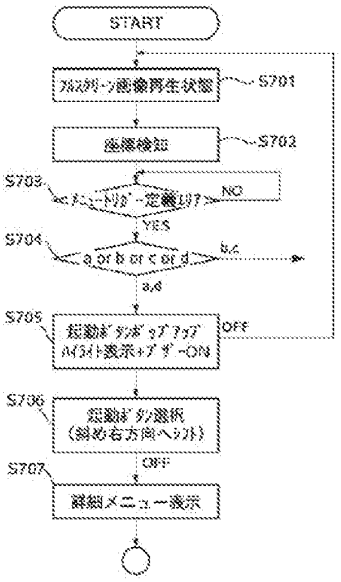
【図２６】



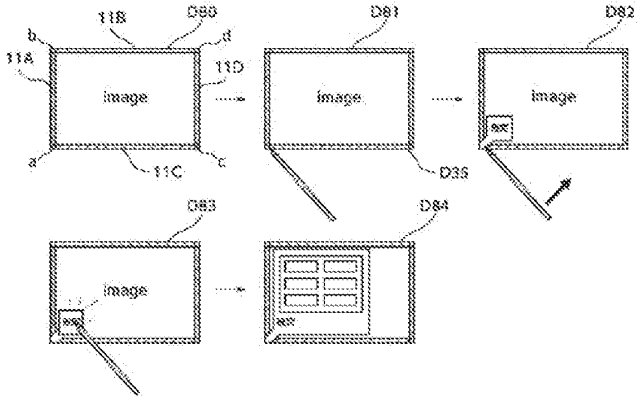
【図２８】


11B
D70
11A
b
d
image
a
c
11D
11C
D71
image
OFF
D72
D73
30
image
OFF
image
D74
D75
image
OFF
image

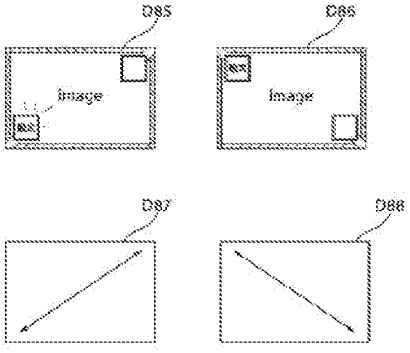
【図２９】


START
S701
S702
S703
NO
YES
S704
a or b or c or d
S705
OFF
S706
S707

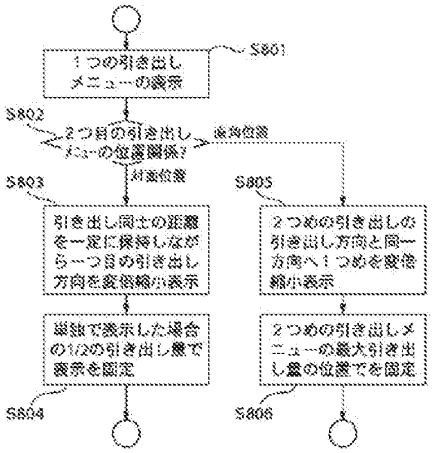
【図３０】


11B
D80
D81
D82
b
d
11A
11D
image
image
image
a
11C
c
D83
D84
image

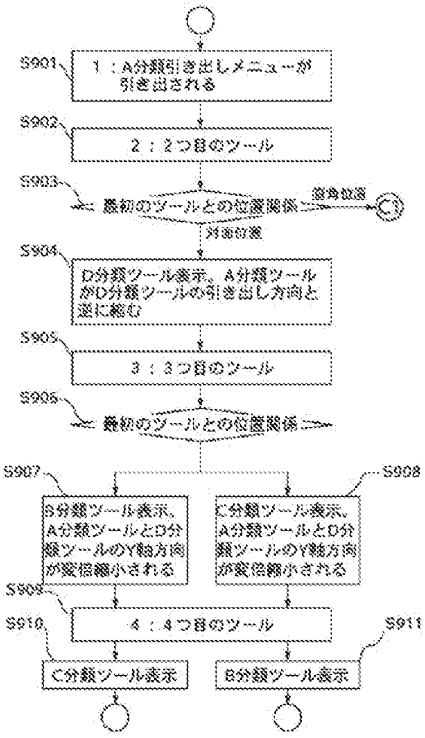
【図３１】



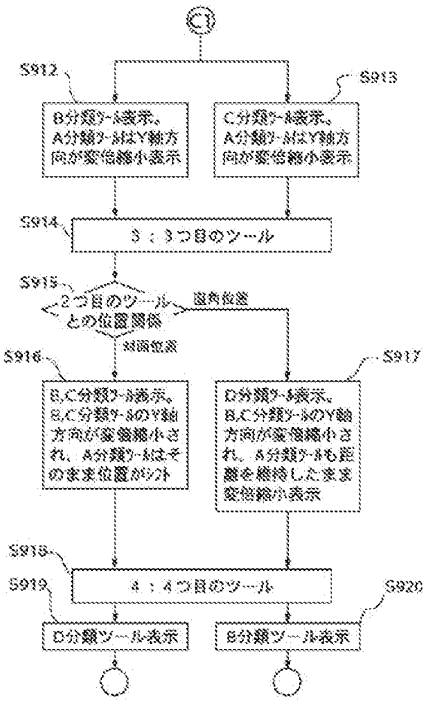
【図３２】



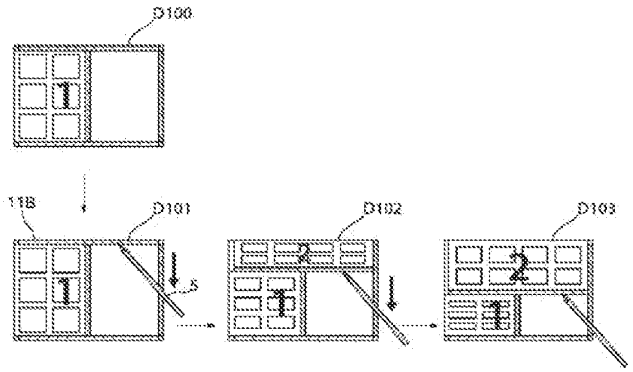
【図３３】



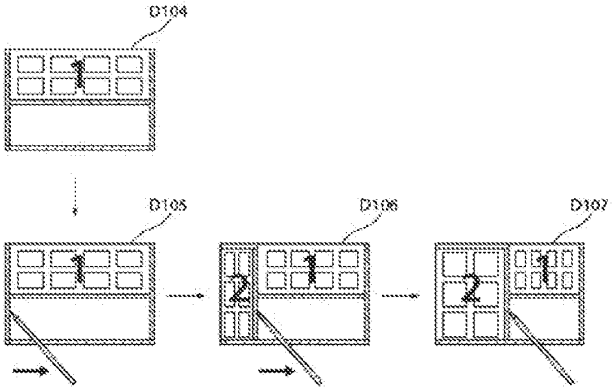
【図３４】



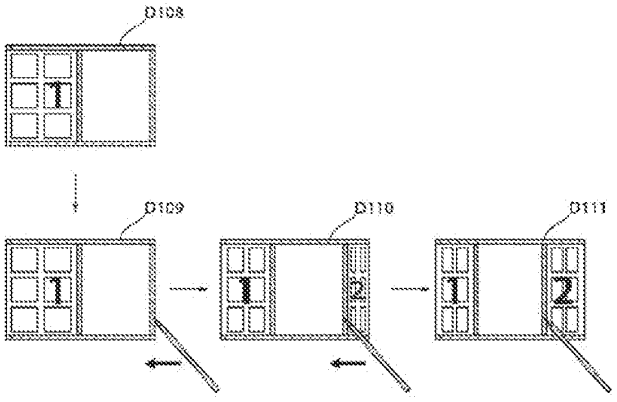
【図３５】


D100
1
11B
D101
D102
D103
2
1
S

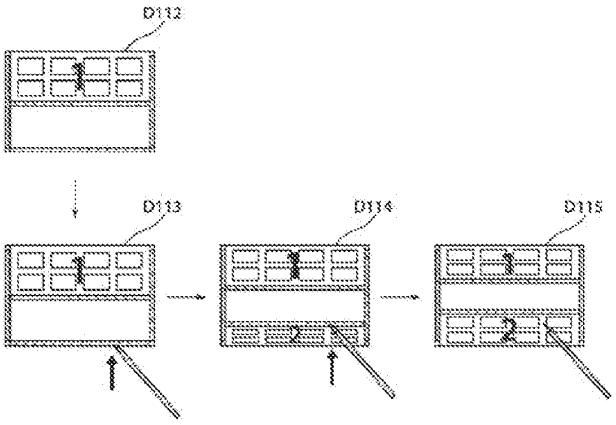
【図３６】


D104
1
D105
D106
D107
2

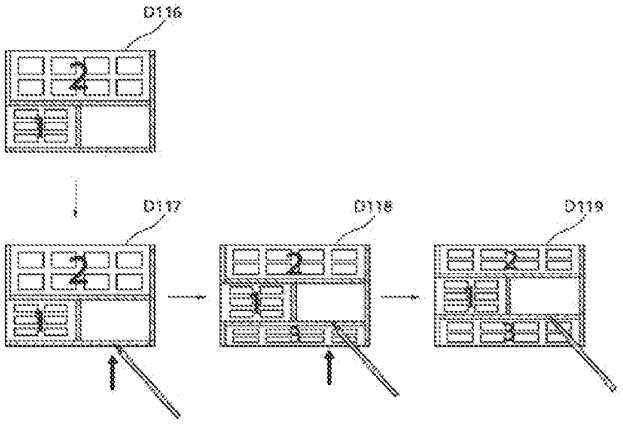
【図３７】


D108
1
D109
D110
D111
2

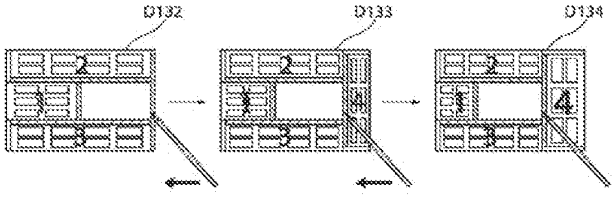
【図３８】



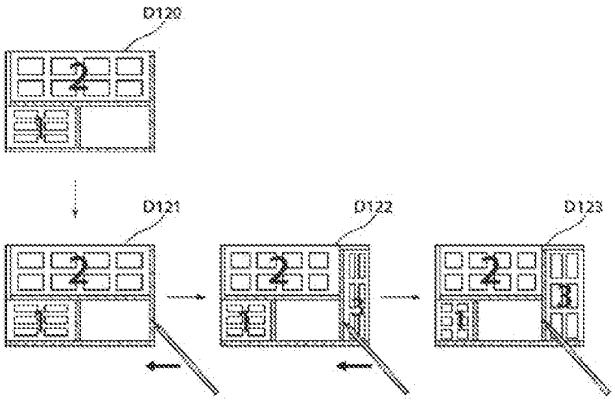
【図３９】



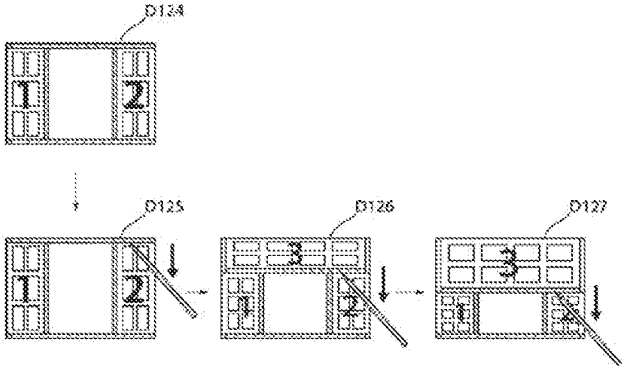
【図４３】



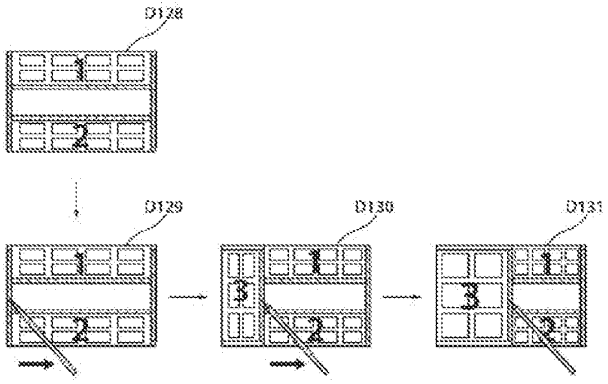
【図４０】



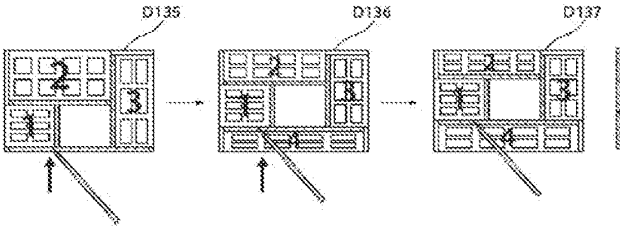
【図４１】



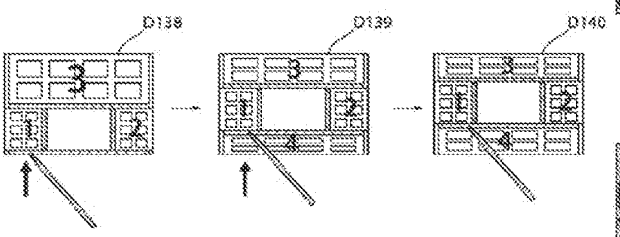
【図４２】



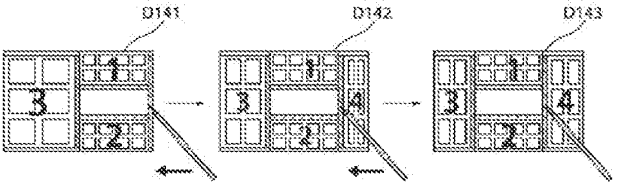
【図４４】



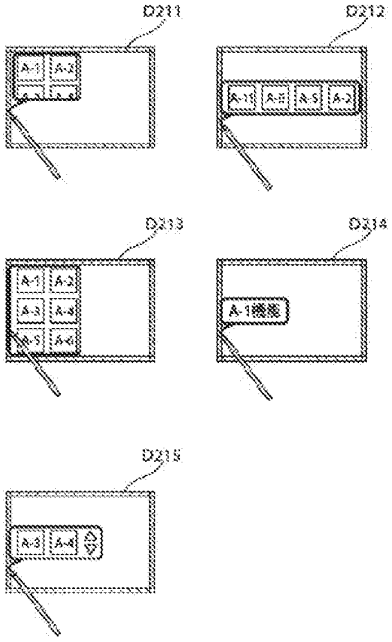
【図４５】



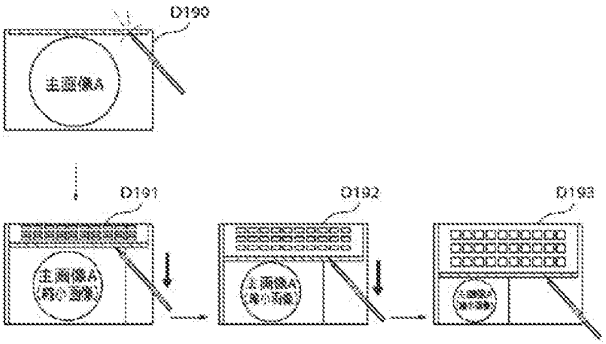
【図４６】



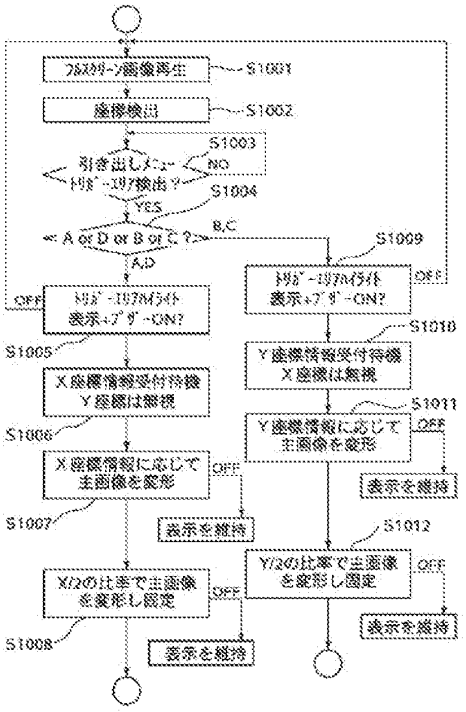
【図５９】



【図５３】



【図４７】


S1001
S1002
S1003
NO
YES
S1004
A,D
B,C
S1009
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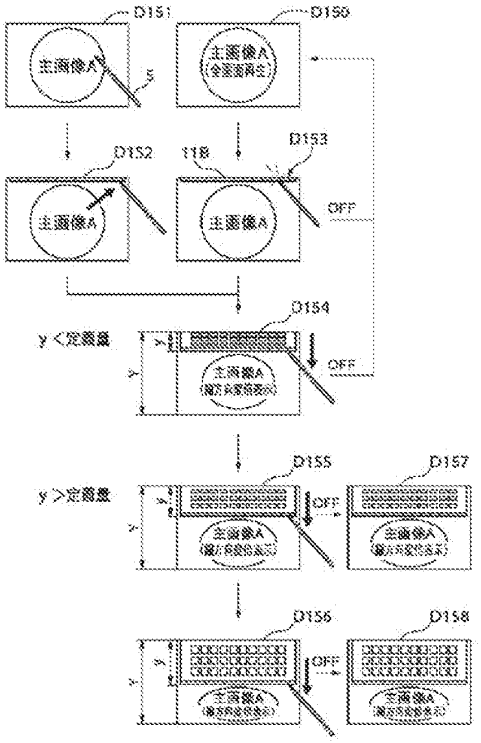
S1005
S1010
S1006
S1011
S1007
S1012
S1008

【図４８】


D151
D150
D152
118
D153
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D154
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D155
D157
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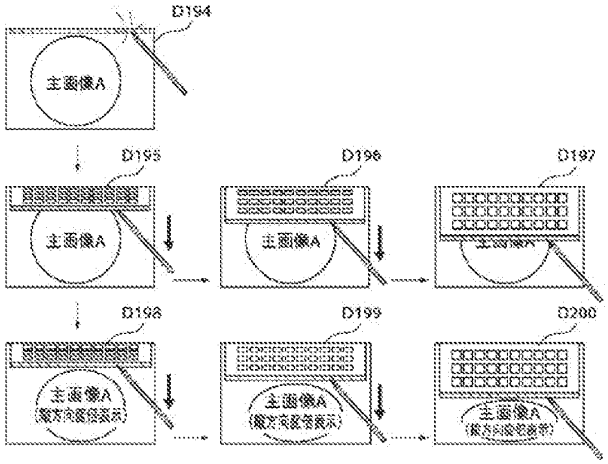
D156
D158

【図５４】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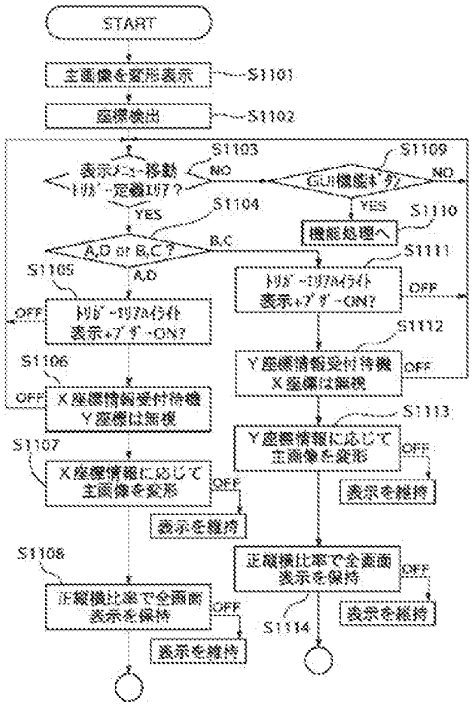
D200

【図４９】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主画像を変形表示
S1101
座標検出
S1102
S1103
S1109
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YES
S1104
S1110
機能処理へ
A,D or B,C ?
B,C
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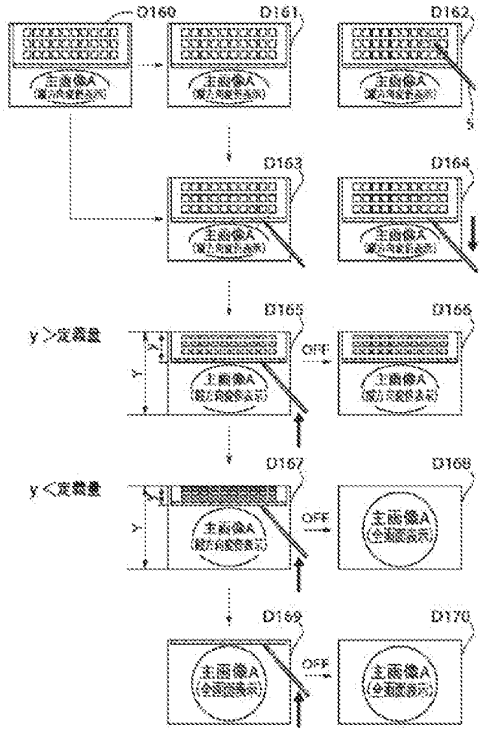
A,D
S1105
OFF
S1112
S1106
S1113
S1107
S1108
S1114

【図５０】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D166
D167
D168
D169
D170
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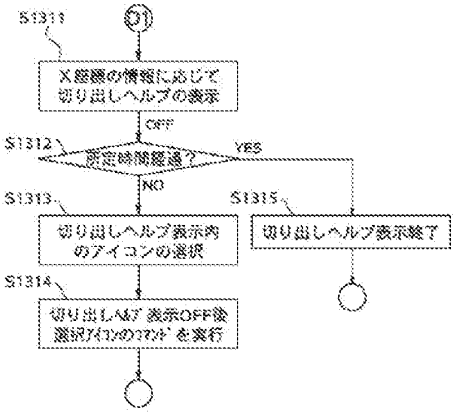
y＜定義量
OFF

【図５６】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S1312
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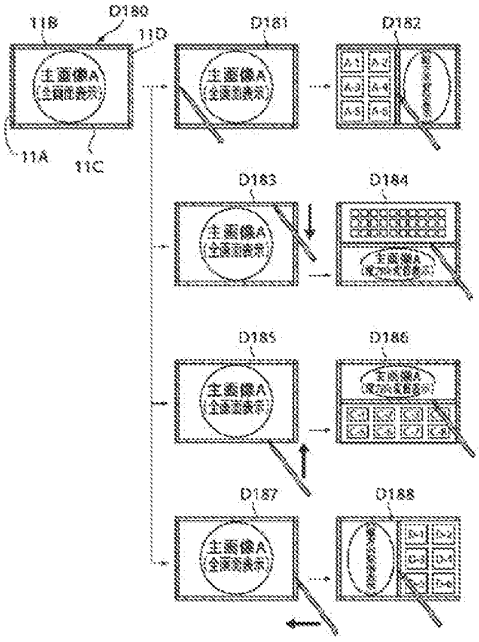
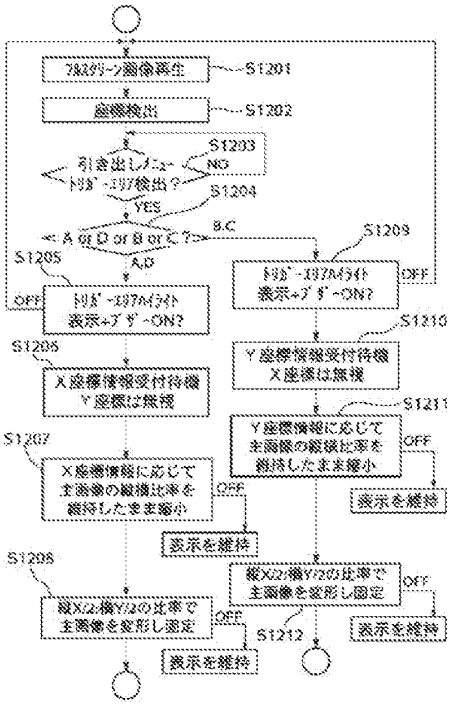
NO
S1313
S1315
S1314
OFF

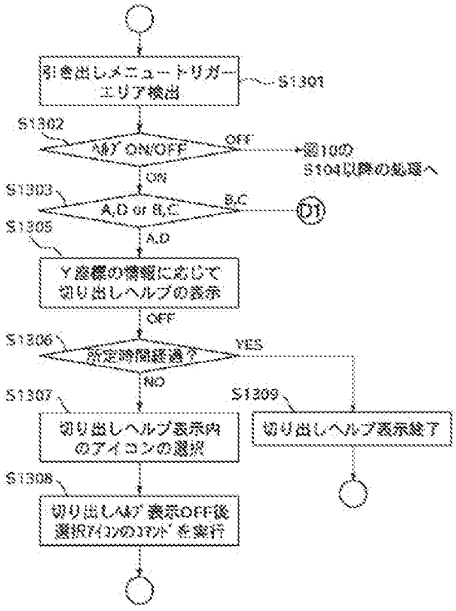
【図５１】


11B
D180
11D
D181
D182
11A
11C
D183
D184
D185
D186
D187
D188

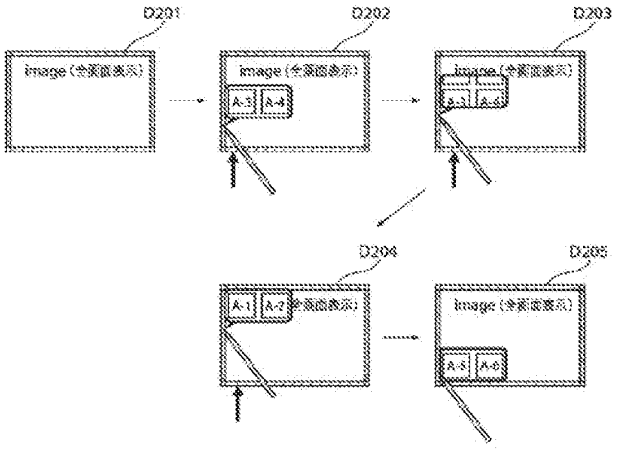
【図５２】


S1201
S1202
S1203
S1204
S1205
S1206
S1207
S1208
S1209
S1210
S1211
S1212
YES
NO
A,D
B,C
OFF
表示を維持

【図５６】


S1301
S1302
S1303
S1305
S1306
S1307
S1308
S1309
ON
OFF
A,D
B,C
YES
NO

【図５７】



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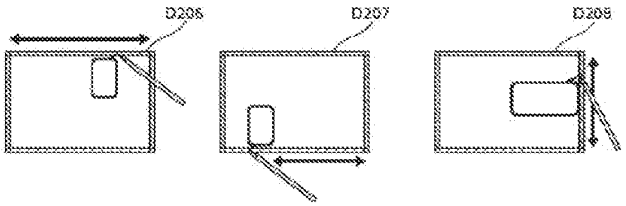

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ＥＡ０８　ＥＡ０９　ＥＢ０６　ＦＡ０６　ＦＢ０３
ＦＢ０４　ＦＢ２２　ＦＢ４３

Electronic Acknowledgement Receipt	
EFS ID:	41270303
Application Number:	16796880
International Application Number:	
Confirmation Number:	1091
Title of Invention:	TOUCH SCREEN ELECTRONIC DEVICE AND ASSOCIATED USER INTERFACE
First Named Inventor/Applicant Name:	Magnus Goertz
Customer Number:	75660
Filer:	Marc Aron Berger
Filer Authorized By:	
Attorney Docket Number:	AEQUITAS.P001
Receipt Date:	02-DEC-2020
Filing Date:	20-FEB-2020
Time Stamp:	11:31:38
Application Type:	Utility under 35 USC 111(a)

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Electronic Acknowledgement Receipt	
EFS ID:	41270562
Application Number:	16796880
International Application Number:	
Confirmation Number:	1091
Title of Invention:	TOUCH SCREEN ELECTRONIC DEVICE AND ASSOCIATED USER INTERFACE
First Named Inventor/Applicant Name:	Magnus Goertz
Customer Number:	75660
Filer:	Marc Aron Berger
Filer Authorized By:	
Attorney Docket Number:	AEQUITAS.P001
Receipt Date:	02-DEC-2020
Filing Date:	20-FEB-2020
Time Stamp:	11:45:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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3	Non Patent Literature	SIMON-PDA.pdf	854193 b964207e5d533fe42113aa8e326f659cae72a4bf	no	1
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PTO/SB/08a (02-18)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16796880
Filing Date	2020-02-20
First Named Inventor	Magnus Goertz
Art Unit	2174
Examiner Name	Conrad R. Pack
Attorney Docket Number	AEQUITAS.P001

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5249296	A	1993-09-28	Tanaka	
	2	5422656	A	1995-06-06	Allard et al.	
	3	5537608	A	1996-07-16	Beatty et al.	
	4	5615384	A	1995-08-29	DAVID J. ALLARD	
	5	5903268	A	1999-05-11	Hirayama	
	6	5949418	A	1997-05-06	KEVIN TIMOTHY SHIELDS	
	7	6100878	A	2000-08-08	Hirayama	
	8	6133898	A	1998-10-19	FRANK LUDOLPH	

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	Application Number	16796880
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	Art Unit	2174
	Examiner Name	Conrad R. Pack
	Attorney Docket Number	AEQUITAS.P001

	9	6710791	B1	1997-01-31	YOSHIYUKI KODAMA	

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	1	20050024341	A1	2005-02-03	Gillespie David W. et al.	

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	1	Xiangshi Ren & Shinji Moriya, "Improving Selection on Pen-Based Systems: A Study of Pen-Based Interaction for Selection Tasks," ACM Transactions on Computer-Human Interaction, Vol. 7, No. 3, September 2000, pp. 384-416.	
	2	Andrew Sears, et al., "Chapter 1 A New Era for High Precision Touchscreens," ADVANCES IN HUMAN-COMPUTER INTERACTION, Vol. 3, pages 1 - 33, R. Hartson, D. Hix, Ed. 1992.	
	3	David Rogers et al., Tossing Objects in a Desktop Environment, submitted to Conference on Human Factors in Computing Systems (1996).	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16796880
	Filing Date	2020-02-20
	First Named Inventor	Magnus Goertz
	Art Unit	2174
	Examiner Name	Conrad R. Pack
	Attorney Docket Number	AEQUITAS.P001

	4	Leslie E Chipman et al., SlideBar: Analysis of a linear input device, 23 Behaviour & Info. Tech. January-February 2004, Vol. 23, No. 1, 1 - 9, DOI: 10.1080/01449290310001638487	
	5	Hilary Browne et al., Designing a Collaborative Finger Painting Application for Children, HCIL-2000-17, CS-TR-4184, UMIACS-TR-2000-66 (Sept. 2000), available at https://hcil.umd.edu/pub-perm-link/?id=2000-17	
	6	Apple Newton MessagePad Handbook, Apple Computer, Inc. 1993, simultaneously published in both the United States and Canada.	
	7	Microsoft Announces Broad Availability of Handheld PCs With Windows CE, Nov. 19, 1996 (https://news.microsoft.com/1996/11/19/microsoft-announces-broad-availability-of-handheld-pcs-with-windows-ce/)	
	8	Kairer, Ryan, Palm Pilot 1000 Retrospective, Palm Infocenter, March 27, 2006 (www.palminfocenter.com/news/8493/pilot-1000-retrospective)	
	9	Walker, Geoff, The Microsoft Tablet PC, A detailed look at Microsoft's proposed Tablet PC, Pen Computing Magazine, July 2001 issue.	
	10	Handbook for Palm m500 Series Handhelds (2001)	
	11	Java History, Javapapers (https://javapapers.com/core-java/java-history/)	
	12	AT&T EO 440 Personal Communicator, oldcomputers.net (http://oldcomputers.net/eo-440.html)	
	13	HP Jornada 520 Series Pocket PC User's Guide (2001), Singapore.	
	14	"Product of the Month, BellSouth Cellular/IBM Release Simon PDA," TELECOMMUNICATIONS, 28(1), p. 116, January 1994.	

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	Filing Date	2020-02-20
	First Named Inventor	Magnus Goertz
	Art Unit	2174
	Examiner Name	Conrad R. Pack
	Attorney Docket Number	AEQUITAS.P001

	15	Norman, Donald A., The Psychology of Everyday Things, pages 1 - 33, ISBN 0-465-06709-3, 1988.	
	16	Rubine, Dean Harris, The Automatic Recognition of Gestures, PhD thesis, School of Computer Science, Carnegie Mellon University, 1991.	
	17	BEDERSON, BENJAMIN, Fisheye Menus, Proceedings of ACM Conference on User Interface Software and Technology (UIST 2000), pp. 217 - 226, ACM Press, November 2000.	
	18	BEDERSON, et al., Pad++: A Zooming Graphical Interface for Exploring Alternate Interface Physics, Proceedings of ACM Conference on User Interface Software and Technology (UIST 1994), pp. 17 - 26, ACM Press, November 1994.	
	19	Combs, et al., Does Zooming Improve Image Browsing?, HCIL Technical Report No. 99-05 (February 1999); http://www.cs.umd.edu/hcil	
	20	PETITION FOR INTER PARTES REVIEW OF UNITED STATES PATENT NO. 8,095,879 PURSUANT TO 35 U.S.C. §§311–319, 37 C.F.R. §4	
	21	PETITION FOR INTER PARTES REVIEW OF UNITED STATES PATENT NO. 8,812,993 PURSUANT TO 35 U.S.C. §§311–319, 37 C.F.R. §4	

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Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16796880
	Filing Date	2020-02-20
	First Named Inventor	Magnus Goertz
	Art Unit	2174
	Examiner Name	Conrad R. Pack
	Attorney Docket Number	AEQUITAS.P001

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Marc A. Berger/	Date (YYYY-MM-DD)	2020-12-02
Name/Print	Marc A. Berger	Registration Number	44029

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal	
Application Number:	16796880
Filing Date:	20-Feb-2020
Title of Invention:	TOUCH SCREEN ELECTRONIC DEVICE AND ASSOCIATED USER INTERFACE
First Named Inventor/Applicant Name:	Magnus Goertz
Filer:	Marc Aron Berger
Attorney Docket Number:	AEQUITAS.P001
Filed as Large Entity	
Filing Fees for Utility under 35 USC 111(a)	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	260	260
		Total in USD ($)		**260**

Electronic Acknowledgement Receipt	
EFS ID:	41270654
Application Number:	16796880
International Application Number:	
Confirmation Number:	1091
Title of Invention:	TOUCH SCREEN ELECTRONIC DEVICE AND ASSOCIATED USER INTERFACE
First Named Inventor/Applicant Name:	Magnus Goertz
Customer Number:	75660
Filer:	Marc Aron Berger
Filer Authorized By:	
Attorney Docket Number:	AEQUITAS.P001
Receipt Date:	02-DEC-2020
Filing Date:	20-FEB-2020
Time Stamp:	11:49:38
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$260
RAM confirmation Number	E2020B2B50313001
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	AEQUITAS-P001_InformationDisclosureStatement_12-02-2020.pdf	1036342 21f1fe91ef908af651198b84460a33dc4c4662d5	no	6
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30390 c1871fbdea72733c43e3b127dafc4c44dbd5b9f1	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1066732		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Attorney's Docket No.: AEQUITAS.P001 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Patent Application of:	)	
	)	Examiner: Conrad R. Pack
Magnus Goertz	)	
Joseph Shain	)	Art Unit: 2174
	)	
Application No: 16/796,880	)	
	)	
Filed: February 20, 2020	)	
	)	
For: TOUCH SCREEN ELECTRONIC	)	
DEVICE AND ASSOCIATED	)	
USER INTERFACE	)	
	)	

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P. O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT AND RESPONSE TO OFFICE ACTION

UNDER 37 C.F.R. §1.111

In response to the Office action dated September 4, 2020 (the "Office Action") and pursuant to 37 C.F.R. §1.111, Applicant respectfully requests that the above-identified application be amended as follows.

Electronic Acknowledgement Receipt	
EFS ID:	41288989
Application Number:	16796880
International Application Number:	
Confirmation Number:	1091
Title of Invention:	TOUCH SCREEN ELECTRONIC DEVICE AND ASSOCIATED USER INTERFACE
First Named Inventor/Applicant Name:	Magnus Goertz
Customer Number:	75660
Filer:	Marc Aron Berger/Sandra Rocco
Filer Authorized By:	Marc Aron Berger
Attorney Docket Number:	AEQUITAS.P001
Receipt Date:	03-DEC-2020
Filing Date:	20-FEB-2020
Time Stamp:	16:07:15
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		AEQUITAS-P001_ResponseToOfficeAction_12-03-2020.pdf	570428 4361713ceee39730ec56ab614ebcc7d5d6575472	yes	53

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Arguments/Remarks Made in an Amendment	13	53
	Claims	2	12
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	570428	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

REMARKS

Applicant's representative has carefully studied the outstanding Office Action. The present amendment is intended to place the application in condition for allowance and is believed to overcome all of the rejections made by the Office Action. Favorable reconsideration and allowance of the application are respectfully requested.

Applicant has amended claims **21**, **23**, **25** - **27**, **29** – **31**, **34** and **36** - **40** without disclaiming the right to pursue the subject matter of these claims prior to amendment. No new matter has been introduced, and support for the claim amendments is provided below. Claims **21** – **40** are presented for examination.

Priority

At Paragraphs 11 – 15, the Office Action indicates that the priority claim to US Serial No. 10/315,250 does not comply with 35 U.S.C §120, since the disclosure of US Serial No. 10/315,250 fails to supply adequate support for the limitation "*highlight a first item corresponding to a current position of an object gliding over a linear list of items on said display and to select a second item from the list at least partially based on where the object stops gliding and is lifted from said display*" in independent claims **21**, **30** and **37**, for the limitation "*a fourth application and a fifth application capable of running simultaneously, the fourth application being a music player and the fifth application being email, chat or SMS*" in dependent claims **22**, **33** and **38**, for the limitation "*a tap-absent state wherein the plurality of tap-activatable icons are absent*" in claims **23**[1], **31** and **37**, for the limitation "*wherein the maximum diagonal*

[1] At Paragraph 13, the Office Action refers to "claims **22**, **31** and **37**", but the intent is -- claims **23**, **31** and **37** --.

dimension of the representation is less than a thumb's width" in claim **25**, and for the limitation "*expands one of the gadgets in said display beyond an edge of said display to show more data therein by shifting other gadgets*" in claims **29**, **36** and **40**[2].

Applicant respectfully submits that the limitation "*where the maximum diagonal dimension of the representation is less than a thumb's width*" is supported in US 10/315,250 at least by original claim 14.

Claim Rejections – 35 U.S.C. §112

At Paragraphs 19 - 23, the Office Action rejects claims **25** – **36**, **39** and **40** under pre-AIA 35 U.S.C. §112, second paragraph, as being indefinite. Specifically claims **25**, **30** and **39** each requires that "*the representation represents only the function*" and "*the function is not activated differently based on a direction of the gliding*". The language of the claim itself does not put one of ordinary skill in the art on notice how a representation of a function must be designed or implemented in order to satisfy the above requirement.

The limitation "*the maximum diagonal dimension*" in claims **25** and **26**, and the limitation "*the group consisting of*" in claims **26**, **29**, **36** and **40** has insufficient antecedent basis. Applicant has amended these claims.

At Paragraphs 25 - 29, the Office Action rejects claims **21** – **40** under pre-AIA 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Specifically, the disclosure lacks reasonable support for the limitation "*no movable button*" in claims **21**, **30** and **37**, for the limitation "*where the communication options comprise call, email and chat or SMS*" in claims **21** and **30**, for the limitation "*a tap-absent*

[2] At Paragraph 15, the Office Action refers to "claims **29**, **36** and **10**", but the intent is -- claims **29**, **36** and **40** --.

state" in claims **23**, **31** and **37**, and for the limitations "*wherein the representation represents only the function*" and "*wherein … the representation … is not relocated during the multi-step user gesture, and the function is not activated differently based on the direction of the gliding*" in claims **25**, **30** and **39**.

Applicant has amended the claims.

Response to Claim Rejections - 35 U.S.C. §112

At Paragraph 11, the Office Action asserts that nothing in the disclosure of US 10/315,250 provides support for the concept that a system is caused to select a second item "*at least partially based on where the object stops gliding and is lifted from said display*". Applicant respectfully submits that this limitation is supported by US 10/315,250, at least by col. 5, lines 3 – 35 in US Patent No. 8,095,879. Specifically,

> Col. 5, lines 8 and 9: **An application or file is highlighted by placing some kind of marking 232 on the representation** of the application or file (emphasis added)
>
> Col. 5, lines 29 – 35: FIG. 8 shows that navigation in the list is performed by moving the object 4 in a direction I towards the top 231a of the list 231 or towards J the bottom 231 b of the list 231. This **movement I, J of the object 4 will cause the marking 232 to move K, L in the same direction** (emphasis added)
>
> Col. 5, lines 3 – 7: FIG. 7 shows that a **selection of an application or a file** is done by **moving E the object 4 so that the representation of desired application or file is highlighted, removing F the object 4 from the touch sensitive area 1,** and then tapping G, H on the touch sensitive area 1 (emphasis added)

In order to expedite the prosecution, Applicant has deleted the feature to select a second item "*at least partially based on where the object stops gliding and is lifted from said display*" from claims **21**, **30** and **37** and respectfully submits that this rejection is thus rendered moot.

At Paragraph 12, the Office Action asserts that the disclosure of US 10/315,250 fails to provide support for simultaneously running two applications with one application being a music player and another application being email, chat or SMS. Applicant respectfully submits that this limitation is supported by US 10/315,250, at least by col. 3, lines 59 – 67, col. 4, lines 24 – 26 and 63 – 66 and FIG. 6 in US Patent No. 8,095,879. Specifically,

> Col. 4, lines 24 and 26: **If for instance the active application handles a picture**, then the icons that are shown when the first function is activated can be services such as 'save to disk', '**send as SMS**', … and they can be settings such as 'resolution', 'colour', or 'brightness' (emphasis added)

An active application that handles a picture and has relevant settings *"resolution", "colour", or "brightness"* is the camera application. Activating the service "send as SMS" will run a second application for SMS. Col. 3, lines 59 – 67 indicates that the second application will run simultaneously with the camera application and will be presented on top of the camera application.

> Col. 3, lines 59 - 67: The computer unit is adapted to **run several applications simultaneously and to present an active application on top of any other application on the display area 3**. It should be understood that by simultaneously it is meant **any technology** that will make it appear to a user of the computer unit that applications are run simultaneously and that the present invention does not depend on how this is realised, whether it is through time-sharing of one processor, parallel use of several processors, or any other technique (emphasis added)

In FIG. 6, shown below, the camera application is included together with an MP3 PLAYER application, i.e., a music player application, in a library of available applications.

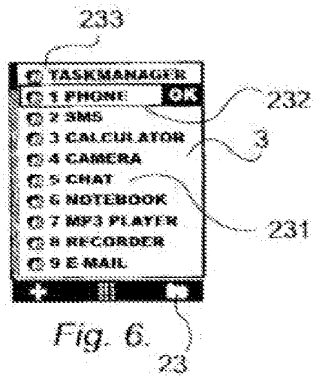


Fig. 6.

FIG. 6 of US 8,095,879

Applicant respectfully submits that although the text at col. 5, line 24, "*If* ***for instance*** *the active application handles a picture*," indicates a camera application as a first active application, it is clear that the active application can be a music player instead of a camera ("*for instance*"), based on,

1. the inclusion in FIG. 6 of an MP3 player application, and
2. the text at col. 3, lines 59 – 67, explains simultaneously running two applications in a manner that applies equally whether the first running application is a camera or a music player.

Thus, the mobile handheld computer unit is operable to run the SMS application as a second application when running a music player application.

In addition, Applicant submits that the text at US Patent No. 8,095,879 col. 3, lines 59 – 67 (reproduced above), explains simultaneously running two applications in a manner that applies to each of the applications shown in FIG. 6 (reproduced above), which include MP3 player, email, chat and SMS. Thus, the mobile handheld computer unit is operable to run the SMS application, chat or email, as a second application when running a music player application.

At Paragraph 13, the Office Action asserts that nothing in the disclosure of US 10/315,250 provides reasonable support for a tap-absent state. Applicant respectfully submits that this limitation is supported by US

10/315,250, at least by FIG. 1, shown below, as explained at col. 3, lines 50 and 51 and col. 4, line 29, in US Patent No. 8,095,879. Specifically, FIG. 1 shows a state in which no tap-activatable icons are present:

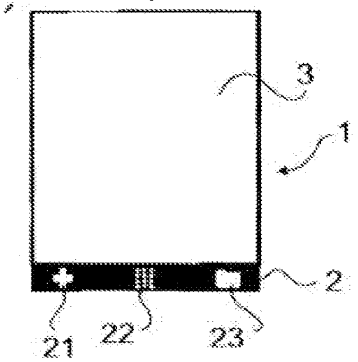


FIG. 1 of US 8,095,879

> Col. 3, lines 50 and 51: **FIG. 1 illustrates a user interface** for a mobile handheld computer unit. (emphasis added)
>
> Col. 4, line 29: **If no application is currently active** on the computer unit, (emphasis added)

Thus the specification addresses a situation in which no application is currently active on the computer unit, and states that FIG. 1 illustrates the user interface for the computer unit. Applicant respectfully submits that FIG. 1 illustrates a user interface in which no application is currently active. It is clear from the specification that the user interface of the present invention provides full functionality of the handheld computer unit by transitioning from the state shown in FIG. 1 to any of the states shown in FIGS. 3, 5 and 6 (Abstract).

At Paragraph 14, the Office Action asserts that no support is provided in the disclosure of US 10/315,250 for a requirement that a maximum diagonal dimension of a representation is less than a thumb's width. Applicant respectfully submits that the limitation "*where the maximum diagonal dimension of the representation is less than a thumb's width*" is supported in US 10/315,250 at least by original claim 14.

At Paragraph 19, the Office Action asserts that the language of "*the representation represents only the function*" does not put one of ordinary skill in the art on notice how a representation of a function must be designed or implemented in order to satisfy the above requirement. Applicant respectfully submits that in order to satisfy the above requirement the underlying software must not enable two functions to be activated, depending on the way the user touches the representation. For example, whether the user glides up, down, right or left, only one and the same function may be activated. This feature distinguishes over prior art such as Hirshberg, US Patent No. 6,597,345, which describes multi-function keys.

At Paragraph 20, the Office Action asserts that the disclosure suggests differences in activation in the sense that,

a) a movement direction that is not 'with a direction B from the menu area 2 to the display area 3' does not activate the function, and
b) angled movements not directly to the display area would require a longer gesture.

Applicant respectfully submits that the claim term "*activated differently*" in the phrase, "t*he function is not* activated differently *based on a direction of the gliding*", means that, when *the function* is *activated*, the activation is not executed differently based on a direction of the gliding. This limitation does not refer to instances when the function is not activated, nor to how the gesture is executed.

At Paragraph 25, the Office Action asserts that the limitation in claims **21**, **30** and **37** of "a top surface comprising a touch sensitive display, the top surface containing no movable button" lacks reasonable support in the specification. Applicant respectfully disagrees. Applicant notes that,

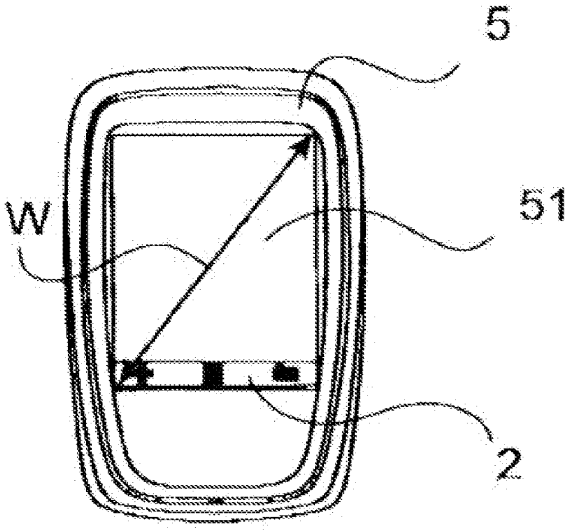
> The initial burden of establishing a prima facie basis to deny patentability to a claimed invention on any ground is always upon the examiner. *In re Oetiker, 977 F.2d 1443, 24 USPQ2d 1443* (Fed.Cir.1992). In rejecting a claim under the first paragraph of 35 U.S.C. 112 for lack of adequate descriptive support, it is incumbent upon the examiner to establish that the originally-filed disclosure would not have reasonably conveyed to one having ordinary skill in the art that an appellant had possession of the now claimed subject matter. *Wang Laboratories, Inc. v. Toshiba Corp., 993 F.2d 858, 26 USPQ2d 1767* (Fed.Cir.1993). Adequate description under the first paragraph of 35 U.S.C. 112 does not require literal support for the claimed invention. *In re Herschler, 591 F.2d 693, 200 USPQ 711* (CCPA1979); *In re Edwards, 568 F.2d 1349, 196 USPQ 465* (CCPA1978); *In re Wertheim, 541 F.2d 257, 191 USPQ 90* (CCPA1976). Rather, **it is sufficient if the originally-filed disclosure would have conveyed to one having ordinary skill in the art that an appellant had possession of the concept of what is claimed.** *In re Anderson, 471 F.2d 1237, 176 USPQ 331* (CCPA1973). (*Ex parte Parks, 30 USPQ2d 1234, 1236* (Bd. Pat. App. & Inter. 1993) (Emphasis added).

In the present case, Applicant submits that the originally-filed US 10/315,250 disclosure would have conveyed to one having ordinary skill in the art that the Applicant had possession of the concept of eliminating all buttons from the top surface on which the touch screen is presented. In particular, US 10/315,250 disclosure describes a user interface for a handheld computer that is completely functional by interacting with the touchscreen; there is no need for any buttons in addition to the touchscreen. Thus, the description in US Patent No. 8,095,879 recites,

> col. 2, lines 15 – 67: With the purpose of providing a simple way of **managing any application or the operations system**, the present invention teaches … With the purpose of providing the access to a text input function **in any application** in the computer unit, the present invention teaches … In order **to provide a task and file management** in a user interface for a handheld mobile computer, the present invention teaches …" (emphasis added), and
>
> col. 3, lines 1 – 15: The user interface of the present invention is specifically adapted … **to be operated by one hand, where the object can be a finger, such as the thumb,** of a user of the computer unit … Those advantages that can be primarily associated with a user interface … according to the present invention reside in

the ability to establish a user-friendly interface for small handheld computers ... (emphasis added)

Furthermore, FIG. 13 (shown below, and appearing on the cover page of US 8,095,879) shows this mobile handheld computer without any buttons on the upper surface, namely, the surface on which the touch screen is presented.



Applicant submits that the US 10/315,250 disclosure would have conveyed to one having ordinary skill in the art the concept of eliminating movable buttons from the upper surface of a handheld computer based on the teachings of the present invention, as these buttons -- common and necessary in prior art handheld computers -- are no longer needed.

At Paragraph 26, the Office Action addresses written description of the limitation in claims **21** and **30** "*wherein the communication options comprise call, email, and chat or SMS*". Applicant has amended claims **21** and **30** to recite, "present at least two communication options on said display for a given text, wherein the communication options comprise two or more of call, email, and chat or

SMS," and submits that this feature is supported by US 10/315,250, in US Patent No. 8,095,879,

> col. 4, lines 58 – 62: "... present services or settings available for the inputted text, such as ... using the inputted text as telephone number in a telephone application, or sending the inputted text as message in communications application, such as e-mail, SMS, or fax." (emphasis added).

Although the passage cited above mentions examples of communications applications ("*in communications application,* ***such as*** *e-mail, SMS*") the US 10/315,250 disclosure describes a chat communication application available on the same handheld computer together phone, e-mail and SMS, at least at FIG. 6. See applications 1 (phone), 2 (SMS), 5 (chat) and 9 (e-mail) in FIG. 6, shown below.

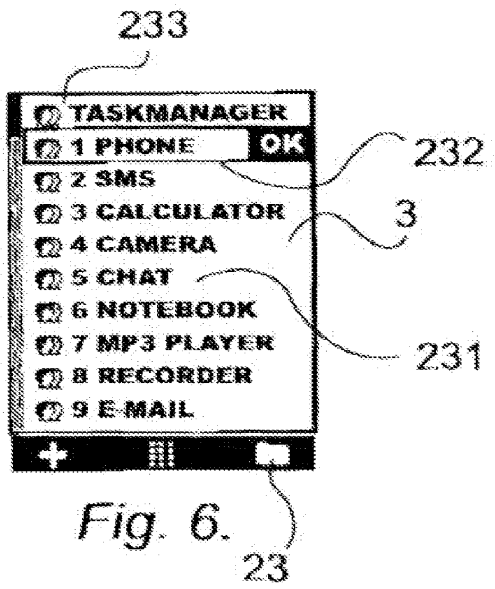
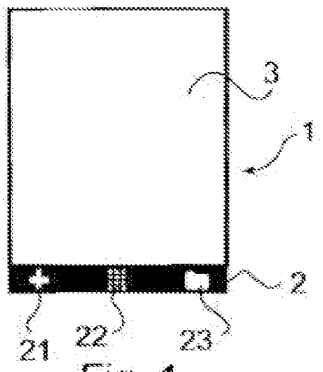
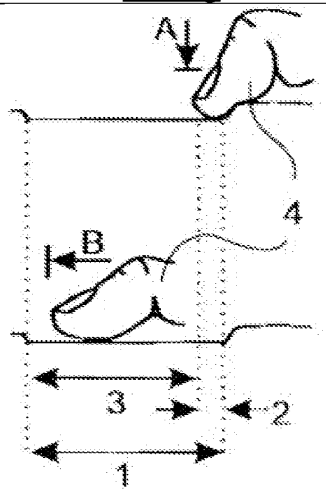
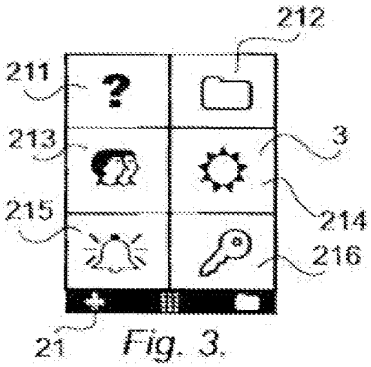


Fig. 6.

At Paragraph 27, the Office Action asserts that the limitation in claims **23**, **31** and **37** of "a tap-absent" lacks reasonable support in the specification. Applicant respectfully disagrees. As discussed hereinabove, the US 10/315,250 disclosure is directed at a fully functional user interface that relies on multi-step touch-and-glide gestures to access functions on the computer,

> US Patent No. 8,095,879, col. 2, lines 15 – 67: With the purpose of providing a simple way of **managing any application or the operations system**, the present invention teaches … With the purpose of providing the access to a text input function **in any application** in the computer unit, the present invention teaches … In order **to provide a task and file_management** in a user interface for a handheld mobile computer, the present invention teaches …" (emphasis added).

Prior to activating any multi-step touch-and-glide gestures, none of the tap-activatable controls shown in FIGS. 3, 5 and 6, would have been presented, yet these are the controls used to activate all functions. This "tap-absent state" is in fact illustrated in FIG. 1 showing the handheld computer touchscreen prior to activating any of the touch-and-glide gestures. The sequence of FIGS. 1 – 3, shown below, illustrates the sequence of activating one of the three fundamental user interface functions with a touch-and-glide gesture beginning at element 21:

Before	During	After
 Fig. 1.	 Fig. 2.	 Fig. 3.

Applicant respectfully submits that the originally-filed US 10/315,250 disclosure would have conveyed to one having ordinary skill in the art that appellant had possession of the concept of a tap-absent state, e.g., prior to performing any multi-step touch-and-glide gestures.

At Paragraph 28, the Office Action asserts that the limitation in claims **25**, **30** and **39** of "the representation represents only the function" lacks reasonable support in the specification. Applicant respectfully submits that each of the three representations 21 - 23 represents only their respective function. For example, it is clear to one skilled in the art reading the US 10/315,250 disclosure that representation 22 represents only a keyboard function. In fact, the Office Action is silent in suggesting what else this – or any of representations 21 – 23, represents other than their respective functions.

At Paragraph 29, the Office Action asserts that the limitation in claims **25**, **30** and **39** of "the representation … is not relocated during the multi-step user gesture, and the function is not activated differently based on a direction of the gliding" lacks reasonable support in the specification.

The feature that "the representation … is not relocated during the multi-step user gesture" is supported by the US 10/315,250 disclosure at least by US Patent No. 8,095,879, col. 6, lines 17 – 27, which states that the representations 21 – 23 are <u>printed</u> on top of a removable and exchangeable enclosure. Printed representations are not rendered by pixels on a display and therefore <u>cannot</u> be relocated during the gliding.

The feature that "the function is not activated differently based on a direction of the gliding" is supported by the US 10/315,250 disclosure at least by US Patent No. 8,095,879, col. 4, lines 7 – 11, which discusses only one direction for the gliding, namely, "with a direction B from the menu area 2 to the display area 3." These lines would have conveyed to one having ordinary skill in the art that appellant had possession of the concept that the function is not activated differently based on a direction of the gliding (*Ex parte Parks, 30 USPQ2d 1234, 1236* (Bd. Pat. App. & Inter. 1993).

Claim Rejections - 35 U.S.C. §103

At Paragraphs 30 – 39, the Office Action rejects claim **21** as being unpatentable over "Simon Says" and "Simonizing the PDA" (collectively "Simon"), in view of Schultz *et al.*, US Publication No. 2004/0203350 A1 ("Schultz") and Shah, US Patent Application No. 2001/0013069 A1 ("Shah").

At Paragraphs 40 - 44, the Office Action rejects claim **22** as being unpatentable over Simon in view of Schultz and Shah, and in further view of Frank *et al.*, US Patent No. 5,651,107 ("Frank").

At Paragraphs 45 - 58, the Office Action rejects claims **23** - **26**, **28**, **37** and **38** as being unpatentable over Simon in view of Schultz, Shah and Frank, and in further view of Gough *et al.*, US Patent No. 5,603,053 ("Gough").

At Paragraphs 59 - 70, the Office Action rejects claims **27**, **30** – **35** and **39** as being unpatentable over Simon in view of Schultz, Shah, Frank and Gough, and in further view of Nakagawa *et al.*, US Patent No. 6,128,014[3] ("Nakagawa").

At Paragraphs 71 - 81, the Office Action rejects claim **29** as being unpatentable over Simon in view of Schultz, Shah and Frank, and in further view of Hughes *et al.*, US Publication No. 2009/0192849 A1 ("Hughes") as evidenced by Hughes *et al.*, US Provisional Patent Application No. 61/020,702 ("Hughes Parent"), Ording, US Publication No. 2008/0168404 A1 ("Ording"), and Schwesig *et al.*, US Publication No. 2008/0303799 A1 ("Schwesig").

At Paragraphs 82 - 84, the Office Action rejects claims **36** and **40** as being unpatentable over Simon, in view of Schultz, Shah, Frank, Gough and Nakagawa, and in further view of Hughes, Ording and Schwesig.

[3] At Paragraph 59, the Office Action refers to "Nakagawa et al., U.S. patent 5,289,168", but that patent is to Freeman. The intended reference is U.S. patent 6,128,014.

Brief Discussion of Applied References

Simon Says describes a touchscreen cellular phone with personal organization and communication capabilities, including telephone, address book, calculator, alarm, clock and email (Simon Says/ pages 11, 17 – 32, 34, 51 – 56 and 64). The touchscreen displays icons, and the user can slide a stylus across the screen until a desired icon is highlighted, and then lift the stylus to select the feature represented by the icon (Simon Says/ pages 10 and 35). The address book provides for two phone numbers and a fax number for each contact (Simon Says/ pages 10 and 35).

Simonizing the PDA a miniaturized DOS computer with a modem and a cellular transmitter-receiver with an all-points touch overlay that can be electronically written on with a stylus or finger (Simonizing the PDA/ page 4).

Schultz describes an operational environment of various wireless communication devices, including cameras, instant messaging devices and MP3 players, storing records tagged with universal identity metatags (UIMs), whereby the devices share records having related UIMs (Shultz/ paragraphs [0012] - [0014], [0019] and [0021]; FIGS. 1 and 2).

Shah describes a routing server 42 that reformats messages including text, audio and other binary message attachments received in a format suitable for a first type of device, into a format suitable for a second type of device, and to redirect the message to the second device in an appropriate format (Shah/ paragraphs [0039] – [0043], [0066] and [0067]; FIG. 2). In Shah, a user of a personal computer (PC) 12s logs in to a routing server 42, either via a routing client running on PC 12s or via the server homepage URL using an internet browser running on PC 12s, to

configure routing server 42 (Shah/ paragraphs [0041], [0063], [0066], [0085] and [0098]; FIGS. 2, 3, 5 and 6).

Frank discusses graphical user interfaces (GUI) that use a desktop metaphor to runs multiple applications concurrently and present data for each application in a respective window on the "desktop", and addresses the problem when one window partially or fully obscures a window of another concurrently running application on the "desktop" (Frank/ col. 1, lines 45 – 52 and col. 5, lines 30 – 41; FIGS. 3 and 9). Frank applies a technique known as "α blending" to overlapping portions of two such windows, to enable the user to see the overlapping portions of both windows on the desktop at the same time (Frank/ col. 6, lines 25 – 56; FIGS. 5 and 10).

Gough describes a palette of input utilities provided in a Windows desktop GUI, the palette including a keyboard icon that can be dragged to a location on the desktop at which the user wishes to open a virtual keyboard (Gough/ col. 1, line 61 – col. 2, line 60 and col. 6, lines 29 – 44; FIGS. 4a and 4b).

Nakagawa describes a user interface for turning pages on an electronic book displayed on an electronic whiteboard by a teacher or presenter before a group of students or participants, in response to a pen touching the whiteboard within the book and dragging the pen left or right (Nakagawa/ col. 1, lines 16 – 55 and col. 8, lines 23 - 63; FIGS. 7 and 8). Nakagawa also discusses a user interface to increment and decrement a counter displayed on the electronic whiteboard by providing a count operation region adjacent to the counter and incrementing or decrementing the counter in response to a pen touching the count operation region and being dragged up or down (Nakagawa/ col. 10, line 55 – col. 11, line 23; FIGS. 11 and 12).

Hughes and **Hughes Parent** describe an integrated development environment (IDE) for software development presented as a dashboard in a web browser (Hughes/ paragraphs [0002], [0006] – [0021], [0032], [0078] and [0080]; FIGS. 3 – 6 and 8), (Hughes Parent/ paragraphs [0001], [0008] – [0010], [0061] and [00633]; FIGS. 3 – 6).

Ording describes scrolling a list of items, or an electronic document, in response to detecting a sweeping or gliding motion anywhere within a display window in which the list or electronic document is displayed (Ording/ paragraphs [0156] and [0170]; FIGS. 6A, 6B – 6D, 7, 8A, 8B and 9).

Schwesig describes the problem in a touchscreen when a large contact area touches more than one virtual button (Schwesig/ paragraphs [0016] – [0023]; FIGS. 1A and 1B). Schwesig discusses enlarging a virtual button being touched in response to a detected pressure on the touchscreen in order that the touch area not spill over onto a neighboring virtual button (Schwesig/ paragraphs [0060] – [0064] and [0136] – [0139]; FIGS. 5, 7, 13 and 14).

Brief Discussion of Additional References Cited

Applicant would like to discuss the additional references cited by the Office Action but not relied upon; namely, Freeman, US Patent No. 5,289,168 ("Freeman"), Hanson, US Patent No. 5,568,604 ("Hanson"), Miller *et al.*, US Publication No. 2002/0046315 A1 ("Miller"), Simmon *et al.*, US Publication No. 2002/0097273 A1 ("Simmon"), Kocienda *et al.*, US 2007/0152978 A1 ("Kocienda"), and Panabaker *et al.*, US Publication No. US 2009/0089705 A1 ("Panabaker").

Freeman describes a tablet for creating and displaying digital images featuring a display section surrounded by a frame (Freeman/ col. 1, lines 36 – 50 and col. 4, lines 23 – 25; FIG. 1b). In response to swipe

gestures in different directions – right, left, up and down – performed by an indicating device within the frame area outside the display, the tablet will display another image, enter a scroll mode, enter a zoom mode, or cancel the current scroll or zoom mode, respectively (Freeman/ col. 4, lines 23 – 68, and col. 5, lines 25 – 54 and 61 - 64; FIG. 3).

Hansen describes a user interface designed to make a computer desktop feel more like a real-world desk where the user grabs a clean sheet of paper from the left side of the desk (Hansen/ col. 6, lines 23 – 43). Hansen describes the steps of clearing the screen and displaying a plurality of icons representing desktop applications in response to a finger stroke gesture beginning within two cm of the left edge of the screen and proceeding a predetermined distance toward the interior of the screen, and closing an open application window in response to a finger stroke gesture beginning inside the open application window and proceeding a predetermined length toward the left screen edge (Hansen/ col. 1, lines 52 – 57, col. 2, lines 6 – 10, col. 6, lines 22 – 59, col. 7, lines 2 – 49 and col. 8, lines 14 – 47; FIGS. 2 – 4B).

Miller describes an electronic music player in which lists of items that are scrolled using scroll buttons, a highlighted list item is selected by pressing a selection button, and a main menu button is used to exit a control function process and return to a main display (Miller/ paragraphs [0028], [0029] and [0044]; FIG. 3.)

Simmon describes a handheld terminal for entering, retrieving and displaying database information (Simmon/ paragraphs [0008] – [0011], [0041], [0042] and [0053]. – [0060]; FIGS. 1 and 3a – 3d). A user interface on the handheld terminal includes scroll bars for entering letters and digits (Simmon/ paragraphs [0061] and [0062]; FIG. 18).

Kocienda describes a touchscreen keyboard in which, when a user makes contact with a key, an icon representing the key is displayed

adjacent to the key (Kocienda/ paragraphs [0126] – [0130]; FIGS. 6B – 6D). The user selects a symbol by increasing contact pressure with the display while maintaining contact with the display (Kocienda/ paragraph [0161]).

Panabaker describes a mobile computer including a pressure-sensing frame surrounding a display configured to render a portion of an image larger than the display, whereby in response to pressure on the frame panels, the larger image is panned or zoomed on the display, or replaced by another image in a set of images (Panabaker/ paragraphs [0011] and [0022] – [0024]; FIGS. 1, 2 and 5).

Response to Claim Rejections - 35 U.S.C. §103

The rejections of the claims under 35 U.S.C. §103 will now be addressed specifically.

Claims 21 - 29

Claim 21

Independent claim **21** for a portable wireless computer system, as amended, incudes the features of

"*a solid-state memory storing computer instructions configured to … run at least two partially or totally overlapping applications* ***simultaneously***", and

"*a solid-state memory storing computer instructions configured to … present* ***at least two communication options*** *on said display for ~~a~~ given text, wherein the communication options comprise* ***two or more of*** *call, email, and chat or SMS*".

As explained hereinbelow, the above features are neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination.

Applicant notes that in rejecting claim **21** at Paragraph 33, the Office action asserts that Simon Manual, at pages 17 and 18 ("*Phone*"), at page 34 ("*Mobile Office*"), and at page 41 ("*Calculator*") teaches running a plurality of applications. In order to further distinguish the claimed invention from Simon, Applicant has amended claim **21** to include the feature that the applications are run simultaneously, which is neither shown nor suggested by Simon.

Applicant further notes that in rejecting claim **21** at Paragraph 35, the Office Action asserts that Schultz, at paragraphs [0021] and [0022], teaches running a plurality of applications. However, Schultz fails to show or suggest running applications simultaneously.

Applicant notes that in rejecting claim **21** at Paragraph 33, the Office action asserts that Simon Manual, at page 35 ("*Address Book*") and at page 40 ("*Making a Phone Call From the Address Book*") teaches the claimed feature of presenting at least two communication options on the display for a given contact. Applicant respectfully submits that Simon provides only one communication option for a given address/number (Simon/ pages 37 – 39). In distinction, the claimed invention provides multiple options including phone, text and email for a given text (US 13/310,755 as published in US Patent No. 8,812,993/ column 4, line 63 – column 5, line 2). To further clarify this distinction, Applicant has amended claim **21** to replace "for a given contact" with –– for given text ––.

At paragraph 33e, the Office Action asserts that Simon Says and Simonizing the PDA teach the feature "to present a plurality of communication options on said display for a given contact, wherein the communication options comprise call, email" in claim **21**. In particular, the Office Action cites a review of the Simon, Simonizing the PDA, p. 6, para. 2, which states that "you can call, fax, or send E-mail to someone from the address book" as teaching "present a plurality of communication options

on said display for a given contact, wherein the communication options comprise call, email". However, Applicant submits that it is evident from the user manual for Simon, Simon Says, that in fact, email and call communication options are not presented together for a given contact. Thus, the illustrations of the address book entry for a given contact (Simon Says/ pages 38 – 40) do not provide an email communication option. Simonizing the PDA, page 6, paragraph 2, cited in the Office Action, is remarking that the address book is well integrated with the different applications, such as the Phone application and the Mail application, so that when the user creates a new email *in the Mail application* the destination address can be *retrieved via the address book* (Simon Says/ page 52, paragraph 4). Neither Simon nor Simonizing the PDA indicates presenting at least two communication options on the display for a given contact, wherein the communication options include call and email.

In order to further distinguish the claimed invention from Simon, Applicant has amended claim **21** to recite "to present at least two communication options on said display for given text, wherein the communication options comprise two or more of call, email, and chat or SMS", and Applicant respectfully submits that this feature is neither shown nor suggested by Simon Says and Simonizing the PDA.

At paragraph 35 the Office Action asserts that paragraphs [0016], [0021] and [0022] of Shultz teach providing in a single, portable wireless computer system, applications for a telephone, chat or SMS, a camera, a music player, and email. As discussed hereinabove, Shultz describes a universal identity metatag (UIM) in an operational environment that includes various wireless communication devices (WCDs), including various mobile communication devices (MCDs), such as instant messaging devices, MP3 players and digital cameras (Shultz/ paragraphs [0012] and

[0021]), but Shultz fails to show or suggest combining all of these different device functionalities into a single portable wireless computer system.

At paragraph 36 the Office Action asserts that Shultz, at paragraphs [0016] and [0021], teaches motivation to combine different device functionalities into a single portable wireless computer system. Applicant respectfully disagrees, as at paragraphs [0016] and [0021] Shultz describes use of UIMs on different devices, not combining applications into one device. In fact, a camera, an MP3 player, a pager and a wireless telephone, all require different hardware, an issue not discussed in Shultz, as Shultz is not advocating combining these functionalities in a single device.

At paragraphs 38 and 39 the Office Action cites Shah as teaching presenting a plurality of communication options for a given contact. As discussed hereinabove, Shah describes user interfaces for configuring a routing server, which is an entirely different field of endeavor than the claimed invention.

Claim 22

Dependent claim **22** incudes the feature that

"*the plurality of applications comprise … a second application and a third application* ***capable of running simultaneously****, the second application capable of being presented on top of the third application on said display*".

As explained hereinbelow, the above feature is neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination.

Applicant notes that in rejecting claim **22** at Paragraph 43, the Office action asserts that Frank, at the Abstract and at column 1, lines 9 - 14, teaches a second application and a third application capable of running

simultaneously. Applicant respectfully submits that Frank relates to overlapping windows for Office applications that do not run simultaneously, on a stationary, non-wireless display.

At paragraph 41 the Office Action asserts that "Shah, para. 21 describing … an MP3 player", teaches "wherein the plurality of applications comprise: (a) a first application providing options … for editing, deleting and sending a picture, (b) a second application and a third application capable of running simultaneously … and (c) a fourth application and a fifth application capable of running simultaneously, the fourth application being a music player …" Paragraph [0021] of Shah does not describe music players, nor, in fact, do the words "music" or "MP3" appear anywhere in Shah. Applicant assumes that the Office Action intended to reference Shultz, para. 21, instead of Shah, para. 21. As discussed hereinabove, Shultz fails to show or suggest combining MP3 functionality into a single portable wireless computer system enabled to run five different applications including a music player. Shultz merely mentions an MP3 player as being one of several different devices that could use universal identity metatags (UMI). This does not imply the concept of a new device that incorporates MP3 functionality with the functions of other devices, such as a camera and a mobile phone.

Claim 23

Dependent claim **23**, as amended, incudes the feature that

"*the computer instructions are configured to enable the portable wireless computer system to present a user interface, the user interface comprising … a tap-absent state, wherein* ***no tap-activatable icons are present***".

As explained hereinbelow, the above feature is neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination.

Applicant notes that in rejecting claim **23** at Paragraph 46, the Office action asserts that How Simon Works, at pages 11, 14, 18, 26 - 33, 37 - 40, 47, 58 and 62 teaches a tap–absent state wherein the plurality of tap activatable icons are absent. Further, at page 27 the Office Action points out that any user interface screen other than the Mobile Office screen can be viewed as a tap–absent state. To further clarify the distinction between the claimed invention and Simon, Applicant has amended claim **23** to replace "the plurality of tap–activatable icons are absent" with –– no tap-activatable icons are present ––.

Applicant further notes that in rejecting claim **23** at Paragraph 48, the Office Action asserts that Gough's user interface, before display of the keyboard, can be viewed as a tap–absent state. However, Applicant respectfully submits that FIG. 3 of Gough shows a tap-present state, since the help icon and "*File*", *Edit*", etc. are tap-activatable.

At paragraph 46 the Office Action cites Simon as teaching a tap-present state and a tap-absent state, noting that any user interface screen other than the Mobile Office screen can be viewed as a tap-absent state, wherein the plurality of tap-activatable icons are absent, at least in the sense that particular tap-activatable icons are absent. Applicant has amended claim **23** to recite the feature "a tap-absent state, wherein no tap-activatable icons are present" and respectfully submits that this feature is not taught by Simon, Shultz, Shah, Frank or Gough. In fact, Gough's FIG. 4c clearly indicates a tap-present state at least by the menu items "File" and "Edit" at the left of the title bar, and the help callout icon and the other icon at the right of the title bar.

At paragraph 48 the Office Action cites Gough as teaching "a multi-step user gesture comprising the object: (i) touching an edge area of said display, and then (ii) gliding on said display away from the edge area," arguing that Gough's keyboard icon in a palette can be viewed as being in an edge area of the display. Gough's FIG. 4c is reproduced below with the keyboard icon highlighted. Applicant submits that nothing indicates that Gough's icon is located at an edge area of the display.

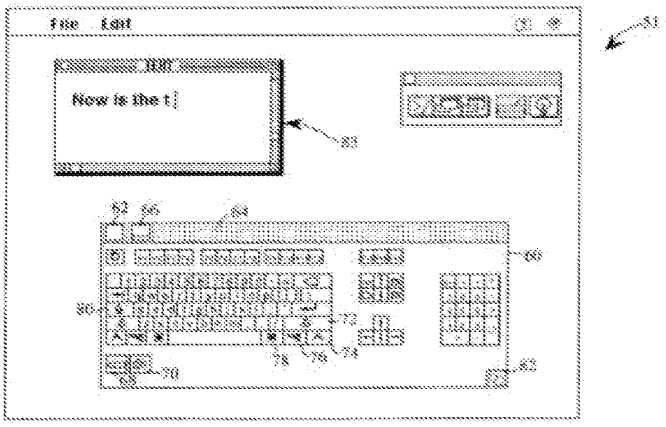


Figure 4c

Claim 24

Dependent claim **24** incudes the feature that

"*the plurality of tap-activatable icons represent applications comprising a telephone, chat or SMS, a camera, a music player and email*". As explained hereinbelow, the above feature is neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination.

At paragraph 50 the Office Action cites Shah as teaching applications for instant messaging, a camera and a music player. As discussed hereinabove with respect to claim **21**, Shah describes a network

of devices such as a camera and a music player, but Shah fails to show or suggest combining these applications in a handheld telephone.

Claim 25

Dependent claim **25** incudes the feature that

"*the computer instructions are configured to activate a function in response to a multi-step user gesture comprising the object touching said display at a location corresponding to a demarcated representation of the function followed by the object gliding away from the location along said display … and* ***the function is not activated differently based on a direction or final destination of the gliding***".

As explained hereinbelow, the above feature is neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination.

At paragraph 53 the Office Action asserts that Gough teaches "to activate a function in response to a multi-step user gesture comprising the object touching said display at a location corresponding to a demarcated representation of the function followed by the object gliding away from the location along said display … and the function is not activated differently based on a direction of the gliding." Applicant submits that there are several options for activating the function of Gough, each corresponding to a different location for the keyboard. The Office Action seems to acknowledge this, but states that "the display of the same keyboard at a given location … can be viewed as a function 'not activated differently' in some sense" (emphasis added). Applicant further submits that the only motivation for Gough's drag gesture is in order to enable positioning the keypad at a desired location on the screen. Moreover, Gough activates the keyboard function differently based on a direction of the glide, as glides in different directions will arrive at different locations

on the screen and thus place the keyboard at different locations. The Office Action seems to acknowledge this, but states that dragging initially in different directions yet ending at the same target location would appear to result in the activation of the keyboard at the same location. Applicant submits that this scenario is not discussed in Gough. However, applicant has added the feature that "the function is not activated differently based on a direction or final destination of the gliding" and submits that this feature is not taught by Gough.

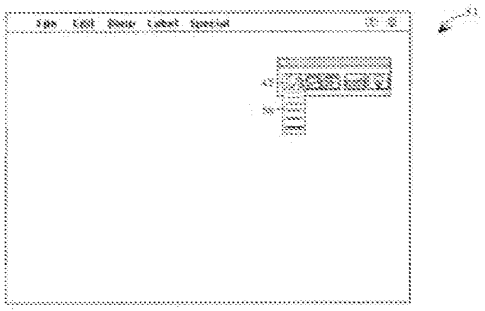
Claim 26

Dependent claim **26**, as amended, incudes the feature that

"*the function is a member of a group consisting of an application, and a menu for configuring services or settings for an operations system or an application*".

As explained hereinbelow, the above feature is neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination.

At paragraph 55, the Office Action asserts that the feature "wherein the function is a member of the group consisting of an application, and a menu for configuring services or settings for an operations system or an application" is taught by Simon. The "function" in this claim is that function that is activated by the touch and glide gesture in claim **25**, which the Office Action asserts is taught by Gough. However, Gough is clearly aimed only at input utilities in a pen computer system (Gough/ col. 1, line 61 – col. 2, line 60), not applications or menus for configuring services or settings for an operations system or an application. In fact, Gough discusses a menu and does not teach dragging the menu to a desired location on the screen. (See Gough FIG. 3, shown below.)



Claim 27

Dependent claim **27**, as amended, incudes the feature that

"*the computer instructions are configured (a) to enable the portable wireless computer system to scroll content on said display in response to the object touching a first location on said display and gliding up or down on said display from the first location, and (b) to enable the portable wireless computer system to move an application, a function, a service or a setting one step forward or backward or to close or remove an application, a function, a service or a setting on said display in response to the object touching a second location on said display and gliding to the right or to the left from the second location,* ***wherein the first and second locations may be anywhere within said display***".

As explained hereinbelow, the above feature is neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination.

Applicant notes that in rejecting claim **27** at Paragraph 62, the Office action asserts that Nakagawa, at column 5, line 56 – column 7, line 28, at column 7, lines 47 – 61, at column 8, lines 23 – 52, and at FIGS. 4 and 7A – 7C, teaches the above feature. Applicant respectfully submits that in Nakagawa, the first and second locations are confined to

Nakagawa's scroll region. In order to further clarify the distinction between the claimed invention and Nakagawa, Applicant has amended claim **27** to include the feature that the first and second locations may be anywhere within said display.

At paragraph 62, the Office Action asserts that Nakagawa teaches to "scroll content on said display in response to the object touching a first location on said display and gliding up or down on said display from the first location, and ... to move an application, a function, a service or a setting one step forward or backward or to close or remove an application, a function, a service or a setting on said display in response to the object touching a second location on said display and gliding to the right or to the left from the second location". Applicant has added the feature "wherein the first and second locations may be anywhere within said display" and submits that this feature is not taught by Nakagawa for scrolling. Applicant notes that the "page down" feature shown in Nakagawa FIGS. 7a – 7c is not a scroll operation. Applicant further notes that Nakagawa fails to show or suggest "move a setting one step forward or backward or to close or remove an application, a function, a service or a setting on said display in response to the object touching a second location on said display and gliding to the right or to the left from the second location".

Claim 29

Dependent claim **29**, as amended, incudes the features

"***wherein the computer instructions are configured*** *to enable the portable wireless computer system to enable a graphical user interface for accessing* ***first, second, third and fourth gadgets for news, stock market information, weather and social media, respectively,*** *each gadget comprising an area containing at least a portion of dynamically generated data related to that gadget, wherein the user*

interface: (i) ***arranges the gadgets*** *in a layout that is larger than said display, whereby some of the gadgets are in said display and others of the gadgets are out of said display; (ii)* ***expands one of the gadgets*** *in said display beyond an edge of said display to show more data therein by shifting other gadgets; and (iii)* ***pans the layout within said display*** *to bring some of the gadgets into said display and/or to move some of the gadgets out of said display, in response to the object touching one of the gadgets on said display, and then the object gliding along said display away from the touched location*".

Applicant notes that in rejecting claim **29** at Paragraph 74, the Office action cites Hughes Parent as teaching a user interface comprised of widgets. Applicant respectfully submits that Hughes is discussing a software development environment (IDE) and therefore the various widgets are related to the software development by the user. This is an entirely different field of endeavor than providing information to a user of a mobile phone regarding unrelated sources of information, particularly, stock market, weather, social media and news.

Moreover, because claims **22** – **29** depend from claim **21** and include additional features, Applicant respectfully submits that claims **22** – **29** are not anticipated or rendered obvious by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig.

Accordingly claims **21** – **29** are deemed to be allowable.

Claims 30 - 36

Claim 30

Independent claim **30** for a mobile phone system, as amended, incudes the features of

"*a solid-state memory storing computer instructions configured to enable the mobile phone system to present* ***at least two communication options*** *for given text, the communication options comprising two or more of call, email, and chat or SMS*", and

"*a solid-state memory storing computer instructions configured to enable the mobile phone system … to scroll content on said display in response to the object touching a first location on said display and gliding up or down on said display from the first location, and … to move an application, a function, a service or a setting one step forward or backward or to close or remove an application, a function, a service or a setting on said display in response to the object touching a second location on said display and gliding to the right or to the left from the second location, wherein* ***the first and second locations may be anywhere within said display***".

As explained hereinabove with reference to claim **21**, the first feature above is neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination. As explained hereinabove with reference to claim **27**, the second feature above is neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination.

The feature "(a) to activate a function in response to a first multi-step user gesture comprising an object touching an area corresponding to a demarcated representation of the function followed by gliding away from the area on said display, wherein the demarcated

representation represents only the function and does not relocate during the first multi-step user gesture, and the function is not activated differently based on a direction or final destination of the gliding", has been discussed hereinabove with respect to claim **25** where Applicant explains that Gough does not teach "the function is not activated differently based on a direction or final destination of the gliding".

In addition, the feature, "to present a plurality of functions, applications, services or settings in response to a second multi-step user gesture comprising the object touching a border area of said display followed by gliding within said display away from the border area," has been discussed hereinabove with respect to claim **26**, where Applicant argued that Gough is directed only at input utilities in a pen computer system, and therefore does not teach the claimed feature. In addition, the feature of providing two different functionalities for multi-step touch and glide gestures as claimed in claim **30** is not taught in the prior art. Rather, this gesture is discussed as having only one function in Gough, and similarly, Hansen's finger stroke gesture is associated with a unique function that mimics pulling out a fresh sheet of paper.

Claim 31

Dependent claim **31**, as amended, incudes the feature of

"*a tap-absent state, wherein no tap-activatable icons are present, the tap-absent state configured to be transitioned to the tap-present state in response to a third multi-step user gesture comprising: the object (i) touching an edge area of said display, and then (ii) gliding on said display away from the edge area*".

As explained hereinbelow, the above feature is neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination.

Indeed, the feature of "a tap-absent state, wherein no tap-activatable icons are present" is discussed hereinabove with respect to claim **23**, and Applicant respectfully submits that this feature is not taught by Simon, Shultz, Shah, Frank or Gough.

In addition, as discussed hereinabove with respect to claim **23**, Applicant submits that nothing indicates that the keyboard icon in Gough's FIG. 4c is at an edge area of the display.

Claim 32

Dependent claim **32** incudes the feature that

"*the plurality of tap-activatable icons represent applications comprising a telephone, chat or SMS, a camera, a music player and email*". As explained hereinbelow, the above feature is neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination.

Indeed, as explained hereinabove with respect to claims **21** and **22**, Shah does not mention a music player, and Schultz describes a network of devices such as a camera and a music player, but Schultz fails to show or suggest combining chat or SMS, a camera and a music player in a handheld telephone.

Claim 33

Dependent claim **33** includes the features that

"*the computer instructions are configured to enable the mobile phone system to run a plurality of applications, the applications comprising: (a)* ***a telephone, chat or SMS, a calculator, a camera, an alarm, a clock, a music player, and email****; (b) a third application and a fourth application capable of* ***running simultaneously****, the third application capable of being presented on top of the fourth application on said display*".

As explained hereinbelow, the above features are neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination.

Indeed, as explained hereinabove with respect to claims **21** and **22**, Shultz does not discuss combining MP3 functionality into a single portable wireless computer system enabled to run five different applications including a music player. Shultz merely mentions an MP3 player as being one of several different devices that could use universal identity metatags (UMI). This does not imply the concept of a new device that incorporates MP3 functionality with the functions of other devices, such as a camera and a mobile phone.

Furthermore, as explained hereinabove with respect to claims **21** and **22**, Simon, Shultz, Frank and Shah do not teach running applications simultaneously.

Claim 34

Dependent claim **34**, as amended, incudes the feature that "*the first application is not an address book*".

As explained hereinbelow, the above feature is neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination.

In order to further distinguish claim **34** over the prior art, Applicant has added the feature "wherein the first application is not an address book," and respectfully submits that the feature "wherein the text saved in the first application is configured for use as an address, a telephone number, or a message in phone call, email, chat or SMS" is not taught by Simon, Shultz, Shah, Frank, Gough or Nakagawa.

Claim 36

Dependent claim **36**, as amended, includes the features that "***the computer instructions are configured to enable*** *the mobile phone system … to enable a graphical user interface for accessing first, second, third and fourth* ***gadgets for news, stock market information, weather and social media****, respectively, each gadget comprising an area containing at least a portion of dynamically generated data related to that gadget, wherein the user interface: (a)* ***arranges*** *the gadgets in a layout that is larger than said display, whereby some of the gadgets are in said display and others of the gadgets are out of said display; (b)* ***expands*** *one of the gadgets in said display to show more data therein by shifting other gadgets; and (c)* ***pans*** *the layout within said display to bring some of the gadgets into said display and/or to move some of the gadgets out of said display, in response to (i) the object touching one of the gadgets on said display, and then (ii) the object gliding along said display away from the touched location*".

As explained hereinabove respect to claim **29**, the above features are neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination

Moreover, because claims **31** – **36** depend from claim **30** and include additional features, Applicant respectfully submits that claims **31** – **36** are not anticipated or rendered obvious by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig.

Accordingly claims **30** – **36** are deemed to be allowable.

Claims 37 - 40

Claim 37

Independent claim **37** for a mobile phone system, as amended, includes the feature of

"*a solid-state memory storing computer instructions configured to enable the mobile phone system … to provide a user interface, the user interface comprising … a tap-absent state, wherein* ***no tap-activatable icons are present***".

Applicant has amended claim **37** to recite the feature "a tap-absent state, wherein no tap-activatable icons are present" and respectfully submits that this feature is not taught by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination, as discussed hereinabove with respect to claim **23**.

Claim 38

Dependent claim **38**, as amended, incudes the features that

"*the computer instructions are further configured to enable the mobile phone system to run … a third application and a fourth application* ***capable of running simultaneously****, the third application capable of being presented on top of the fourth application on said display*", and

"*the computer instructions are further configured to enable the mobile phone system to run … a seventh application providing* ***at least two communication options*** *for given text, the communication options comprising* ***two or more of*** *call, email, and chat or SMS*".

As explained hereinabove with reference to claim **22**, the first feature above is neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination. As explained hereinabove with reference to claim **21**, the second feature above is neither shown nor suggested by Simon, Schultz,

Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination.

Applicant has amended claim **38** to recite "a seventh application providing at least two communication options for given text, the communication options comprising two or more of call, email, and chat or SMS" and submits that this feature is not taught by Simon Says and Simonizing the PDA, or by Shah, as discussed hereinabove with reference to claim **21**.

As further discussed hereinabove with reference to claim **21**, Shultz does not discuss combining instant messaging devices, MP3 players and digital cameras into a single portable wireless computer system.

Claim 39

Dependent claim **39**, as amended, incudes the feature that

"*the instructions are configured to enable the mobile phone system … to scroll content on said display in response to the object touching a first location on said display and gliding up or down on said display from the first location … to move an application, a function, a service or a setting one step forward or backward or to close or remove an application, a function, a service or a setting on said display in response to the object touching a second location on said display and gliding to the right or to the left from the second location,* ***wherein the first and second locations may be anywhere within said display***".

As explained hereinabove with reference to claim **27**, this feature is neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination.

Indeed, as explained hereinabove with reference to claim **27**, Applicant has added the feature "wherein the first and second locations may be anywhere within said display" and submits that this feature is

neither shown nor suggested by Nakagawa for scrolling. Applicant notes that the "page down" feature shown in Nakagawa FIGS. 7a – 7c is not a scroll operation. Applicant further notes that Nakagawa does not teach "move a setting one step forward or backward or to close or remove an application, a function, a service or a setting on said display in response to the object touching a second location on said display and gliding to the right or to the left from the second location".

In order to further distinguish claim **39** over the prior art, Applicant has included the feature "the function is not activated differently based on a direction or final destination of the gliding," as discussed hereinabove with reference to claim **25**

.

Claim 40

Dependent claim **40**, as amended, includes the features that

"***the computer instructions are configured to enable*** *the mobile phone system … to enable a graphical user interface for accessing first, second, third and fourth* ***gadgets for news, stock market information, weather and social media****, respectively, each gadget comprising an area containing at least a portion of dynamically generated data related to that gadget, wherein the user interface: (a)* ***arranges*** *the gadgets in a layout that is larger than said display, whereby some of the gadgets are in said display and others of the gadgets are out of said display; (b)* ***expands*** *one of the gadgets in said display to show more data therein by shifting other gadgets; and (c)* ***pans*** *the layout within said display to bring some of the gadgets into said display and/or to move some of the gadgets out of said display, in response to (i) the object touching one of the gadgets on said display, and then (ii) the object gliding along said display away from the touched location*".

As explained hereinabove respect to claim **29**, the above features are neither shown nor suggested by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig, taken alone or in combination

Moreover, because claims **38** – **40** depend from claim **37** and include additional features, Applicant respectfully submits that claims **38** – **40** are not anticipated or rendered obvious by Simon, Schultz, Shah, Frank, Gough, Nakagawa, Hughes, Ording and Schwesig.

Accordingly claims **37** – **40** are deemed to be allowable.

Support for Claim Amendments in the Original Specification

Independent claim **21** for a portable wireless computer system has been amended to recite the feature that the portable wireless computer system is enabled to run at least two partially or totally overlapping applications simultaneously. This feature is supported in the original specification at least by Appendix A paragraphs [0002], [0042].

Claim **21** has been further amended to recite the feature of causing the portable wire computer system to present at least two communication options on said display for given text. This feature is supported in the original specification at least by Appendix A paragraphs [0020] and [0055].

Dependent claim **23** has been amended to recite the feature that no tap-activatable icons are present in the tap-absent state. This feature is supported in the original specification at least by Appendix A FIG. 1 taken together with FIGS. 2 and 3, as explained in Appendix A paragraph [0048] ("no application is currently active").

Dependent claim **25** has been amended to recite the feature that the function is not activated differently based on a final destination of the gliding. This feature is supported in the original specification at least

by Appendix A paragraph [0045] and FIGS. 3, 4 and 6 showing that each activated function occupies the entire display.

Dependent claim **27** has been amended to recite the feature that the first and second locations may be anywhere within the display. This feature is supported in the original specification at least by Appendix A paragraph [0065] and FIGS. 11 and 12.

Dependent claim **29** has been amended to recite the feature of first, second, third and fourth gadgets for news, stock market information, weather and social media, respectively. This feature is supported in the original specification at least by paragraph [0015] and FIG. 48 ("G8 Facebook") and FIG. 50 ("G3 Web CNN").

Independent claim **30** for a mobile phone system has been amended to recite the feature that the function is not activated differently based on a final destination of the gliding. This feature is supported in the original specification at least by Appendix A paragraph [0045] and FIGS. 3, 4 and 6 showing that each activated function occupies the entire display.

Claim **30** has been further amended to recite the feature that the mobile phone system is enabled to present at least two communication options for given text, the communication options including two or more of call, email, and chat or SMS. This feature is supported in the original specification at least by Appendix A paragraphs [0020] and [0055].

Claim **30** has been further amended to recite the feature that the first and second locations may be anywhere within the display. This feature is supported in the original specification at least by Appendix A paragraph [0065] and FIGS. 11 and 12.

Dependent claim **31** has been amended to recite the feature that no tap-activatable icons are present in the tap-absent state. This feature is supported in the original specification at least by Appendix A FIG.

1 taken together with FIGS. 2 and 3, as explained in Appendix A paragraph [0048] ("no application is currently active").

Dependent claim **34** has been amended to recite the feature that the first application is not an address book. This feature is supported in the original specification at least by Appendix A paragraph [0055], which states that "the second function 22 as currently active application". Function 22 is a keyboard function, not an address book (Appendix A paragraph [0044]).

Dependent claim **36** has been amended to recite the feature of first, second, third and fourth gadgets for news, stock market information, weather and social media, respectively. This feature is supported in the original specification at least by paragraph [0015] and FIG. 48 ("G8 Facebook") and FIG. 50 ("G3 Web CNN").

Independent claim **37** for a mobile phone system has been amended to recite the feature that no tap-activatable icons are present in the tap-absent state. This feature is supported in the original specification at least by Appendix A FIG. 1 taken together with FIGS. 2 and 3, as explained in Appendix A paragraph [0048] ("no application is currently active").

Dependent claim **38** has been amended to recite the feature that the mobile phone system is enabled to provide at least two communication options for given text, the communication options including two or more of call, email, and chat or SMS. This feature is supported in the original specification at least by Appendix A paragraphs [0020] and [0055].

Dependent claim **39** has been amended to recite the feature that the first and second locations may be anywhere within the display. This feature is supported in the original specification at least by Appendix A paragraph [0065] and FIGS. 11 and 12.

Claim **39** has been further amended to recite the feature that the function is not activated differently based on a final destination of the gliding. This feature is supported in the original specification at least by Appendix A paragraph [0045] and FIGS. 3, 4 and 6 showing that each activated function occupies the entire display.

Dependent claim **40** has been amended to recite the feature of first, second, third and fourth gadgets for news, stock market information, weather and social media, respectively. This feature is supported in the original specification at least by paragraph [0015] and FIG. 48 ("G8 Facebook") and FIG. 50 ("G3 Web CNN").

For the foregoing reasons, Applicant respectfully submits that the applicable rejections have been overcome and that the claims are in condition for allowance.

If any matters can be resolved by telephone, Applicant requests that the Patent and Trademark Office please contact Applicant's representative at the telephone number listed below.

Respectfully submitted,
SOQUEL GROUP LLC

Dated: December 3, 2020

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IN THE CLAIMS:

Please substitute the following claims for the claims with the same number.

1. - 20. (canceled)

21. (currently amended) A portable wireless computer system, comprising:

a top surface comprising a touch sensitive display, the top surface containing no movable button;

a processor;

a transceiver for sending and receiving wireless signals over a communications network;

a solid-state memory storing computer instructions configured to:

enable the portable wireless computer system to run ~~a plurality of~~ at least two partially or totally overlapping applications simultaneously, the applications comprising a telephone, chat or SMS, ~~a calculator,~~ a camera, ~~an alarm, a clock,~~ a music player, and email; and

cause the portable wireless computer system ~~(a) to highlight a first item corresponding to a current position of an object gliding over a linear list of items on said display and to select a second item from the list at least partially based on where the object stops gliding and is lifted from said display, and (b)~~ to present ~~a plurality of~~ at least two communication options on said display for ~~a given contact~~ given text, wherein the communication options comprise two or more of call, email, and chat or SMS; and

a housing surrounding said display and enclosing said processor, said transceiver, and said solid-state memory.

22. (previously presented) The portable wireless computer system of claim **21**, wherein the plurality of applications comprise: (a) a first application providing options on said display for editing, deleting and sending a picture, (b) a second application and a third application capable of running simultaneously, the second application capable of being presented on top of the third application on said display, and (c) a fourth application and a fifth application capable of running simultaneously, the fourth application being a music player, and the fifth application being email, chat or SMS.

23. (currently amended) The portable wireless computer system of claim **22**, wherein the portable wireless computer system is a mobile phone, and the computer instructions are configured to enable the portable wireless computer system to present a user interface, the user interface comprising at least two states, namely: (a) a tap-present state, wherein a plurality of tap-activatable icons for activating a plurality of corresponding pre-designated applications, functions, services, settings or tasks are present, each of the plurality of pre-designated applications, functions, services, settings or tasks being activated in response to a tap on its corresponding icon, and (b) a tap-absent state, wherein ~~the plurality of~~ no tap-activatable icons are ~~absent~~ present, the tap-absent state configured to be transitioned to the tap-present state in response to a multi-step user gesture comprising the object: (i) touching an edge area of said display, and then (ii) gliding on said display away from the edge area.

24. (previously presented) The portable wireless computer system of claim **23**, wherein the plurality of tap-activatable icons represent applications comprising a telephone, chat or SMS, a camera, a music player and email.

25. (currently amended) The portable wireless computer system of claim **22**, wherein the computer instructions are configured to activate a function in response to a multi-step user gesture comprising the object touching said display at a location corresponding to a demarcated representation of the function followed by the object gliding away from the location along said display, wherein [[the]] a maximum diagonal dimension of the representation is less than a thumb's width, the representation represents only the function, and is not relocated during the multi-step user gesture, and the function is not activated differently based on a direction or final destination of the gliding.

26. (currently amended) The portable wireless computer system of claim **25**, wherein the function is a member of [[the]] a group consisting of an application, and a menu for configuring services or settings for an operations system or an application, and wherein the maximum diagonal dimension of the representation is less than one inch.

27. (currently amended) The portable wireless computer system of claim **26**, wherein the computer instructions are configured (a) to enable the portable wireless computer system to scroll content on said display in response to the object touching a first location on said display and gliding up or down on said display from the first location, and (b) to enable the portable wireless computer system to move an application, a function, a service or a setting one step forward or backward or to close or remove an application, a function, a service or a setting on said display in response to the object touching a second location on said display and gliding to the right or to the left from the second location, wherein the first and second locations may be anywhere within said display.

28. (previously presented) The portable wireless computer system of claim **25**, wherein the function activated in response to the multi-step user gesture presents one or more alphanumeric characters in a keyboard user interface on said display.

29. (currently amended) The portable wireless computer system of claim **22**, wherein the computer instructions are configured to enable the portable wireless computer system:

(a) to enable a graphical user interface for accessing ~~a plurality of~~ first, second, third and fourth gadgets for news, stock market information, weather and social media, respectively, each gadget comprising an area containing at least a portion of dynamically generated data related to that gadget, wherein the user interface:

(i) arranges the ~~plurality of~~ gadgets in a layout that is larger than said display, whereby some of the gadgets are in said display and others of the gadgets are out of said display;

(ii) expands one of the gadgets in said display beyond an edge of said display to show more data therein by shifting other gadgets; and

(iii) pans the layout within said display to bring some of the gadgets into said display and/or to move some of the gadgets out of said display, in response to the object touching one of the gadgets on said display, and then the object gliding along said display away from the touched location; and

(b) to detect an object touching with hard pressure an on-screen element selected from [[the]] a group consisting of a gadget, a letter, a key, a button or an icon and then to activate the on-screen element, thereby resulting in: (i) enlarging the on-screen element, (ii) displaying a

callout balloon with a copy of the on-screen element inside, or (iii) a combination thereof.

30. (currently amended) A mobile phone system, comprising:

a top surface comprising a touch sensitive display, the top surface having no movable button;

a processor coupled to said display;

a transceiver for sending and receiving wireless signals over a communications network;

a solid-state memory storing computer instructions configured to enable the mobile phone system: (a) to activate a function in response to a first multi-step user gesture comprising an object touching an area corresponding to a demarcated representation of the function followed by gliding away from the area on said display, wherein the demarcated representation represents only the function and does not relocate during the first multi-step user gesture, and the function is not activated differently based on a direction or final destination of the gliding, (b) to present a plurality of functions, applications, services or settings in response to a second multi-step user gesture comprising the object touching ~~an edge~~ a border area of said display followed by gliding within said display away from the [[edge]] border area, (c) ~~to highlight a first item corresponding to a current position of the object gliding over a linear list of items on said display and to select a second item from the list at least partially based on where the object stops gliding and is lifted from said display, (d)~~ to run a first application wherein a touch keyboard presented on said display enables a user to edit or save text in the first application, ~~(e)~~ (d) to run a second application configured to provide options for editing, deleting and sending a picture on said display, ~~(f)~~ (e) to present ~~a plurality of~~ at least two communication options for ~~a given contact~~ given text, the

communication options comprising two or more of call, email, and chat or SMS, ~~(g)~~ (f) to scroll content on said display in response to the object touching a first location on said display and gliding up or down on said display from the first location, and ~~(h)~~ (g) to move an application, a function, a service or a setting one step forward or backward or to close or remove an application, a function, a service or a setting on said display in response to the object touching a second location on said display and gliding to the right or to the left from the second location, wherein the first and second locations may be anywhere within said display; and

a housing surrounding said display and enclosing said processor, said transceiver, and said solid-state memory.

31. (currently amended) The mobile phone system of claim **30**, wherein the computer instructions are configured to enable the mobile phone system to present a user interface, the user interface comprising at least two states, namely, (a) a tap-present state, wherein a plurality of tap-activatable icons for activating a plurality of corresponding pre-designated applications, functions, services, settings or tasks are present, each of the plurality of pre-designated applications, functions, services, settings or tasks being activated in response to a tap on its corresponding icon, and (b) a tap-absent state, wherein ~~the plurality of~~ no tap-activatable icons are ~~absent~~ present, the tap-absent state configured to be transitioned to the tap-present state in response to a third multi-step user gesture comprising: the object (i) touching an edge area of said display, and then (ii) gliding on said display away from the edge area.

32. (previously presented) The mobile phone system of claim **31**, wherein the plurality of tap-activatable icons represent applications comprising a telephone, chat or SMS, a camera, a music player and email.

33. (previously presented) The mobile phone system of claim **30**, wherein the computer instructions are configured to enable the mobile phone system to run a plurality of applications, the applications comprising: (a) a telephone, chat or SMS, a calculator, a camera, an alarm, a clock, a music player, and email; (b) a third application and a fourth application capable of running simultaneously, the third application capable of being presented on top of the fourth application on said display; and (c) a fifth application and a sixth application capable of running simultaneously, the fifth application being a music player and the sixth application being email, chat or SMS.

34. (currently amended) The mobile phone system of claim **30**, wherein the first application is not an address book, and wherein the text saved in the first application is configured for use as an address, a telephone number, or a message in phone call, email, chat or SMS.

35. (previously presented) The mobile phone system of claim **30**, wherein the function activated in response to the first multi-step user gesture enables an alphanumeric character to be entered using a keyboard presented on said display.

36. (currently amended) The mobile phone system of claim **30**, wherein the computer instructions are configured to enable the mobile phone system:

(1) to enable a graphical user interface for accessing ~~a plurality of~~ first, second, third and fourth gadgets for news, stock market information, weather and social media, respectively, each gadget comprising an area containing at least a portion of dynamically generated data related to that gadget, wherein the user interface:

(a) arranges the ~~plurality of~~ gadgets in a layout that is larger than said display, whereby some of the gadgets are in said display and others of the gadgets are out of said display;

(b) expands one of the gadgets in said display to show more data therein by shifting other gadgets; and

(c) pans the layout within said display to bring some of the gadgets into said display and/or to move some of the gadgets out of said display, in response to (i) the object touching one of the gadgets on said display, and then (ii) the object gliding along said display away from the touched location; and

(2) to detect an object touching with hard pressure an on-screen element from [[the]] a group consisting of a gadget, a letter, a key, a button or an icon and then to activate the on-screen element, thereby resulting in (a) enlarging the on-screen element, (b) displaying a callout balloon with a copy of the on-screen element inside, or (c) a combination thereof.

37. (currently amended) A mobile phone system, comprising:

a top surface comprising a touch sensitive display, the top surface containing no movable button;

a processor;

a transceiver for sending and receiving wireless signals over a communications network;

a solid-state memory storing computer instructions configured to enable the mobile phone system~~: (1) to highlight a first item corresponding to a current position of an object gliding over a linear list of items on said display and to select a second item from the list at least partially based on where the object stops gliding and thereafter is lifted from said display, and (2)~~ to provide a user interface, the user interface comprising at least two

states, namely: (a) a tap-present state, wherein a plurality of tap-activatable icons for activating a plurality of corresponding pre-designated applications, functions, services, settings or tasks are present, each of the plurality of pre-designated applications, functions, services, settings or tasks being activated in response to a tap on its corresponding icon, and (b) a tap-absent state, wherein ~~the plurality of~~ no tap-activatable icons are ~~absent~~ present, the tap-absent state configured to be transitioned to the tap-present state in response to a first multi-step user gesture comprising: the object (i) touching an edge area of said display, and then (ii) gliding on said display away from the edge area; and

a housing surrounding said display and enclosing said processor, said transceiver, and said solid-state memory.

38. (currently amended) The mobile phone system of claim **37**, wherein the computer instructions are further configured to enable the mobile phone system to run a plurality of applications, the applications comprising a phone, chat or SMS, a calculator, a camera, an alarm, a clock, a music player, and email, the plurality of applications comprising: (a) a first application wherein a touch keyboard presented on said display enables a user to edit or save text in the first application, (b) a second application providing options for editing, deleting and sending a picture on said display, (c) a third application and a fourth application capable of running simultaneously, the third application capable of being presented on top of the fourth application on said display, and (d) a fifth application and a sixth application capable of running simultaneously, the fifth application being a music player, and the sixth application being email, chat or SMS, and (e) a seventh application providing ~~a plurality of~~ at least two communication options for ~~a given contact~~ given text, the communication options comprising two or more of call, email, and chat or SMS.

39. (currently amended) The mobile phone system of claim **38**, wherein the instructions are configured to enable the mobile phone system: (a) to scroll content on said display in response to the object touching a first location on said display and gliding up or down on said display from the first location, (b) to move an application, a function, a service or a setting one step forward or backward or to close or remove an application, a function, a service or a setting on said display in response to the object touching a second location on said display and gliding to the right or to the left from the second location, wherein the first and second locations may be anywhere within said display, and (c) to activate a function in response to a second multi-step user gesture comprising the object touching an area corresponding to a demarcated representation of the function followed by gliding away from the area on said display, wherein the demarcated representation represents only the function and does not relocate during the second multi-step user gesture, and the function is not activated differently based on a direction or final destination of the gliding.

40. (currently amended) The mobile phone system of claim **39**, wherein the computer instructions are configured to enable the mobile phone system:

(a) to enable a graphical user interface for accessing ~~a plurality of~~ first, second, third and fourth gadgets for news, stock market information, weather and social media, respectively, each gadget comprising an area containing at least a portion of dynamically generated data related to that gadget, wherein the user interface:

(i) arranges the ~~plurality of~~ gadgets in a layout that is larger than said display, whereby some of the gadgets are in said display and others of the gadgets are out of said display;

(ii) expands one of the gadgets in said display to show more data therein by shifting other gadgets; and

(iii) pans the layout within said display to bring some of the gadgets into said display and/or to move some of the gadgets out of said display, in response to the object touching one of the gadgets on said display, and then the object gliding along said display away from the touched location; and

(b) to detect an object hard-pressing an on-screen element from [[the]] a group consisting of a gadget, a letter, a key, a button or an icon, and then to activate the on-screen element, thereby resulting in (i) enlarging the on-screen element, (ii) displaying a callout balloon with a copy of the on-screen element inside, or (iii) a combination thereof.

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/796,880	Filing Date 02/20/2020	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT	12/03/2020	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/PAULA D MCCRAY STANLEY/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/796,880	02/20/2020	Magnus Goertz	AEQUITAS.P001	1091

75660 7590 01/26/2021

Soquel Group, LLC
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EXAMINER
PACK, CONRAD R

ART UNIT	PAPER NUMBER
2174	

NOTIFICATION DATE	DELIVERY MODE
01/26/2021	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mberger@soquelgroup.com
pto@soquelgroup.com
rblumberg@soquelgroup.com

PTOL-90A (Rev. 04/07)

Office Action Summary	**Application No.** 16/796,880	**Applicant(s)** Goertz et al.	
	Examiner CONRAD R PACK	**Art Unit** 2174	**AIA (FITF) Status** No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 03 December 2020.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 21-40 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 21-40 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date 12/2/20.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Background

1. The present application is being examined under the pre-AIA first to invent provisions.

2. This action is responsive to the Amendment filed on December 3, 2020. **This action is made final.**

3. Claims 21, 23, 25-27, 29-31, 34, and 36-40 are amended. Claims 21-40 are pending for examination. Claims 21, 30, and 37 are independent claims.

Priority

4. Regarding Applicant's claim for the benefit of prior-filed application 10/315250 under 35 U.S.C. 120, denial of priority for independent Claims 21, 30, and 37 and dependent Claims 22-29, 31-26, and 38-40 related to previous claim language "highlight a first item corresponding to a current position of an object gliding over a linear list of items on said display and to select a second item from the list at least partially based on where the object stops gliding and is lifted from said display" is resolved by Applicant's Amendment and Applicant's arguments regarding denial of priority for Claim 25 and dependent Claims 26-28 related to previous claim language "wherein the maximum diagonal dimension of the representation is less than a thumb's width" are persuasive. However, denial of priority is maintained for various claims as noted below, and, as noted in the previous Office action, each of the rejections of claims below under pre-AIA 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, which include rejections of independent Claims 21, 30 and 37 and their

dependent claims, can be viewed as disqualifying Applicant's claims for the benefit of each of the prior-filed applications. As in the previous Office action, prior art has been applied in relationship to most claim limitations as if requirements for priority to the 10/315260 application have been met, yet any reliance on disclosure of the instant application (such as amended claims at the time of filing) not supported by underlying applications to overcome rejections will result in loss of priority to prior applications and the availability of prior art up to the date of filing of the instant application for prior art rejections. Similarly, any reliance on the disclosure of intervening underlying applications will result in loss of priority to preceding applications.

5. Further regarding Claims 22-29, 33, and 38-40, priority to the 10/315250 application is denied as the limitations "a fourth application and a fifth application capable of running simultaneously, the fourth application being a music player, and the fifth application being email, chat or SMS" or analogous variants in Claims 22, 33, and 38 are not enabled by the disclosure of the 10/315250 application.

6. Further regarding Claims 23, 24, 31, 32, and 37-40, and 38-40, priority to the 10/315250 application is denied as the limitations "(a) a tap-present state, wherein a plurality of tap-activatable icons … are present … and (b) a tap-absent state, wherein no tap-activatable icons are present, the tap-absent state configured to be transitioned to the tap-present state in response to a multi-step user gesture comprising the object: (i) touching an edge area of said display, and then (ii) gliding on said display away from the edge area" or analogous variants in Claims 22, 31, and 37 are not enabled by the disclosure of the 10/315250 application.

7. Further regarding Claims 29, 36, and 40, priority to the 10/315250 application is denied as the limitations "(a) to enable a graphical user interface for accessing a plurality of gadgets, each gadget comprising an area containing at least a portion of dynamically generated data related to that gadget, wherein the user interface: (i) arranges the plurality of gadgets in a layout that is larger than said display, whereby some of the gadgets are in said display and others of the gadgets are out of said display; (ii) expands one of the gadgets in said display beyond an edge of said display to show more data therein by shifting other gadgets" or analogous variants in each of the claims are not enabled by the disclosure of the 10/315250 application.

Information Disclosure Statement

8. The information disclosure statement submitted on December 2, 2020, was filed before the mailing of an action closing prosecution in the application and was accompanied by the required fee. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 112

9. Regarding Claims 25-28, Applicant's Amendment resolves the previous issues of indefiniteness associated with the phrase "the maximum diagonal dimension." The previous rejections on these grounds are withdrawn.

10. Regarding Claims 26, 27, 29, 36, and 40, Applicant's Amendment resolves the previous issues of indefiniteness associated with the phrase "the group consisting of." The previous rejections on these grounds are withdrawn.

11. Regarding Claims 21-36, Applicant's Amendment resolves the previous issues of written description associated with the limitations "present a plurality of communication options on said display for a given contact, wherein the communication options comprise call, email, and chat or SMS." The previous rejections on these grounds are withdrawn.

12. Regarding Claims 25-28, 30-36, 39, and 40, Applicant's arguments regarding the written description rejections associated with the limitation "is not relocated during the multi-step user gesture" are persuasive. The previous rejections on these grounds are withdrawn.

13. The following is a quotation of the second paragraph of pre-AIA 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Regarding Claims 25-28, 30-36, 39, and 40, which stand rejected under pre-AIA 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention in relationship to the limitations "in response to a multi-step user gesture comprising the object touching said display at a location corresponding to a demarcated representation of the function followed by the object gliding away from the location along said display, wherein … the representation represents only the function" or analogous variants in Claims 25, 30, and 39, Applicant fails to resolve the issues. Although Applicant

suggests an intended interpretation of the claim language at issue, one of ordinary skill in the art would not be put on notice of the suggested interpretation by the face of the claims or original disclosure, rendering the claims indefinite. See the *Response to Arguments* section below.

15. Regarding Claims 25-28, 30-36, 39, and 40, which stand further rejected under pre-AIA 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention in relationship to the amended limitations "wherein … the function is not activated differently based on a direction or final destination of the gliding" or analogous variants in Claims 25, 30, and 39, Applicant fails to resolve the issues. Although Applicant suggests an intended interpretation of the claim language at issue, one of ordinary skill in the art would not be put on notice of the suggested interpretation by the face of the claims or original disclosure, rendering the claims indefinite. See the *Response to Arguments* section below.

16. Note that the prior art analysis of relevant claims below is based on a most likely interpretation made in light of the above deficiencies.

17. The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

18. Regarding Claims 21-40, which stand rejected under pre-AIA 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement in relationship to the limitations "a top surface comprising a touch sensitive display, the top surface

containing no movable button" or analogous variants in independent Claims 21, 30, and 37, Applicant fails to resolve the issues. A negative limitation must have a basis in the original disclosure and mere absence of a positive recitation (such as a movable button on a top surface) is not basis for an exclusion. *See* MPEP § 2173.05[i]. The rejections are maintained. See the *Response to Arguments* section below.

19. Regarding Claims 23, 24, 31, 32, and 37-40, which stand further rejected under pre-AIA 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement in relationship to the limitations "a tap-absent state, wherein no tap-activatable icons are absent present" in Claims 23, 31, and 37 as amended, Applicant fails to resolve the issues. Applicant's Amendment to indicate that "no tap-activatable icons are absent present" is further not supported by the original disclosure of the instant application and underlying applications as no requirement of prohibiting tap-activatable icons is suggested by the disclosures. As noted above, a negative limitation must have a basis in the original disclosure and mere absence of a positive recitation (such as tap-activatable icons on a user interface) is not basis for an exclusion. *See* MPEP § 2173.05[i]. The rejections are maintained. See the *Response to Arguments* section below.

20. Regarding Claims 25-28, 30-36, 39, and 40, which stand further rejected under pre-AIA 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement in relationship to the limitations "in response to a multi-step user gesture comprising the object touching said display at a location corresponding to a demarcated representation of the function followed by the object gliding away from the location along said display, wherein … the representation represents only the function" or

analogous variants in Claims 25, 30, and 39, Applicant fails to resolve the issues. Related to issues of indefiniteness maintained above, the original disclosure of the instant application and underlying applications provides no discussion that appears to be related to the limitation language used by Applicant. Although Applicant may have intended a certain meaning of the limitation, no discussion of a representation that "represents only the function" is discussed so as to provide reasonable support of possession of the limitation given the broad meaning of "represents" as used in the claims. The rejections are maintained. See the *Response to Arguments* section below.

21. Regarding Claims 25-28, 30-36, 39, and 40, which stand further rejected under pre-AIA 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement in relationship to the limitations "wherein … the function is not activated differently based on a direction or final destination of the gliding" or analogous variants in Claims 25, 30, and 39, Applicant fails to resolve the issues. The original disclosure and disclosures incorporated by reference provide no support for requiring the negative limitations "wherein … the function is not activated differently based on a direction or final destination of the gliding." Mere absence of a positive recitation (such as functions activated differently based on a direction or final destination) is not basis for an exclusion. *See* MPEP § 2173.05[i]. The rejections are maintained. See the *Response to Arguments* section below.

22. Claims 27, 30-36, 39, and 40 are further rejected under pre-AIA 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the

application was filed, had possession of the claimed invention. Claims 27, 30, and 39 each recites the limitations "wherein the first and second locations may be anywhere within said display" in the context the limitations "(a) to enable the portable wireless computer system to scroll content on said display in response to the object touching a first location on said display and gliding up or down on said display from the first location, and (b) to enable the portable wireless computer system to move an application, a function, a service or a setting one step forward or backward or to close or remove an application, a function, a service or a setting on said display in response to the object touching a second location on said display and gliding to the right or to the left from the second location," or analogous variants in the claimed systems. The original disclosure and disclosures incorporated by reference do not appear to discuss the limitation "wherein the first and second locations may be anywhere within said display," supporting a finding that the claimed subject matter was not described in the specification so as to reasonably support possession of the claimed invention. This is further supported by the depictions in Figures 9-12, which show menu area 2 displayed at the bottom of the screens, which would not be assumed to operate according to the embodiments claimed, particularly when a gliding gesture in the menu area is described as corresponding to different functionality. Dependent Claims 31-36 and 40 incorporate the deficiency.

23. Claim 34 is further rejected under pre-AIA 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application

was filed, had possession of the claimed invention. Claim 34 recites the limitations "wherein the first application is not an address book, and wherein the text and wherein the text saved in the first application is configured for use as an address, a telephone number, or a message in phone call, email, chat or SMS" in the claimed system. The original disclosure and disclosures incorporated by reference do not appear to provide support for the requirement that saved text that is "configured for use as an address, a telephone number, or a message in phone call, email, chat or SMS" may not be associated with an application that is an address book. As previously discussed, a negative limitation must have a basis in the original disclosure. An alternative can be explicitly excluded if alternative elements are positively recited, yet mere absence of a positive recitation (that an application is an address book) is not basis for an exclusion. *See* MPEP § 2173.05[i].

Claim Rejections - 35 USC § 103

24. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

25. Claims 21 and 22 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over the IBM Simon Personal Communicator (hereinafter "Simon"), as evidenced by *Simon Says "Here's How" – Users Manual*, IBM Corp., Part Number 83G9872, available at https://www.microsoft.com/buxtoncollection/a/pdf/simon%20user%20manuals.pdf

(1994) (hereinafter "Simon Manual") and O'Malley, Chris, *Simonizing the PDA*, Byte.com, Internet Archive Wayback Machine, available at https://web.archive.org/web/19990221174856/http://byte.com/art/9412/sec11/art3.htm (Dec. 1994) (hereinafter "O'Malley"), in view of Frank et al., U.S. Patent 5,651,107 (issued Jul. 22, 1997) (hereinafter "Frank") and Shultz et al., U.S. Patent Application 2004/0203350 A1 (published Oct. 14, 2004) (hereinafter "Shultz").

26. Regarding Claim 21, Simon teaches **a portable wireless computer system** (*e.g.*, Simon Manual, p. 1, *Welcome*, describing Simon as a providing total personal communications in one small, hand-held, mobile device; and p. 11, *How Simon Works*, describing Simon as a cellular phone with personal organization and communication capabilities)**, comprising:**

a. **A top surface comprising a touch sensitive display, the top surface containing no movable button** (*see, e.g., id.*, p. 4, *Introducing Simon*, illustrating Simon as comprising a touch-sensitive screen in a top surface of a housing, the top surface having no movable buttons according to labeling of the figures in contrast to a side of the housing having various labeled movable buttons)**;**

b. **A processor** (O'Malley, p. 4, para. 2, describing Simon's internal components as including a CPU in the form of a 16-bit x86-compatible processor running at 16 MHz and manufactured by Vadem)**;**

c. **A transceiver for sending and receiving wireless signals over a communications network** (*see, e.g.*, Simon Manual, p. 1, *Welcome*, describing Simon as a mobile device including a cellular phone and describing its

functionality as wireless; and p. 17, Phone, describing Simon's cellular phone as using two-way radio communications controlled by a cellular system; and O'Malley, p. 4, paras. 2 and 4, indicating Simon is a computer comprising a cellular transmitter/receiver and describing Simon's transceiver as a Mitsubishi R F transceiver used in other portable cellular phones)**;**

d. **A solid-state memory storing computer instructions** (*id.*, p. 4, para. 2, describing Simon's components as including 2 MB of flash [solid-state] memory that stores Simon's built-in applications) **configured to:**

i. **Enable the portable wireless computer system to run at least two applications, the applications comprising a telephone** (*see, e.g.*, Simon Manual, pp. 17 and 18, *Phone*, describing and illustrating telephone call functionality and interface features) **and email** (*see, e.g., id.*, pp. 51-55, *Time*, describing and illustrating electronic mail functionality and interface features)**; and**

e. **Cause the portable wireless computer system to present at least two communication options on said display for given text, wherein the communication options comprise two or more of call, email, and chat or SMS** (*see, e.g., id.*, p. 35, *Address Book*, and p. 40, *Making a Phone Call From the Address Book*, describing and illustrating an address book comprising name and number information and describing and illustrating user interaction to view an entry and to interact with a number of actions buttons including one-touch dialing for phone numbers and including sending a fax; and O'Malley, p. 6, para. 2, describing Simon's programs as well integrated and describing ability of a user to

call or send email to someone from the address book. Note that teachings regarding call and email anticipate the alternative language of the claim)**; and**

f. **A housing surrounding said display and enclosing said processor, said transceiver, and said solid-state memory** (*see, e.g.*, Simon Manual, p. 4, *Introducing Simon*, illustrating Simon as comprising a housing; and O'Malley, p. 4, para. 2, describing Simon's internal components as including a CPU, a cellular transmitter/receiver, and flash memory).

27. However, Simon appears to be silent regarding the at least two applications partially or totally overlapping and running simultaneously.

28. Frank teaches **a computer system** (*e.g.*, Frank, Abstract and col. 1, lines 9-14, describing a computer-controlled display system for displaying overlapping windows of data on a display)**, comprising instructions configured to: enable the computer system to run at least two partially or totally overlapping applications simultaneously** (*see, e.g., id.*, Abstract and col. 2, lines 38-40, describing a system in which multiple applications are executed concurrently by a CPU such that each application is associated with one or more windows; col. 5, lines 30-48, and Fig. 3, describing and illustrating prior art arrangements in which a top window overlays a second window that overlays a third window and describing systems in which multiple programs are concurrently executed resulting in constant updates to data disposed within the windows; and col. 6, lines 46-56, and Fig. 5, describing and illustrating arrangements in which window images are merged to appear on top of one another).

29. Simon and Frank are analogous art at least because they are from the same field of endeavor as the claimed invention, referencing computer systems enabled to run a

plurality of applications. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Simon, Shultz, and Frank and implement a portable wireless computer system in which a plurality of applications are capable of running simultaneously and one application is capable of being presented on top of another application on a display in order to allow a user to more easily navigate among different sets of user interface functionality or content on a display and to increase the usable area of the display (*see, e.g.*, Frank, col. 1, lines 15-23, and col 10, lines 32-35; and in view of the value of computer multitasking well known in the art).

30. However, although Simon's teachings regarding telephone and email can be viewed as anticipating the alternative "at least two" language of the claim, Simon appears to be silent regarding the applications comprising chat or SMS, a camera, and a music player.

31. Shultz teaches **a portable wireless computer system** (see Shultz, Abstract, para. 21, and Fig. 2, describing and illustrating a wireless mobile communication device)**, comprising memory storing computer instructions configured to enable the portable wireless computer system to run at least two applications, the applications comprising chat or SMS, a camera, and a music player** (*see, e.g., id.*, para. 22, describing the device as comprising a storage element such as a memory; para. 21, describing the device as including a processor for implementing one or more applications depending on the functionality of the mobile device, describing implementation of instant messaging applications, and describing implementation of functionality including that of an MP3 player and a digital camera. Running a plurality of

applications comprising chat or SMS, a camera, and a music player is obvious over these teachings in order to increase the functionality of a general purpose mobile device).

32. Shultz is analogous art at least because it is from the same field of endeavor as the claimed invention, referencing portable wireless computer systems and with teachings directed toward a system enabled to run a plurality of applications. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Simon and Shultz and implement a portable wireless computer system in which the system is enabled to run a plurality of applications comprising chat or SMS, a camera, and a music player in order to allow a user to access a greater range of functionality at a multifunction mobile device (*see, e.g.*, Shultz, paras. 16 and 21; and in view of the value of multifunction devices well known in the art).

33. Regarding Claim 22, Simon as modified by Frank and Shultz teaches **the portable wireless computer system of Claim 21, wherein the plurality of applications comprise: (a) a first application providing options on said display for editing, deleting and sending a picture** (*see, e.g.*, Simon Manual, pp. 60 and 61, *Sketch Pad*, describing sketch pad functionality that allows a user to write on the screen with a stylus or finger, describing manipulations using tools including a pencil and an eraser, and describing erasing a sketch or erasing all sketches in memory; and p. 46, *Creating a New Fax*, describing functionality for a user to fax any sketches that the user creates) **(b) a second application and a third application capable of running simultaneously, the second application capable of being presented on top of the**

third application on said display (*see, e.g., id.*, pp. 17, 34, 41, 43, 48, 51, 57, 59, 60, and 63-65, describing various features of Simon including phone, address book, calculator, calendar, fax, email, note pad, sketch pad, and to do features, and p. 17, *Phone*, describing access of the phone feature when the user is in another application [indicating features representing applications]; and *see, e.g.*, Frank, Abstract and col. 2, lines 38-40, describing multiple applications executed concurrently and associated with one or more windows; col. 5, lines 30-48, and Fig. 3, describing and illustrating prior art arrangements in which windows associated with concurrently executed programs overlay each other; and col. 6, lines 46-56, and Fig. 5, describing and illustrating arrangements in which window images are merged to appear on top of one another), **and (c) a fourth application and a fifth application capable of running simultaneously** (*see, e.g., id.*, col. 2, lines 38-40, and col. 5, lines 30-48, describing multiple applications executed concurrently)**, the fourth application being a music player** (*see, e.g.*, Shultz, para. 21, describing implementation of one or more applications and describing implementation of functionality including that of an MP3 player. One of ordinary skill in the art would have been motivated to implement a music player application under the same rationale as provided in the discussion of Claim 21 above)**, and the fifth application being email, chat or SMS** (*see, e.g.*, Simon Manual, pp. 51-56, *Mail*, describing features of Simon as including email. Note that the teachings anticipate the alternative language of the claim).

34. Claims 23, 24, 37, and 38 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Simon in view of Frank and Shultz and in further view of a certified

translation of Hisatomi et al., JP Patent Application 2002-055750 (published February 20, 2002) (hereinafter "Hisatomi").

35. Regarding Claim 23, Simon as modified by Frank and Shultz teaches **the portable wireless computer system of Claim 22** as discussed above and further teaches the portable wireless computer system **wherein the portable wireless computer system is a mobile phone** (*e.g.*, Simon Manual, p. 1, *Welcome*, describing Simon as a providing total personal communications, including a cellular phone, in a mobile device)**, and the computer instructions are configured to enable the portable wireless computer system to present a user interface, the user interface comprising at least two states, namely: (a) a tap-present state, wherein a plurality of tap-activatable icons for activating a plurality of corresponding predesignated applications, functions, services, settings or tasks are present, each of the plurality of pre-designated applications, functions, services, settings or tasks being activated in response to a tap on its corresponding icon** (*see, e.g., id.*, p. 11, *How Simon Works*, describing and illustrating a Mobile Office screen in which a user can use personal organization and communication functions by touching the appropriate icon on the Mobile Office screen)**, and (b) a tap-absent state, wherein *the plurality of* tap-activatable icons are *not* present** (*see, e.g., id.*, pp. 11, 14, 18, 26-33, 37-40, 47, 58, and 62, describing and illustrating various other screens in which the Mobile Office icons are absent. Note that any user interface screen other than the Mobile Office screen can be viewed as a tap-absent state wherein tap-activatable icons are not present at least in the sense that particular tap-activatable icons are not present)**, the tap-absent state configured to be transitioned to the tap-present state in**

response to a user gesture comprising the object: (i) touching an edge area of said display (*see, e.g., id.*, p. 11, *How Simon Works*, and p. 12, *Using the Buttons*, describing and illustrating icon buttons at the bottom of every screen including an icon that can be touched to go directly to the Mobile Office screen).

36. However, Simon as modified by Frank and Shultz appears to be silent regarding a tap-absent state wherein no tap-activatable icons are present and regarding the user gesture being a multi-step user gesture comprising the object: (i) touching an edge area of said display, and then (ii) gliding on said display away from the edge area.

37. Hisatomi teaches **a portable wireless computer system** (*e.g.*, Hisatomi, para. 12, describing a portable information processing device) **enabled to present a user interface comprising (a) a tap-present state comprising a plurality of tap-activatable icons** (*see, e.g., id.*, paras. 22 and 24 and Fig. 7, describing and illustrating a user interface state in which a menu is displayed as a pull-out menu comprising function icons or buttons) **and (b) a tap-absent state, wherein no tap-activatable icons are present** (*see, e.g., id.*, paras. 17 and 18 and Fig. 5, describing and illustrating a user interface state in which an image display area and pull-out menu display trigger areas are provided [the image display area of the user interface comprising no icons])**, the tap-absent state configured to be transitioned to the tap-present state in response to a multi-step user gesture comprising an object: (i) touching an edge area of a display, and then (ii) gliding on said display away from the edge area** (*see, e.g., id.*, paras. 18, 22, 25, and 26 and Fig. 7, describing and illustrating transition from display of the user interface providing the image display area and the pull-out menu display trigger areas to display of the user interface with the menu displayed as a

pull-out menu comprising function icons or buttons in response to a user input device touching one of the pull-out menu display trigger areas and scrolling or sliding the input device towards the center of the user interface [away from the designated trigger area at the edge of the user interface]).

38. Hisatomi is analogous art at least because it is from the same field of endeavor as the claimed invention, referencing portable computer systems comprising a touch-sensitive display and with teachings directed to multi-step user touch gestures. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Simon, Frank, Shultz, and Hisatomi and implement a portable wireless computer system in which no tap-activatable icons are present in a tap-absent state and in which the tap-absent state is configured to be transitioned to a tap-present state in response to a multi-step user gesture comprising an object: (i) touching an edge area of a display, and then (ii) gliding on said display away from the edge area in order to allow a user to more easily access related menu functions while allowing unhindered interaction with a main display area at a small display (*see, e.g.*, Hisatomi, Abstract and paras. 4-6 and 86; and in view of the value of targeted and metaphor-based gestures known in the art).

39. Regarding Claim 24, Simon as modified by Frank and Shultz and as further modified by Hisatomi teaches **the portable wireless computer system of Claim 23, wherein the plurality of tap-activatable icons represent applications** (*e.g.*, Simon Manual, p. 12, *Using the Buttons*, describing the Mobile Office screen as allowing a user to select various features) **comprising a telephone** (*see, e.g., id.*, describing a user touching a phone icon to get to a main phone screen. In view of these teachings and

the teachings of Simon noted above, one of ordinary skill in the art would have been motivated to implement a variety of application icons including a telephone in order to allow organized access to functionality of a mobile device)**, chat or SMS, a camera, a music player** (*see, e.g.*, Shultz, para. 21, describing the device as including a processor for implementing one or more applications depending on the functionality of the mobile device, describing implementation of instant messaging applications, and describing implementation of functionality including that of an MP3 player and a digital camera. Running a plurality of applications comprising chat or SMS, a camera, and a music player is obvious over these teachings under the same rationale as provided in the discussion of Claim 21 above and further in order to allow organized access to functionality of a mobile device) **and email** (*e.g.*, Simon Manual, p. 12, *Using the Buttons*, describing the Mobile Office screen as allowing a user to select advanced communication features including email).

40. Regarding Claim 37, Simon as modified by Frank and Shultz and as further modified by Hisatomi teaches a mobile phone system corresponding to the portable wireless computer system of Claim 23. The same rationale of rejection provided above is applicable.

41. Regarding Claim 38, Simon as modified by Frank and Shultz teaches a mobile phone system corresponding to the portable wireless computer systems of Claims 21 and 22. In view of the discussion of Claim 37, the same rationales of rejection provided above are applicable.

42. Claims 25, 26, and 28 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Simon in view of Frank and Shultz and in further view of Gough et al., U.S. Patent 5,603,053 (issued Feb. 11, 1997) (hereinafter "Gough") and Hisatomi.

43. Regarding Claim 25, Simon as modified by Frank and Shultz teaches **the portable wireless computer system of Claim 22** as discussed above and further teaches the portable wireless computer system **wherein the computer instructions are configured to activate a function in response to a user gesture comprising the object touching said display at a location corresponding to a demarcated representation of the function** (*see, e.g.*, Simon Manual, p. 11, *How Simon Works*, and p. 12, *Using the Buttons*, describing and illustrating icon buttons at the bottom of every screen including an icon that can be touched to go directly to the Mobile Office screen)**, wherein a maximum diagonal dimension of the representation is less than a thumb's width** (*see, e.g., id.*, pp. 11 and 12, *How Simon Works* and *Using the Buttons*, describing and illustrating special icon buttons at the bottom of every screen including an icon that can be touched to go directly to the Mobile Office screen; and p. 9, *LCD Contrast Adjustment*, illustrating the Simon being held by a hand such that the buttons at the bottom of the screen appear to have a maximum diagonal dimension that is less than a width of the portrayed hand's thumb) **and the representation represents only the function** (*see, e.g., id.*, pp. 11 and 12, *How Simon Works* and *Using the Buttons*, describing and illustrating an icon that can be touched to go directly to the Mobile Office screen and illustrating a screen in which the Mobile Office icon is not repeated elsewhere on the screen [which can be viewed as an example of the icon representing only the function at least in the sense of it being used in the user interface

only to go directly to the Mobile Office screen]) **and is not relocated during the user gesture** (*see, e.g., id.*, p. 11, *Using the Buttons*, describing and illustrating the icon that can be touched to access the Mobile Office screen as one of four special icons that are at the bottom of every screen [indicating that the icon is not relocated when touched to access the Mobile Office screen]).

44. However, Simon as modified by Frank and Shultz appears to be silent regarding the user gesture being a multi-step user gesture comprising the object touching said display at a location corresponding to a demarcated representation of the function followed by the object gliding away from the location along said display, wherein the representation is not relocated during the multi-step user gesture and the function is not activated differently based on a direction of the gliding.

45. Gough teaches **a computer system** (*e.g.*, Gough, Abstract, describing an apparatus for inputting data to an active application of a computer system)**, wherein computer instructions are configured to activate a function in response to a multi-step user gesture comprising an object touching a display at a location corresponding to a demarcated representation of a function followed by the object gliding away from the location along said display** (*see, e.g., id.*, col. 6, lines 29-44, and Fig. 4a, describing and illustrating selection of an icon in a palette by dragging the icon from the palette to a particular area of the screen; col. 6, line 55, – col. 7, line 9, and Fig. 4b, describing and illustrating displaying a keyboard at the particular area of the screen and indicating selection of keyboard elements using a stylus. Under such an arrangement as described, the user interface before display of the keyboard can be viewed as a tap-absent state and the user interface after display of the keyboard

can be viewed as a tap-present state at least in the sense that the tap-activatable elements of the keyboard are absent prior to its display)**, wherein the representation is not relocated during the multi-step user gesture** (*see, e.g., id.*, col. 6, lines 29-44, and Fig. 4a, describing and illustrating selection of an icon in a palette by dragging the icon from the palette to a particular area of the screen and illustrating the dragged icon remaining displayed in the palette as the icon is dragged and an outline of a keyboard image is displayed [indicating the icon "not relocated" during the drag in some form]; and col. 3, lines 19-21, and col. 8, line 60, – col. 9, line 2, describing "an outline of the input image" dragged with the stylus [indicating drag of a representation other than the icon engaged]) **and the function is not activated differently based on a direction of the gliding** (*see, e.g., id.*, col. 6, lines 29-60, and Fig. 4b, describing and illustrating displaying a keyboard at a particular area of the screen based on a drag of an icon to a desired location. Such an arrangement can be viewed as a function "not activated differently based on a direction of the gliding" at least in the sense that dragging initially in different directions yet ending at the same target location would appear to result in activation of the keyboard at the same location. Also, display of the same keyboard at a given location regardless of characteristics of a drag gesture can be viewed as a function "not activated differently" in some sense).

46. Gough is analogous art at least because it is from the same field of endeavor as the claimed invention, referencing portable computer systems comprising a touch-sensitive display and with teachings directed to multi-step user touch gestures. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Simon, Frank, Shultz, and Gough and implement a portable

wireless computer system in which a tap-absent state is configured to be transitioned to a tap-present state in response to a multi-step user gesture comprising an object: (i) touching an edge area of a display, and then (ii) gliding on said display away from the edge area in order to allow a user to access a desired user interface feature while allowing better control and utilization of limited display space (*see, e.g.*, Gough, col. 2, lines 46-51, and col. 6, lines 36-44; and in view of the value of targeted gestures known in the art).

47. However, Simon as modified by Frank and Shultz and as further modified by Gough appears to be silent regarding the system wherein the function is not activated differently based on a final destination of the gliding.

48. Hisatomi further teaches **a portable wireless computer system wherein computer instructions are configured to activate a function in response to a multi-step user gesture comprising the object touching a display at a location corresponding to a demarcated representation of the function followed by the object gliding away from the location along said display** (*see, e.g.*, Hisatomi, paras. 18, 22, 25, and 26 and Fig. 7, describing and illustrating transition from display of the user interface providing the image display area and the pull-out menu display trigger areas to display of the user interface with the menu displayed as a pull-out menu comprising function icons or buttons in response to a user input device touching one of the pull-out menu display trigger areas and scrolling or sliding the input device towards the center of the user interface)**, wherein the function is not activated differently based on a direction or final destination of the gliding** (*see, e.g., id.*, paras. 45 and 46 and Figs. 10-12, describing and illustrating embodiments in which only the Y

coordinate value of coordinate values detected in relationship to the input device contacting and sliding from top and bottom menu display trigger areas are monitored for positioning of the corresponding menu [representing a function not activated differently based on a direction or final destination at least in relationship to positions having the same Y coordinate value], and paras. 47 and 48 and Fig. 12, describing and illustrating embodiments in which when a menu pull-out amount y exceeds a maximum pull-out amount, the process of pulling out the pull-out menu will be stopped, the maximum pull-out amount is maintained, and the detected coordinate value will be ignored [representing a function not activated differently based on a direction or final destination at least in relationship to positions beyond the maximum pull-out amount]).

49. A discussion of Hisatomi as analogous art and a motivation to combine are provided above. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Simon, Frank, Shultz, Gough, and Hisatomi and implement a portable wireless computer system in which a function is not activated differently based on a direction or final destination of a gliding in order to provide a consistent single direction user interface response based on free input and to maintain consistent access to a main display area at a small display (*see, e.g.*, Hisatomi, Abstract and paras. 4-6 and 86; and in view of the value of input constraints well known in the art).

50. Regarding Claim 26, Simon as modified by Frank and Shultz and as further modified by Gough and Hisatomi teaches **the portable wireless computer system of Claim 25, wherein the function is a member of a group consisting of an application, and a menu for configuring services or settings for an operations**

system or an application (*see, e.g.*, Simon Manual, pp. 11 and 12, *How Simon Works* and *Using the Buttons*, describing and illustrating an icon that can be touched to go directly to the Mobile Office screen and describing and illustrating personal organization and communication functions accessed on the Mobile Office screen [representing both an application and a menu for configuring services or settings for an operations system]. Note that the teachings anticipate the alternative language of the claim; and *see also, e.g.*, Hisatomi, paras. 18, 22, 25, and 26 and Fig. 7, describing and illustrating a pull-out menu comprising function icons or buttons)**, and wherein the maximum diagonal dimension of the representation is less than one inch** (*see, e.g., id.*, p. 9, *LCD Contrast Adjustment*, illustrating the Simon being held by a hand such that the buttons at the bottom of the screen appear to have a maximum diagonal dimension that is less than one inch when viewed in relationship to the portrayed hand).

51. Regarding Claim 28, Simon as modified by Frank and Shultz and as further modified by Gough and Hisatomi teaches **the portable wireless computer system of Claim 25, wherein the function activated in response to the multi-step user gesture presents one or more alphanumeric characters in a keyboard user interface on said display** (*see, e.g.*, Simon Manual, p. 35, *Address Book*, and p. 40, *Making a Phone Call From the Address Book*, describing and illustrating user interaction to view an address book entry and to initiate a call to a phone number of a contact and illustrating display of alphanumeric keyboard in response to selecting a button; and *see, e.g.*, Gough, col. 6, line 29, – col. 7, line 9, and Fig. 4b, describing and illustrating dragging of an icon in a palette to display a keyboard at the particular area of the screen. One of ordinary skill in the art would have been motivated combine the

teachings of Simon, Frank, Shultz, Gough, and Hisatomi and implement access to a user interface keyboard in response to a multi-step user gesture under the same rationale as provided in the discussion of Claim 23 above and further in order to provide convenient access to a virtual keyboard).

52. Claims 27, 30-35, and 39 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Simon, Frank, Shultz, Gough, and Hisatomi and in further view of Nakagawa et al., U.S. Patent 5,289,168 (issued Feb. 22, 1994) (hereinafter "Nakagawa") and Amro et al., U.S. Patent 6,278,443 B1 (issued Aug. 21, 2001) (hereinafter "Amro").

53. Regarding Claim 27, Simon as modified by Simon, Frank, Shultz, Gough, and Hisatomi teaches **the portable wireless computer system of Claim 26** as discussed above and further teaches the portable wireless computer system **wherein the computer instructions are configured (a) to enable the portable wireless computer system to scroll content on said display in response to the object touching a first location on said display** (*e.g.*, Simon Manual, p. 41, *New Entry*, describing functionality allowing a user to touch and hold arrow buttons to scroll quickly through choices)**, and (b) to enable the portable wireless computer system to move an application, a function, a service or a setting one step forward or backward or to close or remove an application, a function, a service or a setting on said display in response to the object touching a second location on said display** (*see, e.g., id.*, p. 11, *How Simon Works*, and p. 12, *Using the Buttons*, describing and illustrating icon buttons at the bottom of every screen including an icon that can be

touched to go directly to the Mobile Office screen [representing removing content representing an application, function, service, or setting from the display]).

54. However, Simon as modified by Frank, Shultz, Gough, and Hisatomi appears to be silent regarding scrolling content on said display in response to the object touching a first location on said display and gliding up or down on said display from the first location and regarding moving an application, a function, a service, or a setting one step forward or backward or closing or removing an application, a function, a service, or a setting on said display in response to the object touching a second location on said display and gliding to the right or to the left from the second location, wherein the first and second locations may be anywhere within said display.

55. Nakagawa teaches **a computer system** (*e.g.*, Nakagawa, Abstract, describing a human-interactive-type dynamic display system)**, wherein computer instructions are configured (a) to enable the computer system to scroll content on a display in response to an object touching a first location on said display and gliding up or down on said display from the first location** (*see, e.g., id.*, col. 5, line 56, – col. 7, line 28, and Fig. 4, describing and illustrating a human-interactive-type display system in which a tablet-type electronic whiteboard that detects input based on contact and movement of a pen on the whiteboard in order to selectively perform scroll, page up and down, window shift, and count value changing functions; col. 6, lines 37-43, col. 7, lines 47-61, and Figs. 5 and 6, describing and illustrating scroll of an image on the whiteboard up and down as well as right and left based on the pen being brought into contact with the whiteboard within a scroll operation region and moving the pen in a desired direction over a desired distance [representing up or down scroll in response to

an object gliding up or down]), **and (b) to enable the computer system to move an application, a function, a service or a setting one step forward or backward or to close or remove an application, a function, a service or a setting on said display in response to the object touching a second location on said display and gliding to the right or to the left from the second location** (*see, e.g., id.*, col. 8, lines 23-52, and Figs. 7A-7C, describing and illustrating movement between pages of content [moving one step forward or backward] based on the pen being brought into contact with the whiteboard and being moved in a direction, and describing an example of movement to the right. Note that the arbitrary scrolling mechanism described above can also be viewed as representing a step forward or backward in response to a right or left scroll movement. Note also that the teachings anticipate the alternative language of the claim).

56. Nakagawa is analogous art at least because it is from the same field of endeavor as the claimed invention, referencing portable computer systems comprising a touch-sensitive display and with teachings directed to multi-step user touch gestures. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Simon, Frank, Shultz, Gough, Hisatomi, and Nakagawa and implement a portable wireless computer system in which content on a display is scrolled in response to an object touching a first location on said display and gliding up or down on said display from the first location and in which an application, a function, a service, or a setting is moved one step forward or backward or an application, a function, a service, or a setting on said display is closed or removed in response to the object touching a second location on said display and gliding to the right or to the left from the

second location in order to improve a user's remembrance of gestures, improve gesture recognition, and minimize movement of a user's hand (*see, e.g.*, Nakagawa, col. 3, lines 31-55; and in view of the value of directional gestures known in the art).

57. However, although the touch inputs described by Nakagawa are at first and second locations that are within the display and thus arguably read on the language "wherein the first and second locations may be anywhere within said display," Simon as modified by Frank, Shultz, Gough, and Hisatomi and as further modified by Nakagawa appears to be silent regarding the system wherein the first and second locations may be anywhere within said display (in the sense of all areas of the display being responsive to navigate the user interface).

58. Amro teaches **a computer system** (*e.g.*, Nakagawa, Abstract, describing a computer controlled display system with a user interactive touch screen)**, wherein first and second locations *for navigating a user interface* may be anywhere within a display** (*see, e.g., id.*, col. 4, line 36, – col. 5, line 13, and Fig. 2, describing and illustrating a user interface navigation interaction in which a user may randomly press any point on a touchscreen with a finger and move a finger in order to cause a navigation response in the user interface; and Abstract, col. 5, lines 41-51, and col. 6, lines 33-39, describing scrolling embodiments in which a whole screen of data is moved in response to the user input).

59. Amro is analogous art at least because it is from the same field of endeavor as the claimed invention, referencing computer systems comprising a touch-sensitive display and with teachings directed to multi-step user touch gestures. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine

the teachings of Simon, Frank, Shultz, Gough, Hisatomi, Nakagawa, and Amro and implement a portable wireless computer system in which first and second locations for navigating a user interface may be anywhere within a display in order to improve convenience and accuracy of interaction with touchscreen interfaces using a larger responsive area (*see, e.g.*, Amro, col. 1, lines 38-67, and col. 5, lines 45-51; and in view of the value of increased interaction area size known in the art).

60. Regarding Claim 30, Simon as modified by Frank and Shultz teaches a mobile phone system corresponding to the portable wireless computer system of Claim 22; Simon as modified by Frank and Shultz and as further modified by Gough and Hisatomi teaches a mobile phone system corresponding to the portable wireless computer system of Claim 25; and Simon as modified by Frank, Shultz, Gough, and Hisatomi and as further modified by Nakagawa and Amro teaches a mobile phone system corresponding to the portable wireless computer system of Claim 27. The same rationales of rejection provided above are applicable. Simon as modified by Frank, Shultz, Gough, and Hisatomi and as further modified by Nakagawa and Amro further teaches **the mobile phone system comprising instructions configured to enable the mobile phone system: (b) to present a plurality of functions, applications, services or settings in response to a second multi-step user gesture comprising the object touching a border area of said display followed by gliding within said display away from the border area** (*see, e.g.*, *see, e.g.*, Simon Manual, p. 11, *How Simon Works*, and p. 12, *Using the Buttons*, describing and illustrating icon buttons at the bottom of every screen including an icon that can be touched to get help information about how to use features on the current screen and an icon that can be touched to go

directly to the Mobile Office screen; and *see, e.g.*, Hisatomi, paras. 18, 22, 25, and 26 and Fig. 7, describing and illustrating transition to display of the user interface with the menu displayed as a pull-out menu comprising function icons or buttons in response to a user input device touching one of the pull-out menu display trigger areas and scrolling or sliding the input device towards the center of the user interface. One of ordinary skill in the art would have been motivated combine the teachings of Simon, Frank, Shultz, Gough, Hisatomi, Nakagawa, and Amro and implement activation of a function and presentation of elements in response to gliding gestures under the same rationale as provided in the discussion of Claim 23 above and further in order to provide convenient or consistent access to multiple functions) **and (d) to run a first application wherein a touch keyboard presented on said display enables a user to edit or save text in the first application** (*e.g.*, Simon Manual, pp. 34 and 35, *New Entry*, describing functionality in an address book feature to add a new entry using an onscreen keyboard; and pp. 67-70, *Using Keyboards*, describing and illustrating availability of different onscreen keyboards for use).

61. Regarding Claim 31, Simon as modified by Frank and Shultz and as further modified by Hisatomi teaches a mobile phone system corresponding to the portable wireless computer system of Claim 23. In view of the discussion of Claim 30, the same rationale of rejection provided above is applicable.

62. Regarding Claim 32, Simon as modified by Frank and Shultz and as further modified by Hisatomi teaches a mobile phone system corresponding to the portable wireless computer system of Claim 24. In view of the discussion of Claim 30, the same rationale of rejection provided above is applicable.

63. Regarding Claim 33, Simon as modified by Frank and Shultz teaches a mobile phone system corresponding to the portable wireless computer systems of Claims 21 and 22. In view of the discussion of Claim 30, the same rationales of rejection provided above are applicable.

64. Regarding Claim 34, Simon as modified by Frank, Shultz, Gough, and Hisatomi and as further modified by Nakagawa and Amro further teaches **the mobile phone system of Claim 30, wherein the first application is not an address book** (*see e.g.*, Simon Manual, pp. 57 and 58, *Note Pad*, describing a notepad feature to create and work with typewritten notes including viewing, changing, renaming, copying, faxing, or erasing a note [indicating editing and saving text of notes]; and pp. 52-54, *Creating Mail* and *Working with a Message*, describing various functions associated with an email feature including creating email messages and working with saved messages)**, and wherein the text saved in the first application is configured for use as an address, a telephone number, or a message in phone call, email, chat or SMS** (*see e.g., id.*, pp. 57 and 58, *Working with Notes*, describing and illustrating saving a note, illustrating various example notes that can be viewed as a message, and providing additional functionality including faxing the note to someone; and pp. 53 and 54, *Working with a Message*, indicating saved text used as messages in email. Note that the teachings anticipate the alternative language of the claim).

65. Regarding Claim 35, Simon as modified by Frank and Shultz and as further modified by Gough and Hisatomi teaches a mobile phone system corresponding to the portable wireless computer system of Claim 28. In view of the discussion of Claim 30, the same rationale of rejection provided above is applicable.

66. Regarding Claim 39, Simon as modified by Frank, Shultz, Gough, and Hisatomi and as further modified by Nakagawa and Amro teaches a mobile phone system corresponding to the portable wireless computer systems of Claims 27 and 30. In view of the discussion of Claim 37, the same rationales of rejection provided above are applicable.

67. Claim 29 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Simon in view of Frank and Shultz and in further view of Hughes et al., U.S. Patent Application 2009/0192849 A1 (published Jul. 30, 2009) (hereinafter "Hughes"), as evidenced by Hughes et al., U.S. Patent Application 61/020702 (filed Jan. 11, 2008) (hereinafter "Hughes Parent"); Ording, Bas, U.S. Patent Application 2008/0168404 A1 (published Jul. 10, 2008) (hereinafter "Ording"); and Schwesig et al., U.S. Patent Application 2008/0303799 A1 (published Dec. 11, 2008) (hereinafter "Schwesig").

68. Simon as modified by Frank and Shultz teaches **the portable wireless computer system of Claim 22** as discussed above and further teaches the portable wireless computer system **wherein the computer instructions are configured to enable the portable wireless computer system: (a) to enable a graphical user interface for accessing first, second, third and fourth gadgets** (*e.g.*, Simon Manual, p. 11, *How Simon Works*, describing and illustrating a Mobile Office screen in which a user can use more than four personal organization and communication functions by touching the appropriate icon on the Mobile Office screen [the icons representing gadgets in some form]).

69. However, Simon as modified by Frank and Shultz appears to be silent regarding each gadget comprising an area containing at least a portion of dynamically generated data related to that gadget, wherein the user interface: (i) arranges the gadgets in a layout that is larger than said display, whereby some of the gadgets are in said display and others of the gadgets are out of said display; (ii) expands one of the gadgets in said display beyond an edge of said display to show more data therein by shifting other gadgets; and (iii) pans the layout within said display to bring some of the gadgets into said display and/or to move some of the gadgets out of said display.

70. Hughes teaches **a portable computer system wherein computer instructions are configured to enable the portable computer system** (*see, e.g.*, Hughes Parent, para. 15, describing systems implemented on computers and other devices; para. 89, providing examples of browsers known in the art at the time of the invention to be operable on computing devices known to comprise instructions to direct the computing devices; and paras. 30 and 46, indicating contemplation of mobile computing; *see also, e.g.*, Hughes, paras. 16, 78, and 129)**: (a) to enable a graphical user interface for accessing gadgets, each gadget comprising an area containing at least a portion of dynamically generated data related to that gadget** (*see, e.g.*, Hughes Parent, paras. 87-89 and Figs. 3-6, describing and illustrating a dashboard comprising a customizable framework of widgets in which widgets are small functional components or small applications that can be presented as an overall combined application; para. 88 and Figs. 3-6, describing and illustrating exemplary screen displays in which widgets are in presented in different states or modes and illustrating widgets in their various states presenting dynamic information in some form, such as time of day information

within widgets at different levels of expansion)**, wherein the user interface: (i) arranges the gadgets in a layout that is larger than said display, whereby some of the gadgets are in said display and others of the gadgets are out of said display** (*see, e.g., id.*, paras. 63, 87, 92, 93, and 115, indicating selection and arrangement of widgets for display in a main content area, and paras. 110-112, describing selection of a button corresponding to a widget in a navigation area causing scrolling to the widget's position in the main content area if it is already added to the area, indicating some widgets in the display and others out of the display; *see also, e.g.*, Hughes, paras. 150-152)**, (ii) expands one of the gadgets in said display beyond an edge of said display to show more data therein by shifting other gadgets** (*see, e.g.*, Hughes Parent, para. 92 and 93, describing widgets in the main content area as presented in various states and describing minimizing or expanding widgets among their different states; para. 104 and Figs. 3 and 5, describing and illustrating interaction with an icon within a header area of a widget to minimize a widget to and expand a widget from a header view state; para. 92, indicating that there is no maximum number of widgets allowable in the main content area and describing the states or modes of a widget in the main content area including single-wide, double-wide, and minimized states, the single- and double-wide states being one row high; and paras. 88 and 93 and Fig. 5, describing that widgets can be minimized or expanded to double-wide or full screen views; and *see, e.g.*, Hughes, paras. 128 and 133 and Fig. 5, contrasting minimized widget and widgets in an alternative normal or expanded state and illustrating non-minimized widgets. Under such arrangements as described, implementation comprising placement of an arbitrarily large number of widgets within the main content area in a

minimized state and then expanding a widget near the bottom of the visible portion of the main content area [within the row height of single- and double-wide states from the bottom of the visible portion of the area] would result in expansion of the selected widget to virtually extend beyond an edge of the display)**, and (iii) pans the layout within said display to bring some of the gadgets into said display and/or to move some of the gadgets out of said display** (*see, e.g.*, Hughes Parent, paras. 110-112, describing selection of a button corresponding to a widget in a navigation area causing scrolling to the widget's position in the main content area if it is already added to the area, indicating functionality to scroll to any given widget; *see also, e.g.*, Hughes, paras. 150-152).

71. Hughes is analogous art at least because it is from the same field of endeavor as the claimed invention, referencing scrollable computer interfaces and with teachings directed toward navigation among and selection of interface elements. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Simon, Frank, Shultz, and Hughes and implement a portable wireless computer system in which a user interface: (i) arranges the plurality of gadgets in a layout that is larger than said display, whereby some of the gadgets are in said display and others of the gadgets are out of said display; (ii) expands one of the gadgets in said display beyond an edge of said display to show more data therein by shifting other gadgets; and (iii) pans the layout within said display to bring some of the gadgets into said display and/or to move some of the gadgets out of said display in order to improve access to information at a user interface (*see, e.g.*, Hughes Parent, paras. 61 and 63; and in view of dashboard-style user interfaces known in the art).

72. However, Simon as modified by Frank and Shultz and as further modified by Hughes it is silent regarding the first, second, third and fourth gadgets being for news, stock market information, weather and social media, respectively, and silent regarding panning the layout in response to the object touching one of the gadgets on said display, and then the object gliding along said display away from the touched location.

73. Ording **teaches a portable wireless computer system** (*see, e.g.*, Ording, para. 117, describing a portable multifunction device having a touch screen which may display one or more graphics such as application icons, and para. 54, describing embodiments in which the portable multifunction device is a mobile telephone that also contains other functions)**, to enable a graphical user interface for accessing first, second, third and fourth gadgets for news, stock market information, weather and social media, respectively** (*see, e.g., id.*, para. 130 and Fig. 4, describing and illustrating a menu of applications including elements such as Blog [which can be viewed as a gadget for news or social media], Stocks [a gadget for stock market information], Weather [a gadget for weather], Browser [which can be viewed as a gadget for news or social media], and various other elements)**, wherein the user interface pans a layout within a display to bring some of a plurality of gadgets into said display and/or to move some of the gadgets out of said display, in response to the object touching one of the gadgets on said display, and then the object gliding along said display away from the touched location** (*see, e.g., id.*, para. 117, describing embodiments in which contacts include swipes in various directions, and para. 152, indicating embodiments comprising scrolling through a list of applications via a swipe gesture).

74. Ording is analogous art at least because it is from the same field of endeavor as the claimed invention, referencing scrollable computer interfaces and with teachings directed toward navigation among and selection of interface elements. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Simon, Frank, Shultz, Hughes, and Ording and implement a system in which gadgets are for news, stock market information, weather and social media and in which a user interface pans a layout within a display to bring some of the gadgets into a display and/or to move some of the gadgets out of said display, in response to an object touching one of the gadgets on said display, and then the object gliding along said display away from the touched location in order to provide touch-based navigation by means of an intuitive, location-based user input at a touch-sensitive graphical user interface providing access to an increased number of functions (*see, e.g.*, Ording, paras. 4 and 8; and in view of the value of touch-based scroll interaction known in the art).

75. However, Simon as modified by Frank, Shultz, Hughes, and Ording is silent regarding computer instructions configured to enable the portable wireless computer system to detect an object touching with hard pressure an on-screen element selected from the group consisting of a gadget, a letter, a key, a button or an icon and then to activate the on-screen element, thereby resulting in: (i) enlarging the on-screen element, (ii) displaying a callout balloon with a copy of the on-screen element inside, or (iii) a combination thereof.

76. Schwesig teaches **a computer system** (*e.g.*, Schwesig, Abstract, describing an information processing apparatus)**, wherein computer instructions are configured to**

enable the computer system to detect an object touching with hard pressure an on-screen element (*see, e.g., id.*, paras. 52-55 and Fig. 2, describing and illustrating an input device used in an information processing apparatus, the input device including a contact sensor and a pressure sensor unit configured to detect pressure when depressed with a finger and the like, and paras. 148 and 149, describing embodiments in which a display device is combined with the input device such as in the form of a touch panel) **selected from a group consisting of a gadget, a letter, a key, a button, or an icon and then to activate the on-screen element, thereby resulting in: (i) enlarging the on-screen element, (ii) displaying a callout balloon with a copy of the on-screen element inside, or (iii) a combination thereof** (*see, e.g., id.*, Abstract, paras. 25, 28, 64, 81-84, 100-102, 138-140, and Figs. 5A-5C, 7A-8, and 13A-14B, describing and illustrating embodiments in which a selected virtual button is enlarged according to an intensity of a detected pressure when the detected pressure is equal to or greater than a threshold value, and para. 153, describing embodiments in which, when an input device and a display device are combined such as in the form of a touch panel, a softbutton on which a user touches with a finger is displayed with a size thereof enlarged as the virtual button is enlarged. Note that the noted teachings anticipate the alternative language of the claim).

77. Schwesig is analogous art at least because it is from the same field of endeavor as the claimed invention, referencing portable computer systems comprising a touch-sensitive display and with teachings directed to pressure detection. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Simon, Frank, Shultz, Hughes, Ording, and Schwesig and implement a

portable wireless computer system in which an object is detected touching with hard pressure an on-screen element selected from the group consisting of a gadget, a letter, a key, a button, or an icon and then the on-screen element is activated, thereby resulting in: (i) enlarging the on-screen element, (ii) displaying a callout balloon with a copy of the on-screen element inside, or (iii) a combination thereof, in order to allow a user to more accurately select an intended object in the context of a pressure-sensitive touchscreen (*see, e.g.*, Schwesig, paras. 23-25; and in view of the value of selection feedback well known in the art).

78. Claims 36 and 40 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Simon in view of Frank, Shultz, Gough, Hisatomi, Nakagawa, and Amro and in further view of Hughes, Ording, and Schwesig.

79. Regarding Claim 36, Simon as modified by Frank and Shultz and as further modified by Hughes, Ording, and Schwesig teaches a mobile phone system corresponding to the portable wireless computer system of Claim 29. In view of the discussion of Claim 30, the same rationale of rejection provided above is applicable.

80. Regarding Claim 40, Simon as modified by Frank and Shultz and as further modified by Hughes, Ording, and Schwesig teaches a mobile phone system corresponding to the portable wireless computer system of Claim 29. In view of the discussion of Claim 37, the same rationale of rejection provided above is applicable.

Response to Arguments

81. Regarding Claims 25-28, 30-36, 39, and 40, which stand rejected under pre-AIA 35 U.S.C. 112, second paragraph, as being indefinite in relationship to the limitations "wherein … the representation represents only the function" or analogous variants in Claims 25, 30, and 39, Applicant's arguments on page 19 of the Amendment (page 7 of the Remarks) are not persuasive. Although Applicant suggests an intended interpretation of the claim language at issue as meaning "that in order to satisfy the above requirement the underlying software must not enable two functions to be activated, depending on the way the user touches the representation," one of ordinary skill in the art would not be put on notice of the suggested interpretation by the face of the claims or original disclosure. The language "wherein … the representation represents only the function" does not suggest on its face a requirement that an interactive user interface element invokes only one function and nothing in the original disclosure suggests this interpretation of the language, supporting a finding of indefiniteness. Applicant could amend the claims to include the intended meaning or similar language, but note that issues regarding new matter might arise.

82. Regarding Claims 25-28, 30-36, 39, and 40, which stand rejected under pre-AIA 35 U.S.C. 112, second paragraph, as being indefinite in relationship to the amended limitations "wherein … the function is not activated differently based on a direction or final destination of the gliding" or analogous variants in Claims 25, 30, and 39, Applicant's arguments on page 19 of the Amendment are not persuasive. Although Applicant suggests an intended interpretation of the claim language at issue as meaning "that, when the function is activated, the activation is not executed differently based on a

direction of the gliding," one of ordinary skill in the art would not be put on notice of the suggested interpretation by the face of the claims or original disclosure. The language "not activated differently" does not suggest on its face the prohibition of execution differences suggested by Applicant and nothing in the original disclosure suggests this interpretation of the language, supporting a finding of indefiniteness.

83. Regarding Claims 21-40, which stand rejected under pre-AIA 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement in relationship to the limitations "a top surface comprising a touch sensitive display, the top surface containing no movable button" or analogous variants in independent Claims 21, 30, and 37, Applicant's arguments are not persuasive. Applicant argues on pages 19-21 of the Amendment (pages 7-9 of the Remarks) that the originally-filed 10/315250 disclosure would have conveyed possession of the concept of eliminating all buttons from the top surface on which the touch screen is presented based on statements in the specification regarding providing a way to manage any application and regarding adaptation to be operated by one hand using a finger such as a thumb and based on Figure 13, which Applicant states "shows this mobile handheld computer without any buttons on the upper surface, namely, the surface on which the touch screen is presented." As noted in the previous Office action, any depictions in the figures, including Figure 13, that appear to lack movable buttons can be viewed as coincidental and do not reasonably provide support for possession of the negative limitation "the top surface containing no movable button" at issue. This conclusion is further supported by a comparison of Figures 1 and 13 of the 10/315250 disclosure, which appears to show a similar

touchscreen depiction in the two figures yet show a large empty area in Figure 13 below the touchscreen, suggesting an absence of movable buttons as coincidental. A negative limitation must have a basis in the original disclosure and mere absence of a positive recitation (in this instance absence of a recitation of a movable button on a top surface) is not basis for an exclusion. *See* MPEP § 2173.05[i].

84. Regarding Claims 23, 24, 31, 32, and 37-40, which stand further rejected under pre-AIA 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement in relationship to the limitations "a tap-absent state, wherein no tap-activatable icons are absent present" in Claims 23, 31, and 37 as amended, Applicant's arguments are not persuasive. Applicant argues on pages 22 and 23 of the Amendment (pages 10 and 11 of the Remarks) that support for possession of this limitation in the originally-filed 10/315250 disclosure is found in Figures 1-3 and accompanying discussion in the specification because a first user interface is shown without icons 211-216 and a subsequent user interface following a touch-and-glide gesture is shown with the elements. However, mere lack of discussion of tap activation in relationship to the initial user interface is insufficient to support possession of the limitations that "no tap-activatable icons are absent present." For example, the suggested absence of tap-activatable icons based on the depiction of Figure 1 can be viewed as coincidental or the elements 21-23 that are discussion in connection with the glide gesture could also be responsive to tap. As noted above, mere absence of a positive recitation (in this instance absence of recitation of tap-activatable icons on a user interface) is not basis for an exclusion. *See* MPEP § 2173.05[i].

85. Regarding Claims 25-28, 30-36, 39, and 40, which stand further rejected under pre-AIA 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement in relationship to the limitations "wherein … the representation represents only the function" or analogous variants in Claims 25, 30, and 39, Applicant's arguments are not persuasive. Applicant argues on page 24 of the Amendment that support for the limitation would be clear from the discussion of elements 21-23. Although related to issues of indefiniteness maintained above, nothing in the original disclosure of the 10/315250 application suggests that a representation "represents only the function" as any representation such as an icon can be viewed as associated with various concepts to a user. Regarding the interpretation of the claim language suggested by Applicant that "in order to satisfy the above requirement the underlying software must not enable two functions to be activated, depending on the way the user touches the representation," this negative limitation is related to other negative limitations discussed above. Nothing in the original disclosure of the instant application and underlying applications provides support for a requirement that elements 21-23 cannot be associated with more than one function. As noted above, mere absence of a positive recitation (in this instance absence of recitation of additional functions associated with an icon that is used in relationship to a glide gesture) is not basis for an exclusion. *See* MPEP § 2173.05[i].

86. Regarding Claims 25-28, 30-36, 39, and 40, which stand further rejected under pre-AIA 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement in relationship to the limitations "wherein … the function is not activated differently based on a direction or final destination of the gliding" or analogous variants

in Claims 25, 30, and 39, Applicant's arguments are not persuasive. Applicant argues on page 24 of the Amendment that support for the limitation would be clear from the discussion in the 10/315250 application that states gliding occurs "with a direction B from the menu area 2 to the display area 3." Nothing in the 10/315250 disclosure supports a requirement the gestures based on movement from menu area 2 to the display area 3 cannot be associated with a function that provides different or additional functionality based on the direction or final destination of the movement. As with the other negative limitations discussed above, mere absence of a positive recitation (in this instance absence of recitation of different behavior based on a direction or final destination of a touch gesture) is not basis for an exclusion. *See* MPEP § 2173.05[i].

87. Regarding prior art rejections, Applicant's arguments filed December 3, 2020, have been fully considered but are to some extent moot in view of the new grounds of rejection. To the extent the arguments still apply, they are not persuasive. Applicable arguments are addressed in turn below.

88. Applicant argues on page 31 of the Amendment (page 19 of the Remarks) that Shultz "fails to show or suggest running applications simultaneously." It is noted that Frank is relied on to render obvious running applications simultaneously.

89. Applicant argues on pages 31 and 32 of the Amendment that Simon fails to teach "at least two communication options on the display for a given contact," arguing that Simon provides only one communication option for a given address or number and suggesting that the claimed communication options must be "presented together." These arguments are inconsistent with a broadest reasonable interpretation of the claim

language at issue. Simon teaches functionality of the user interface to allow emailing and faxing of arbitrary text (*see, e.g.*, Simon Manual, p. 35, *Address Book*, and p. 40, *Making a Phone Call From the Address Book*, describing and illustrating functionality in an address book to dial a number of or send a fax to a contact; and O'Malley, p. 6, para. 2, describing Simon's programs as well integrated and describing ability of a user to call or send email to someone from the address book; and *see also, e.g., id.*, pp. 57 and 58, *Note Pad*, describing a notepad feature to create and work with typewritten notes; pp. 52-54, *Creating Mail* and *Working with a Message*, describing various functions associated with an email feature). Note that that the present claim language "to present at least two communication options on said display for given text" does not require simultaneous display of the communication options on a single display of the screen (nor would such a limitation appear to be supported by the original disclosure of the 10/315250 application). Granting displayed user interface options to call or email a contact, which comprises or represents various forms of text such as a contact name, represents presenting at least two communication options for a given text as claimed.

90. Applicant argues on pages 32 and 33 of the Amendment that Shultz fails to teach or suggest providing in a single, portable wireless computer system, applications for a telephone, chat or SMS, a camera, a music player, and email. This argument underestimates the level of ordinary skill in the art and fails to consider obviousness in view of a combination of the references taken together. As noted above, Shultz describes a mobile device including a processor for implementing one or more applications depending on the functionality of the mobile device, describes implementation of instant messaging applications, and describing implementation of

functionality including that of an MP3 player and a digital camera (*see, e.g.*, Shultz, para. 21). Shultz need not explicitly describe or advocate for a single device with the various functions noted as such a composite device would have been obvious to one of ordinary skill in the art over these teachings in order to increase the functionality of a general purpose mobile device such as discussed by Shultz in the paragraph noted. Further, increasing functionality of a device is obvious in combination with the teachings of Simon and the other references as discussed in the rejections above.

91. Applicant argues on pages 33 and 34 of the Amendment that Frank fails to teach or suggest running applications simultaneously. This argument ignores explicit teachings of Frank. As noted above, Frank teaches as system in which multiple applications are executed concurrently by a CPU such that each application is associated with one or more windows (*see, e.g.*, Frank, Abstract and col. 2, lines 38-40; and col. 5, lines 30-48, and Fig. 3). Concurrent execution is simultaneous execution. Note that challenges to Frank as teaching stationary, non-wireless display amount to selective challenges of the reference as Simon and various other applied references render obvious mobile and wireless implementations.

92. Regarding Applicants arguments on pages 34-36 regarding "a tap-absent state, wherein no tap-activatable icons are present," note that these limitations are rendered obvious over the teachings of newly added reference Hisatomi as discussed in the rejections above.

93. Regarding Applicant's arguments on pages 36 and 37 of the Amendment that Shaw fails to teach or suggest combining applications in a handheld phone, these limitations are rendered obvious over Shultz and the arguments above regarding the

level of ordinary skill in the art and the teachings of Shultz and regarding combination with other prior art references apply.

94. Regarding Applicants arguments on pages 37 and 38 regarding the limitations "the function is not activated differently based on a direction or final destination of the gliding," note that these limitations are rendered obvious over the teachings of newly added reference Hisatomi as discussed in the rejections above.

95. Regarding Applicants arguments on pages 38 and 39 of the Amendment that "Gough is clearly aimed only at input utilities in a pen computer system" and so would not be applicable to "applications or menus for configuring services or settings for an operations system or an application," this argument is inconsistent with a broadest reasonable interpretation of the claim language at issue and fails to consider obviousness in view of the teachings of the prior art taken together. Organization of Simon involves a user interface element at the bottom of the screen that provides access to a Mobile Office screen providing various icons that can be viewed as applications (*see, e.g.*, Simon Manual, pp. 11 and 12, *How Simon Works* and *Using the Buttons*). Application of activation of user interface elements by sliding such as taught by Gough is not incompatible with such an organizational structure and would have been obvious to one of ordinary skill in the art to combine with other features as discussed above. Further, Hisatomi renders obvious a sliding gesture to display various user interface elements that can be viewed as applications, menus, or settings.

96. Regarding Applicant's arguments on pages 39 and 40 regarding the limitation "wherein the first and second locations may be anywhere within said display," note that

this limitation is rendered obvious over the teachings of newly added reference Amro as discussed in the rejections above.

97. Applicant argues on pages 40 and 41 of the Amendment that the widgets taught by Hughes are related to software development and so the teachings represent an entirely different field of endeavor than providing information to a user of a mobile phone. These arguments underestimate the level of ordinary skill in the art and are inconsistent with the relevant standard of analogous art. One of ordinary skill in the art would understand user interface features involving expandable display in a scrollable computer interface such as presenting a dashboard as applicable to a wide range of user interfaces, not only user interfaces dealing with software development as suggested by Applicant. A reference can be analogous art if from the same field of endeavor or if it is reasonably pertinent to a problem faced by the inventor. See MPEP § 2141.01(a). Here, a desire to improve access to information at a limited user interface (*see, e.g.*, Hughes Parent, paras. 61 and 63) represents a problem applicable to a wide range of user interfaces including that of a mobile phone.

98. Regarding Applicant's arguments on pages 42 and 43 of the Amendment related to the limitations "wherein the first and second locations may be anywhere within said display" and "not activated differently based on a direction or final destination of the gliding," limitations are rendered obvious over newly added references Amro and Hisatomi as previously noted. Regarding challenges to Gough as directed only to input utilities, the responses above regarding this issue apply. Regarding Applicant's assertion that "the feature of providing two different functionalities for multi-step touch and glide gestures as claimed in claim 30 is not taught in the prior art," it is noted that

these limitations are rendered obvious over the combination of references as discussed in the rejections above.

99. Applicant argues on page 45 of the Amendment that the applied references fail to teach or suggest the limitation "the first application is not an address book," arguing that the limitation in context of the claim is not taught by the applied references. This argument ignores the teaches of Simon related to this limitation as discussed above and ignores the level of ordinary skill in the art in understanding the potential to save text data of various types including data "configured for use as an address, a telephone number, or a message in phone call, email, chat or SMS" as claimed.

100. Regarding Applicant's various arguments on pages 43-50 regarding various limitations discussed in relationship to other claims, note that the responses to arguments provided above apply.

Conclusion

101. The following prior art made of record and not relied upon is considered pertinent to Applicant's disclosure: Singh et al., U.S. Patent 6,400,376 B1 (issued Jun. 4, 2002), teaching a user interface comprising touch-based control of panning or scrolling of the user interface.

102. Note that pinpoint citations to prior art references provided in this action are exemplary and should not be taken as limiting; each of the references as a whole is considered to provide disclosure relevant to the claimed invention and may be relied upon for all that it would have reasonably suggested to one of ordinary skill in the art. See MPEP § 2123.

103. Applicant's Amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

104. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Conrad Pack whose telephone number is (571) 270-7967 and fax number is (571) 270-8967. The examiner can normally be reached on Monday through Friday, 8:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dennis Chow can be reached at (571) 272-7767. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Conrad Pack/
Examiner, Art Unit 2174
1/16/20212

/SHERIEF BADAWI/
Supervisory Patent Examiner, Art Unit 2174

Notice of References Cited	Application/Control No. 16/796,880	Applicant(s)/Patent Under Reexamination Goertz et al.	
	Examiner CONRAD R PACK	Art Unit 2174	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-6278443-B1	08-2001	Amro; Hatim Yousef	G06F3/038	178/18.01
*	B	US-6400376-B1	06-2002	Singh; Mona	G06F1/1626	345/156
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N	JP-2002-055750	02-2002	JP	Hisatomi et al.	G06F3/00
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
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Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/796,880	Goertz et al.
	Examiner	Art Unit
	CONRAD R PACK	2174

CPC - Searched*		
Symbol	**Date**	**Examiner**
G06F3/04886 (keyword limited)	08/13/2020	CP
G06F3/018 (keyword limited)	08/13/2020	CP
G06F3/0481 (keyword limited)	08/13/2020	CP
G06F3/04817 (keyword limited)	08/13/2020	CP
G06F3/0485 (keyword limited)	08/13/2020	CP
G06F3/04855 (keyword limited)	08/13/2020	CP
G06F3/0488 (keyword limited)	08/13/2020	CP
G06F3/04883 (keyword limited)	08/13/2020	CP
G06F21/31 (keyword limited)	08/13/2020	CP
G06F21/32 (keyword limited)	08/13/2020	CP
H04M1/72583 (keyword limited)	08/13/2020	CP
H04M2250/22 (keyword limited)	08/13/2020	CP
G06F3/04886 (keyword limited)	01/16/2021	CP
G06F3/018 (keyword limited)	01/16/2021	CP
G06F3/0481 (keyword limited)	01/16/2021	CP
G06F3/04817 (keyword limited)	01/16/2021	CP
G06F3/0485 (keyword limited)	01/16/2021	CP
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G06F3/0488 (keyword limited)	01/16/2021	CP
G06F3/04883 (keyword limited)	01/16/2021	CP
G06F21/31 (keyword limited)	01/16/2021	CP
G06F21/32 (keyword limited)	01/16/2021	CP
H04M1/72583 (keyword limited)	01/16/2021	CP
H04M2250/22 (keyword limited)	01/16/2021	CP

/SHERIEF BADAWI/ Supervisory Patent Examiner, Art Unit 2174	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/796,880	Goertz et al.
	Examiner	Art Unit
	CONRAD R PACK	2174

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
715	700	08/13/2020	CP
715	700	01/16/2021	CP

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
PALM inventor name search	08/13/2020	CP
East text search and class limited search (see attached)	08/13/2020	CP
Other Searches: Google Web and InnovationQ Plus (see attached)	08/13/2020	CP
Updated East text search and class limited search (see attached)	01/16/2021	CP
IPR2021-00144 Reviewed Petition for Inter Partes Review of U.S. Patent 8,095,879	01/16/2021	CP
IPR2021-00145 Reviewed Petition for Inter Partes Review of U.S. Patent 8,812,003	01/16/2021	CP
IPR2021-00145 Exhibit 1005 Reviewed Certified translation of JP Published Patent Application No. 2002-55750 (Hisatomi)	01/16/2021	CP

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**

/SHERIEF BADAWI/ Supervisory Patent Examiner, Art Unit 2174	

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/796,880	Goertz et al.
	Examiner	Art Unit
	CONRAD R PACK	2174

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant					☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE								
Final	Original	08/13/2020	01/16/2021							
	21	✓	✓							
	22	✓	✓							
	23	✓	✓							
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	36	✓	✓							
	37	✓	✓							
	38	✓	✓							
	39	✓	✓							
	40	✓	✓							

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16796880
Filing Date	2020-02-20
First Named Inventor	Magnus Goertz
Art Unit	2174
Examiner Name	Conrad R. Pack
Attorney Docket Number	AEQUITAS.P001

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5249296	A	1993-09-28	Tanaka	
	2	5422656	A	1995-06-06	Allard et al.	
	3	5537608	A	1996-07-16	Beatty et al.	
	4	5615384	A	1995-08-29	DAVID J. ALLARD	
	5	5903268	A	1999-05-11	Hirayama	
	6	5949418	A	1997-05-06	KEVIN TIMOTHY SHIELDS	
	7	6100878	A	2000-08-08	Hirayama	
	8	6133898	A	1998-10-19	FRANK LUDOLPH	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

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	Examiner Name	Conrad R. Pack
	Attorney Docket Number	AEQUITAS.P001

	9	6710791	B1	1997-01-31	YOSHIYUKI KODAMA	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20050024341	A1	2005-02-03	Gillespie David W. et al.	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	JP 2002-55750	JP	A	2002-02-20	Hisatomi et al.		

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Xiangshi Ren & Shinji Moriya, "Improving Selection on Pen-Based Systems: A Study of Pen-Based Interaction for Selection Tasks," ACM Transactions on Computer-Human Interaction, Vol. 7, No. 3, September 2000, pp. 384-416.	
	2	Andrew Sears, et al., "Chapter 1 A New Era for High Precision Touchscreens," ADVANCES IN HUMAN-COMPUTER INTERACTION, Vol. 3, pages 1 - 33, R. Hartson, D. Hix, Ed. 1992.	
	3	David Rogers et al., Tossing Objects in a Desktop Environment, submitted to Conference on Human Factors in Computing Systems (1996).	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P/

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	Examiner Name	Conrad R. Pack
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	4	Leslie E Chipman et al., SlideBar: Analysis of a linear input device, 23 Behaviour & Info. Tech. January-February 2004, Vol. 23, No. 1, 1 - 9, DOI: 10.1080/01449290310001638487	
	5	Hilary Browne et al., Designing a Collaborative Finger Painting Application for Children, HCIL-2000-17, CS-TR-4184, UMIACS-TR-2000-66 (Sept. 2000), available at https://hcil.umd.edu/pub-perm-link/?id=2000-17	
	6	Apple Newton MessagePad Handbook, Apple Computer, Inc. 1993, simultaneously published in both the United States and Canada.	
	7	Microsoft Announces Broad Availability of Handheld PCs With Windows CE, Nov. 19, 1996 (https://news.microsoft.com/1996/11/19/microsoft-announces-broad-availability-of-handheld-pcs-with-windows-ce/)	
	8	Kairer, Ryan, Palm Pilot 1000 Retrospective, Palm Infocenter, March 27, 2006 (www.palminfocenter.com/news/8493/pilot-1000-retrospective)	
	9	Walker, Geoff, The Microsoft Tablet PC, A detailed look at Microsoft's proposed Tablet PC, Pen Computing Magazine, July 2001 issue.	
	10	Handbook for Palm m500 Series Handhelds (2001)	
	11	Java History, Javapapers (https://javapapers.com/core-java/java-history/)	
	12	AT&T EO 440 Personal Communicator, oldcomputers.net (http://oldcomputers.net/eo-440.html)	
	13	HP Jornada 520 Series Pocket PC User's Guide (2001), Singapore.	
	14	"Product of the Month, BellSouth Cellular/IBM Release Simon PDA," TELECOMMUNICATIONS, 28(1), p. 116, January 1994.	

EFS Web 2.1.18

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	Attorney Docket Number	AEQUITAS.P001

	15	Norman, Donald A., The Psychology of Everyday Things, pages 1 - 33, ISBN 0-465-06709-3, 1988.	
	16	Rubine, Dean Harris, The Automatic Recognition of Gestures, PhD thesis, School of Computer Science, Carnegie Mellon University, 1991.	
	17	BEDERSON, BENJAMIN, Fisheye Menus, Proceedings of ACM Conference on User Interface Software and Technology (UIST 2000), pp. 217 - 226, ACM Press, November 2000.	
	18	BEDERSON, et al., Pad++: A Zooming Graphical Interface for Exploring Alternate Interface Physics, Proceedings of ACM Conference on User Interface Software and Technology (UIST 1994), pp. 17 - 26, ACM Press, November 1994.	
	19	Combs, et al., Does Zooming Improve Image Browsing?, HCIL Technical Report No. 99-05 (February 1999); http://www.cs.umd.edu/hcil	
	20	PETITION FOR INTER PARTES REVIEW OF UNITED STATES PATENT NO. 8,095,879 PURSUANT TO 35 U.S.C. §§311–319, 37 C.F.R. §4	
	21	PETITION FOR INTER PARTES REVIEW OF UNITED STATES PATENT NO. 8,812,993 PURSUANT TO 35 U.S.C. §§311–319, 37 C.F.R. §4	

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EXAMINER SIGNATURE

Examiner Signature	/CONRAD R PACK/	Date Considered	01/15/2021

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	First Named Inventor	Magnus Goertz
	Art Unit	2174
	Examiner Name	Conrad R. Pack
	Attorney Docket Number	AEQUITAS.P001

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Marc A. Berger/	Date (YYYY-MM-DD)	2020-12-02
Name/Print	Marc A. Berger	Registration Number	44029

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	111,882	(G06F3/04886 G06F3/018 G06F3/0481 G06F3/04817 G06F3/0485 G06F3/04855 G06F3/0488 G06F3/04883 G06F21/31 G06F21/32 H04M1/72583 H04M2250/22).CPC.	US-PGPUB; USPAT	OR	ON	2020/05/25 20:00
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S10	203	S9 SAME (list$3 directory)	US-PGPUB; USPAT	OR	ON	2020/08/03 04:42
S11	7,441	touch$8.TI,AB. AND (SSD (((solid NEAR state) solid$1state) NEAR3 (memory drive disk)))	US-PGPUB; USPAT	OR	ON	2020/08/03 05:57
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S18	370	((chat$4 SMS (instant NEAR messag$3) text$3) SAME camera SAME (music player)) AND @AD<"20021210"	US-PGPUB; USPAT	OR	ON	2020/08/03 12:20
S19	8,104	((simultaneous$2 concurrent$2) NEAR3 (run$4 execut$3) NEAR3 (application program app software)) SAME (top above over front)	US-PGPUB; USPAT	OR	ON	2020/08/03 13:57
S20	923	S19 AND @AD<"20021210"	US-PGPUB; USPAT	OR	ON	2020/08/03 13:58
S21	69	S20 AND ((simultaneous$2 concurrent$2) NEAR3 (run$4 execut$3)).TI,AB.	US-PGPUB; USPAT	OR	ON	2020/08/03 14:38
S22	5,621	(glid$3 swip$3 slid$3 move$1 moving drag$4) NEAR5 (object stylus finger pen point away) NEAR5 (edge side top bottom) NEAR5 (screen display touch$1screen$1)	US-PGPUB; USPAT	OR	ON	2020/08/04 15:43
S23	497	S22 AND @AD<"20021210"	US-PGPUB; USPAT	OR	ON	2020/08/04 15:44
S24	169	S22 SAME (icons! tray)	US-PGPUB; USPAT	OR	ON	2020/08/04 15:47
S25	19,305	((show$3 display$3 open$3) WITH (hid$3 clos$3) WITH (icons! tray panel drawer)) SAME (glid$3 swip$3 slid$3 drag$4)	US-PGPUB; USPAT	OR	ON	2020/08/05 00:34
S26	5,216	S25 AND @AD<"20021210"	US-PGPUB; USPAT	OR	ON	2020/08/05 00:35
S27	70	S26 AND (touch$8 tap tapp$3 glid$3 swip$3).TI,AB.	US-PGPUB; USPAT	OR	ON	2020/08/05 00:36
S28	215	S26 AND (G06F.CPCL. "715".CLAS.)	US-PGPUB; USPAT	OR	ON	2020/08/05 00:45
S29	17,140	(scroll$3 pan pann$3) NEAR10 (touch$3 drag$4 swip$3 slid$3 glid$3) NEAR10 (up$5 down$5 left right direction)	US-PGPUB; USPAT	OR	ON	2020/08/12 11:30
S30	1,620	S29 AND @AD<"20021210"	US-PGPUB; USPAT	OR	ON	2020/08/12 11:31

S31	611	S30 AND (G06F.CPCL. "715".CLAS.)	US-PGPUB; USPAT	OR	ON	2020/08/12 11:32
S32	128	S31 AND (((touch$3 drag$4 swip$3 slid$3 glid$3) NEAR10 (up$5 down$5)) SAME ((touch$3 drag$4 swip$3 slid$3 glid$3) NEAR10 (left right)))	US-PGPUB; USPAT	OR	ON	2020/08/12 11:35
S33	161	pressur$3 NEAR5 (icon widget gadget) NEAR5 (enlarg$6 grow$3 increas$3 pop$1up$1 (pop ADJ up))	US-PGPUB; USPAT	OR	ON	2020/08/12 14:35
S34	19,747	pressur$3 NEAR5 (icon widget gadget item element object image) NEAR5 (enlarg$6 grow$3 increas$3 pop$1up$1 (pop ADJ up) zoom$3)	US-PGPUB; USPAT	OR	ON	2020/08/12 14:41
S35	149	S34 AND (G06F.CPCL. "715".CLAS.) AND @AD<"20080619"	US-PGPUB; USPAT	OR	ON	2020/08/12 14:43
S36	14,751	((pressur$3 (press$3 NEAR3 (hard$3 firm$2))) WITH ((icon widget gadget item element object image) NEAR5 (enlarg$6 grow$3 increas$3 magnif$8 pop$1up$1 (pop ADJ up) zoom$3))) AND @AD<"20080619"	US-PGPUB; USPAT	OR	ON	2020/08/12 22:07
S37	188	S36 AND ((touch$12 NEAR3 (screen display)) touch$1screen$1)	US-PGPUB; USPAT	OR	ON	2020/08/12 22:11
S38	119,982	(G06F3/04886 G06F3/018 G06F3/0481 G06F3/04817 G06F3/0485 G06F3/04855 G06F3/0488 G06F3/04883 G06F21/31 G06F21/32 H04M1/72583 H04M2250/22).CPC.	US-PGPUB; USPAT	OR	ON	2021/01/06 20:51
S39	2,778	715/700.CCLS.	US-PGPUB; USPAT	OR	ON	2021/01/06 20:51
S40	18,401	overlap$4 NEAR3 (application program app software)	US-PGPUB; USPAT	OR	ON	2021/01/06 23:30
S41	1,495	S40 AND (S38 S39)	US-PGPUB; USPAT	OR	ON	2021/01/06 23:30
S42	79	S41 AND @AD<"20021210"	US-PGPUB; USPAT	OR	ON	2021/01/06 23:31
S43	10	("20050024341" "5249296" "5422656" "5537608" "5615384" "5903268" "5949418" "6100878" "6133898" "6710791").PN.	US-PGPUB; USPAT	OR	ON	2021/01/15 13:01
S44	3	JP-2002055750-$.DID.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT	OR	ON	2021/01/15 13:03
S45	2	("8095879" "8812993").PN.	US-PGPUB; USPAT	OR	ON	2021/01/15 15:12

S46	1,398	((glid$3 swip$3 slid$3 move$1 moving drag$4) NEAR5 (scroll$3 pan pann$3)) SAME (anywhere (any NEAR3 (point location position)))	US-PGPUB; USPAT	OR	ON	2021/01/16 12:02
S47	206	S46 AND @AD<"20021210"	US-PGPUB; USPAT	OR	ON	2021/01/16 12:07

EAST Search History (Interference)

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1/16/2021 10:10:22 PM
C:\Users\cpack\Documents\Workspace\Docket\16-796880\16-796880_EastWorkspace.wsp

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CERTIFICATION

This is to certify that the attached translation is, to the best of my knowledge and belief, a true and accurate translation from Japanese into English of the attached Published Patent Application No. 2002-55750, dated August 10, 2000.

Jeff Cureton, Senior Managing Editor

Sworn to and subscribed before me
this 9th day of September, 2020.

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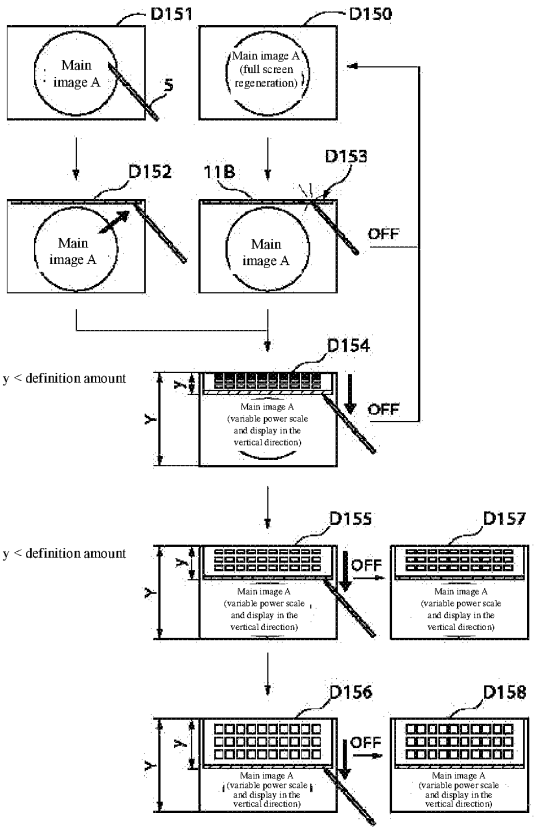
(54) [NAME OF THE INVENTION] Information processing device, function list display means, and storage medium

(57) [ABSTRACT]

[Problem to Be Solved] To simultaneously display a menu and a main image in a small image display part without hindering any editing work.

[Means for Solving the Problem] The coordinate designation of a predetermined area 11B is performed by an input device 05 (D153), and successively the coordinate designation is continued by the input device 05, and when the designated coordinates are changed to almost the central direction of an image display part (D154~D156), a menu corresponding to the predetermined area 11B is displayed on the image display part according to the changing amounts of the designated coordinates. At the same time, a main image A displayed on the image display part immediately before the menu is displayed is variable power reduced according to the display amounts of the menu, and then displayed on the image display part (D154~D156).



[SCOPE OF PATENT CLAIMS]

[Claim 1] An information processing device, wherein in such an information processing device equipped with an image display part surrounded by a frame forming a level difference and a coordinate designation means for designating a coordinate position on the screen in this image display part, there are

multiple predetermined areas on the aforesaid image display part provided near the aforesaid frame;

multiple function lists which contain multiple function items respectively that were set corresponding to each of the aforesaid multiple predetermined areas;

a function list display means enabling that when the coordinate designation of any one of the aforesaid multiple designated areas was performed by the aforesaid coordinate designation means, and successively the coordinate designation was continued by the aforesaid coordinate designation means, and at the same time, this designated coordinate changed to almost the central direction of the aforesaid image display part, the function list corresponding to the predetermined area where the aforesaid coordinate designation was performed will be displayed on the aforesaid image display part according to the amount of the aforesaid change of the designated coordinates; and

a main image display means enabling that the main image displayed on the aforesaid image display part by the aforesaid function list display means immediately before the function list is displayed by the aforesaid function list display means will be variable power reduced corresponding to the display amount of the function list displayed by the aforesaid function list display means, and then displayed on the aforesaid image display part.

[Claim 2] An information processing device described in claim 1, wherein the aforesaid frame forms a square shape, and

the aforesaid main image display means will variable power reduce the shape of the aforesaid main image immediately before being displayed in accordance with the aspect ratio of the display area that remains when the function list is displayed by the aforesaid function list display means on the screen of the aforesaid image display part.

[Claim 3] An information processing device described in claim 2, wherein if the function list displayed by the aforesaid function list display means is pulled out in the vertical direction of the aforesaid frame and then displayed, the aforesaid main image display means will variable power reduce the shape of the aforesaid main image immediately before being displayed in the aforesaid vertical direction; and, on the other hand, if the function list displayed by the aforesaid function list display means is pulled out in the horizontal direction of the aforesaid frame and then displayed, the aforesaid main image display means will variable power reduce the shape of the aforesaid main image immediately before being displayed in the aforesaid horizontal direction.

[Claim 4] An information processing device described in any one claim from claims 1 to 3, wherein the user selects a function based on the function list displayed by the aforesaid function list display means, and by executing this selected function, the editing process of the main image displayed by the aforesaid main image display means can be performed.

[Claim 5] An information processing device described in any one claim from claims 1 to 4, wherein the aforesaid coordinate designation means includes a contactor that comes into contact with the screen of the aforesaid image display part,

and the aforesaid multiple predetermined areas include the area where when the aforesaid contactor moves on the screen of the aforesaid image display part and comes into contact with the aforesaid frame, the aforesaid contactor will be located on the screen of the aforesaid image display part.

[Claim 6] An information processing device described in claim 5, wherein the aforesaid frame forms a square shape,

and the aforesaid multiple predetermined areas will be located near four sides of the aforesaid frame.

[Claim 7] An information processing device described in claims 5 or 6, wherein the aforesaid frame forms a square shape,

and the aforesaid multiple predetermined areas will be located near four corners of the aforesaid frame.

[Claim 8] An information processing device described in any one claim from claims 1 to 7, wherein the aforesaid information processing device is a portable information processing terminal.

[Claim 9] An information processing device described in any one claim from claims 1 to 8, wherein multiple function items representing multiple information processing functions provided by the aforesaid information processing device are pre-classified according to the predetermined classification criteria to form multiple groups, and each group corresponds to each of the aforesaid multiple function lists.

[Claim 10] An information processing device described in claim 9, wherein the aforesaid classification criteria will be the frequency of use of the functions.

[Claim 11] An information processing device described in any one claim from claims 1 to 10, wherein the aforesaid function list display means will extract a change amount component in a predetermined direction from the change amount of the aforesaid designated coordinate, pull out the image of the function list corresponding to the aforesaid coordinate-designated predetermined area in the aforesaid predetermined direction only for the pull-out amount corresponding to the aforesaid extracted change amount component, and then display this image on the aforesaid image display part.

[Claim 12] An information processing device described in claim 11, wherein when the coordinate designation by the aforesaid coordinate designation means was cancelled, and if the aforesaid extracted change amount component is larger than the predetermined value, the aforesaid function list display means will maintain the pull-out display of the aforesaid function list only for the aforesaid pull-out amount.

[Claim 13] An information processing device described in claims 11 or 12, wherein when the coordinate designation by the aforesaid coordinate designation means was cancelled, and if the aforesaid extracted change amount component is less than the predetermined value, the aforesaid function list display means will stop displaying the aforesaid function list.

[Claim 14] An information processing device described in any one claim from claims 1 to 13, wherein in the function list corresponding to the aforesaid coordinate-designated predetermined area, the aforesaid function list display means will display all the function items constituting this function list on the aforesaid image display part after being variable power reduced in the vertical and horizontal directions corresponding to the change amount of the aforesaid designated coordinate.

[Claim 15] An information processing device described in claims 1 to 13, wherein in the function list corresponding to the aforesaid coordinate-designated predetermined area, the aforesaid function list display means will reduce and display all the function items that constitute the function list on the aforesaid image display part in case of any change amount of the aforesaid designated coordinate.

[Claim 16] An information processing device described in any one claim from claims 1 to 13, wherein in each of the aforesaid multiple function list, the aforesaid function list display means will set the display priority in advance for multiple function items that constitute the function list, and preferentially display the function items with aforesaid high priority in the aforesaid function list on

the aforesaid image display part, corresponding to the change amount of the aforesaid designated coordinate.

[Claim 17] A function list display means, wherein in such a function list display means to be applied to the information processing device and equipped with an image display part surrounded by a frame forming a level difference, a coordinate designation means for designating a coordinate position on the screen in this image display part, multiple predetermined areas on the aforesaid image display part provided near the aforesaid frame, and multiple function lists which contain multiple function items respectively that were set corresponding to each of the aforesaid multiple predetermined areas, there are

a function list display step enabling that when the coordinate designation of any one of the aforesaid multiple designated areas was performed by the aforesaid coordinate designation means, and successively the coordinate designation was continued by the aforesaid coordinate designation means, and at the same time, this designated coordinate changed to almost the central direction of the aforesaid image display part, the function list corresponding to the predetermined area where the aforesaid coordinate designation was performed will be displayed on the aforesaid image display part according to the amount of the aforesaid change of the designated coordinates; and

a main image display step enabling that the main image displayed on the aforesaid image display part by the aforesaid function list display step immediately before the function list is displayed by the aforesaid function list display step will be variable power reduced corresponding to the display amount of the function list displayed by the aforesaid function list display step, and then displayed on the aforesaid image display part.

[Claim 18] A function list display means described in claim 17, wherein the aforesaid frame forms a square shape,

and the aforesaid main image display step will variable power reduce the shape of the aforesaid main image immediately before being displayed in accordance with the aspect ratio of the display area that remains when the function list is displayed by the aforesaid function list display step on the screen of the aforesaid image display part.

[Claim 19] A function list display means described in claim 18, wherein if the function list displayed by the aforesaid function list display step is pulled out in the vertical direction of the aforesaid frame and then displayed, the aforesaid main image display step will variable power reduce the shape of the aforesaid main image immediately before being displayed in the aforesaid vertical direction; and, on the other hand, if the function list displayed by the aforesaid function list display step is pulled out in the horizontal direction of the aforesaid frame and then displayed, the aforesaid main image display step will variable power reduce the shape of the aforesaid main image immediately before being displayed in the aforesaid horizontal direction.

[Claim 20] A function list display means described in any one claim from claims 17 to 19, wherein the user selects a function based on the function list displayed by the aforesaid function list display step, and by executing this selected function, the editing process of the main image displayed by the aforesaid main image display step can be performed.

[Claim 21] A storage medium, wherein in such a computer-readable storage medium which stored, as a program, a function list display means to be applied to the information processing device and equipped with an image display part surrounded by a frame forming a level difference, a coordinate designation means for designating a coordinate position on the screen in this image display part, multiple predetermined areas on the aforesaid image display part provided near the aforesaid frame, and multiple function lists which contain multiple function items respectively that were set corresponding to each of the aforesaid multiple predetermined areas, the function list display means has a function list display step enabling that when the coordinate designation of any one of the aforesaid multiple designated areas was performed by the aforesaid coordinate designation means, and successively the coordinate designation was continued by the aforesaid coordinate designation means, and at the same time, this designated coordinate changed to almost the central direction of the aforesaid image display part, the function list corresponding to the predetermined area where the aforesaid coordinate designation was performed will be displayed on the aforesaid image display part according to the amount of the aforesaid change of the designated coordinates; and

a main image display step enabling that the main image displayed on the aforesaid image display part by the aforesaid function list display step immediately before the function list is displayed by the aforesaid function list display step will be variable power reduced corresponding to the display amount of the function list displayed by the aforesaid function list display step, and then displayed on the aforesaid image display part.

[Claim 22] A storage medium described in claim 21, wherein the aforesaid frame forms a square shape,

and the aforesaid main image display step will variable power reduce the shape of the aforesaid main image immediately before being displayed in accordance with the aspect ratio of the display area that remains when the function list is displayed by the aforesaid function list display step on the screen of the aforesaid image display part.

[Claim 23] A storage medium described in claim 22, wherein if the function list displayed by the aforesaid function list display step is pulled out in the vertical direction of the aforesaid frame and then displayed, the aforesaid main image display step will variable power reduce the shape of the aforesaid main image immediately before being displayed in the aforesaid vertical direction; and, on the other hand, if the function list displayed by the aforesaid function list display step is pulled out in the horizontal direction of the aforesaid frame and then displayed, the aforesaid main image display step will variable power reduce the shape of the aforesaid main image immediately before being displayed in the aforesaid horizontal direction.

[Claim 24] A storage medium described in any one claim from claims 21 to 23, wherein the user selects a function based on the function list displayed by the aforesaid function list display step, and by executing this selected function, the editing process of the main image displayed by the aforesaid main image display step can be performed.

[DETAILED DESCRIPTION OF THE INVENTION]

[0001]

[Technical field to which the invention belongs] This invention is related to an information processing device, a function list display means, and a storage medium, and to be more specific, it is related to an information processing device equipped with an image display part surrounded by a frame forming a level difference and a coordinate designation means for designating a coordinate position on the screen at the image display part, a function list display means to be applied to this information processing device, and a storage medium storing a program for executing this function list display means.

[0002]

[Conventional technology] In a conventional notebook-sized portable information terminal, it is to operate the hard keys on the exterior of the main body or the touch-sensitive keys on the liquid crystal display to select the functions that can be executed by the portable information terminal and then execute those functions.

[0003] In addition, in a personal computer equipped with a large screen display (hereinafter referred to as "personal computer"), by using a mouse cursor or pointing device to select buttons and soft keys that use icons that are always displayed on the screen of the display and symbolically represent the function of the button, a list (menu) of functions that can be executed on a personal computer will be pulled out, and when a desired function is selected from the list, the selected function will be executed. The list of functions which are pulled out in this way is called a pull-down menu or a pull-up menu.

[0004]

[Problems to be solved by the invention] When such pull-down menus or pull-up menus are applied to a conventional portable information terminal with a narrow display screen, the menu will cover the main image that should be displayed. For this reason, there is no choice but to accept the result that the menu will be displayed as small as possible, and the menu has unfavorably covered a part of the main image. However, if a small menu is displayed, it will be difficult to read; on the contrary, if a large menu is displayed, there is a problem that many areas of the main image have been unfavorably covered by the menu. This problem increases as the number of function items included in the menu increases.

[0005] By the way, there may be a case when it is desired to display the menu and the main image simultaneously to perform an editing work, but in such a case, even if the menu doesn't cover the whole main image, the menu only hides a part of the main image, if there is important information in the hidden part, it will hinder editing work. Therefore, in such a case, it is not preferable that the main image is partially covered.

[0006] This invention has been made in view of such kind of problems, and the purpose of this invention is to provide an information processing device, a function list display means, and a storage medium that does not hinder any editing work even if a menu and a main image are simultaneously displayed at a small image display part.

[0007]

[Means for solving the problems] In order to achieve the above purpose, according to the invention of claim 1, it is an information processing device, wherein in such an information processing device equipped with an image display part surrounded by a frame forming a level difference and a coordinate designation means for designating a coordinate position on the screen in this image display part, it has multiple predetermined areas on the aforesaid image display part provided near the aforesaid frame; multiple function lists which contain multiple function items respectively that were set corresponding to each of the aforesaid multiple predetermined areas; a function list display means enabling that when the coordinate designation of any one of the aforesaid multiple designated areas was performed by the aforesaid coordinate designation means, and successively the coordinate designation was continued by the aforesaid coordinate designation means, and at the same time, this designated coordinate changed to almost the central direction of the aforesaid image display part, the function list corresponding to the predetermined area where the aforesaid coordinate designation was performed will be displayed on the aforesaid image display part according to the amount of the aforesaid change of the designated coordinates; and

a main image display means enabling that the main image displayed on the aforesaid image display part by the aforesaid function list display means immediately before the function list is displayed by the aforesaid function list display means will be variable power reduced corresponding to the display amount of the function list displayed by the aforesaid function list display means, and then displayed on the aforesaid image display part.

[0008] In addition, according to the invention of claim 17, it is a function list display means, wherein in such a function list display means to be applied to the information processing device and equipped with an image display part surrounded by a frame forming a level difference, a coordinate designation means for designating a coordinate position on the screen in this image display part, multiple predetermined areas on the aforesaid image display part provided near the aforesaid frame, and multiple function lists which contain multiple function items respectively that were set corresponding to each of the aforesaid multiple predetermined areas, it has a function list display step enabling that when the coordinate designation of any one of the aforesaid multiple designated areas was performed by the aforesaid coordinate designation means, and successively the coordinate designation was continued by the aforesaid coordinate designation means, and at the same time, this designated coordinate changed to almost the central direction of the aforesaid image display part, the function list corresponding to the predetermined area where the aforesaid coordinate designation was performed will be displayed on the aforesaid image display part according to the amount of the aforesaid change of the designated coordinates; and a main image display step enabling that the main image displayed on the aforesaid image display part by the aforesaid function list display step immediately before the function list is displayed by the aforesaid function list display step will be variable power reduced corresponding to the display amount of the function list displayed by the aforesaid function list display step, and then displayed on the aforesaid image display part.

[0009] Furthermore, according to the invention of claim 21, it is a storage medium, wherein in such a computer-readable storage medium which stored, as a program, a function list display means to be applied to the information processing device and equipped with an image display part surrounded by a frame forming a level difference, a coordinate designation means for designating a coordinate position on the screen in this image display part, multiple predetermined areas on the aforesaid image display part provided near the aforesaid frame, and multiple function lists which contain multiple function items respectively that were set corresponding to each of the aforesaid multiple predetermined areas, the function list display means has a function list display step enabling that when the coordinate designation of any one of the aforesaid multiple designated areas was performed by the aforesaid coordinate designation means, and successively the coordinate designation was continued by the aforesaid coordinate designation means, and at the same time, this designated coordinate changed to almost the central direction of the aforesaid image display part, the function list corresponding to the predetermined area where the aforesaid coordinate designation was performed will be displayed on the aforesaid image display part according to the amount of the aforesaid change of the designated coordinates; and a main image display step enabling that the main image displayed on the aforesaid image display part by the aforesaid function list display step immediately before the function list is displayed by the aforesaid function list display step will be variable power reduced corresponding to the display amount of the function list displayed by the aforesaid function list display step, and then displayed on the aforesaid image display part.

[0010]

[Embodiment of the invention] Hereafter, embodiments of this invention will be explained with reference to the figures.

[0011] (1st embodiment) FIG. 1 is a front view which shows the

constitution of the 1st embodiment of the portable information processing device according to this invention; FIG. 2 is a top view of the portable information processing device shown in FIG. 1; FIG. 3 is a rear view of the portable information processing device shown in FIG. 1; and FIG. 4 is a transverse sectional view taken along the line A-A' of the portable information processing device shown in FIG. 3.

[0012] The portable information processing device 01 is a notebook-sized portable information terminal (PDA) that is mounted with an image display screen 09 with the capability to display full-color image information in high definition, and receives the coordinate instructions mainly from a pen-type input device 05.

[0013] On the front side shown in FIG. 1, a camera part 07 and a microphone 06 that records sound data have been configured.

[0014] A shutter switch 08 has been configured on the upper surface side shown in FIG. 2. The shutter switch 08 is constituted with a 2-stage switch, when the 1st-stage switch is turned on, the camera will be in a shooting standby state, and the finder image information will be displayed on the image display screen 09. Then, when the 2nd-stage switch is turned on, shooting is performed and the image is recorded.

[0015] The back side shown in FIG. 3 is a side on which the operation is mainly performed when the user uses the portable information processing device 01. The touch panel sensor 11 on the image display screen 09 is touched by the pen-type input device 05, the coordinate is designated by this touch, and various functions can be selected. 10 is the speaker.

[0016] As shown in the cross-sectional view of FIG. 4, the touch panel sensor 11 has been constituted by being surrounded by the exterior cover member 04, and the exterior cover member 04 has formed a level difference for the touch panel sensor 11 so that when the input device 05 is moved along the top surface of the touch panel sensor 11, it will hit the exterior cover member 04.

[0017] FIG. 5 is a figure which shows the constitution of a touch panel sensor.

[0018] On the touch panel sensor 11, an image display area 11E and the menu display trigger areas 11A to 11D are provided. The pull-out menu display trigger areas 11A to 11D are respectively located near the touch panel sensor 11 which is in contact with the exterior cover member 04. By this way, when the input device 05 was moved along the upper surface of the touch panel sensor 11 and hit the exterior cover member 04, the input device 05 will be located at any of the pull-out menu display trigger areas 11A to 11D. Moreover, the coordinate definition of the pull-out menu display trigger areas 11A to 11D is determined by the shape of the pen tip of the input device 05, etc., and when the input device 05 is abutted on the exterior cover member 04, the coordinate range detected by the touch panel sensor 11 is defined with some margin. Each predefined coordinate information of the pull-out menu display trigger areas 11A to 11D has been registered in the ROM; when the coordinate information generated by the input device 05 was detected, it is verified through comparing with the coordinate information registered in the ROM and when it is determined that the coordinate information generated by the input device 05 exists in the pull-out menu display trigger areas 11A to 11D, it will become in the standby state for starting the display of the pull-out menu to be described later, furthermore, when it is detected that the input device 05 was scrolled toward the center of the touch panel sensor 11, the pull-out menu will be displayed.

[0019] FIG. 6 is a figure which shows the pull-out menu displayed on the image display screen 09.

[0020] In order to display a menu of the names of many processing functions of the portable information processing device 01 on the image display screen 09, these various processing functions are classified into four categories in advance and assigned to A to D classification menus. Then, when any of the pull-out menu display trigger areas 11A to 11D was selected by the input device 05, the corresponding one of the A to D classification menus will be displayed as a "pull-out menu" on the image display screen 09.

[0021] Corresponding to the specifications of the portable information processing device 01 and the product concept, the contents to be laid out in the pull-out menu may be a list of buttons based on icons or text display, and an example in which icons and characters are written together can be expected.

[0022] As a specific example of functions stored in the A to D classification menus, in the A classification menu, a search function that searches for a desired image from the images that have been taken and saved in the past is summarized; in the B classification menu, the character input function that adds characters to the image is summarized; and in the C classification menu, the processing and editing function that adds special effects to the image are summarized. Moreover, the B classification menu is displayed as a pull-out menu in the image display screen 09, various functional processes can be performed, so by placing the B classification menu at a location at the top of the image display screen 09 to be described later with reference to FIG. 7, when writing to an image or selecting a function, it will be possible to prevent the input device 05 or hand from hiding the image.

[0023] In the D classification menu, the functions that specify the save destination of the data of image that has undergone the image processing, such as saving and organizing functions, etc., are summarized.

[0024] FIG. 7 is a figure which shows the screen of an image display screen 09 in which the B classification menu was displayed as a pull-out menu.

[0025] When the input device 05 is slid toward the center of the screen while the coordinate designation of the pull-out menu display trigger area 11B is being performed with the input device 05, the B classification menu will be displayed as the pull-out menu 11b. In the pull-out menu 11b, the function buttons by the icons or characters corresponding to each function will be laid out.

[0026] As described above, when the user designates one of the pull-out menu display trigger areas 11A to 11D using the input

device 05 according to the required function and scrolls, it will be possible to display the menu including the required function. While the user is repeatedly using the pull-out menu display trigger areas 11A to 11D, it will be possible to remember the major classification categories of each area.

[0027] Moreover, the number of icons and buttons shown in FIG. 7 is set according to the size of the screen, and is not limited to the number shown in FIG. 7. In addition, for the pull-out menu display trigger areas 11A to 11D, it is also fine to separately use the setting to always have these areas displayed in advance on the image display screen 09, or the setting not to always display, but to display only when the predetermined area of the image display screen 09 was designated by the input device 05. Furthermore, it is also fine to distinguish the pull-out menu display trigger areas 11A to 11D from each other by changing patterns or colors.

[0028] Moreover, in the following explanation, as shown in FIG. 5, the horizontal direction of the screen of the image display screen 09 is treated as the X axis, the vertical direction is treated as the Y axis, and the pull-out amounts of the pull-out menu are treated as x and y, respectively.

[0029] FIG. 8 is a block figure which shows the system constitution of a portable information processing device 01.

[0030] As described above, by touching the soft button on the screen of the image display screen 09 with the input device 05, the coordinate on the touch panel sensor 11 can be detected, and according to the detected coordinate information, the CPU21 will execute various functions based on the operating system stored in the ROM25.

[0031] In addition, the image input from CCD22 of the camera part 07 and the audio information input from the microphone 06 are recorded in the flash memory 24 by the shutter switch 08, and stored in RAM23 according to various processing procedures of the program stored in the ROM25. The stored information is later regenerated with the image display screen 09 or the speaker 10, and it will be possible to regenerate the desired image or sound arbitrarily through multiple search means by GUI operation instructed from the coordinate position on the touch panel sensor 11 by touching the input device 05.

[0032] The image information will be edited/processed by various methods such as adding the image arbitrarily to the regenerated image information using the RAM23 or adding characters by the word processing function, etc.

[0033] FIG. 9 is a flow chart which shows the outline of the overall operation procedures in the portable information processing device 01.

[0034] When the main power supply is turned on (YES in S11), the images taken in the past are regenerated and it will become a display state possible to be viewed like an album (S12).

[0035] In this state, there is a button (hard key) operation (S13), and if it is the process of the power switch, the power can be turned off. If that is the operation (half press) of the 1st-stage switch SW1 of the shutter switch 08 (S14), the image will be displayed on the viewfinder (S15), and if that is the operation (fully press) of the 2nd-stage switch SW2 of the shutter switch 08 (S16), the image taken will be stored in the flash memory 24 (S17).

[0036] After the process of step S15 or step S17 or the process of step S12, when the GUI function button was selected and operated by the input device 05 (S18), corresponding to the selected function, search (S19), character input (S20), processing/editing (S21), saving/organizing (S22), etc. will be executed.

[0037] This invention is related to the display of a menu containing various GUI function buttons.

[0038] FIGS. 10 and 11 are the flow charts which show the processing procedures at the time of displaying the pull-out menu; FIG. 12 is a figure which shows the display screen in the processing process of displaying the pull-out menu (to be more specific, the screen in case of selecting and displaying the B classification menu). Hereafter, the invention will be explained along the steps shown in FIGS. 10 and 11 while referring to FIG. 12 as needed.

[0039] First, to briefly explain the processing procedures at the time of displaying the pull-out menu, the definition coordinate of the pull-out menu display trigger areas 11A to 11D on the touch panel sensor 11 has been registered in the ROM25 in advance. When it was detected that these areas were touched by the input device 05, the detected coordinate data will be verified through comparing with the definition coordinate registered in the ROM25, and the pull-out menu corresponding to the pull-out menu display trigger area to be operated will be selected, and it will become a display standby state. When the detected coordinate is continuously updated by dragging the input device 05 toward the center of the image display screen 09, the pull-out menu will be pulled out in the dragged direction accompanying with the dragging. If the detection information goes OFF (the input device 05 will no longer be in contact with the touch panel sensor 11 and the coordinate will no longer be detected), the pull-out menu will continue to be displayed on the dragged position. Here, "OFF" means that the touch panel sensor 11 will no longer be in contact with the input device 05 and the coordinate will no longer be detected. In the following explanation, "OFF" with the same meaning will be used.

[0040] First, in step S101, a photo image or the like will be displayed using the full screen of the image display screen 09. The screen D1 in FIG. 12 shows the screen of the image display screen 09 at this time. Next, in step S102, the position coordinate on the touch panel sensor 11 touched by the input device 05 will be detected.

[0041] In step S103, it is determined whether or not the coordinate value detected in step S102 is included in any of the pull-out menu display trigger areas 11A to 11D. If it is not included, standby until

it is included. Moreover, as shown on screens D3 and D4 in FIG. 12, when the detected coordinate value existed in areas other than the pull-out menu display trigger areas 11A to 11D, was continuously updated without going OFF, and after that, was moved to any of the pull-out menu display trigger areas 11A to 11D, the coordinate information before reaching any of the pull-out menu display trigger areas 11A to 11D will be treated as invalid. In addition, as shown on screen D2 in FIG. 12, even if the detected coordinate value is included in one of the pull-out menu display trigger areas 11A to 11D, if it went OFF, the process will return to step S101.

[0042] In step S104, it is determined whether or not the detected coordinate value is included in any of the pull-out menu display trigger areas 11A to 11D, and if it is included in the pull-out menu display trigger areas 11A and 11D, the process will proceed to step S105, and if it is included in the pull-out menu display trigger areas 11B and 11C, the process will proceed to step S112.

[0043] In steps S105 and S112, the selected pull-out menu display trigger area is highlighted and displayed, and at the same time, an electronic sound such as a beep is generated as a key reception sound to notify the user of the selection. Moreover, if it went OFF during this period, the process will return to step S101.

[0044] In this way, the user only needs to roughly operate the wide pull-out menu display trigger area 11A to 11D with the input device 05, it will be possible to display the desired menu.

[0045] Next, for example, while the input device 05 was in contact with the pull-out menu display trigger area 11B and the input device 05 was in contact with the touch panel sensor 11 without being released, if this input device is slid toward the center of the image display screen 09, as shown on screens D5 to D8 in FIG. 12, the B classification menu will be pulled out accompanying with the motion of the input device 05. This will be explained below along steps S113 to S118 in FIGS. 10 and 11.

[0046] First, in step S113, only the Y coordinate value of the coordinate values detected by making the input device 05 come into contact with the menu display trigger areas 11B and 11C will be monitored. Here, since the pull-out menu display trigger areas 11B and C are selected, the X-axis information will be ignored and only the Y-axis information will be reflected in the processing. The user can roughly drag downward the input device 05 without having to worry about exactly dragging vertically, and the user's intention can be reflected. Generally, the direction of dragging is slightly deviated from the vertical direction depending on whether the dominant hand is left or right; for example, in case of a right-handed user, drag a little to the left from the vertical direction, that is, with a vector from the upper right to the lower left. In addition, in case of a left-handed user, drag with a vector from the upper left to the lower right. However, by adopting a method of reflecting only the change value of the Y-axis information, it will become possible to reflect the intention of the user without being influenced by the above habit.

[0047] In step S114, the display amount of the pull-out menu will be updated according to the Y coordinate value generated by the input device 05. Moreover, for the maximum pull-out amount of the pull-out menu that can be pulled out, although the definition can be changed corresponding to the specifications, in this embodiment, it is defined as up to the center position of the display area.

[0048] Moreover, in a period when the menu pull-out amount y is less than the defined amount, if it became OFF as shown on screen D5 in FIG. 12, the process of pulling out the menu will be cancelled midway and the process will return to step S101 (S115). In addition, after the menu pull-out amount y exceeded the predetermined definition amount, when it became OFF as shown on screen D6 in FIG. 12, at that position, the process of pulling out the pull-out menu will be stopped and it can be used as it is (S116). Furthermore, when the menu pull-out amount y exceeded the maximum pull-out amount, the process of pulling out the pull-out menu will be stopped, the maximum pull-out amount will be maintained (S117), and the detected coordinate value will be ignored (S118).

[0049] Moreover, different from the above-mentioned embodiment, when the change speed of the detected coordinate value in the course of processing as shown on screens D2, D5 and D6 in FIG. 12 is detected and the change speed is high, even if it goes OFF by the process as shown on screen D6 in FIG. 12, it is also fine to move to the process as shown on screen D9 in FIG. 12 instead of the process as shown on screen D8 in FIG. 12.

[0050] When the input device 05 selects the menu display trigger areas 11A and 11D, similarly, in step S106, only the X coordinate value of the coordinate values detected by making the input device 05 come into contact with the menu display trigger areas 11A and 11d will be monitored. Here, the Y-axis information will be ignored and only the X-axis information will be reflected in the processing.

[0051] In step S107, the display amount of the pull-out menu will be updated corresponding to the X coordinate value generated by the input device 05.

[0052] Moreover, in a period when the menu pull-out amount x is less than the defined amount, if it became OFF, the process of pulling out the menu will be cancelled midway and the process will return to step S101 (S108). In addition, after the menu pull-out amount x exceeded the predetermined definition amount, when it became OFF, at that position, the process of pulling out the pull-out menu will be stopped and it can be used as it is (S109). Furthermore, when the menu pull-out amount x exceeded the maximum pull-out amount, the process of pulling out the pull-out menu will be stopped, the maximum pull-out amount will be maintained (S110), and the detected coordinate value will be ignored (S111).

[0053] FIGS. 13 and 14 are the flow charts which show the processing procedures for closing the displayed pull-out menu; FIG. 15 is a figure which shows the display screen in the processing process which closes the pull-out menu (to be more specific, the screen in the case when the B classification menu was selected). Hereafter, it will be explained along the steps as shown in FIGS. 13 and 14 while referring to FIG. 15 as needed.

[0054] First, as shown on screen D11 in FIG. 15, the pull-out menu will be displayed at the maximum pull-out amount (S201). Next, in step S202, the position coordinate on the touch panel sensor 11 touched by the input device 05 will be detected.

[0055] In step S203, it is determined whether or not the coordinate value detected in step S102 is included in any of the pull-out menu display trigger areas 11A to 11D. If it is not included, as shown on screen D13 in FIG. 15, it is determined whether or not the specific function button (GUI function button) in the pull-out menu was selected by the input device 05 (S210); if it is selected, the selected function will be processed (S211). If it is not selected, the process will return to step s203 and the reception standby state will be sustained. Moreover, as shown on screens D12 and D14 in FIG. 15, when only the detected coordinate value changed and entered the pull-out menu display trigger area, the detected coordinate values up to that point will be ignored and it will become the standby state from that point. This is a method for the purpose of reliably receiving the user's intention even in case of a rough operation.

[0056] In step S203, when it is determined that the detected coordinate value is included in any of the pull-out menu display trigger areas 11A to 11D (screen D14 in FIG. 15), in step S204, it is determined whether the detected coordinate value is included in any of the pull-out menu display trigger areas 11A to 11D; if it is included in the pull-out menu display trigger areas 11A and 11D, the process will proceed to step S205, and if it is included in the pull-out menu display trigger areas 11B and 11C, the process will proceed to step S212.

[0057] In steps S205 and S212, the selected pull-out menu display trigger area is highlighted and displayed, and at the same time, an electronic sound such as a beep is generated as a key reception sound to notify the user of the selection. Moreover, if it went OFF during this period, the process will return to step S203.

[0058] Next, when the input device 05 selects the menu display trigger areas 11B and 11C, in step S213, only the Y coordinate value of the coordinate values detected by making the input device 05 come into contact the menu display trigger areas 11B and 11C will be monitored. The X-axis information will be ignored, and only Y-axis information will be reflected in processing. Moreover, as shown on screen D15 in FIG. 15, the case when the input device 05 is dragged downward and the menu pull-out amount y increases will be ignored.

[0059] In step S214, the display amount of the pull-out menu will be updated according to the Y coordinate value generated by the input device 05.

[0060] Moreover, while the menu pull-out amount y exceeds the predetermined definition amount, if it became OFF as shown on screen D16 in FIG. 15, the display state will be maintained as shown on screen D17 in FIG. 15 (S215). In addition, after the menu pull-out amount y became smaller than the predetermined definition amount, if it became OFF as shown on screen D18 in FIG. 15, it will be regarded as that the user intends to turn off the display of the pull-out menu, and as shown on screen D19 in FIG. 15, the pull-out menu display will be stopped (S216).

[0061] On the other hand, in step S204, when it is determined that the input device 05 selects the menu display trigger areas 11A and 11D, in step S206, only the X coordinate value of the coordinate values detected by making the input device 05 come into contact with the pull-out menu display trigger areas 11A and 11D will be monitored. The Y-axis information will be ignored and only the X-axis information will be reflected in processing.

[0062] In step S207, the display amount of the pull-out menu will be updated corresponding to the X coordinate value generated by the input device 05.

[0063] Moreover, if it became OFF while the menu pull-out amount x exceeded the predefined definition amount, the display state will be maintained (S208). In addition, after the menu pull-out amount x became smaller than the predetermined definition amount, if it became OFF, it will be regarded as that the user intends to turn off the display of the pull-out menu, and the pull-out menu display will be stopped (S209).

[0064] Moreover, in the above-mentioned embodiment, the user drags the pull-out menu to stop the display of the pull-out menu, but instead of this operation, it is also fine to provide a button with a closing function possible to stop the display of the pull-out menu by clicking on this button only.

[0065] Furthermore, similar to the case of starting the display of the pull-out menu, if the change speed of the detected coordinate value in the course of processing as shown on screens D12, D14 and D16 in FIG. 15 is detected and the change speed is high, even if it goes OFF by the process as shown on screen D16 in FIG. 15, it is also fine to move to the process as shown on screen D19 in FIG. 15 instead of the process as shown on screen D17 in FIG. 15.

[0066] FIG. 16 is a flow chart which shows the processing procedures for determining the size of a pull-out menu corresponding to the pull-out amount. In addition, FIG. 17 is a figure which shows the screen of the A classification menu displayed corresponding to the pull-out amount; FIG. 18 is a figure which shows the screen of the B classification menu displayed corresponding to the pull-out amount. In FIGS. 17 and 18, the pull-out menu display trigger areas 11A to 11D are shown on the four sides for the purpose of making it easier to understand, but it is not limited to the case that the four areas are necessarily displayed. Hereafter, it will be explained along the steps as shown in FIG. 16 while referring to FIGS. 17 and 18 as needed.

[0067] Because steps S301, S302, S303, and S307 in FIG. 16 have the same contents as steps S103, S104, S106 and S112 as shown in FIG. 10, respectively, their explanations are omitted.

[0068] When the A classification menu is selected, in step S304, the size of the pull-out menu is variable power reduced and then displayed in the horizontal direction at a ratio of the X coordinate position (pull-out amount x) to the maximum pull-out amount. The screen D34 in FIG. 17 shows the A classification menu at the maximum pull-out amount position, for example, if the pull-out amount x on screen D33 in FIG. 17 became 3/4 of the maximum pull-out amount on screen D34 in FIG. 17, in the Y direction, the A classification menu on screen D33 in FIG. 17 was the same as screen D34 in FIG. 17, but in the X direction, it will be displayed as an image reduced to 3/4 when compared to screen D34 in FIG. 17. The display area of the button will also be reduced in the horizontal direction accordingly, in addition, the display style of the contents of the A classification menu changes to either only icons or both icons and characters, corresponding to the pull-out amount x.

[0069] If the pull-out amount x is updated, the display ratio will be updated (S305), and when the input device 05 is separated from the touch panel sensor 11 at the position midway before reaching the maximum pull-out amount position, the pull-out menu display will be maintained at that position. Then, when the pull-out amount x exceeds the maximum pull-out amount, the pull-out menu display will be maintained at the maximum pull-out amount position (S306).

[0070] Next, if the B classification menu is selected, in step S308, the size of the pull-out menu will be variable power reduced and then displayed in the vertical direction at a ratio of the Y coordinate position (pull-out amount y) to the maximum pull-out amount. The screen D38 in FIG. 18 shows the B classification menu at the maximum pull-out amount position, for example, if the pull-out amount y on screen D37 in FIG. 18 was 3/4 of the maximum pull-out amount on screen D38 in FIG. 18, in the X direction, the B classification menu on screen D38 in FIG. 18 was the same as screen D38 in FIG. 18, but in the Y direction, it will be displayed as an image reduced to 3/4 when compared to screen D38 in FIG. 18. The display area of the button will also be reduced in the vertical direction accordingly.

[0071] If the pull-out amount y is updated, the display ratio will be updated (S309), and when the input device 05 is separated from the touch panel sensor 11 at a position midway before reaching the maximum pull-out amount position, the pull-out menu display will be maintained at that position. Then, when the pull-out amount y exceeds the maximum pull-out amount, the pull-out menu display will be maintained at the maximum pull-out amount position (S310).

[0072] Moreover, in the above explanation, it was explained using the A and B classification menus as the examples, but the same procedures will be also applicable to the C and D classification menus. Furthermore, in the case of closing the pull-out menu display, the procedures in the reverse direction of the process as shown in FIG. 16 will proceed.

[0073] FIG. 19 is a figure which shows the screen of the image display screen 09 for the purpose of explaining the relationship between the pull-out menu display trigger areas 11A to 11D and the A to D classification menus.

[0074] In the screen of image display screen 09, depending on which of the pull-out menu display trigger areas 11A to 11D is selected by the input device 05, the pull-out direction of the pull-out menu, the received coordinate information and the direction of processing of image to be variable power reduced according to layout in menu will differ.

[0075] The screen D41 shows the pull-out menu display trigger area 11A to be selected when pulling out the A classification menu and the pull-out direction, and the screen D42 shows the state in which the A classification menu was fully pulled out to the maximum pull-out amount position.

[0076] The screen D41 shows the pull-out menu display trigger area 11A to be selected when pulling out the A classification menu and the pull-out direction, and the screen D42 shows the state in which the A classification menu was fully pulled out to the maximum pull-out amount position.

[0077] The screen D43 shows the pull-out menu display trigger area 11B to be selected when pulling out the B classification menu and the pull-out direction, and the screen D44 shows the state in which the B classification menu was fully pulled out to the maximum pull-out amount position.

[0078] The screen D45 shows the pull-out menu display trigger area 11C to be selected when pulling out the C classification menu and the pulling direction, and the screen D46 shows the state in which the C classification menu was fully pulled out to the maximum pull-out amount position.

[0079] The screen D47 shows the pull-out menu display trigger area 11D to be selected when pulling out the D classification menu and the pulling direction, and the screen D48 shows the state in which the D classification menu was fully pulled out to the maximum pull-out amount position.

[0080] The pull-out menu as shown in FIG. 19 is an example in the above explanation, and the number and size of icons in the pull-out menu will differ corresponding to the number of functions and the size of the image display screen 09.

[0081] (2nd embodiment) Next, the 2nd embodiment will be explained.

[0082] Because the constitution of the 2nd embodiment is basically the same as the constitution of the 1st embodiment, in the explanation of the 2nd embodiment, the constitution of the 1st embodiment will be diverted for use.

[0083] In the 2nd embodiment, the content of the control process performed by the portable information processing device 01 will be different from that in the 1st embodiment.

[0084] FIG. 20 is a flow chart which shows the processing procedures of displaying the pull-out menu in the 2nd embodiment. In this display process, the stage display will be performed corresponding to the priority of the functions. FIG. 21 is a figure which shows the ranges a, b, c on the screen of the image display screen 09; FIG. 22 is a figure which shows the screen of the A classification menu displayed corresponding to the pull-out amount; FIG. 23 is a figure which shows the screen of the B classification

menu displayed corresponding to the pull-out amount; and FIG. 24 is a figure which shows the screen of the C classification menu displayed corresponding to the pull-out amount. Hereafter, it will be explained along the steps of the flow chart as shown in FIG. 20 while referring to FIGS. 21-24 as needed.

[0085] First, when the overview is explained, if there are too many items in the pull-out menu that can be listed at one time, there will be a case that the user may become confused about the selection and the usability may become worse. In such a case, in the 2nd embodiment, the number of items that can be listed is limited, and the functional items will be displayed in two stages or three stages in descending order of priority. In other words, within each pull-out menu, the functional items are laid out and displayed in descending order of frequency of use from the one closer to the pull-out menu display trigger area. This will make it possible to select a function item that is frequently used by pulling out the first column only.

[0086] For example, in FIG. 22, items A-1, A-2 and A-3 as shown on screens D52 and D53 are the most frequently used function items, and items A-4, A-5 and A-6 as shown on screen D53 are the function items that are used less frequently than items A-1, A-2 and A-3. In this way, it will be possible to organize and use the pull-out menu like a desk drawer.

[0087] The maximum number of items displayed in the pull-out menu will differ depending on the size of the screen and the function of the icon. For example, in case of the A and C classification menus, a maximum of six items will be displayed, and in case of the B classification menu, a total of 30 items equaling to vertical 3 × horizontal 10 will be displayed. In case of the B classification menu, it can be expected that the color palette function will be laid out. In addition, in case of the B classification menu, the display steps in three stages will be added corresponding to the number of columns.

[0088] In the flow chart in FIG. 20, the A classification menu has been shown as an example. Because steps S401, S402 and S403 have the same contents as steps S103, S104 and S106 as shown in FIG. 10, their explanations will be omitted.

[0089] If the input device 05 is moving and the detected X coordinate value is changing, and when only the position of the pull-out menu display trigger area was updated, the detected X coordinate value became OFF, the layout in the pull-out menu will be determined and displayed corresponding to the detected X coordinate value immediately before OFF.

[0090] First, in step S404, if the detected X coordinate value went OFF in the range a as shown in FIG. 21, the screen D51 in FIG. 22 will be displayed.

[0091] In addition, in step S405, if the detected X coordinate value went OFF in the range b as shown in FIG. 21, the screen D52 in FIG. 22 will be displayed.

[0092] In addition, in step S406, if the detected X coordinate value went OFF in the range c as shown in FIG. 21, the screen D53 in FIG. 22 will be displayed.

[0093] Moreover, when the input device 05 moved and exceeded the boundaries of the ranges a, b, and c, a buzzer sound will be sent to notify the user.

[0094] Moreover, as the number of columns of function items laid out in the pull-out menu increases, the number of ranges a, b, and c will also increase and be subdivided, but the basic mechanism is the same. In case of closing the display of the pull-out menu, similarly, it can also be closed in a stage-wise manner. Other B, C, D classification menus can also be displayed by the same procedures.

[0095] (3rd embodiment) Next, the 3rd embodiment will be explained.

[0096] Because the constitution of the 3rd embodiment is basically the same as the constitution of the 1st embodiment, in the explanation of the 3rd embodiment, the constitution of the 1st embodiment will be diverted for use.

[0097] In the 3rd embodiment, the content of the control process performed by the portable information processing device 01 will be different from that in the 1st embodiment.

[0098] FIG. 25 is a flow chart which shows the processing procedures of displaying the pull-out menu in the 3rd embodiment. In this display process, expansion of the maximum pull-out amount will be performed. FIG. 26 is a figure which shows the screen of the A classification menu displayed on the screen of the image display screen 09 corresponding to the pull-out amount. First, referring to FIG. 26, the features of the 3rd embodiment will be explained.

[0099] In the 3rd embodiment, the pull-out menu will be displayed by maximally using the entire display area of the image display screen 09, and more functional items will be displayed.

[0100] In the above-mentioned 1st embodiment, the maximum display amount of the pull-out menu was set to the central position of the image display screen 09 (half display area), but the reason for such setting is the consideration about the purpose of trying not to hide the image that should be originally displayed on the image display screen 09. However, depending on the nature of the function item, there is also a case that the original display image may not necessarily have to be displayed, rather, it may be necessary to improve the list of function items in the pull-out menu.

[0101] For example, in case of the search function, the original display image is not needed, and in this case, as shown on screens D65 and D69 in FIG. 26, the entire display area of the image display screen 09 will be used for displaying the pull-out menu. On the other hand, in case of the image editing function, the original display image is necessary, and in this case, the original display image and the pull-out menu will be displayed simultaneously. The maximum display amount of the pull-out menu in this case is 1/2 of the screen of the image display screen 09.

[0102] Moreover, in this embodiment, in the upper and lower B and C classification menus, because function items that are frequently selected while seeing the displayed image are stored, the B and C classification menus can be pulled out to half of the screen of the image display screen 09, and the left and right A and D classification menus can be pulled out to the entire display area of the image display screen 09.

[0103] Even in case of trying to pull out the pull-out menu to the entire display area of the image display screen 09, there can be a method as shown on screens D62 to D65 in FIG. 25 in which all function items are displayed in the pull-out menu regardless of the pull-out amount, and a method as shown on screens D66 to D69 in FIG. 25 in which the number of function items displayed in the pull-out menu is changed in a stage-wise manner according to the pull-out amount. It is fine to select and implement either method depending on the nature of the functional item, and it is also fine to allow the user to freely select either method.

[0104] In the flow chart in FIG. 25, the A classification menu has been shown as an example. Because steps S501, S502 and S503 have the same contents as steps S103, S104 and S106 as shown in FIG. 10, their explanations will be omitted.

[0105] In step S504, the display position of the pull-out menu display trigger area 11A is updated corresponding to the detected X coordinate value generated by the contact of the input device 05, and at the same time, the function items accompanied by such update will be displayed. At this time, when the input device 05 goes OFF, such display state will be maintained.

[0106] In addition, the step S505 shows the display process of the pull-out menu when the input device 05 moved in the direction opposite to the moving direction in the step S504, and even in this case, the display position of the pull-out menu display trigger area 11A will be updated corresponding to the detected X coordinate value, and the function items accompanied by such update will be displayed. At this time, when the input device 05 goes OFF, such display state will be maintained.

[0107] Then, when the input device 05 further moves in the movement direction in step S505 and the detected X coordinate value x becomes smaller than the predetermined definition amount, the display of the pull-out menu will be stopped (S506).

[0108] In other words, in the 3rd embodiment, the definition of the maximum pull-out amount is not provided, and the entire display area of the image display screen 09 can be used for displaying the pull-out menu.

[0109] (4th embodiment) Next, the 4th embodiment will be explained.

[0110] Because the constitution of the 4th embodiment is basically the same as the constitution of the 1st embodiment, in the explanation of the 4th embodiment, the constitution of the 1st embodiment will be diverted for use.

[0111] In the 4th embodiment, the content of the control process performed by the portable information processing device 01 will be different from that in the 1st embodiment.

[0112] FIG. 27 is a flow chart which shows the processing procedures of displaying the pull-out menu in the 4th embodiment. In this display process, the number of pull-out menus will increase from four to eight. FIG. 28 is a figure which shows the increased pull-out menu displayed on the screen of the image display screen 09. First, referring to FIG. 28, the features of the 4th embodiment will be explained.

[0113] In the 1st embodiment, the pull-out menu display trigger areas 11A to 11D are provided on the four sides of the image display screen 09, but in the 4th embodiment, in order to further increase the number of categories of functional items, four corners of the image display screen 09 as shown on screen D70 in FIG. 28 will be used as the trigger areas a, b, c and d.

[0114] In other words, four corner positions of the image display screen 09 that avoided the pull-out menu display trigger areas 11A to 11D are set as trigger areas a, b, c and d, and functions that are rarely used such as special settings, etc. (for example, detailed settings, user settings, etc.) will be assigned to these areas.

[0115] The pull-out menu display trigger areas 11A to 11D for pulling out the normally used function items will have a large display area so that they can be easily touched by the input device 05; on the contrary, the trigger areas a, b, c and d will have a small display area so as not to be easily displayed due to an erroneous operation or the like. Moreover, because the input device 05 hits the level difference around the image display screen 09, it will be possible to easily select the trigger areas a, b, c and d when the selection operation was consciously performed.

[0116] Referring to the flow chart in FIG. 27, the process for displaying the a classification detailed menu by selecting the trigger area a will be explained in particular. Moreover, because steps S601, S602, S603, S604 and S605 have the same contents as steps S101, S102, 103, S104 and S105 as shown in FIG. 10, respectively, their explanations will be omitted. However, in steps S603 to S605, the pull-out menu display trigger areas 11A to 11D are replaced by the trigger areas a, b, c and d, respectively.

[0117] In step S606, the display position of the diagonal bar 30 will be determined and displayed corresponding to the detected coordinate value generated by the contact of the input device 05. In other words, as shown on screen D72 in FIG. 28, when the detected coordinate values of the X-axis and Y-axis were treated as x and y using the position of the trigger area a as the base point, from the detected coordinate values x and y, the one with the larger absolute value will be detected, and the display position of the diagonal bar 30 will be determined according to this detected value. Specifically, along a diagonal line extending 45 degrees from the base point, a diagonal bar 30 extending in a direction perpendicular to the diagonal line will be displayed at a position separated from the base point by a distance corresponding to the detected value. Then, when the input device 05 became OFF, if the above detected value is within the predetermined value, the process will return to screen D70 in FIG. 28, and if the detected value exceeds the predetermined value, as shown on screen D73 in FIG. 28, the display state will be maintained as it is.

[0118] In addition, in steps S607 and S608, if the detected value

exceeds the maximum pull-out amount, as shown on screen D74 in FIG. 28, the display state will be maintained at the maximum pull-out amount position. Then, even when the input device 05 became OFF, as shown on screen D75 in FIG. 28, the display state will be maintained at the maximum pull-out amount position.

[0119] The display process during the course of being pulled out is the same as the display process in the 1st embodiment.

[0120] (5th embodiment) Next, the 5th embodiment will be explained.

[0121] Because the constitution of the 5th embodiment is basically the same as the constitution of the 1st embodiment, in the explanation of the 5th embodiment, the constitution of the 1st embodiment will be diverted for use.

[0122] In the 5th embodiment, the content of the control process performed by the portable information processing device 01 is similar to that in the 4th embodiment.

[0123] FIG. 29 is a flow chart which shows the processing procedures of displaying the pull-out menu in the 5th embodiment. Also, in this display processing, similar to the 4th embodiment, the number of pull-out menus will increase from four to eight. FIG. 30 is a figure which shows the increased pull-out menu displayed on the screen of the image display screen 09. Hereafter, while referring to FIG. 30, the features of the 5th embodiment will be explained along the steps of the flow chart as shown in FIG. 29.

[0124] In the flow chart of FIG. 29, because steps S701, S702, S703 and S704 have the same contents as steps S601, S602, 603 and S604 shown in FIG. 27, respectively, their explanations will be omitted. However, in steps S703 to S704, the pull-out menu display trigger areas 11A to 11D will be replaced by trigger areas a, b, c and d, respectively. Moreover, in the flow chart of FIG. 29, the process of displaying the a classification detailed menu by selecting the trigger area a will be explained in particular.

[0125] In step S705, when the coordinates of trigger area a are detected by the touch of the input device 05, as shown on screen D82 in FIG. 30, the start button for the settings menu will be pop-up displayed, this part will be highlighted and displayed, and at the same time, a buzzer sound will be generated. Moreover, if the input device 05 went OFF here, the process will return to step S701.

[0126] In such pop-up display state, as shown on screen D83 in FIG. 30, when the input device 05 is slid to the upper right and reaches the inside of the start button area (S706) and then goes OFF, the menu display process related to the start button will be executed, and the detailed settings menu as shown on screen D84 in FIG. 30 will be displayed (S707).

[0127] In order to close the detailed settings menu, after the coordinate designation was performed near the "Settings" character as shown on screen D84 in FIG. 30 with the input device 05, the input device 05 will be moved to the region of the trigger area a. Moreover, it is also fine to lay out a close button somewhere on screen D84 in FIG. 30.

[0128] Moreover, also in the 5th embodiment, it is possible to divide the basic menu into a maximum of four categories and the other four detailed settings menus, but it is based on the premise that the display of this detailed menu is less frequently used and less likely to cause erroneous operation, so it is desirable to keep the number of detailed menus to about two from the viewpoint of ease of use.

[0129] FIG. 31 is a figure which shows the other example of display of the increased pull-out menu displayed on the screen of the image display screen 09.

[0130] Further, considering the ease of use, even if the number of detailed menus is limited to two, it is desirable that the positions of two detailed menus can be changed corresponding to the dominant hand of the user. In other words, it is necessary to change the display position according to the principle that the stroke direction that is natural for a right-handed person is lower left → upper right (screen D87 in FIG. 31), and the stroke direction that is natural for a left-handed person is upper left → lower right (screen D88 in FIG. 31), and a display position as shown on screen D85 in FIG. 31 will be assigned for use by the right-handed person, and a display position as shown on screen D86 in FIG. 31 will be assigned for use by the left-handed person.

[0131] When comparing to the operation method of simply selecting a soft button on the screen with the input device as in the conventional device, by frequently using operations to slide on the screen to process the command after selection, such display of menu considering the dominant hand will be realized.

[0132] (6th embodiment) Next, the 6th embodiment will be explained.

[0133] Because the constitution of the 6th embodiment is basically the same as the constitution of the 1st embodiment, in the explanation of the 6th embodiment, the constitution of the 1st embodiment will be diverted for use.

[0134] In the 6th embodiment, multiple pull-out menus can be displayed on the image display screen 09 simultaneously. In other words, it is a method that can be applied to the case when the screen size of the image display screen 09 is large, and it will be possible to display two, three or four pull-out menus simultaneously.

[0135] First, in case of displaying two pull-out menus simultaneously, corresponding to the positional relationship between two menus to be pulled out, it is distinguished into a relationship in the right-angled direction (adjacent position) and a relationship in the parallel direction (confronting position), and there are display patterns of four types of positional relationships in the right-angled direction and two types of positional relationships in the parallel direction. Furthermore, the display method differs depending on the order of pulling out the menu, and the display method of the menu displayed first will be influenced by the menu to be pulled out later.

[0136] Hereafter, for the convenience of explanation, the maximum pull-out amount is explained as half of the screen, but it is not limited to this amount, in addition, as shown in the aforesaid each embodiment, the display of the pull-out menu may be retained at any position during the course of being pulled out, and it is also fine

to expand the maximum pull-out amount to the full screen depending on the specifications.

[0137] FIG. 32 is a flow chart which shows the processing procedures of simultaneously displaying two to four pull-out menus in the 6th embodiment.

[0138] In step S801, any one of the A to D classification menus will be displayed.

[0139] Next, when any one of the A to D classification menus except the pull-out menu displayed in step S801 was selected by the input device 05, as shown in step S802, the subsequent process will be divided by the positional relationship between two pull-out menus. In other words, if the positional relationship between two pull-out menus is the relationship in the parallel direction (confronting position), the process will proceed to step S803; and if the relationship is in the right-angled direction (adjacent position), the process will proceed to step S805.

[0140] If the pull-out menu displayed later was continuously pulled out, in step S803, while keeping the distance between two pull-out menus constant, the pull-out menu displayed first will be variable power reduced and then displayed in the same axis direction. Then, in step S804, the size of the pull-out menu displayed later will be fixed when it became 1/4 of the screen.

[0141] In step S805, if the pull-out menu displayed later was continuously pulled out, the pull-out menu displayed first will be variable power reduced and then displayed in the pull-out direction of the pull-out menu to be displayed later. Then, in step S806, the size of the pull-out menu displayed later will be fixed when it became 1/2 of the screen.

[0142] FIGS. 33 and 34 are the flow charts which show the concrete procedures of the processing procedures as shown in FIG. 32. In addition, FIGS. 35-38 are the figures which show two pull-out menus displayed simultaneously on the screen of the image display screen 09 corresponding to the pull-out amount; FIGS. 39-42 are the figures which show three pull-out menus displayed simultaneously on the screen of the image display screen 09 corresponding to the pull-out amount; and FIGS. 43-46 are the figures which show four pull-out menus displayed simultaneously on the screen of the image display screen 09 corresponding to the pull-out amount. Moreover, the numbers written on the pull-out menus in FIGS. 35-46 are numbers indicating the order of pulling out the menus, and are not displayed as images. Hereafter, while referring to FIGS. 35-46 as needed, it will be explained along the steps as shown in FIGS. 33 and 34.

[0143] First, in step S901, the A classification menu will be first pulled out and displayed.

[0144] Next, when any one of the B to D classification menus was selected by the input device 05 (S902), as shown in step S903, the subsequent process will be divided by the positional relationship between two pull-out menus.

[0145] If the D classification menu (tool) is selected, there is a relation in the parallel direction (confronting position), so the process will proceed to step S904, and if the D classification menu (tool) was continuously pulled out, while keeping the distance between the D classification menu (tool) constant, a classification menu (tool) will be variable power reduced and then displayed in the X-axis direction. This is shown on screens D109 to D111 in FIG. 37.

[0146] Next, in step S905, when any one of the B and C classification menus was selected by the input device 05 as three pull-out menus [sic], if the B classification menu (tool) is selected, the process will proceed to step S907; the B classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction, and at the same time, the A classification menu (tool) and D classification menu (tool) which have already been displayed will be variable power reduced and then displayed in the Y-axis direction corresponding to the pull-out amount in the Y-axis direction of the B classification menu (tool). This is shown on screens D125 to D127 in FIG. 41.

[0147] In addition, in step S905, when the C classification menu was selected by the input device 05, the process will proceed to step S908; the C classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction, and at the same time, the A classification menu (tool) and D classification menu (tool) that have already been displayed will be variable power reduced and then displayed in the Y-axis direction corresponding to the pull-out amount in the Y-axis direction of the C classification menu (tool).

[0148] Next, in step S909, when the 4th classification menu was selected by the input device 05, if it is the C classification menu (tool), the process will proceed to step S910, and the C classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction. This is shown on screens D138 to D140 in FIG. 45.

[0149] In addition, in step S909, when the 4th classification menu was selected by the input device 05, if it is the B classification menu (tool), the process will proceed to step S911, and the B classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction.

[0150] Return to step S902, when any one of the B to D classification menus was selected by the input device 05 as the 2nd pull-out menu, if the B or C classification menu (tool) is selected, because there is a relationship in the right-angled direction with the A classification menu (tool) (adjacent position), the process will proceed to steps S912 and S913.

[0151] If the B classification menu (tool) is selected, in step S912, the B classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction, and at the same time, the A classification menu (tool) which has already been displayed will be variable power reduced and then displayed in the Y-axis direction corresponding to the pull-out amount in the Y-axis direction of the B classification menu (tool). This is shown on

screens D101 to D103 in FIG. 35.

[0152] In addition, if the C classification menu (tool) is selected, in step S913, the C classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction, and at the same time, the A classification menu (tool) which has already been displayed will be variable power reduced and then displayed in the Y-axis direction corresponding to the pull-out amount in the Y-axis direction of the C classification menu (tool).

[0153] Next, in step S914, when three pull-out menus were selected by the input device 05, as shown in step S915, the subsequent process will be divided by the positional relationship with the 2nd pull-out menu.

[0154] If the 2nd pull-out menu is the B classification menu (tool) and the 3rd pull-out menu is the C classification menu (tool), or if the 2nd pull-out menu is a C classification menu (tool) and the 3rd pull-out menu is a B classification menu (tool), because there is a relationship in the parallel direction (confronting position), the process will proceed to step S916; and if the C or B classification menu (tool) was continuously pulled out, the C or B classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction, and at the same time, the B or C classification menu (tool) that has already been displayed will be variable power reduced and then displayed in the Y-axis direction corresponding to the pull-out amount in the Y-axis direction of the C or B classification menu (tool). Then, the A classification menu (tool) will only be moved in position and will not be variable power reduced. This is shown on screens D117 to D119 in FIG. 39.

[0155] On the other hand, if the 3rd pull-out menu is a D classification menu (tool), because there is a relationship in the right-angled direction (adjacent position) with the 2nd pull-out menu, the process will proceed to step S917, and when the D classification menu (tool) was continuously pulled out, the D classification menu (tool) will be displayed corresponding to the pull-out amount in the X-axis direction, and at the same time, the B or C classification menu (tool) which has already been displayed will be variable power reduced and displayed in the Y-axis direction. Then, the A classification menu (tool) will be variable power reduced and then displayed corresponding to the pull-out amount of the D classification menu (tool) while maintaining a constant distance from the D classification menu (tool). Only the position will be moved corresponding to the pull-out amount in the X-axis direction, but the menu will not be variable power reduced. This is shown on screens D121 to D123 in FIG. 40.

[0156] Next, in step S918, when the 4th classification menu was selected by the input device 05, if it is the D classification menu (tool), the process will proceed to step S919, and the D classification menu (tool) will be displayed corresponding to the pull-out amount in the X-axis direction.

[0157] In addition, in step S918, when the 4th classification menu was selected by the input device 05, if it is the B classification menu (tool), the process will proceed to step S920, and the B classification menu (tool) will be displayed corresponding to the pull-out amount in the Y-axis direction.

[0158] FIGS. 35 and 36 show the cases when two pull-out menus are in a relationship of the right-angled direction (adjacent position). For two pull-out menus shown on screens D100 to D103 in FIG. 35 and two pull-out menus shown on screens D104 to D107 in FIG. 36, even if the positional relationship of each of the two pull-out menus is the same, the method of being displayed will differ depending on the order of pulling out the menu. The display of the menu that was pulled out later has priority, and the menu that was pulled out later will be displayed normally inside the menu, and accordingly, the display of the menu that was pulled out first will be affected. In other words, as shown on screen D101 in FIG. 35, in a state in which the A classification menu has already been pulled out, when the B classification menu in the right-angled positional relationship is pulled out as shown on screen D102, the Y-axis direction of the A classification menu will be variable power reduced and then displayed corresponding to the pull-out amount of the B classification menu, and as shown on screen D103, the B classification menu will be fixed at the maximum pull-out amount (half the screen).

[0159] It is also fine that only the shape of the display content in the A classification menu is reduced, but the display content itself may be changed. For example, on screen D101, icons and characters may be displayed together in the A classification menu, and on screen D103, the type of information may be changed corresponding to the display area so that only the icons will be displayed in the A classification menu.

[0160] In addition, in FIG. 36, as shown on screen D104, in a state in which the B classification menu has already been pulled out, when the A classification menu in the right-angled positional relationship is pulled out, as shown on screen D106, the B classification menu will be reduced corresponding to the pull-out amount in the X-axis direction of the A classification menu, and as shown on screen D107, the pull-out of the A classification menu will be fixed at a position of the maximum pull-out amount (half of screen).

[0161] FIGS. 37 and 38 show the cases when two pull-out menus are in a relationship of the parallel direction (confronting position).

[0162] As shown on screen D108 of FIG. 37, in a state in which the A classification menu is being displayed, if a D classification menu in a parallel positional relationship is about to be pulled out, as shown on screens D110 and D111, the A classification menu will be variable power reduced corresponding to the pull-out amount of the D classification menu while keeping the distance between two pull-out menus constant. By this way, a certain amount of the display area of the image which should be originally displayed will be always secured, and the pull-out menu and the original display image will be always displayed simultaneously.

[0163] FIG. 38 shows the case when two pull-out menus are in the upper and lower positions, which will be processed in the same way as in FIG. 37.

[0164] FIGS. 39 and 40 show the cases when three pull-out menus

are displayed simultaneously, if the 2nd pull-out menu is in the relation of the right-angled direction (adjacent position) with the 1st pull-out menu. FIG. 39 shows the case when the 3rd pull-out menu is in a relationship of the parallel direction (confronting position) with the 2nd pull-out menu, and FIG. 40 shows the case when the 3rd pull-out menu is in a relationship of the right-angled direction (adjacent position) with the 2nd pull-out menu.

[0165] In FIG. 39, as shown on screens D117 to D119, the A classification menu will be displayed in a reduced size in the Y-axis direction, and while such state was being secured, the C classification menu will be pulled out, and at the same time, the B classification menu will be reduced and displayed. The distance between the B classification menu and C classification menu will be always secured at a constant value.

[0166] In FIG. 40, as shown on screens D121 to D123, at the same time when the D classification menu is pulled out, the A classification menu and B classification menu will be reduced and then displayed in the X-axis direction. For the distance in the X-axis direction between the D classification menu and the A classification menu, a constant value will be always secured.

[0167] FIGS. 41 and 42 show the cases when three pull-out menus are displayed simultaneously, if the 2nd pull-out menu is in a relationship of the parallel direction (confronting position) with the 1st pull-out menu. FIG. 41 shows the case when the 3rd pull-out menu is the B classification menu, and FIG. 40 shows the case when the 3rd pull-out menu is the A classification menu.

[0168] In FIG. 41, as shown on screens D125 to D127, as the B classification menu is pulled out, both the A classification menu and D classification menu that have already been displayed will be reduced and displayed in the direction of the Y axis.

[0169] In FIG. 42, as shown on screens D129 to D131, as the A classification menu is pulled out, both the B classification menu and C classification menu that have already been displayed will be reduced and displayed in the direction of the X axis.

[0170] FIGS. 43-46 show the case when four pull-out menus are displayed simultaneously.

[0171] FIG. 43 shows the case when the remaining D classification menu was pulled out as a continuation of the state as shown on screen D119 in FIG. 39.

[0172] FIG. 44 shows the case when the remaining C classification menu was pulled out as a continuation of the state as shown on screen D123 in FIG. 40.

[0173] FIG. 45 shows the case when the remaining C classification menu was pulled out as a continuation of the state as shown on screen D127 in FIG. 41.

[0174] FIG. 46 shows the case when the remaining D classification menu was pulled out as a continuation of the state as shown on screen D131 in FIG. 42.

[0175] Moreover, in whichever display of pull-out menu, if it is desired to close one of the pull-out menus, regardless of the pull-out sequential order, the coordinate in the corresponding pull-out menu can be selected by the input device 05 and dragged as it is toward the direction of a position before pulling out each menu.

[0176] (7th embodiment) Next, the 7th embodiment will be explained.

[0177] Because the constitution of the 7th embodiment is basically the same as the constitution of the 1st embodiment, in the explanation of the 7th embodiment, the constitution of the 1st embodiment will be diverted for use.

[0178] In the 7th embodiment, the shape of the main image to be originally displayed will be distorted corresponding to the pull-out amount of the pull-out menu.

[0179] FIG. 47 is a flow chart which shows the processing procedures relating to display of the pull-out menu in the 7th embodiment and deformation of the shape of the main image accompanying with the display of the pull-out menu. FIG. 48 is a figure which shows the screen displayed on the image display screen 09 in the processing process of displaying the pull-out menu. FIG. 48 mainly shows an example of the case of displaying the B classification menu. Hereafter, it will be explained along the steps as shown in FIG. 47 while referring to FIG. 48 as needed.

[0180] The main image A as shown in FIG. 48 is, for example, a photo image, a sentence, or a mixture of an image and a sentence. The cases of a regeneration image that has already been stored in the built-in memory, or a finder image captured by CCD of a camera part in the shooting standby state can also be expected.

[0181] In the flow chart of FIG. 47, because steps S1001, S1002, S1003, S1004, S1005, S1006, S1009 and S1010 have the same contents as steps S101, S102, S103, S104, S105, S106, S112 and S113 shown in FIG. 10, respectively, their explanations will be omitted.

[0182] When the pull-out menu display trigger area 11B is selected and the detected value (pull-out amount) y of the Y-axis coordinate is continuously changed after the selection, in step S1011, the B classification menu will be displayed corresponding to the pull-out amount y, and at the same time, the main image A will be variable power reduced and then displayed in the Y-axis direction at a ratio of the value (Y−y) to the full screen size Y in the Y-axis direction (screens D154 and D155 in FIG. 48). Moreover, if the input device 05 goes OFF during this period and the pull-out amount y is smaller than the predetermined definition amount, the state will return from the state as shown on screen D154 in FIG. 48 to the state as shown on screen D150, and if the pull-out amount y is larger than the predetermined definition amount, the state as shown on screen D155 in FIG. 48 will be maintained (screen D157 in FIG. 48).

[0183] Then, when the pull-out amount y increased further, in step S1012, the B classification menu will be fixed at the maximum pull-out amount (half the screen size in the Y-axis direction), in addition, the main image A will also be maintained at a size that is variable power reduced to 1/2 in the Y-axis direction (screen D156 in FIG. 48). Moreover, in this case, when the input device 05 goes OFF, the state of screen D156 in FIG. 48 will be maintained (screen D158

in FIG. 48).

[0184] In the above explanation, the case of displaying the B classification menu is used as an example, but the case of displaying the C classification menu is also the same.

[0185] Next, when the pull-out menu display trigger areas 11A, D are selected and the detected value (pull-out amount) x of the X axis coordinate is continuously changed after the selection, in step S1007, the A, D classification menus will be displayed corresponding to the pull-out amount x, and at the same time, the main image A will be variable power reduced and then displayed in the X-axis direction at a ratio of the value (X-x) to the full screen size X in the X-axis direction. Moreover, if the input device 05 goes OFF during this period, and if the pull-out amount x is smaller than the predetermined definition amount, the screen will return to the state of displaying the main image A only, and if the pull-out amount y is larger than the predetermined definition amount, the current screen state at that time will be maintained.

[0186] And, when the pull-out amount x increases further, in step S1008, the A and D classification menus will be fixed at the maximum pull-out amount (half the screen size in the X axis direction), in addition, the main image A will also be maintained at a size that is variable power reduced to 1/2 in the X-axis direction. Moreover, in this case, when the input device 05 goes OFF, the state of screen at that time will be maintained.

[0187] FIG. 49 is a flow chart which shows the processing procedures for closing the displayed pull-out menu, and FIG. 50 is a figure which shows the display screen (to be more specific, the screen when the B classification menu was selected) in the processing process of closing the pull-out menu. Hereafter, it will be explained along the steps shown in FIG. 49 while referring to FIG. 50 as needed.

[0188] First, in step S1101, as shown on screen D160 in FIG. 50, a pull-out menu is displayed and the main image A is transformed according to the pull-out amount of the displayed pull-out menu. When the input device 05 comes into contact with the touch panel sensor 11 of the image display screen 09 in this state, the coordinate value will be detected (S1102). It is determined whether or not the detected coordinate value is within the pull-out menu display trigger area (S1103), and if it becomes a value within the pull-out menu display trigger area, the process will proceed to step S1104, and if it does not become such a value, the process will proceed to step S1109. Moreover, when the determination result in step S1103 is affirmative (YES), the state may change from the state of screen D160 in FIG. 50 to the state of screen D163 directly, or enter the state of screen D163 from the state of screen D161 in FIG. 50 after sliding the input device 05 without releasing from the touch panel sensor 11 of the image display screen 09.

[0189] In step S1109, as shown on screen D162 in FIG. 50, when one of the function buttons in the pull-out menu is selected by the input device 05 (S1109), the function corresponding to that button will be executed (S1110), and the processing result will be reflected in the main image A. Moreover, in this state, when the input device 0504 was slid in the direction of the arrow as shown on screen D164 in FIG. 50, such operation will be ignored. In addition, if the input device 05 goes OFF in this state, the process will return to step S1103.

[0190] In step S1104, it is determined which of the pull-out menu display trigger areas 11A to 11D the detected coordinate value is included in. If the value is included in the pull-out menu display trigger area 11A or D, the process will proceed to step S1105, and if the value is included in the pull-out menu display trigger areas 11B or C, the process will proceed to step S1111.

[0191] In step S1111, the selected pull-out menu display trigger area is highlighted and displayed, and at the same time, a buzzer sounds to indicate that a menu has been selected. In addition, in this state, if the input device 05 goes OFF, the process will return to step S1103. Then, in step S1112, among the detected coordinate values, only the Y coordinate value will be monitored and the X coordinate value will be ignored. Here too, if the input device 05 goes OFF, the process will return to step S1103.

[0192] Next, in step S1113, the pull-out menu is displayed corresponding to the pull-out amount y, and at the same time, the main image A will be variable power reduced and then displayed in the Y-axis direction at a ratio of the value (Y−y) to the full screen size Y in the Y-axis direction (screens D165 and D167 in FIG. 50). Moreover, if the input device 05 goes OFF during this period and the pull-out amount y is larger than the predetermined definition amount, the state of screen D165 in FIG. 50 will be maintained (screen D166 in FIG. 50), and if the pull-out amount y is smaller than the predetermined definition amount, the state will shift from screen D167 in FIG. 50 to screen D168 in which the main image A is displayed on the full screen.

[0193] Furthermore, when the pull-out amount y decreases and it becomes a state on screen D169 shown in FIG. 50, it will shift to a state on screen D170 in which the main image A is displayed on the full screen (S1114). Of course, even if the input device 05 goes OFF, it will shift to a state on screen D170.

[0194] On the other hand, in step S1104, if it is determined that the detected coordinate value is included in the pull-out menu display trigger area 11A or D, in step S1105, the selected pull-out menu display trigger area will be highlighted and displayed, and at the same time, a buzzer sounds to indicate that the menu has been selected. In addition, when the input device 05 goes OFF in this state, the process will return to step S1103. Then, in step S1106, among the detected coordinate values, only the X coordinate value will be monitored and the Y coordinate value will be ignored. Here too, if the input device 05 goes OFF, the process will return to step S1103.

[0195] Next, in step S1107, the pull-out menu is displayed corresponding to the pull-out amount x, and at the same time, the main image A will be variable power reduced and then displayed in the X-axis direction at a ratio of the value (X−x) to the full screen size X in the X-axis direction. Moreover, if the input device 05 goes OFF during this period and the pull-out amount x is larger than the predetermined definition amount, such display state will be

maintained, and if the pull-out amount x is smaller than the predetermined definition amount, it will shift to a state in which the main image A is displayed on the full screen.

[0196] Furthermore, when the pull-out amount x decreases and become 0, it will shift to a state in which the main image A is displayed on the full screen (S1108). Of course, even if the input device 05 goes OFF, it will shift to a state in which the main image A is displayed on the full screen.

[0197] Moreover, among four trigger areas, depending on which pull-out menu is pulled out, the method for displaying the reduced size of image A will differ. This will be explained with reference to FIG. 51.

[0198] FIG. 51 is a figure which shows the screen of the image display screen 09 for the purpose of explaining the relationship between the storage position of a pull-out menu and the main image A.

[0199] For example, on screen D184 in FIG. 51, on which the pull-out menu display trigger area 11B was selected with the input device 05 to pull out the B classification menu, the list of the colors of characters to be written on the main image A with the input device 05 is laid out in the B classification menu like a color palette. In the state of this screen D184, while the pull-out menu was still in a state that it was pulled out, it will be possible to select a color and write characters on the main image A, and it will be possible to continue writing while changing the color during writing. In this case, when the pull-out menu is closed, the characters may be displayed on the main image A at a ratio at the time of being written, in addition, when the main image A returns to the original ratio, the characters may be scaled in the vertical direction at the same ratio.

[0200] Furthermore, on screens D182, D184, D186 and D188, if it is desired to display the main image A at the original aspect ratio, it is also fine to return to the original state by a method like dragging the corner of the scaled main image A, etc. As a result of this, for example, if this operation is performed in the state on screen D184, it will become a state like screen D193 in FIG. 53 to be described later.

[0201] Moreover, the 7th embodiment may also be applied to the 6th embodiment.

[0202] (8th embodiment) Next, the 8th embodiment will be explained.

[0203] Because the constitution of the 8th embodiment is basically the same as the constitution of the 1st embodiment, in the explanation of the 8th embodiment, the constitution of the 1st embodiment will be diverted for use.

[0204] In the 8th embodiment, even if the pull-out menu is pulled out, the aspect ratio of the main image that should be displayed originally can be maintained constant.

[0205] FIG. 52 is a flow chart which shows the processing procedures of the main image display accompanying with the display of the pull-out menu in the 8th embodiment. FIG. 53 is a figure which shows the screen displayed on the image display screen 09 in the processing process of displaying the pull-out menu. FIG. 53 shows an example of displaying the B classification menu. Hereafter, it will be explained along the steps shown in FIG. 52 while referring to FIG. 53 as needed.

[0206] The main image A as shown in FIG. 48 is, for example, a photo image, a sentence, or a mixture of an image and a sentence. The cases of a regeneration image that has already been stored in the built-in memory, or a finder image captured by CCD of a camera part in the shooting standby state can also be expected.

[0207] In the flow chart of FIG. 52, because steps S1201, S1202, S1203, S1204, S1205, S1206, S1209 and S1210 have the same contents as steps S101, S102, S103, S104, S105, S106, S112 and S113 as shown in FIG. 10, respectively, their explanations will be omitted.

[0208] When the pull-out menu display trigger area 11B is selected, and then the detected value (pull-out amount) y of the Y-axis coordinate is continuously changed, in step S1211, the B classification menu will be displayed corresponding to the pull-out amount y, and at the same time, it will be variable power reduced and then displayed while maintaining the aspect ratio of the main image A (screens D191 and D192 in FIG. 53). Moreover, if the input device 05 goes OFF during this period, the screen state at that time will be maintained.

[0209] Then, when the pull-out amount y increased further, in step S1212, the B classification menu will be fixed at the maximum pull-out amount (half the screen size in the Y-axis direction), in addition, the main image A will also be maintained at a size that is variable power reduced to 1/2 in both the X-axis direction and the Y-axis direction (screen D193 in FIG. 53). Moreover, in this case, when the input device 05 goes OFF, the state of screen D193 in FIG. 53 will be maintained.

[0210] In the above explanation, the case of displaying the B classification menu is used as an example, but the case of displaying the C classification menu is also the same.

[0211] Next, when the pull-out menu display trigger areas 11A, D are selected and the detected value (pull-out amount) x of the X axis coordinate is continuously changed after the selection, in step S1207, the A, D classification menus will be displayed corresponding to the pull-out amount x, and at the same time, it will be variable power reduced and then displayed while maintaining the aspect ratio of the main image A. Moreover, if the input device 05 goes OFF during this period, the state of the screen at that time will be maintained.

[0212] And, when the pull-out amount x increases further, in step S1208, the A and D classification menus will be fixed at the maximum pull-out amount (half the screen size in the X axis direction), in addition, the main image A will also be maintained at a size that is variable power reduced to 1/2 in both the X-axis direction and the Y-axis direction. Moreover, in this case, when the input device 05 goes OFF, the main image A will be also maintained at a size that was variable power reduced to 1/2 in both the X-axis direction and the Y-axis direction.

[0213] Moreover, the 8th embodiment may also be combined with other embodiments to allow the user to arbitrarily select any one of the methods depending on the operation setting or the operation means performed while pressing any button.

[0214] Furthermore, it is also fine to display the main image A as

shown in FIG. 54.

[0215] FIG. 54 is a figure which shows a screen displayed on the image display screen 09 for the purpose of explaining a display method different from the display method of the main image A shown in FIG. 53.

[0216] In other words, on screens D195 to D197 of the image display screen 09, the shape and aspect ratio of the main image A will not be changed at all, and the pull-out menu will be displayed over the main image A in a form of being covered. This display method of the main image A has a deficiency that a part of the main image A has unfavorably become missing, but if a CPU that can perform arithmetic processing at extremely high speed is not mounted, this display method will be effective.

[0217] Moreover, in this display method, while the input device 05 is in contact with the touch panel sensor 11, the pull-out menu will overlap with the main image A, on the other hand, when the input device 05 goes OFF, the main image A will be reduced and then displayed in the pull-out direction of the pull-out menu. For example, if became OFF in the state as shown on screen D195, after the required processing time elapsed, the state will switch to screen D198. In addition, when the input device became OFF in a state as shown on screen D196, after the required processing time elapsed, the state will switch to screen D199. Furthermore, when the input device became OFF in a state as shown on screen D197, after the required processing time elapsed, the state will switch to screen D200.

[0218] (9th embodiment) Next, the 9th embodiment will be explained.

[0219] Because the constitution of the 9th embodiment is basically the same as the constitution of 1st embodiment, in the explanation of the 9th embodiment, the constitution of the 1st embodiment will be diverted for use.

[0220] In the 9th embodiment, a display method of the "partial cut-out help in the pull-out menu" will be adopted as a display method of the pull-out menu.

[0221] FIGS. 55 and 56 are the flow charts which show the processing procedures of displaying the pull-out menu in the 9th embodiment. FIG. 57 is a figure which shows the pull-out menu in the 9th embodiment displayed on the image display screen 09. FIG. 58 is a figure which shows the B to D classification menus displayed on the image display screen 09 in the 9th embodiment. Hereafter, it will be explained along the steps shown in FIGS. 55 and 56 while referring to FIGS. 57 and 58 as needed.

[0222] In each of the above-mentioned embodiments, because it is not possible to grasp the function items described in each pull-out menu until the pull-out menu is displayed, it is necessary for each user to remember in advance what kind of function items are included in each menu. In order to avoid such annoyance, in the 9th embodiment, an auxiliary function for mastering the pull-out menu without hesitation will be added to the pull-out menu display process of the 1st embodiment.

[0223] In other words, generally, in case of a personal computer, etc., by simply placing a pointing device such as a mouse on an icon, etc. that corresponds to a function, a balloon that briefly explains what kind of function the icon corresponds to will be displayed. However, in this embodiment, instead of a balloon for explaining such a function, with the same expression as the time when the pull-out menu is displayed, a part of the pull-out menu will be cut out and then displayed as the "partial cut-out help in the pull-out menu," so as to make it easy to check the contents of the pull-out menu.

[0224] The process shown in FIG. 55 is a process added to the pull-out menu display process of the 1st embodiment as described above, and step S1301 in FIG. 55 performs the same process as step S103 in FIG. 10.

[0225] Next, in step S1302, it is determined whether or not the execution of the function of the "partial cut-out help in the pull-out menu" has been set in advance. If it has not been set, the process will proceed to step S104 onward in FIG. 10.

[0226] On the other hand, if the execution of the function of the "partial cut-out help in the pull-out menu" has been set in advance, the process will proceed to step S1303; and it is determined whether the detected coordinate value is included in any of the pull-out menu display trigger areas 11A to 11D, if it is included in the pull-out menu display trigger area 11A or 11D, the process will proceed to step S1305, and if it is included in the pull-out menu display trigger area 11B or 11C, the process will proceed to step S1311.

[0227] In step S1305, the Y coordinate value of the position where the input device 05 is in contact with the pull-out menu display trigger area 11A or 11D is detected, and the functional item having a Y coordinate value closest to the detected Y coordinate value will be displayed. This is shown on screen D202 in FIG. 57, using the pull-out menu display trigger area 11A touched by the input device 05 as an example. From this state, when the input device 05 is slid up and down along the exterior frame on the pull-out menu display trigger area 11A, the state will be like screens D203 to D205 in FIG. 57. In this way, it is possible to check the contents without displaying all the pull-out menus, and when the desired function item could not be found, it is possible to search other pull-out menus in a similar way. Hereafter, the image that forms a part of the pull-out menu displayed on screens D202 to D205 in FIG. 57 is called a "cut-out help."

[0228] In this way, when the desired function item is found and the input device 05 goes OFF, in step S1306, it is determined whether or not a predetermined time (2 to 3 seconds) has elapsed after input device OFF. If the predetermined time has not elapsed, the process will proceed to step S1307, and the input device 05 will select the function item (icon) in the cut-out help before the predetermined time elapsed. By this way, in step S1308, the display of the cut-out help will be stopped, and the function corresponding to the selected function item (icon) will be executed.

[0229] Moreover, in step S1306, when it is determined that the predetermined time has passed, in step S1309, the cut-out help

display will be stopped.

[0230] On the other hand, in step S1311, the X coordinate value of the position where the input device 05 is in contact with the pull-out menu display trigger area 11B or 11C is detected, and the function item having an X coordinate value closest to the detected X coordinate value will be displayed.

[0231] In this way, when the desired function item is found and the input device 05 goes OFF, in step S1312, it is determined whether or not a predetermined time (2 to 3 seconds) has elapsed after input device OFF. If the predetermined time has not elapsed, the process will proceed to step S1313, and the input device 05 will select the function item (icon) in the cut-out help before the predetermined time elapsed. By this way, in step S1314, the display of the cut-out help will be stopped, and the function corresponding to the selected function item (icon) will be executed.

[0232] Moreover, in step S1312, when it is determined that the predetermined time has passed, in step S1315, the cut-out help display will be stopped.

[0233] In FIG. 58, the cut-out help when the pull-out menu display trigger area 11B, 11C, or 11D is touched by the input device 05 will be displayed. Moreover, the illustration of the icon of the contents of the cut-out help is omitted. In addition, the arrow indicates the sliding direction of the input device 05.

[0234] Furthermore, another embodiment based on the 9th embodiment will be explained with reference to FIG. 59. In other words, a display example of another pull-out help when the pull-out help shown in the 9th embodiment cannot be displayed as described above due to some constraint condition is shown.

[0235] FIG. 59 is a figure which shows each pull-out menu in another embodiment based on the 9th embodiment. All the screens D211 to D215 on the image display screen 09 shown here are the display examples when the coordinate designation of the pull-out menu display trigger area 11A was performed.

[0236] On screen D211, a little more display area of the pull-out help is secured. This will make it easier to see the contents of the pull-out help.

[0237] On screen D212, similar to the 3rd embodiment explained with reference to FIG. 26, in the 9th embodiment, the cut-out help that is expected when the maximum pull-out amount was expanded has also been shown.

[0238] On screen D213, all the function items in the pull-out menu will be displayed in the pull-out help without sliding the input device 05 in the pull-out menu display trigger area.

[0239] On screen D214, only the character notation of the name of the function item is performed in the pull-out help. This will minimize the reduction in the display area of the main image A.

[0240] On screen D215, assuming a case that it is not possible to slide the input device 05 within the pull-out menu display trigger area, the scroll buttons in the pull-out help will be laid out in software.

[0241] (Other embodiments) It is also fine to combine each embodiment explained above as appropriate.

[0242] In addition, in each of the above-mentioned embodiments, the portable information processing device 01 was explained as a portable information terminal of which the size is a notebook size, but the application of this invention is not limited thereto; this invention is also applicable to a large image display screen which may be different in the operation method, but has another pointing device as an operation means, an eyepiece viewfinder, or the like.

[0243] In addition, this invention can also be applied to a device accompanying with a screen of image display such as a still camera, a video camera, a notebook computer, a head mounted display, a car navigation system, or the like.

[0244] In addition, this invention can also be applied to a stationary personal computer, a workstation, or the like. For example, in the case of a personal computer, the mouse will be slid in any direction including up, down, left and right, and when the cursor reached the edge on the screen, the bar for the purpose of pulling out the pull-out menu at the display position will be displayed. Then, this invention can be applied by incorporating an operation method of dragging the mouse to the central direction from that state. In this case, there is the merit or advantage that the list of functional items can be displayed quickly and the user can adjust the amount of display area arbitrarily.

[0245] In addition, in case of a device equipped with the so-called cross keys, in which mechanical switches are laid out in a cross shape in the up, down, left, and right directions, by pressing either up, down, left or right, one of the pull-out menus is selected, and combining an operation method that when finger is released from the cross key, the pull-out menu will be displayed in a fixed manner after it was pulled out, the user may use either the input device 05 or the cross key to operate according to the usage situation.

[0246] In addition, in each of the above-mentioned embodiments, the pull-out menu can be stopped without stages at any pull-out position during pull-out, but instead of this, it is also fine to limit in advance the pull-out position which can be stopped to multiple positions. This will make the display processing speed of the pull-out menu even faster.

[0247] Furthermore, it is needless to say that this invention can also be achieved by supplying the storage medium which stored the program code of the software for realizing the functions of the above-mentioned embodiments to the system or device, and making the computer (or CPU or MPU) of the said system or device read and execute the program code stored in the storage medium.

[0248] In this case, the program code itself which was read from the storage medium will realize the function of each of the above-mentioned embodiments, and the storage medium which stored the program code will constitute this invention.

[0249] As the storage medium for the purpose of supplying the program code, for example, a floppy disk, a hard disk, an optical disk, a magneto-optical disk, a CD-ROM, a CD-R, a magnetic tape, a non-volatile memory card, a ROM, etc. can be used.

[0250] In addition, it is needless to say that this invention also includes the case that by executing the program code which was read by the computer, not only the functions of each of the above-mentioned embodiments can be realized, but also based on the instructions of the said program code, the OS etc. running on the computer will perform a part or all of the actual processing, and the functions of the above-mentioned embodiments will be realized by such processing.

[0251] Furthermore, it is needless to say that this invention also includes the case that after the program code which was read from the storage medium was written in the memory provided in the function expansion board inserted into the computer or the function expansion unit connected to the computer, based on the instructions of the program code, a CPU or the like provided in the function expansion board or function expansion unit will perform a part or all of the actual processing, and the functions of the above-mentioned embodiments will be realized by such processing.

[0252]

[Effect of the invention] As described in detail above, according to this invention, when the coordinate designation of one of multiple predetermined areas was performed by the coordinate designation means, and successively the coordinate designation was continued by the aforesaid coordinate designation means, and at the same time, this designated coordinate changed to almost the central direction of the image display part, the function list corresponding to the aforesaid coordinate-designated predetermined area will be displayed on the aforesaid image display part corresponding to the change amount of the aforesaid designated coordinate. At the same time, the main image displayed on the aforesaid image display part immediately before the aforesaid function list is displayed will be variable power reduced corresponding to the display amount of the aforesaid function list and then displayed on the aforesaid image display part.

[0253] By this way, even if the function list and the main image are displayed simultaneously at the small image display part, since the main image is all displayed, the editing work will not be hindered.

[0254] In addition, the main image is variable power reduced and displayed in real time in synchronization with the movement of pulling out and displaying the function list, and when the change in the designated coordinate generated by the coordinate designation means had stopped, the process of pulling out the function list and variable-power-reducing the main image will also stop at the same time.

[0255] Thus, even while the function list is being displayed, the main image will be displayed without being covered and hidden, the whole main image to be processed can be seen, and as a result of this, when a function in the function list was selected and executed, it will be possible to immediately grasp the result of processing on the main image by executing that function, and if the result is not as intended, it will be possible to smoothly cancel or change.

[BRIEF DESCRIPTION OF THE DRAWINGS]

[FIG. 1] A front view which shows the constitution of the 1st embodiment of the portable information processing device according to this invention.

[FIG. 2] A top view of the portable information processing device shown in FIG. 1.

[FIG. 3] A rear view of the portable information processing device shown in FIG. 1.

[FIG. 4] A transverse sectional view taken along the line A-A' of the portable information processing device shown in FIG. 3.

[FIG. 5] A figure which shows the constitution of a touch panel sensor.

[FIG. 6] A figure which shows the pull-out menu displayed on the image display screen.

[FIG. 7] A figure which shows the screen of an image display screen in which the B classification menu was displayed as a pull-out menu.

[FIG. 8] A block figure which shows the system constitution of a portable information processing device.

[FIG. 9] A flow chart which shows the outline of the overall operation procedures in the portable information processing device.

[FIG. 10] A flow chart (1/2) which shows the processing procedures at the time of displaying the pull-out menu.

[FIG. 11] A flow chart (2/2) which shows the processing procedures at the time of displaying the pull-out menu.

[FIG. 12] A figure which shows the display screen in the processing process of displaying the pull-out menu (to be more specific, the screen in case of selecting and displaying the B classification menu).

[FIG. 13] A flow chart (1/2) which shows the processing procedures for closing the displayed pull-out menu.

[FIG. 14] A flow chart (2/2) which shows the processing procedures for closing the displayed pull-out menu.

[FIG. 15] A figure which shows the display screen in the processing process which closes the pull-out menu (to be more specific, the screen in the case when the B classification menu was selected).

[FIG. 16] A flow chart which shows the processing procedures for determining the size of a pull-out menu corresponding to the pull-out amount.

[FIG. 17] A figure which shows the screen of the A classification menu displayed corresponding to the pull-out amount.

[FIG. 18] A figure which shows the screen of the B classification menu displayed corresponding to the pull-out amount.

[FIG. 19] A figure which shows the screen of the image display screen for the purpose of explaining the relationship between the pull-out menu display trigger area and the A to D classification menus.

[FIG. 20] A flow chart which shows the processing procedures of displaying the pull-out menu in the 2nd embodiment.

[FIG. 21] A figure which shows the ranges a, b and c on the screen of the image display screen.

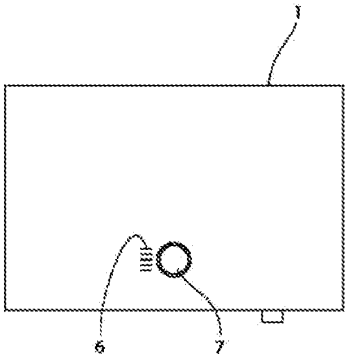
[FIG. 22] A figure which shows the screen of the A classification menu displayed corresponding to the pull-out amount.

[FIG. 23] A figure which shows the screen of the B classification menu displayed corresponding to the pull-out amount.

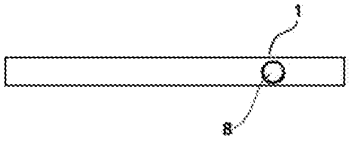
[FIG. 24] A figure which shows the screen of the C classification menu displayed corresponding to the pull-out amount.
[FIG. 25] A flow chart which shows the processing procedures of displaying the pull-out menu in the 3rd embodiment.
[FIG. 26] A figure which shows the screen of the A classification menu displayed on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 27] A flow chart which shows the processing procedures of displaying the pull-out menu in the 4th embodiment.
[FIG. 28] A figure which shows the increased pull-out menu displayed on the screen of the image display screen.
[FIG. 29] A flow chart which shows the processing procedures of displaying the pull-out menu in the 5th embodiment.
[FIG. 30] A figure which shows the increased pull-out menu displayed on the screen of the image display screen.
[FIG. 31] A figure which shows the other example of display of the increased pull-out menu displayed on the screen of the image display screen.
[FIG. 32] A flow chart which shows the processing procedures of simultaneously displaying two to four pull-out menus in the 6th embodiment.
[FIG. 33] A flow chart (1/2) which shows the concrete procedures of the processing procedures as shown in FIG. 32.
[FIG. 34] A flow chart (2/2) which shows the concrete procedures of the processing procedures as shown in FIG. 32.
[FIG. 35] The 1st figure which shows two pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 36] The 2nd figure which shows two pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 37] The 3rd figure which shows two pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 38] The 4th figure which shows two pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 39] The 1st figure which shows three pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 40] The 2nd figure which shows three pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 41] The 3rd figure which shows three pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 42] The 4th figure which shows three pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 43] The 1st figure which shows four pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 44] The 2nd figure which shows four pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 45] The 3rd figure which shows four pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 46] The 4th figure which shows four pull-out menus displayed simultaneously on the screen of the image display screen corresponding to the pull-out amount.
[FIG. 47] A flow chart which shows the processing procedures relating to display of the pull-out menu in the 7th embodiment and deformation of the shape of the main image accompanying with the display of the pull-out menu.
[FIG. 48] A figure which shows the screen displayed on the image display screen in the processing process of displaying the pull-out menu.
[FIG. 49] A flow chart which shows the processing procedures for closing the displayed pull-out menu.
[FIG. 50] A figure which shows the display screen (to be more specific, the screen when the B classification menu was selected) in the processing process of closing the pull-out menu.
[FIG. 51] A figure which shows the screen of the image display screen for the purpose of explaining the relationship between the storage position of a pull-out menu and the main image A.
[FIG. 52] A flow chart which shows the processing procedures of the main image display accompanying with the display of the pull-out menu in the 8th embodiment.
[FIG. 53] A figure which shows the screen displayed on the image display screen in the processing process of displaying the pull-out menu.
[FIG. 54] A figure which shows a screen displayed on the image display screen for the purpose of explaining a display method different from the display method of the main image A shown in FIG. 53.
[FIG. 55] A flow chart (1/2) which shows the processing procedures of displaying the pull-out menu in the 9th embodiment.
[FIG. 56] A flow chart (2/2) which shows the processing procedures of displaying the pull-out menu in the 9th embodiment.
[FIG. 57] A figure which shows the pull-out menu in the 9th embodiment displayed on the image display screen.
[FIG. 58] A figure which shows the B to D classification menus displayed on the image display screen in the 9th embodiment.
[FIG. 59] A figure which shows each pull-out menu in another embodiment based on the 9th embodiment.
[EXPLANATION ABOUT THE REFERENCE NUMERALS]
01 portable information processing device (information processing device)
04 exterior cover member (frame)
05 input device (coordinate designation means)
06 microphone

07 camera part
08 shutter switch
09 image display screen (image display part)
10 speaker
11 touch panel sensor (coordinate designation means)
11A~11D menu display trigger area (predetermined area)
11E image display area
11b pull-out menu (function list)
21 CPU (function list display means, main image display means)
22 CCD
23 RAM
24 flash memory
25 ROM

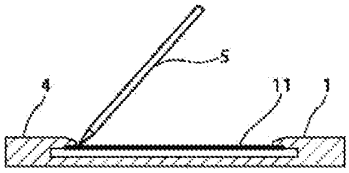
[FIG. 1]



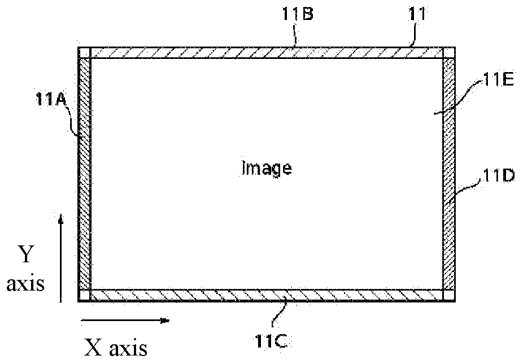
[FIG. 2]



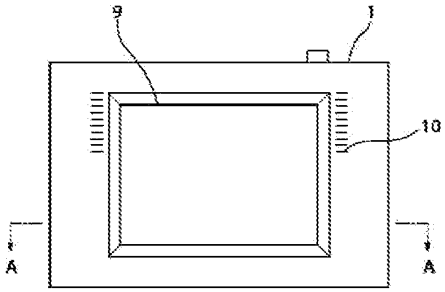
[FIG. 4]



[FIG. 5]

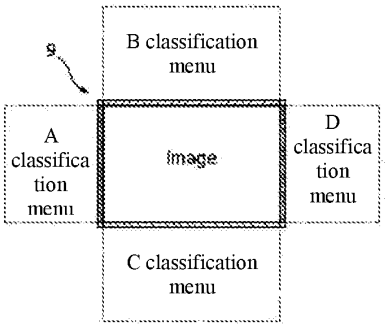


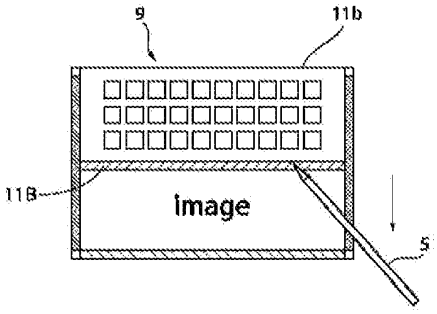
[FIG. 3]



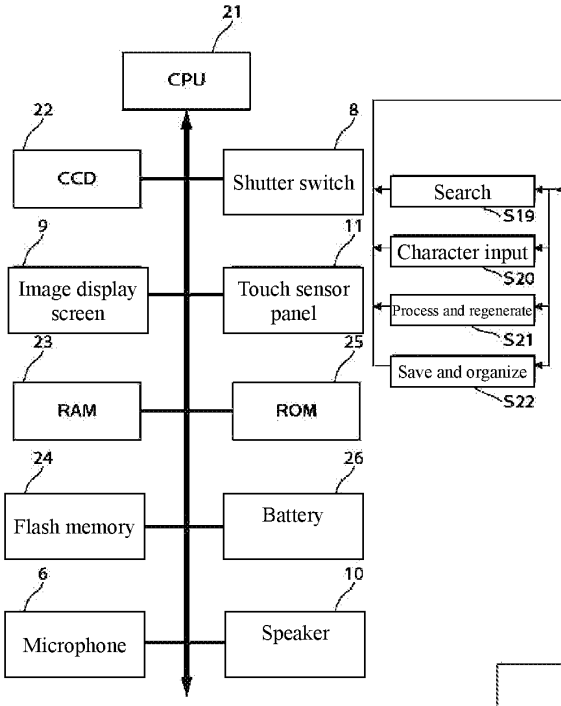
[FIG. 6]

[FIG. 7]



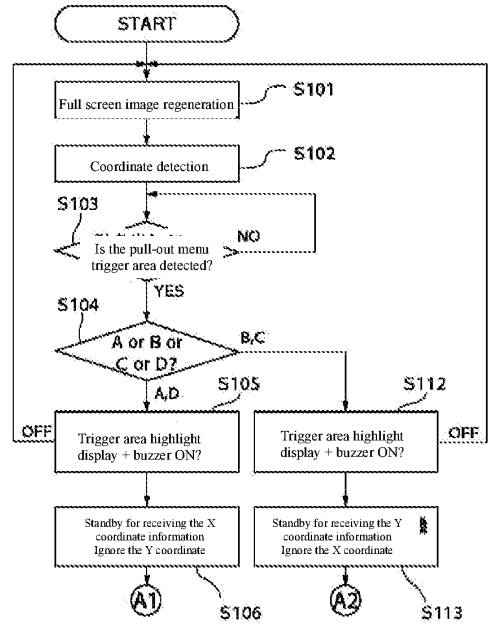


[FIG. 8]



[FIG. 9]

[FIG. 10]



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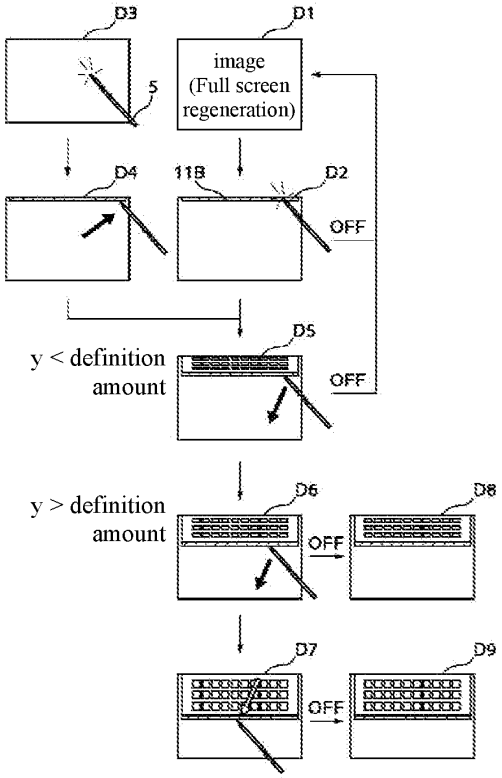

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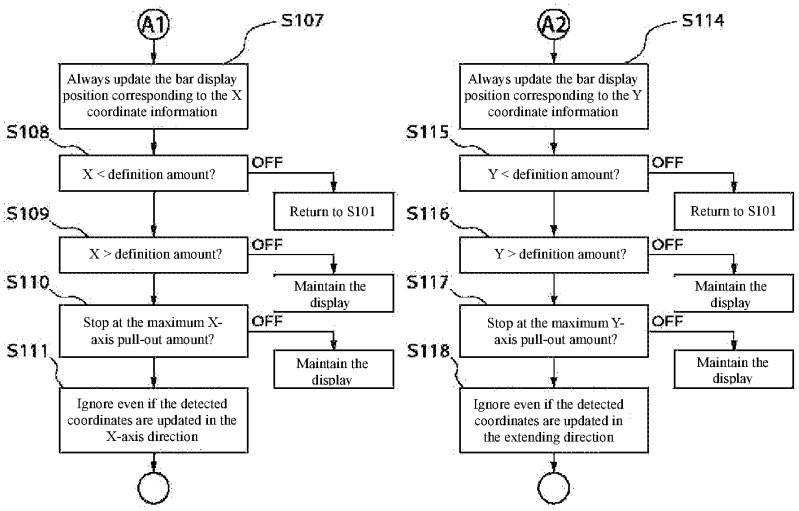

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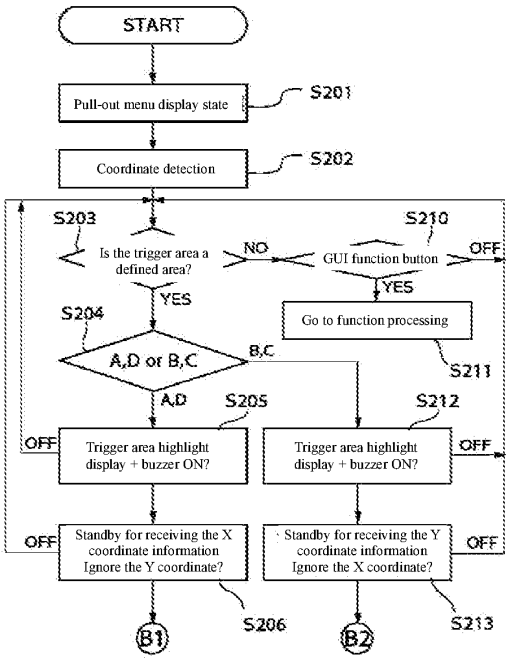

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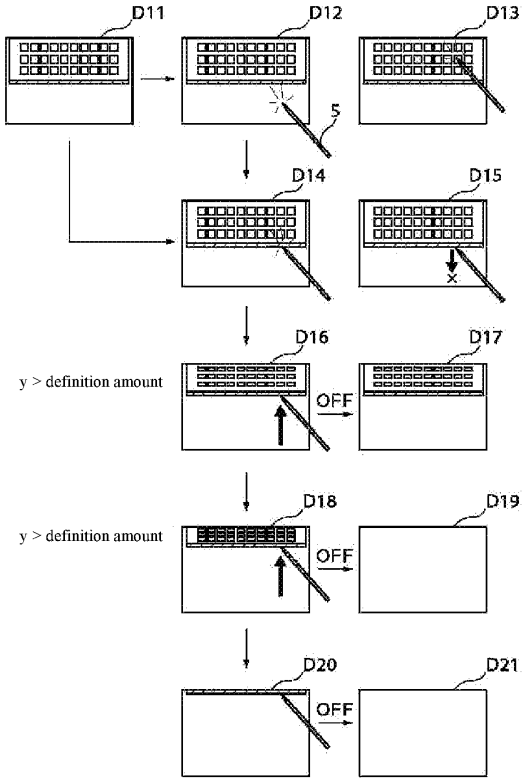

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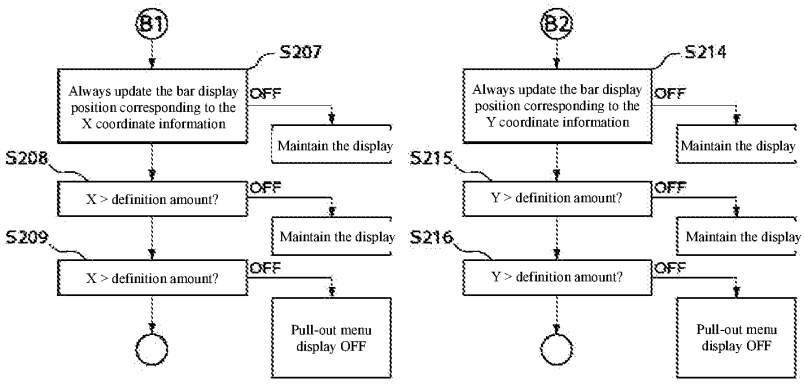

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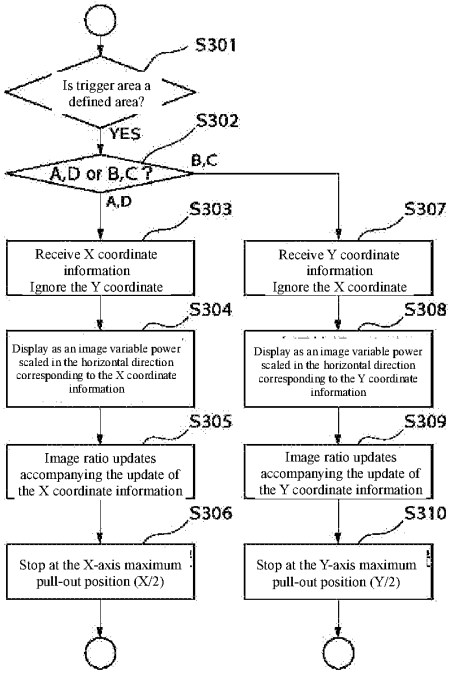

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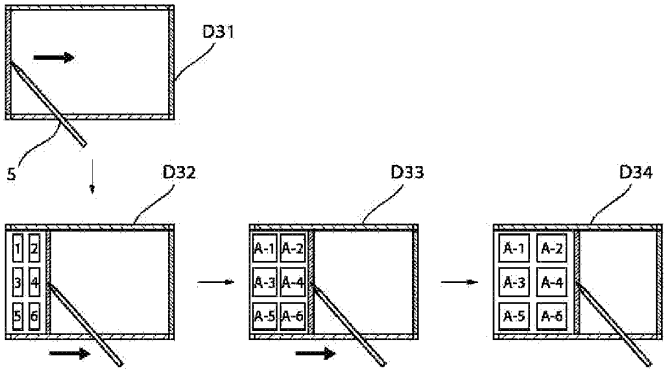
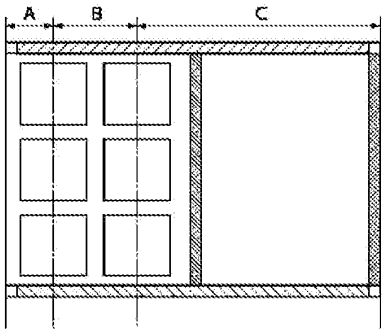


[FIG. 21]



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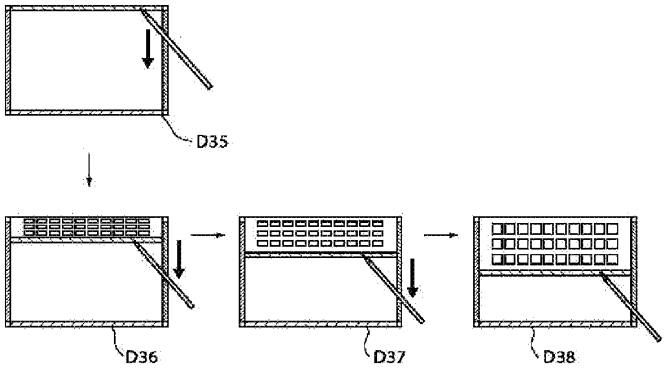
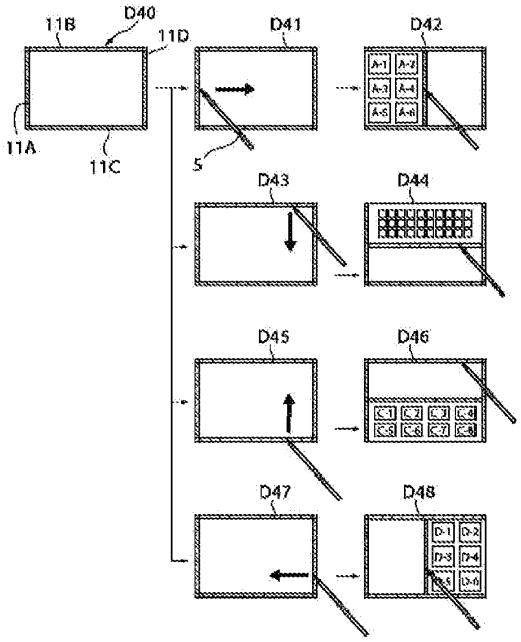
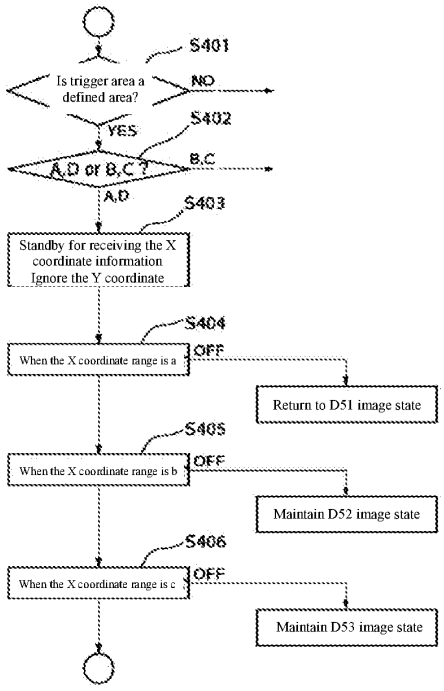


[FIG. 19]

[FIG. 20]





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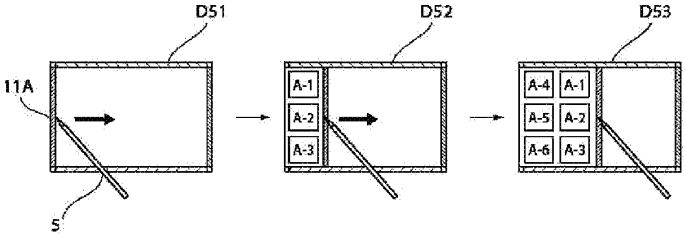

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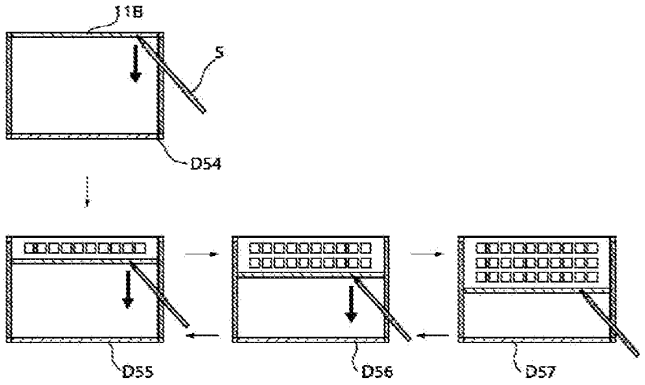

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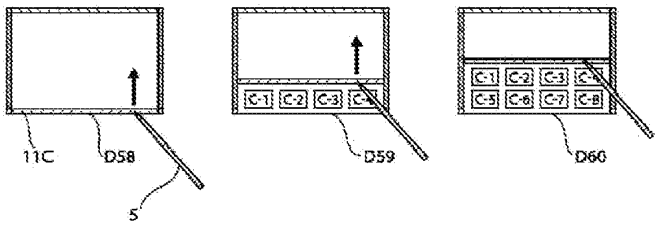

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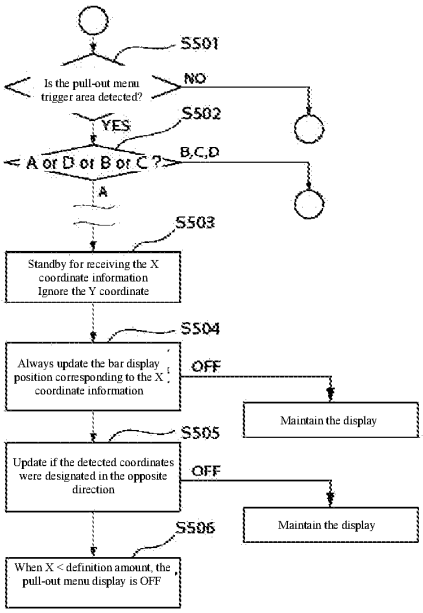

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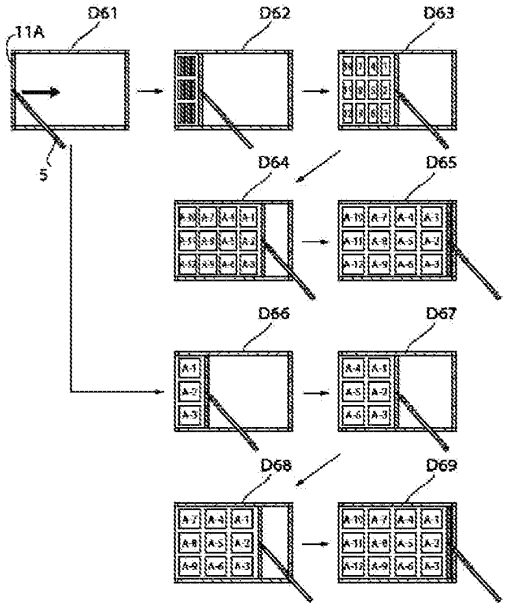

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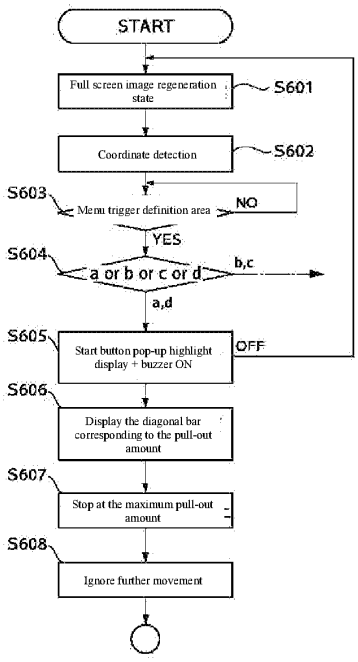

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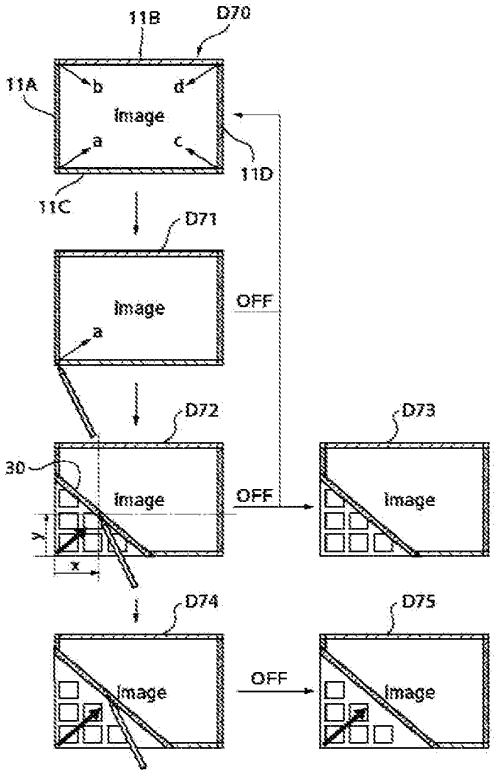

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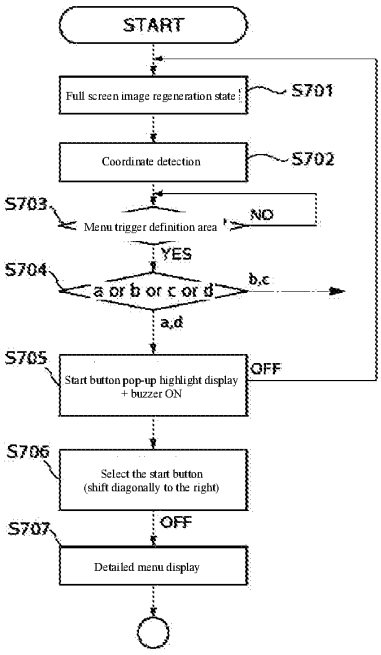

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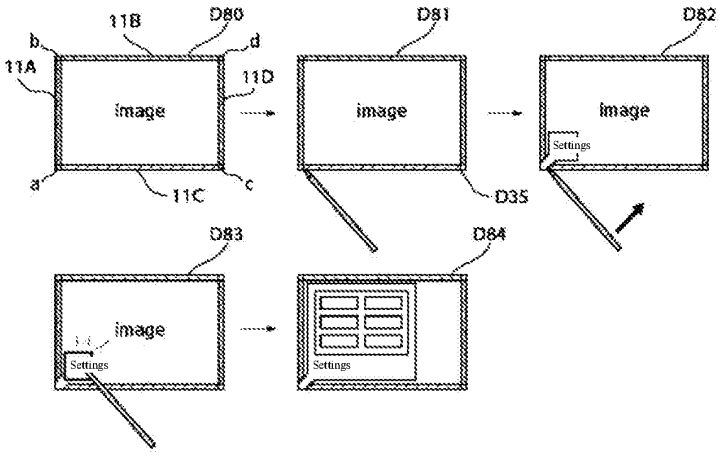

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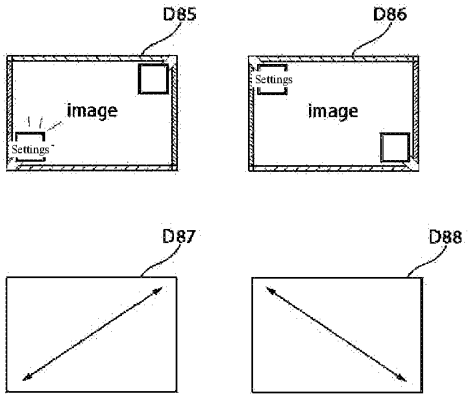

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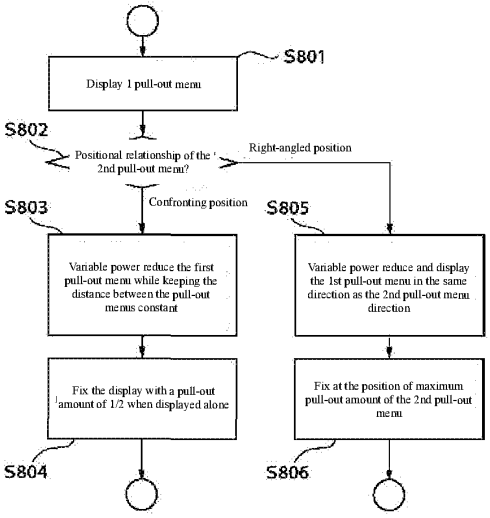

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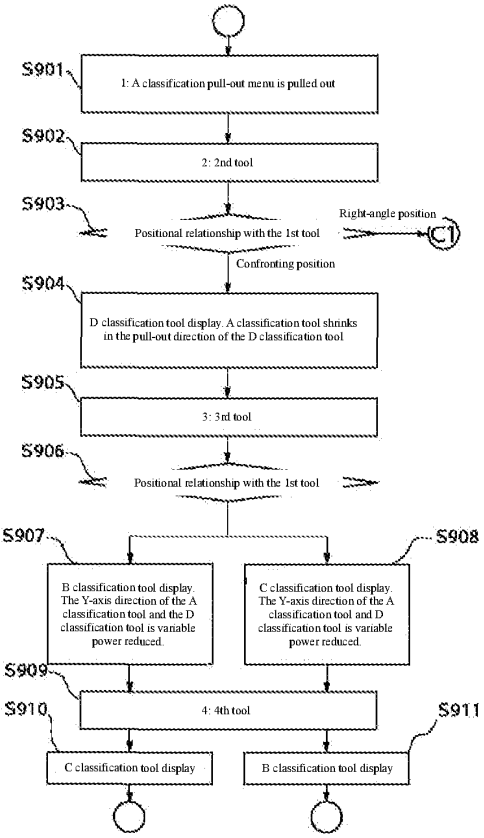

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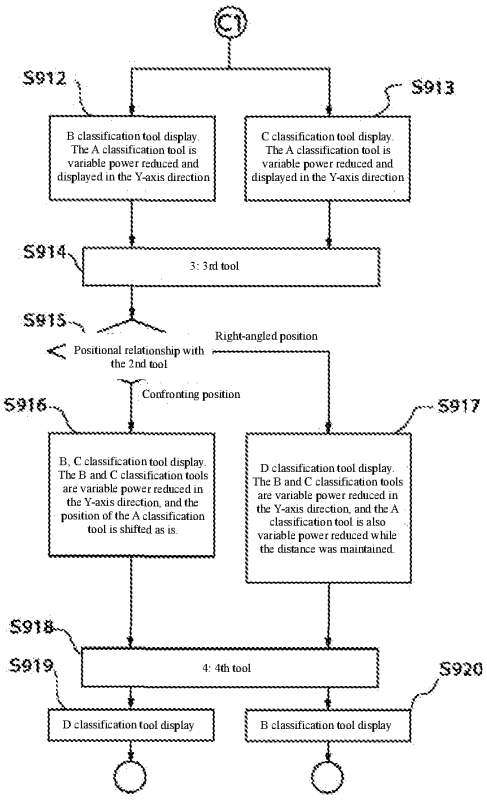

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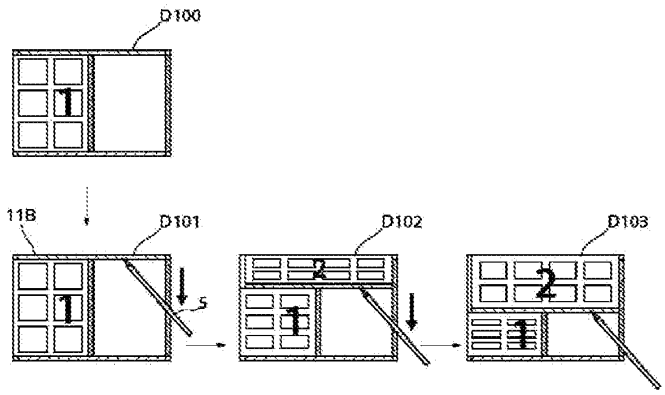

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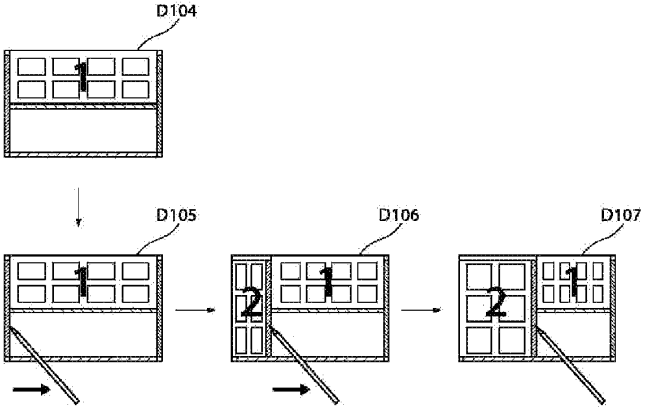

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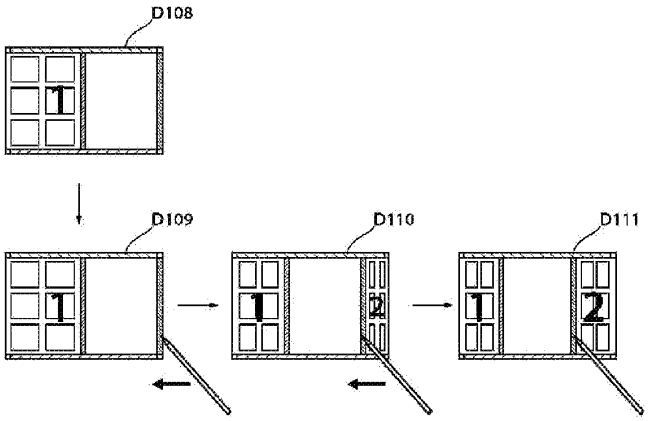

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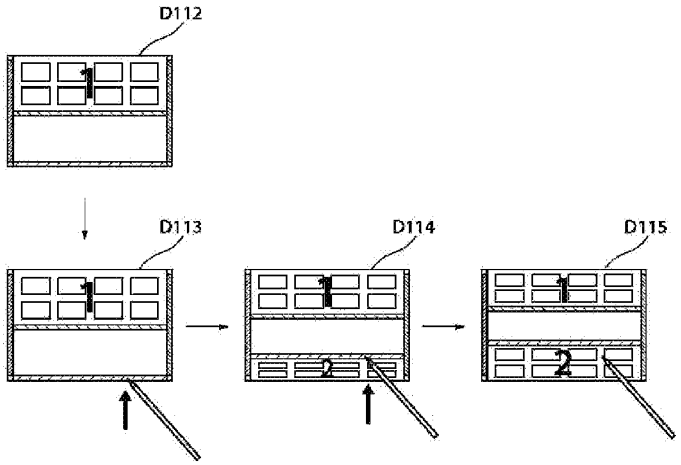

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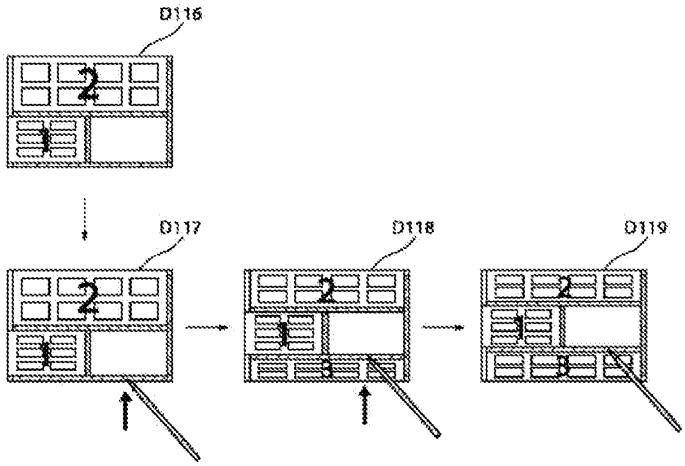

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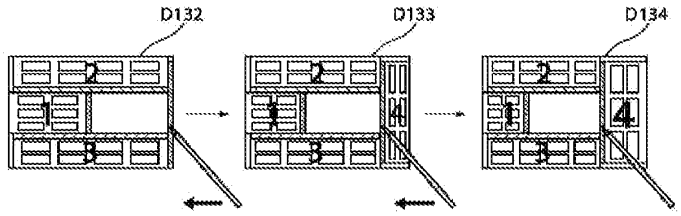

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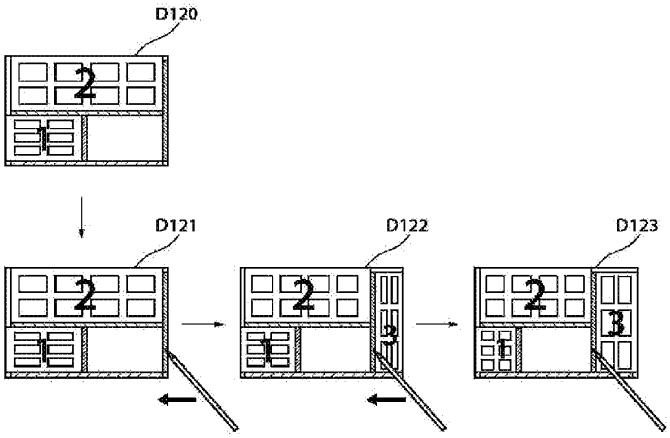

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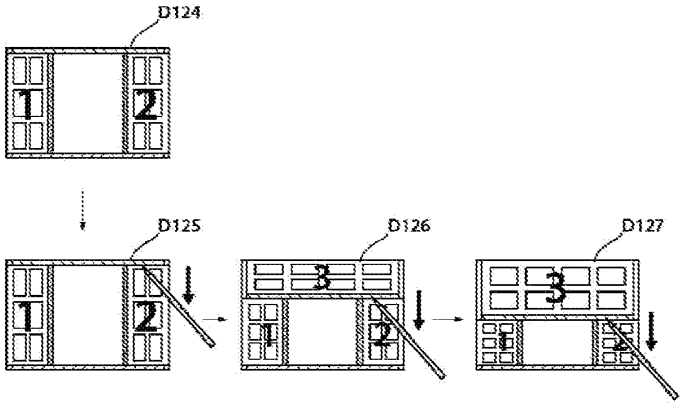

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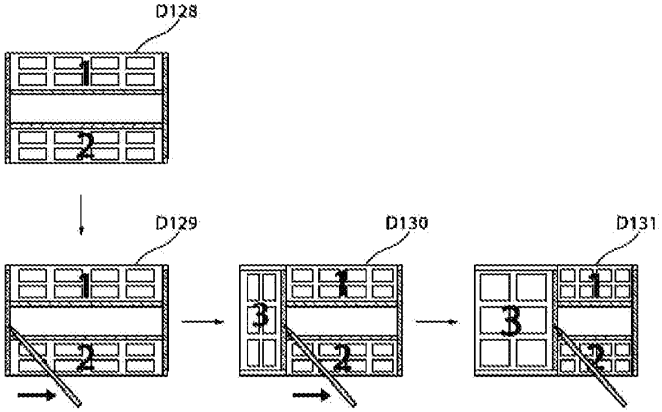

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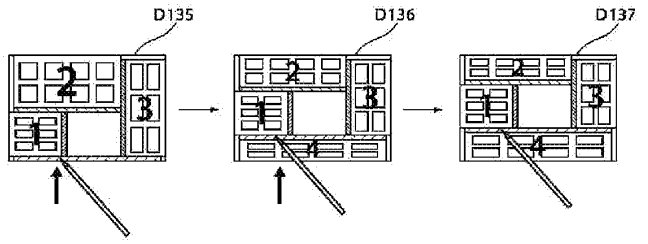

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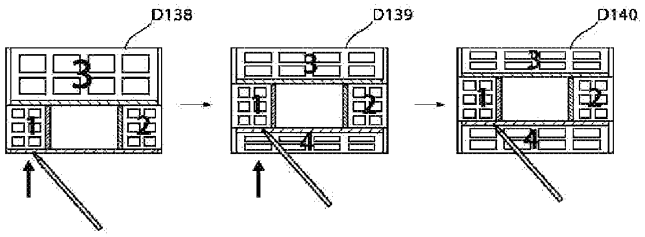

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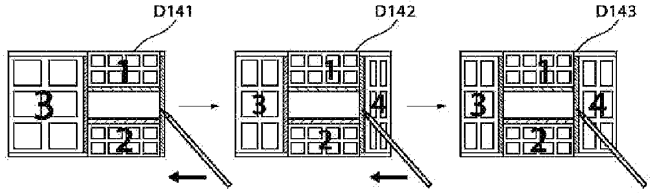

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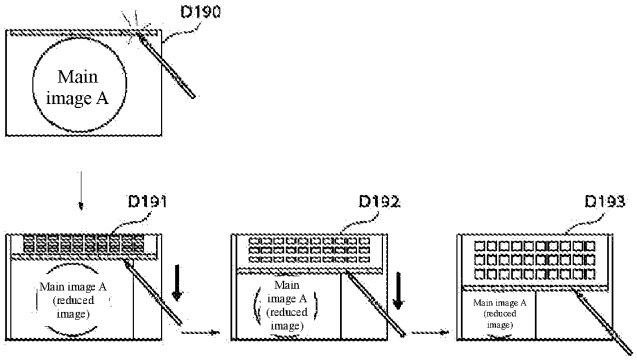

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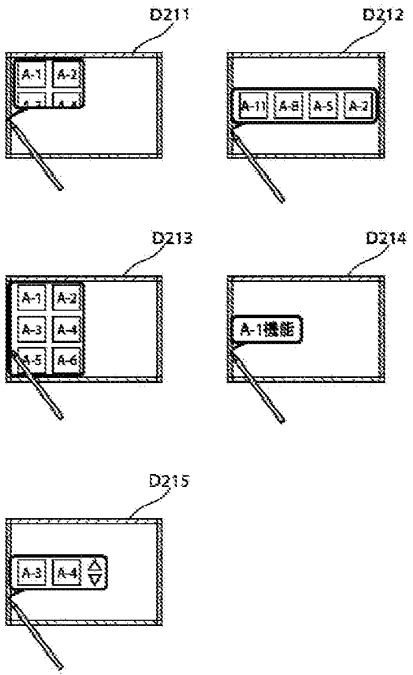

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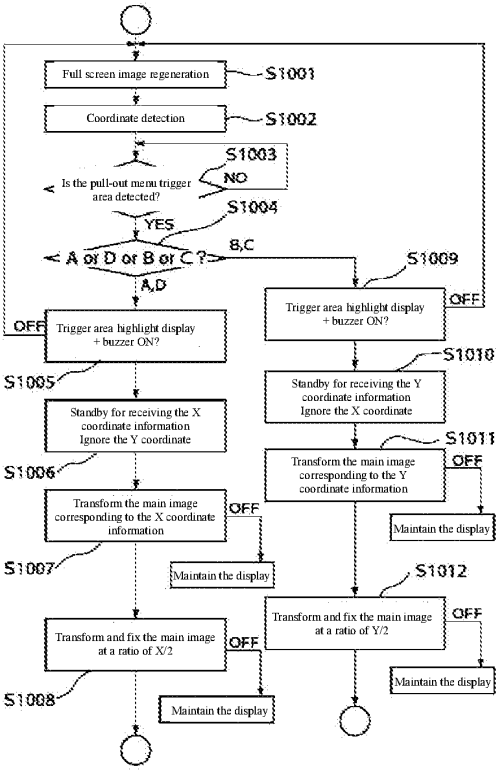

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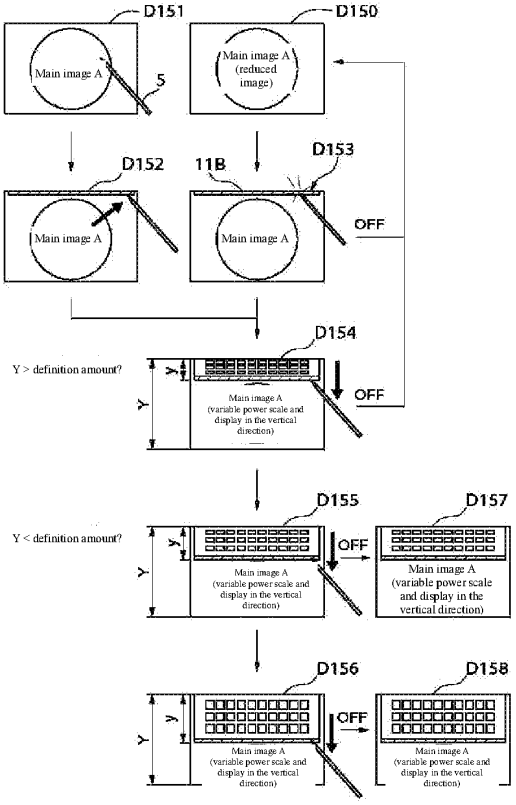

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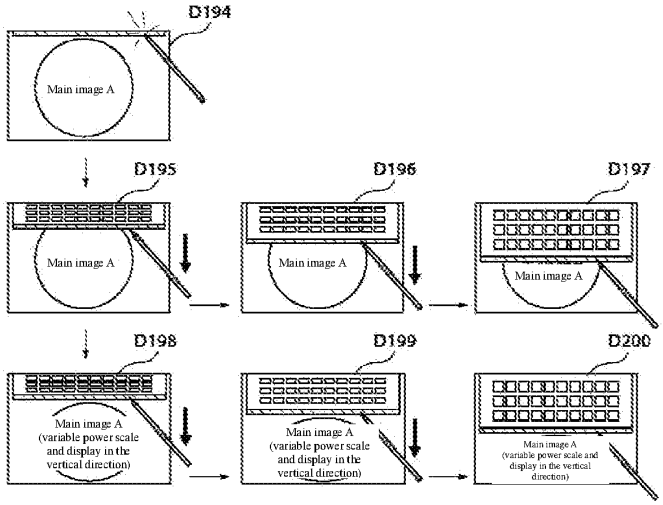

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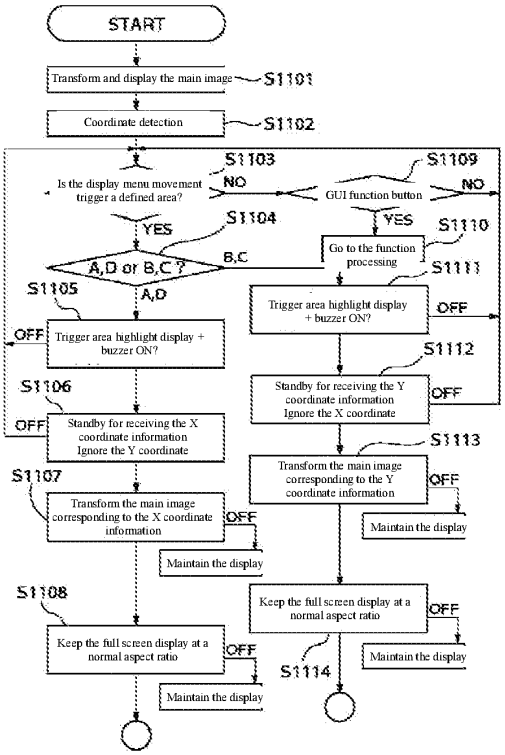

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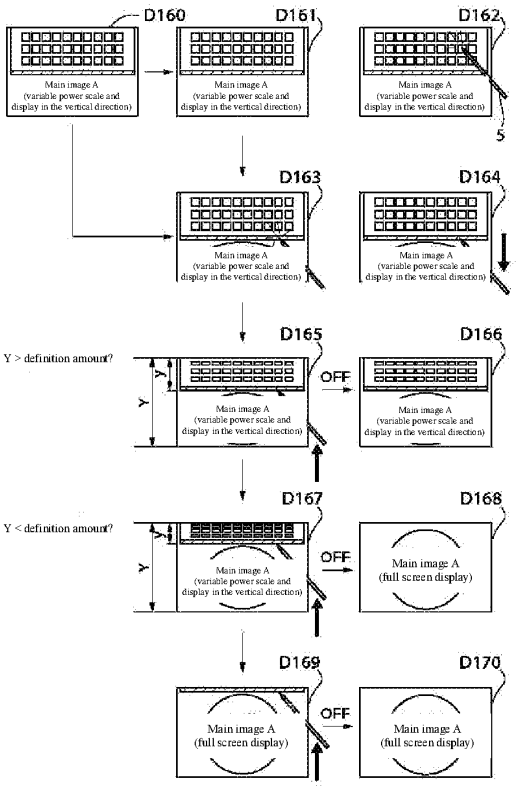

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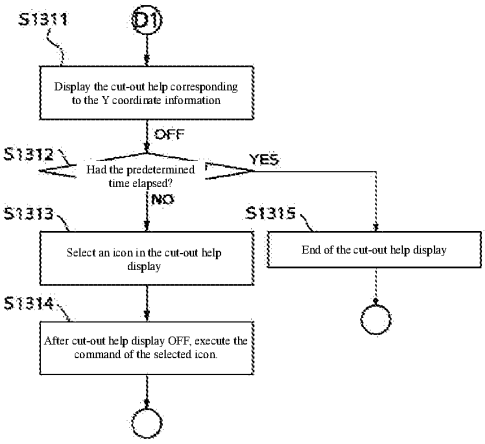

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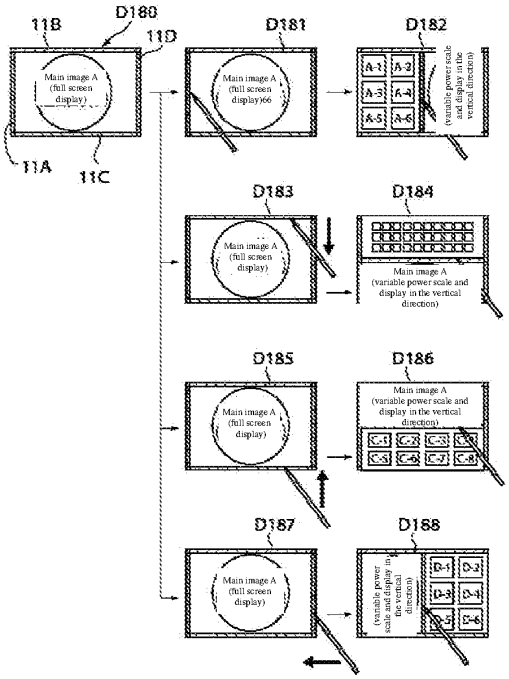

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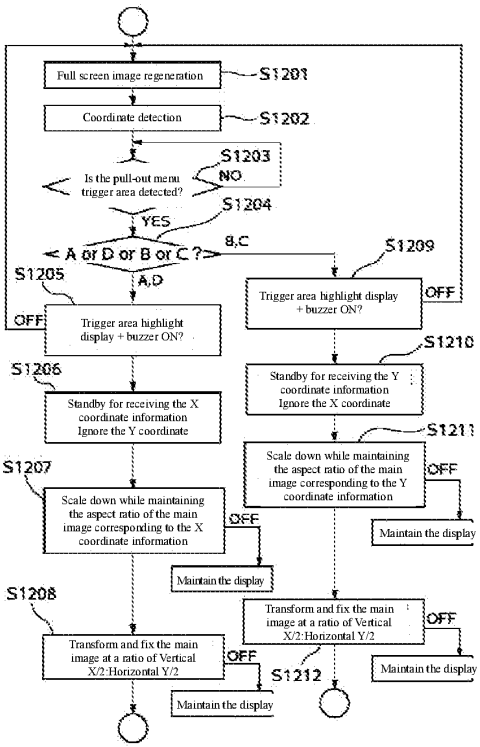

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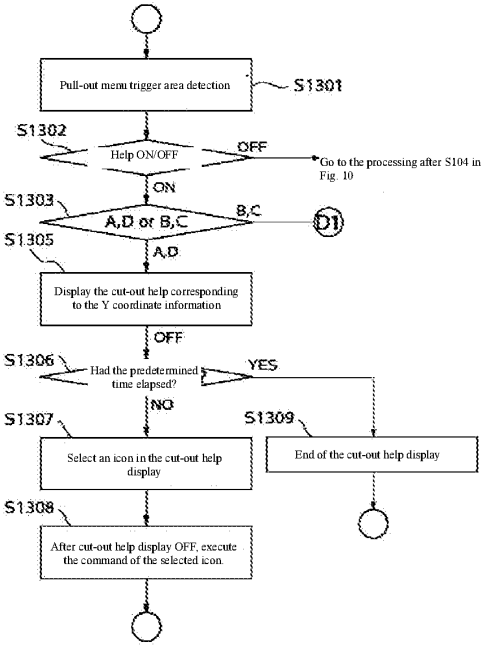

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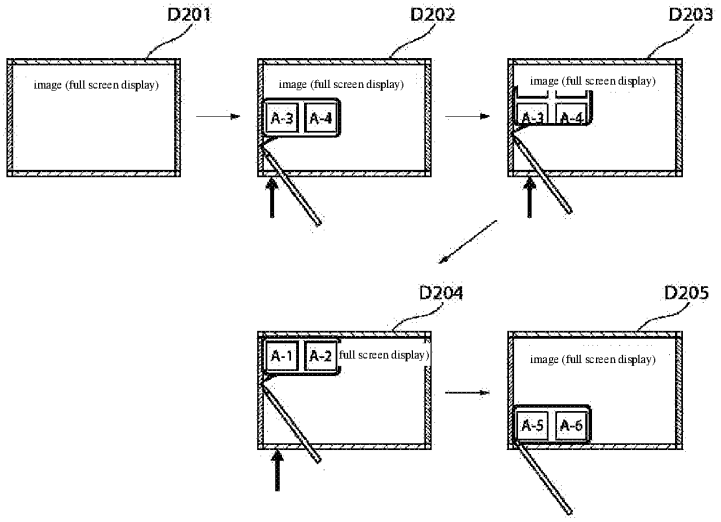

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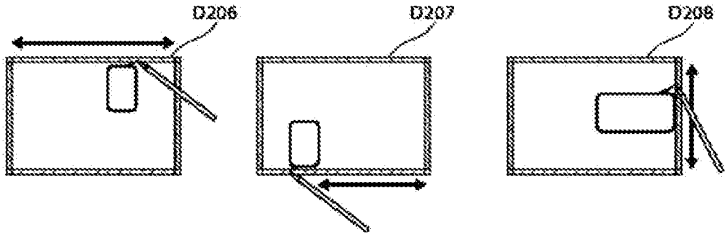

Continued from front page:

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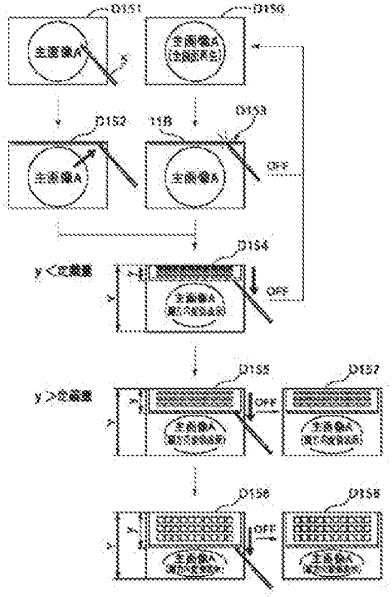
最終頁に続く

(54)【発明の名称】　情報処理装置、機能一覧表表示方法、及び記憶媒体

(57)【要約】
【課題】　小さな画像表示部にメニューと主画像とを同時に表示しても画像作業に支障をきたさないようにする。
【解決手段】　入力デバイス０５によって所定領域１１Ｂが座標指定され（Ｄ１５３）、引き続き、入力デバイス０５によって座標指定が継続されるとともに、該指定された座標が画像表示部のほぼ中央方向に変化したとき（Ｄ１５４～Ｄ１５６）、所定領域１１Ｂに対応するメニューを、前記指定座標の変化量に応じて画像表示部に表示する。同時に、前記メニューが表示される直前に画像表示部に表示されていた主画像Ａを、前記メニューの表示量に応じて変倍縮小して画像表示部に表示する（Ｄ１５４～Ｄ１５６）。



【特許請求の範囲】
【請求項１】　筐体を成す枠体で囲まれた画像表示部と、該画像表示部における画面上の座標位置を指定する座標指定手段とを備えた情報処理装置において、
前記枠体の近傍に設けられた前記画像表示部上の複数の所定領域と、
前記複数の所定領域にそれぞれ対応して設定された、各々が複数の機能項目を含む複数の機能一覧表と、
前記座標指定手段によって前記複数の所定領域のいずれかが座標指定され、引き続き、前記座標指定手段によって座標指定が継続されるとともに、該指定された座標が前記画像表示部のほぼ中央方向に変化したとき、前記座標指定された所定領域に対応する機能一覧表を、前記指定座標の変化量に応じて前記画像表示部に表示する機能一覧表表示手段と、
前記機能一覧表表示手段によって機能一覧表が表示される直前に前記画像表示部に表示されていた主画像を、前記機能一覧表表示手段によって表示された機能一覧表の表示量に応じて変倍縮小して前記画像表示部に表示する主画像表示手段とを有することを特徴とする情報処理装置。
【請求項２】　前記枠体は４角形を成し、
前記主画像表示手段は、前記画像表示部の画面において前記機能一覧表表示手段によって機能一覧表が表示された場合に残る表示領域の縦横比に合わせて、前記直前の主画像の形状を変倍縮小することを特徴とする請求項１記載の情報処理装置。
【請求項３】　前記主画像表示手段は、前記機能一覧表表示手段によって表示された機能一覧表が前記枠体の縦方向に引き出されて表示される場合には、前記直前の主画像の形状を前記縦方向に変倍縮小し、一方、前記機能一覧表表示手段によって表示された機能一覧表が前記枠体の横方向に引き出されて表示される場合には、前記直前の主画像の形状を前記横方向に変倍縮小することを特徴とする請求項２記載の情報処理装置。
【請求項４】　前記機能一覧表表示手段によって表示された機能一覧表を基にユーザーが機能の選択を行い、該選択された機能が実行されることにより、前記主画像表示手段によって表示された主画像に対して編集処理が行われることを特徴とする請求項１乃至請求項３のいずれかに記載の情報処理装置。
【請求項５】　前記座標指定手段は前記画像表示部の画面上に接触する接触子を含み、
前記複数の所定領域は、前記接触子が前記画像表示部の画面上を移動して前記枠体に当接したときに前記接触子が前記画像表示部の画面上で位置する領域を含むことを特徴とする請求項１乃至請求項４のいずれかに記載の情報処理装置。
【請求項６】　前記枠体は４角形を成し、
前記複数の所定領域は前記枠体の４辺近傍に位置することを特徴とする請求項５記載の情報処理装置。
【請求項７】　前記枠体は４角形を成し、
前記複数の所定領域は前記枠体の４角近傍に位置することを特徴とする請求項５または請求項６記載の情報処理装置。
【請求項８】　前記情報処理装置は携帯型情報処理端末であることを特徴とする請求項１乃至請求項７のいずれかに記載の情報処理装置。
【請求項９】　前記情報処理装置が備える複数の情報処理機能を表す複数の機能項目が、所定の分類基準に応じて予め分類されて複数のグループを形成し、各グループが前記複数の機能一覧表の各々に対応することを特徴とする請求項１乃至請求項８のいずれかに記載の情報処理装置。
【請求項１０】　前記分類基準は機能の使用頻度であることを特徴とする請求項９記載の情報処理装置。
【請求項１１】　前記機能一覧表表示手段は、前記指定座標の変化量から所定方向の変化量成分を抽出し、該抽出された変化量成分に応じた引き出し量だけ、前記座標指定された所定領域に対応する機能一覧表の画像を前記所定方向へ引き出して前記画像表示部に表示することを特徴とする請求項１乃至請求項１０のいずれかに記載の情報処理装置。
【請求項１２】　前記機能一覧表表示手段は、前記座標指定手段による座標指定が解除されたとき、前記抽出された変化量成分が所定値よりも大きいならば、前記引き出し量だけの前記機能一覧表の引き出し表示を維持することを特徴とする請求項１１記載の情報処理装置。
【請求項１３】　前記機能一覧表表示手段は、前記座標指定手段による座標指定が解除されたとき、前記抽出された変化量成分が前記所定値以下であれば、前記機能一覧表の引き出し表示を停止することを特徴とする請求項１１または請求項１２記載の情報処理装置。
【請求項１４】　前記機能一覧表表示手段は、前記座標指定された所定領域に対応する機能一覧表において該機能一覧表を構成する全部の機能項目を、前記指定座標の変化量に応じて縦横変倍縮小して前記画像表示部に表示することを特徴とする請求項１乃至請求項１３のいずれかに記載の情報処理装置。
【請求項１５】　前記機能一覧表表示手段は、前記座標指定された所定領域に対応する機能一覧表において該機能一覧表を構成する全部の機能項目を、前記指定座標のいずれの変化量においても前記画像表示部に縮小表示することを特徴とする請求項１乃至請求項１３のいずれかに記載の情報処理装置。
【請求項１６】　前記複数の機能一覧表の各々において、機能一覧表を構成する複数の機能項目に表示の優先度を予め設定し、
前記機能一覧表表示手段は、前記指定座標の変化量に応じて、前記機能一覧表における前記優先度の高い機能項

目を優先して前記画像表示部に表示することを特徴とする請求項１乃至請求項１３のいずれかに記載の情報処理装置。

【請求項１７】　段差を成す枠体で囲まれた画像表示部と、該画像表示部における画面上の座標位置を指定する座標指定手段と、前記枠体の近傍に設けられた前記画像表示部上の複数の所定領域と、前記複数の所定領域にそれぞれ対応して設定された、各々が複数の機能項目を含む複数の機能一覧表とを備えた情報処理装置に適用される機能一覧表表示方法において、

前記座標指定手段によって前記複数の所定領域のいずれかが座標指定され、引き続き、前記座標指定手段によって座標指定が継続されるとともに、該指定された座標が前記画像表示部のほぼ中央方向に変化したとき、前記座標指定された所定領域に対応する機能一覧表を、前記指定座標の変化量に応じて前記画像表示部に表示する機能一覧表表示ステップと、

前記機能一覧表表示ステップによって機能一覧表が表示される直前に前記画像表示部に表示されていた主画像を、前記機能一覧表表示ステップによって表示された機能一覧表の表示量に応じて変倍縮小して前記画像表示部に表示する主画像表示ステップとを有することを特徴とする機能一覧表表示方法。

【請求項１８】　前記枠体は４角形を成し、

前記主画像表示ステップは、前記画像表示部の画面において前記機能一覧表表示ステップによって機能一覧表が表示された場合に残る表示領域の縦横比に合わせて、前記直前の主画像の形状を変倍縮小することを特徴とする請求項１７記載の機能一覧表表示方法。

【請求項１９】　前記主画像表示ステップは、前記機能一覧表表示ステップによって表示された機能一覧表が前記枠体の縦方向に引き出されて表示される場合には、前記直前の主画像の形状を前記縦方向に変倍縮小し、一方、前記機能一覧表表示ステップによって表示された機能一覧表が前記枠体の横方向に引き出されて表示される場合には、前記直前の主画像の形状を前記横方向に変倍縮小することを特徴とする請求項１８記載の機能一覧表表示方法。

【請求項２０】　前記機能一覧表表示ステップによって表示された機能一覧表を基にユーザーが機能の選択を行い、該選択された機能が実行されることにより、前記主画像表示ステップによって表示された主画像に対して編集処理が行われることを特徴とする請求項１７乃至請求項１９のいずれかに記載の機能一覧表表示方法。

【請求項２１】　段差を成す枠体で囲まれた画像表示部と、該画像表示部における画面上の座標位置を指定する座標指定手段と、前記枠体の近傍に設けられた前記画像表示部上の複数の所定領域と、前記複数の所定領域にそれぞれ対応して設定された、各々が複数の機能項目を含む複数の機能一覧表とを備えた情報処理装置に適用される機能一覧表表示方法をプログラムとして記憶した、コンピュータにより読み出し可能な記憶媒体において、

前記機能一覧表表示方法が、

前記座標指定手段によって前記複数の所定領域のいずれかが座標指定され、引き続き、前記座標指定手段によって座標指定が継続されるとともに、該指定された座標が前記画像表示部のほぼ中央方向に変化したとき、前記座標指定された所定領域に対応する機能一覧表を、前記指定座標の変化量に応じて前記画像表示部に表示する機能一覧表表示ステップと、

前記機能一覧表表示ステップによって機能一覧表が表示される直前に前記画像表示部に表示されていた主画像を、前記機能一覧表表示ステップによって表示された機能一覧表の表示量に応じて変倍縮小して前記画像表示部に表示する主画像表示ステップとを有することを特徴とする記憶媒体。

【請求項２２】　前記枠体は４角形を成し、

前記主画像表示ステップは、前記画像表示部の画面において前記機能一覧表表示ステップによって機能一覧表が表示された場合に残る表示領域の縦横比に合わせて、前記直前の主画像の形状を変倍縮小することを特徴とする請求項２１記載の記憶媒体。

【請求項２３】　前記主画像表示ステップは、前記機能一覧表表示ステップによって表示された機能一覧表が前記枠体の縦方向に引き出されて表示される場合には、前記直前の主画像の形状を前記縦方向に変倍縮小し、一方、前記機能一覧表表示ステップによって表示された機能一覧表が前記枠体の横方向に引き出されて表示される場合には、前記直前の主画像の形状を前記横方向に変倍縮小することを特徴とする請求項２２記載の記憶媒体。

【請求項２４】　前記機能一覧表表示ステップによって表示された機能一覧表を基にユーザーが機能の選択を行い、該選択された機能が実行されることにより、前記主画像表示ステップによって表示された主画像に対して編集処理が行われることを特徴とする請求項２１乃至請求項２３のいずれかに記載の記憶媒体。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、情報処理装置，機能一覧表表示方法，及び記憶媒体に関し、特に、段差を成す枠体で囲まれた画像表示部と、該画像表示部における画面上の座標位置を指定する座標指定手段とを備えた情報処理装置，該情報処理装置に適用される機能一覧表表示方法，及び該機能一覧表表示方法を実行するプログラムを記憶した記憶媒体に関する。

【０００２】

【従来の技術】従来の手帳サイズの携帯型情報端末では、本体外装上のハードキーや液晶ディスプレイ上のタッチセンサー式のキーを操作して、携帯型情報端末で実行可能な機能を選択し、その機能を実行させるようにし

ている。

【０００３】また、大画面ディスプレイを搭載したパーソナルコンピュータ（以下「パソコン」とよぶ）では、ディスプレイの画面上に常に表示されたアイコンと呼ばれる、そのボタンの機能を象徴的に表すイラストを用いたボタンやソフトキーを、マウスカーソルやポインティングデバイスにより選択することにより、パソコンで実行可能な機能の一覧表（メニュー）を引き出し、その中から所望の機能を選択し、その機能を実行させるようにしている。こうして引き出された機能の一覧表をプルダウンメニューまたはプルアップメニューと呼んでいる。

【０００４】

【発明が解決しようとする課題】こうしたプルダウンメニューまたはプルアップメニューを、表示画面が狭い従来の携帯型情報端末において応用した場合、メニューが、本来表示されるべき主画像を覆ってしまう。このため、メニューをできるだけ小さく表示するとともに、メニューが主画像の一部を覆ってしまうことを容認する他ない。しかし、メニューを小さく表示すると見づらくなり、一方、メニューを大きく表示すると、主画像の多くの面積がメニューで覆われてしまうという不具合がある。この不具合は、メニューに含まれる機能項目数が多くなるにつれて増大する。

【０００５】ところで、メニューと主画像とを同時に表示して編集作業を行いたい場合があるが、こうした場合には、仮えメニューが主画像の全部を覆っていなくても、メニューが主画像の一部を隠しているだけで、隠れた部分に重要な情報が存在すれば、編集作業に支障をきたす。したがって、こうした場合には、主画像が一部でも覆われることは好ましくない。

【０００６】本発明はこのような問題点に鑑みてなされたものであって、小さな画像表示部にメニューと主画像とを同時に表示しても編集作業に支障をきたさないようにした情報処理装置、機能一覧表表示方法、及び記憶媒体を提供することを目的とする。

【０００７】

【課題を解決するための手段】上記目的を達成するために、請求項１記載の発明によれば、段差を成す枠体で囲まれた画像表示部と、該画像表示部における画面上の座標位置を指定する座標指定手段とを備えた情報処理装置において、前記枠体の近傍に設けられた前記画像表示部上の複数の所定領域と、前記複数の所定領域にそれぞれ対応して設定された、各々が複数の機能項目を含む複数の機能一覧表と、前記座標指定手段によって前記複数の所定領域のいずれかが座標指定され、引き続き、前記座標指定手段によって座標指定が継続されるとともに、該指定された座標が前記画像表示部のほぼ中央方向に変化したとき、前記座標指定された所定領域に対応する機能一覧表を、前記指定座標の変化量に応じて前記画像表示部に表示する機能一覧表表示手段と、前記機能一覧表表示手段によって機能一覧表が表示される直前に前記画像表示部に表示されていた主画像を、前記機能一覧表表示手段によって表示された機能一覧表の表示量に応じて変倍縮小して前記画像表示部に表示する主画像表示手段とを有することを特徴とする。

【０００８】また、請求項１７記載の発明によれば、段差を成す枠体で囲まれた画像表示部と、該画像表示部における画面上の座標位置を指定する座標指定手段と、前記枠体の近傍に設けられた前記画像表示部上の複数の所定領域と、前記複数の所定領域にそれぞれ対応して設定された、各々が複数の機能項目を含む複数の機能一覧表とを備えた情報処理装置に適用される機能一覧表表示方法において、前記座標指定手段によって前記複数の所定領域のいずれかが座標指定され、引き続き、前記座標指定手段によって座標指定が継続されるとともに、該指定された座標が前記画像表示部のほぼ中央方向に変化したとき、前記座標指定された所定領域に対応する機能一覧表を、前記指定座標の変化量に応じて前記画像表示部に表示する機能一覧表表示ステップと、前記機能一覧表表示ステップによって機能一覧表が表示される直前に前記画像表示部に表示されていた主画像を、前記機能一覧表表示ステップによって表示された機能一覧表の表示量に応じて変倍縮小して前記画像表示部に表示する主画像表示ステップとを有することを特徴とする。

【０００９】さらに、請求項２１記載の発明によれば、段差を成す枠体で囲まれた画像表示部と、該画像表示部における画面上の座標位置を指定する座標指定手段と、前記枠体の近傍に設けられた前記画像表示部上の複数の所定領域と、前記複数の所定領域にそれぞれ対応して設定された、各々が複数の機能項目を含む複数の機能一覧表とを備えた情報処理装置に適用される機能一覧表表示方法をプログラムとして記憶した、コンピュータにより読み出し可能な記憶媒体において、前記機能一覧表表示方法が、前記座標指定手段によって前記複数の所定領域のいずれかが座標指定され、引き続き、前記座標指定手段によって座標指定が継続されるとともに、該指定された座標が前記画像表示部のほぼ中央方向に変化したとき、前記座標指定された所定領域に対応する機能一覧表を、前記指定座標の変化量に応じて前記画像表示部に表示する機能一覧表表示ステップと、前記機能一覧表表示ステップによって機能一覧表が表示される直前に前記画像表示部に表示されていた主画像を、前記機能一覧表表示ステップによって表示された機能一覧表の表示量に応じて変倍縮小して前記画像表示部に表示する主画像表示ステップとを有することを特徴とする。

【００１０】

【発明の実施の形態】以下、本発明の実施の形態を、図面を参照して説明する。

【００１１】（第１の実施の形態）図１は、本発明に係る携帯型情報処理装置の第１の実施の形態の構成を示す

正面図であり、図２は、図１に示す携帯型情報処理装置の上面図であり、図３は、図１に示す携帯型情報処理装置の背面図であり、図４は、図３に示す携帯型情報処理装置におけるＡ－Ａ'横断面図である。

【００１２】携帯型情報処理装置０１は、フルカラー画像情報を高精細表示できる性能を備えた画像表示ディスプレイ０９を実装し、主にペン式の入力デバイス０５によって座標指示を受ける手帳サイズの携帯情報端末（ＰＤＡ）である。

【００１３】図１に示す正面側には、カメラ部０７と音データを収録するマイク０６とが配置されている。

【００１４】図２に示す上面側にはシャッタースイッチ０８が配置されている。シャッタースイッチ０８は２段階のスイッチで構成され、１段目のスイッチオンで撮影待機状態となり、画像表示ディスプレイ０９にファインダー画像情報が表示される。そして２段目のスイッチオンで撮影が行われ、画像を記録する。

【００１５】図３に示す背面側は、携帯型情報処理装置０１をユーザーが使用する際、主に操作が行われる側である。ペン式の入力デバイス０５により画像表示ディスプレイ０９上のタッチパネルセンサー１１がタッチされ、これによって座標が指示され、各種機能が選択される。１０はスピーカーである。

【００１６】図４の横断面図に示すように、タッチパネルセンサー１１は外装カバー部材０４に取り囲まれた構成となっており、入力デバイス０５をタッチパネルセンサー１１の上面に沿って移動させると外装カバー部材０４に突き当たるように、タッチパネルセンサー１１に対して外装カバー部材０４が段差となっている。

【００１７】図５はタッチパネルセンサー１１の構成を示す図である。

【００１８】タッチパネルセンサー１１には、イメージ表示用のエリア１１Ｅとメニュー表示トリガーエリア１１Ａ～１１Ｄとが設けられる。引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄは、タッチパネルセンサー１１が外装カバー部材０４に接する付近にそれぞれ位置する。これにより、入力デバイス０５をタッチパネルセンサー１１の上面に沿って移動させ、外装カバー部材０４に突き当たったとき、入力デバイス０５が引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに位置することになる。なお、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄの座標定義は、入力デバイス０５のペン先の形状などから決められ、入力デバイス０５が外装カバー部材０４に突き当てられた時にタッチパネルセンサー１１で検出される座標範囲に少し余裕幅を持たせて定義する。引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄの予め定義された各座標情報はＲＯＭ内に登録されており、入力デバイス０５による座標情報を検出した際、ＲＯＭ内に登録された座標情報と照合し、入力デバイス０５による座標情報が引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄ内に存在すると判定された場合に、後述する引き出しメニューの表示起動の待機状態となり、さらに入力デバイス０５がタッチパネルセンサー１１の中央へ向けてスクロールされたことが検出されると、引き出しメニューを表示することになる。

【００１９】図６は、画像表示ディスプレイ０９に表示される引き出しメニューを説明する図である。

【００２０】画像表示ディスプレイ０９に、携帯型情報処理装置０１の持つ多数の処理機能の名称をメニュー表示するために予め、それらの多数の処理機能を大きく４つのカテゴリーに分類し、Ａ～Ｄ分類メニューに割り当てる。そして、入力デバイス０５によって引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかが選択されたときに、Ａ～Ｄ分類メニューのうち対応のものを「引き出しメニュー」として、画像表示ディスプレイ０９に表示するようにする。

【００２１】引き出しメニュー内にレイアウトされる内容は、携帯型情報処理装置０１の仕様や商品コンセプトに応じて、アイコンやテキスト表示をベースとしたボタンの一覧だったり、アイコンと文字の併記等の例が想定される。

【００２２】Ａ～Ｄ分類メニューに収納される具体的な機能例として、Ａ分類メニューには、過去に撮影され保存されている画像の中から所望の画像を検索する検索機能をまとめ、Ｂ分類メニューには、画像に対して文字を付加する文字入力機能をまとめ、Ｃ分類メニューには、画像に対して特殊効果を付加する加工・編集機能をまとめる。なお、Ｂ分類メニューは引き出しメニューとして画像表示ディスプレイ０９に表示されたまま、各種機能処理が行われるので、Ｂ分類メニューが、図７を参照して後述するように画像表示ディスプレイ０９の上部に位置することで、画像に書き込みを行ったり、機能を選択する際に、入力デバイス０５や手が画像を隠すことが防止される。

【００２３】Ｄ分類メニューには、画像処理が行われた画像データの保存先を指定する機能、例えば保存・整理機能などをまとめる。

【００２４】図７は、Ｂ分類メニューが引き出しメニューとして表示された画像表示ディスプレイ０９の画面を示す図である。

【００２５】引き出しメニュー表示トリガーエリア１１Ｂを入力デバイス０５で座標指示したまま、画面中央へ向けて入力デバイス０５をスライドさせると、Ｂ分類メニューが引き出しメニュー１１ｂとして表示される。引き出しメニュー１１ｂには、各機能に対応するアイコンや文字による機能ボタンがレイアウトされる。

【００２６】以上のように、ユーザーは必要な機能に応じて、入力デバイス０５を用いて引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかを指定し、ス

クロールすることによって、必要な機能を含むメニューを表示することができる。ユーザー設引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄを繰り返し使っているうちに、各エリアの大分類カテゴリーを変えることができる。

【００２７】なお、図７で示すアイコンやボタンの数は、画面の大きさによって設定されるものであり、図７に示す数に限定されるものではない。また、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄは、画像表示ディスプレイ０９に常時表示しておく設定と、通常は表示せずに、入力デバイス０５により画像表示ディスプレイ０９の所定エリアを指定した時のみ表示する設定とを使い分けるようにしてもよい。更に、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄは、互いにパターンを変えたり、色を変えたりして、互いに区別をつけるようにしてもよい。

【００２８】なお、以降の説明では、図５に示す通り、画像表示ディスプレイ０９の画面横方向をＸ軸、上下方向をＹ軸とし、引き出しメニューの引き出し量をそれぞれｘ、ｙとする。

【００２９】図８は、携帯型情報処理装置０１のシステム構成を示すブロック図である。

【００３０】前述のように、画像表示ディスプレイ０９の画面上のソフトボタンを入力デバイス０５により触れることによって、タッチパネルセンサー１１上の座標が検出され、検出された座標情報に従い、ＣＰＵ２１が、ＲＯＭ２５に格納されたオペレーションシステムに基づき各種機能を実行する。

【００３１】また、カメラ部０７のＣＣＤ２２から入力された画像やマイク０６から入力された音声情報を、シャッタースイッチ０８によりフラッシュメモリー２４に記憶し、ＲＯＭ２５に格納されたプログラムの各種処理手順に従ってＲＡＭ２３に収納する。収納された情報は後に画像表示ディスプレイ０９やスピーカー１０で再生され、入力デバイス０５接触によるタッチパネルセンサー１１上の座標位置から指示するＧＵＩ操作による複数の検索手段を経て、必要とする画像や音声を任意に再生することが可能である。

【００３２】再生した画像情報に対して、ＲＡＭ２３を使って任意に画像を書き足したり、ワープロ機能により文字を追加したりするなど、多様な方法により画像情報を編集・加工する。

【００３３】図９は、携帯型情報処理装置０１における全体の動作手順の概要を示すフローチャートである。

【００３４】メイン電源が起動されると（Ｓ１１でＹＥＳ）、過去に撮影された写真が再生されて、アルバムのように一覧できる表示状態になる（Ｓ１２）。

【００３５】この状態において、ボタン（ハードキー）操作があり（Ｓ１３）、それが電源スイッチの操作であれば電源が切られる。それがシャッタースイッチ０８の１段目のスイッチＳＷ１の操作（半押し）であれば（Ｓ１４）、ファインダーへの画像表示を行い（Ｓ１５）、シャッタースイッチ０８の２段目のスイッチＳＷ２の操作（全押し）があれば（Ｓ１６）、撮影画像をフラッシュメモリー２４に格納する（Ｓ１７）。

【００３６】ステップＳ１５若しくはステップＳ１７の処理、または、ステップＳ１２の処理の後、入力デバイス０５によってＧＵＩ機能ボタンが選択操作された場合（Ｓ１８）、その選択された機能に応じて、検索（Ｓ１９）、文字入力（Ｓ２０）、加工・編集（Ｓ２１）、保存・整理（Ｓ２２）などを実行する。

【００３７】本発明は、各種ＧＵＩ機能ボタンを収納したメニューの表示に関する。

【００３８】図１０及び図１１は、引き出しメニューを表示する際の処理手順を示すフローチャートであり、図１２は、引き出しメニューを表示する処理過程における表示画面（特に、３分類メニューを選択して表示する場合の画面）を示す図である。以下、図１２を適宜参照しながら、図１０及び図１１に示すステップに沿って説明する。

【００３９】まず、引き出しメニューを表示する際の処理手順を概略説明すると、あらかじめタッチパネルセンサー１１上の引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄの定義座標をＲＯＭ２５に登録しておく。それらのエリアを入力デバイス０５によって接触されたことが検出された場合、検出座標データをＲＯＭ２５に登録された定義座標と照合して、操作対象となった引き出しメニュー表示トリガーエリアに対応する引き出しメニューが選択され、表示待機状態になる。画像表示ディスプレイ０９の中央部へ向けた入力デバイス０５のドラッグによって、検出座標が連続的に更新されると、それに伴って引き出しメニューがドラッグされた方向に引き出される。検出情報がＯＦＦ（タッチパネルセンサー１１に対する入力デバイス０５の接触がなくなり、座標が検出されなくなる）されると、引き出しメニューはドラッグされた位置で表示を維続する。ここで、「ＯＦＦ」とは、タッチパネルセンサー１１に対する入力デバイス０５の接触がなくなり、座標が検出されなくなることを指す。以下の説明においても「ＯＦＦ」を同じ意味において使用する。

【００４０】まず、ステップＳ１０１で、画像表示ディスプレイ０９の全画面を使って写真画像などを表示する。図１２の画面Ｄ１はこのときの画像表示ディスプレイ０９の画面を示す。次に、ステップＳ１０２で、入力デバイス０５によって接触されたタッチパネルセンサー１１上の位置座標を検出する。

【００４１】ステップＳ１０３で、ステップＳ１０２で検出された座標値が、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに含まれるか否かを判断する。含まれない場合、含まれるまで待機する。なお、

図１２の画面Ｄ３，Ｄ４のように，検出座標値が，引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄ以外のエリアに存在し，ＯＦＦされずに連続的に更新され，その後に引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに移動した場合，引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに到達する前の座標情報は無効扱いとなる。また，図１２の画面Ｄ２のように，検出座標値が，引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄの１つに含まれても，ＯＦＦされた場合はステップＳ１０１へ戻る。

【００４２】ステップＳ１０４では，検出座標値が引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに含まれるかを判断し，引き出しメニュー表示トリガーエリア１１Ａ，１１Ｄに含まれるならばステップＳ１０５へ，引き出しメニュー表示トリガーエリア１１Ｂ，１１Ｃに含まれるならばステップＳ１１２へ進む。

【００４３】ステップＳ１０５，Ｓ１１２では，選択された引き出しメニュー表示トリガーエリアをハイライト表示し，同時にキー受け付け音としてピピッなどの電子音を発生させ，選択されたことをユーザーに知らせる。なお，この間にＯＦＦされた場合はステップＳ１０１へ戻る。

【００４４】こうして，ユーザーは広い引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄ内を入力デバイス０５で大雑把に操作するだけで，目的のメニューを表示させることが可能となる。

【００４５】次に，例えば，入力デバイス０５が引き出しメニュー表示トリガーエリア１１Ｂに接触したまま，入力デバイス０５をタッチパネルセンサー１１に接したまま離さないで，画像表示ディスプレイ０９の中央部へ向けてスライドさせると，図１２の画面Ｄ５～Ｄ８のように，入力デバイス０５の動きに伴ってＢ分類メニューが引き出される。これを，図１０及び図１１のステップＳ１１３～Ｓ１１８に沿って以下に説明する。

【００４６】まず，ステップＳ１１３において，入力デバイス０５がメニュー表示トリガーエリア１１Ｂ，１１Ｃに接触することによって検出される座標値のＹ座標値だけを監視する。ここでは，引き出しメニュー表示トリガーエリア１１Ｂ，Ｃが選択されているので，Ｘ軸情報は無視され，Ｙ軸情報のみ，処理に反映される。ユーザーは入力デバイス０５を正確に垂直方向にドラッグすることを意識しなくても，大雑把に下方向へドラッグすることでその意図を反映させることができる。一般的に，利き手が左右のどちらかによってドラッグする方向が垂直方向から若干ずれるが，例えば，右利きユーザーの場合は垂直方向よりやや左寄り，つまり右上から左下へのベクトルでドラッグする。また，左利きはその逆で左上から右下へのベクトルでドラッグする。しかし，Ｙ軸情報の変化値のみ反映させる方法をとることによって，以上のような癖に影響されずにユーザーの意図を反映させることが可能となる。

【００４７】ステップＳ１１４では，入力デバイス０５によるＹ座標値に応じて引き出しメニューの表示量を更新する。なお，引き出しメニューの最も引き出し可能な最大引き出し量は，仕様に応じての定義を変えることはできるが，本実施の形態では，表示領域の中心位置までと定義する。

【００４８】なお，メニュー引き出し量ｙが所定の定義量に満たない間に，図１２の画面Ｄ５に示すようにＯＦＦになった場合は，メニュー引き出しの処理は途中でキャンセルされ，ステップＳ１０１に戻る（Ｓ１１５）。また，メニュー引き出し量ｙが所定の定義量を越えた後で，図１２の画面Ｄ６に示すようにＯＦＦになった場合は，その位置で引き出しメニューの引き出しは停止され，そのまま使用できる（Ｓ１１６）。さらに，メニュー引き出し量ｙが最大引き出し量を越えた場合，引き出しメニューの引き出しを停止し，最大引き出し量を維持し（Ｓ１１７），検出座標値を無視する（Ｓ１１８）。

【００４９】なお，上記実施の形態とは違い，図１２の画面Ｄ２，Ｄ５，Ｄ６のような処理経過における検出座標値の変化速度を検出し，変化速度が高速である場合は，図１２の画面Ｄ６の処理でＯＦＦされても，図１２の画面Ｄ８の処理に移らず，図１２の画面Ｄ９の処理に移るようにしてもよい。

【００５０】入力デバイス０５がメニュー表示トリガーエリア１１Ａ，１１Ｄを選択している場合，同様に，ステップＳ１０６において，入力デバイス０５がメニュー表示トリガーエリア１１Ａ，１１ｄに接触することによって検出される座標値のＸ座標値だけを監視する。ここでは，Ｙ軸情報は無視され，Ｘ軸情報のみ，処理に反映される。

【００５１】ステップＳ１０７では，入力デバイス０５によるＸ座標値に応じて引き出しメニューの表示量を更新する。

【００５２】なお，メニュー引き出し量ｘが所定の定義量に満たない間にＯＦＦになった場合は，メニュー引き出しの処理は途中でキャンセルされ，ステップＳ１０１に戻る（Ｓ１０８）。また，メニュー引き出し量ｘが所定の定義量を越えた後でＯＦＦになった場合は，その位置で引き出しメニューの引き出しは停止され，そのまま使用できる（Ｓ１０９）。さらに，メニュー引き出し量ｘが最大引き出し量を越えた場合，引き出しメニューの引き出しを停止し，最大引き出し量を維持し（Ｓ１１０），検出座標値を無視する（Ｓ１１１）。

【００５３】図１３及び図１４は，表示された引き出しメニューを閉じるための処理手順を示すフローチャートであり，図１５は，引き出しメニューを閉じる処理の過程における表示画面（特に，Ｂ分類メニューが選択されていた場合の画面）を示す図である。以下，図１５を適宜参照しながら，図１３及び図１４に示すステップに沿

って説明する。

【００５４】まず、図１５の画面Ｄ１１のように、引き出しメニューが最大引き出し量で表示されているとする（Ｓ２０１）。次に、ステップＳ２０２で、入力デバイス０５によって接触されたタッチパネルセンサー１１上の位置座標を検出する。

【００５５】ステップＳ２０３で、ステップＳ１０２で検出された座標値が、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに含まれるか否かを判断する。含まれない場合、図１５の画面Ｄ１３に示すように、入力デバイス０５によって引き出しメニュー内の特定機能ボタン（ＧＵＩ機能ボタン）が選択されたか否かを判断し（Ｓ２１０）、選択されていれば、その機能が処理される（Ｓ２１１）。選択されていなければ、ステップｓ２０３へ戻って、受け付け待機状態が持続される。なお、図１５の画面Ｄ１２，Ｄ１４に示すように、検出座標値のみ変化し、引き出しメニュー表示トリガーエリアに入った場合は、それまでの検出座標値は無視し、そこから待機状態になる。これは大雑把な操作でも確実にユーザーの意図を受け付ける為の方法である。

【００５６】ステップＳ２０３で、検出された座標値が引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに含まれると判定された場（図１５の画面Ｄ１４）、ステップＳ２０４で、検出座標値が引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに含まれるかを判断し、引き出しメニュー表示トリガーエリア１１Ａ，１１Ｄに含まれるならばステップＳ２０５へ、引き出しメニュー表示トリガーエリア１１Ｂ，１１Ｃに含まれるならばステップＳ２１２へ進む。

【００５７】ステップＳ２０５，Ｓ２１２では，選択された引き出しメニュー表示トリガーエリアをハイライト表示し、同時にキー受け付け音としてピピッなどの電子音を発生させ、選択されたことをユーザーに知らせる。なお、この間にＯＦＦされた場合はステップＳ２０３へ戻る。

【００５８】つぎに、入力デバイス０５がメニュー表示トリガーエリア１１Ｂ，１１Ｃを選択している場合、ステップＳ２１３において，入力デバイス０５がメニュー表示トリガーエリア１１Ｂ，１１Ｃに接触することによって検出される座標値のＹ座標値だけを監視する。Ｘ軸情報は無視し、Ｙ軸情報のみ、処理に反映する。なお、図１５の画面Ｄ１５に示すように、入力デバイス０５が下方向へドラッグされてメニュー引き出し量ｙが増加している場合は無視する。

【００５９】ステップＳ２１４では、入力デバイス０５によるＹ座標値に応じて引き出しメニューの表示量を更新する。

【００６０】なお、メニュー引き出し量ｙが所定の定義量を越えている間に，図１５の画面Ｄ１６に示すようにＯＦＦになった場合は，図１５の画面Ｄ１７に示すように、その表示状態が維持される（Ｓ２１５）、また、メニュー引き出し量ｙが所定の定義量よりも小さくなった後で、図１５の画面Ｄ１８に示すようにＯＦＦになった場合は、ユーザーが引き出しメニューの表示を消す意図をもっていると見なし、図１５の画面Ｄ１９に示すように、引き出しメニュー表示を止める（Ｓ２１６）。

【００６１】一方，ステップＳ２０４で，入力デバイス０５がメニュー表示トリガーエリア１１Ａ，１１Ｄを選択していると判断された場合，ステップＳ２０６において，入力デバイス０５が引き出しメニュー表示トリガーエリア１１Ａ，１１Ｄに接触することによって検出される座標値のＸ座標値だけを監視する。Ｙ軸情報は無視し、Ｘ軸情報のみ，処理に反映する。

【００６２】ステップＳ２０７では，入力デバイス０５によるＸ座標値に応じて引き出しメニューの表示量を更新する。

【００６３】なお，メニュー引き出し量ｘが所定の定義量を越えている間に、ＯＦＦになった場合は、その表示状態が維持される（Ｓ２０８）。また、メニュー引き出し量ｘが所定の定義量よりも小さくなった後で、ＯＦＦになった場合は、ユーザーが引き出しメニューの表示を消す意図をもっていると見なし、引き出しメニュー表示を止める（Ｓ２０９）。

【００６４】なお，上記実施の形態では，ユーザーが引き出しメニューをドラッグして引き出しメニューの表示を停止するようにしているが、これに代わって、それをクリックするのみで引き出しメニューの表示を停止できる閉じる機能を有したボタンを設けてもよい。

【００６５】さらに、引き出しメニューの表示を起動する場合と同様に、図１５の画面Ｄ１２，Ｄ１４，Ｄ１６のような処理経過における検出座標値の変化速度を検出し、変化速度が高速である場合は、図１５の画面Ｄ１６の処理でＯＦＦされても、図１５の画面Ｄ１７の処理に移らず，図１５の画面Ｄ１９の処理に移るようにしてもよい。

【００６６】図１６は、引き出しメニューの大きさを引き出し量に応じて決定する処理の手順を示すフローチャートである。また、図１７は、引き出し量に応じて表示されるＡ分類メニューの画面を示す図であり、図１８は、引き出し量に応じて表示されるＢ分類メニューの画面を示す図である。図１７及び図１８では、分かりやすくするために、四辺上に引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄを示すが、必ずしも４つのエリアが表示されるものとは限らない。以下、図１７及び図１８を適宜参照しながら、図１６に示すステップに沿って説明する。

【００６７】図１６においてステップＳ３０１，Ｓ３０２，Ｓ３０３，Ｓ３０７は、図１０に示すステップＳ１０３，Ｓ１０４，Ｓ１０６，Ｓ１１２とそれぞれ同一の内容となっているので，それらの説明を省略する。

【００６８】Ａ分類メニューが選択されている場合、ステップＳ３０４において、引き出しメニューの大きさを、最大引き出し量に対するＸ座標の位置（引き出し量ｘ）の比率で横方向に変倍縮小して表示する。図１７の画面Ｄ３４は最大引き出し量位置におけるＡ分類メニューを示し、例えば、図１７の画面Ｄ３３における引き出し量ｘが、図１７の画面Ｄ３４における最大引き出し量に対して３／４であるとした場合、図１７の画面Ｄ３３におけるＡ分類メニューは、Ｙ方向は図１７の画面Ｄ３４と同じだが、Ｘ方向では、図１７の画面Ｄ３４と比べ、３／４に縮小した画像として表示される。ボタンの表示領域もそれに伴って横方向に縮小され，また、Ａ分類メニューの中身の表示スタイルが，引き出し量ｘに応じてアイコンのみだったり、アイコンと文字の併記だったりと、変化する。

【００６９】引き出し量ｘが更新されれば，表示比率が更新され（Ｓ３０５），最大引き出し量位置に至る途中の位置で、入力デバイス０５をタッチパネルセンサー１１から離すとその位置で引き出しメニュー表示が保持される。そして、引き出し量ｘが最大引き出し量を越えると、引き出しメニュー表示が最大引き出し量位置で保持される（Ｓ３０６）。

【００７０】次に、Ｂ分類メニューが選択されている場合、ステップＳ３０８において，引き出しメニューの大きさを、最大引き出し量に対するＹ座標の位置（引き出し量ｙ）の比率で縦方向に変倍縮小して表示する。図１８の画面Ｄ３８は最大引き出し量位置におけるＢ分類メニューを示し、例えば，図１８の画面Ｄ３７における引き出し量ｙが、図１８の画面Ｄ３８における最大引き出し量に対して３／４であるとした場合、図１８の画面Ｄ３８におけるＢ分類メニューは、Ｘ方向は図１８の画面Ｄ３８と同じだが、Ｙ方向では、図１８の画面Ｄ３８と比べ，３／４に縮小した画像として表示される。ボタンの表示領域もそれに伴って縦方向に縮小される。

【００７１】引き出し量ｙが更新されれば，表示比率が更新され（Ｓ３０９），最大引き出し量位置に至る途中の位置で、入力デバイス０５をタッチパネルセンサー１１から離すとその位置で引き出しメニュー表示が保持される。そして、引き出し量ｙが最大引き出し量を越えると、引き出しメニュー表示が最大引き出し量位置で保持される（Ｓ３１０）。

【００７２】なお、以上においては、Ａ、Ｂ分類メニューを例にあげて説明したが、Ｃ，Ｄ分類メニューも同様の手順が適用される。またなお、引き出しメニュー表示を閉じる場合は、図１６に示す処理の逆向きに手順が進む。

【００７３】図１９は、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄと、引き出されるＡ～Ｄ分類メニューとの関係を説明する画像表示ディスプレイ０９の画面を示す図である。

【００７４】画像表示ディスプレイ０９の画面において、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのうちどれが入力デバイス０５によって選択されるかによって，引き出しメニューの引き出し方向、受け付ける座標情報、メニュー内レイアウトの変倍縮小される画像処理の方向が異なる。

【００７５】画面Ｄ４１は，Ａ分類メニューを引き出す際に選択する引き出しメニュー表示トリガーエリア１１Ａと，その引き出す方向とを示し，画面Ｄ４２はＡ分類メニューを最大引き出し量位置まで引き出し切った状態を示す。

【００７６】画面Ｄ４１は，Ａ分類メニューを引き出す際に選択する引き出しメニュー表示トリガーエリア１１Ａと，その引き出す方向とを示し，画面Ｄ４２はＡ分類メニューを最大引き出し量位置まで引き出し切った状態を示す。

【００７７】画面Ｄ４３は、Ｂ分類メニューを引き出す際に選択する引き出しメニュー表示トリガーエリア１１Ｂと、その引き出す方向とを示し，画面Ｄ４４はＢ分類メニューを最大引き出し量位置まで引き出し切った状態を示す。

【００７８】画面Ｄ４５は，Ｃ分類メニューを引き出す際に選択する引き出しメニュー表示トリガーエリア１１Ｃと、その引き出す方向とを示し，画面Ｄ４６はＣ分類メニューを最大引き出し量位置まで引き出し切った状態を示す。

【００７９】画面Ｄ４７は、Ｄ分類メニューを引き出す際に選択する引き出しメニュー表示トリガーエリア１１Ｄと、その引き出す方向とを示し，画面Ｄ４８はＤ分類メニューを最大引き出し量位置まで引き出し切った状態を示す。

【００８０】図１９に示す引き出しメニューは、説明上の一例であり，それぞれの機能の数や画像表示ディスプレイ０９の大きさに応じて、引き出しメニューの中のアイコンの数，大きさは異なる。

【００８１】（第２の実施の形態）次に第２の実施の形態を説明する。

【００８２】第２の実施形態の構成は、基本的に第１の実施形態の構成と同じであるので、第２の実施形態の説明においては、第１の実施形態の構成を流用する。

【００８３】第２の実施形態では、携帯型情報処理装置０１で行われる制御処理の内容が，第１の実施形態と異なっている。

【００８４】図２０は、第２の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。この表示処理では，機能の優先度に応じて段階表示が行われる。図２１は、画像表示ディスプレイ０９の画面上における範囲ａ，ｂ，ｃを示す図であり、図２２は，引き出し量に応じて表示されるＡ分類メニューの画面を示す図であり、図２３は，引き出し量に応じて表示

されるＢ分類メニューの画面を示す図であり、図２４は、引き出し量に応じて表示されるＣ分類メニューの画面を示す図である。以下、図２１～図２４を適宜参照しながら、図２０に示すフローチャートのステップに沿って説明する。

【００８５】まず概要を説明すると、一度に一覧できる引き出しメニュー内の項目数が多すぎると選択に迷ってしまい、使い勝手を悪くする場合がある。そのような場合を想定し、第２の実施形態では、一覧できる項目数を制限し、優先度の高いものから順に２段階や３段階に分けて機能項目を表示するようにする。すなわち、各引き出しメニュー内は、引き出しメニュー表示トリガーエリアに近い方から使用頻度の高い順に機能項目をレイアウトして表示する。これにより、一列目を引き出しただけで使用頻度の高い機能項目を選択することが可能になる。

【００８６】例えば、図２２において、画面Ｄ５２，Ｄ５３に示す項目Ａ－１，Ａ－２，Ａ－３は、最もよく使用される機能項目であり、画面Ｄ５３に示す項目Ａ－４，Ａ－５，Ａ－６は、項目Ａ－１，Ａ－２，Ａ－３に比べれば使用頻度の低い機能項目である。このように、引き出しメニューが、机の引き出しのように整理して使うことが可能となる。

【００８７】引き出しメニュー内に表示される最大項目数は、画面の大きさ、アイコンの機能によって異なる。例えば、Ａ，Ｃ分類メニューでは最大６項目を表示し、Ｂ分類メニューでは、縦３×横１０の３０項目を表示する。Ｂ分類メニューでは、色のパレット機能をレイアウトすることが想定できる。また、Ｂ分類メニューでは縦の数に応じて３段階の表示ステップをつける。

【００８８】図２０のフローチャートでは、Ａ分類メニューの表示を例に取り上げて示している。ステップＳ４０１，Ｓ４０２，Ｓ４０３は、図１０に示すステップＳ１０３，Ｓ１０４，Ｓ１０６とそれぞれ同一の内容となっているので、それらの説明を省略する。

【００８９】入力デバイス０５が移動していて検出Ｘ座標値が変化している場合、引き出しメニュー表示トリガーエリアの位置のみ更新し、検出Ｘ座標値がＯＦＦになったところで、ＯＦＦ直前の検出Ｘ座標値に対応して引き出しメニュー中のレイアウトを決定し表示する。

【００９０】まずステップＳ４０４で、検出Ｘ座標値が、図２１に示す範囲ａにおいてＯＦＦされた場合は、図２２の画面Ｄ５１を表示する。

【００９１】また、ステップＳ４０５で、検出Ｘ座標値が、図２１に示す範囲ｂにおいてＯＦＦされた場合は、図２２の画面Ｄ５２を表示する。

【００９２】また、ステップＳ４０６で、検出Ｘ座標値が、図２１に示す範囲ｃにおいてＯＦＦされた場合は、図２２の画面Ｄ５３を表示する。

【００９３】なお、入力デバイス０５が移動して範囲ａ，ｂ，ｃの各境界を越えたときには、ブザー音を発信させて、ユーザーにそれを通知する。

【００９４】なお、引き出しメニュー内にレイアウトされる機能項目の列数が増えるにつれて範囲ａ，ｂ，ｃの数も増え、細分化されるが、基本的な仕組みは同様である。引き出しメニューの表示を閉じる場合も、同様に段階的に閉じることができる。他のＢ，Ｃ，Ｄ分類メニューも同様な手順により表示される。

【００９５】（第３の実施の形態）次に第３の実施の形態を説明する。

【００９６】第３の実施形態の構成は、基本的に第１の実施形態の構成と同じであるので、第３の実施形態の説明においては、第１の実施形態の構成を流用する。

【００９７】第３の実施形態では、携帯型情報処理装置０１で行われる制御処理の内容が、第１の実施形態と異なっている。

【００９８】図２５は、第３の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。この表示処理では、最大引き出し量の拡張が行われる。図２６は、引き出し量に応じて画像表示ディスプレイ０９の画面上に表示されるＡ分類メニューの画面を示す図である。まず、図２６を参照して、第３の実施の形態の特徴を説明する。

【００９９】第３の実施形態では、引き出しメニューを画像表示ディスプレイ０９の全表示領域まで最大限に使って表示し、機能項目をより多く表示するようにする。

【０１００】前述した第１の実施形態では、引き出しメニューの最大表示量を画像表示ディスプレイ０９の中心の位置まで（半表示領域）と設定したが、その理由として画像表示ディスプレイ０９に本来表示されるべき画像をできるだけ隠さないようにする配慮があった。しかし、機能項目の性質によっては、必ずしも本来表示画像が表示されている必要はなく、むしろ引き出しメニュー内の機能項目の一覧性を高める方が求められる場合もある。

【０１０１】例えば、検索機能では、本来表示画像は必要でなく、この場合、図２６の画面Ｄ６５，Ｄ６９に示すように、画像表示ディスプレイ０９の全表示領域を引き出しメニューの表示に利用する。一方、画像編集機能では、本来表示画像は必要であり、この場合、本来表示画像と引き出しメニューとを同時に表示するようにする。この場合の引き出しメニューの最大表示量は、画像表示ディスプレイ０９の画面の１／２とする。

【０１０２】なお、本実施の形態では、上下のＢ，Ｃ分類メニューに、本来表示画像を見ながら機能を選択する頻度が高い機能項目を収納するので、Ｂ，Ｃ分類メニューは画像表示ディスプレイ０９の画面の半分まで引き出せるようにし、左右のＡ，Ｄ分類メニューは画像表示ディスプレイ０９の全表示領域まで引き出せるようにする。

【０１０３】引き出しメニューを画像表示ディスプレイ０９の全表示領域まで引き出せるようにする場合でも，図２５の画面Ｄ６２～Ｄ６５に示すように，引き出し量に関係なく，引き出しメニュー内に全部の機能項目を表示する方式と，図２５の画面Ｄ６６～Ｄ６９に示すように，引き出し量に応じて，引き出しメニュー内に表示する機能項目の数を段階的に変える方式とがあり得る。機能項目の性質によってどちらかの方式を選択して実装するようにしてもよいし，あるいはユーザーが両方の方式のいずれかを自由に選択できるようにしてもよい。

【０１０４】図２５のフローチャートでは，Ａ分類メニューの表示を例に取り上げて示している。ステップＳ５０１，Ｓ５０２，Ｓ５０３は，図１０に示すステップＳ１０３，Ｓ１０４，Ｓ１０６とそれぞれ同一の内容となっているので，それらの説明を省略する。

【０１０５】ステップＳ５０４では，入力デバイス０５の接触による検出Ｘ座標値に応じて，引き出しメニュー表示トリガーエリア１１Ａの表示位置を更新するとともに，それに伴った機能項目の表示を行う。このとき，入力デバイス０５がＯＦＦされると，その表示状態を維持する。

【０１０６】また，ステップＳ５０５は，入力デバイス０５が，ステップＳ５０４での移動方向と反対の方向に移動された場合の引き出しメニューの表示処理を示し，この場合でも，検出Ｘ座標値に応じて，引き出しメニュー表示トリガーエリア１１Ａの表示位置を更新するとともに，それに伴った機能項目の表示を行う。このとき，入力デバイス０５がＯＦＦされると，その表示状態を維持する。

【０１０７】そして，入力デバイス０５が，ステップＳ５０５での移動方向に更に移動して，検出Ｘ座標値ｘが所定の定義量よりも小さくなると，引き出しメニューの表示を停止する（Ｓ５０６）。

【０１０８】すなわち，第３の実施の形態では，最大引き出し量の定義を設けず，画像表示ディスプレイ０９の全表示領域を引き出しメニューの表示に使用できるようにする。

【０１０９】（第４の実施の形態）次に第４の実施の形態を説明する。

【０１１０】第４の実施形態の構成は，基本的に第１の実施形態の構成と同じであるので，第４の実施形態の説明においては，第１の実施形態の構成を流用する。

【０１１１】第４の実施形態では，携帯型情報処理装置０１で行われる制御処理の内容が，第１の実施形態と異なっている。

【０１１２】図２７は，第４の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。この表示処理では，引き出しメニューの数が４から８に増加される。図２８は，画像表示ディスプレイ０９の画面上に表示される増加引き出しメニューを示す図である。まず，図２８を参照して，第４の実施の形態の特徴を説明する。

【０１１３】第１の実施の形態では，画像表示ディスプレイ０９の４つの辺に引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄを設けているが，第４の実施の形態では，機能項目のカテゴリー分類数をさらに増やすべく，図２８の画面Ｄ７０に示すような画像表示ディスプレイ０９の４つの角をトリガーエリアａ，ｂ，ｃ，ｄとして利用する。

【０１１４】すなわち，引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄを設けた画像表示ディスプレイ０９の４つの角位置をトリガーエリアａ，ｂ，ｃ，ｄとし，該エリアには，特殊な設定など使用頻度の少ない機能（例えば，詳細設定，ユーザー設定など）を割り当てる。

【０１１５】通常使用する機能項目を引き出すための引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄは，入力デバイス０５によって接触しやすいように，表示面積を大きくしているのに対して，トリガーエリアａ，ｂ，ｃ，ｄは，逆に誤操作等で簡単に表示されることがないように，表示面積を小さくしている。なお，画像表示ディスプレイ０９周囲の最差に入力デバイス０５が突き当たるので，トリガーエリアａ，ｂ，ｃ，ｄを意識して選択操作した場合には容易に選択できる。

【０１１６】図２７のフローチャートを参照して，トリガーエリアａを選択操作することによってａ分類詳細メニューが表示される処理を特に説明する。なお，ステップＳ６０１，Ｓ６０２，Ｓ６０３，Ｓ６０４，Ｓ６０５は，図１０に示すステップＳ１０１，Ｓ１０２，１０３，Ｓ１０４，Ｓ１０５とそれぞれ同一の内容となっているので，それらの説明を省略する。ただし，ステップＳ６０３～Ｓ６０５では，引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄをトリガーエリアａ，ｂ，ｃ，ｄにそれぞれ読み変えるものとする。

【０１１７】ステップＳ６０６では，入力デバイス０５の接触による検出座標値に応じて斜めバー３０の表示位置を決めて表示する。すなわち，図３８の画面Ｄ７２に示すように，トリガーエリアａの位置を基点にして，Ｘ軸，Ｙ軸の検出座標値をｘ，ｙとしたとき，検出座標値ｘ，ｙのうち，絶対値の大きい方の値を検出し，この検出値に応じて，斜めバー３０の表示位置を決める。具体的には，基点から４５度の方向に延びた斜め線に沿って，基点から検出値に相当する距離だけ離れた位置に，上記斜め線に垂直な方向に延びた斜めバー３９を表示する。そして，入力デバイス０５がＯＦＦになった場合には，上記検出値が所定値以内であれば，図２８の画面Ｄ７０に戻り，上記検出値が所定値を越えていれば，図２８の画面Ｄ７３で示すように，そのままの表示状態を維持する。

【０１１８】また，ステップＳ６０７，Ｓ６０８では，

上記検出値が最大引き出し量を越えていれば、図２８の画面Ｄ７４で示すように、最大引き出し量位置で表示状態を維持する。そして、入力デバイス０５がＯＦＦになった場合でも、図２８の画面Ｄ７５で示すように、最大引き出し量位置で表示状態を維持する。

【０１１９】引き出し途中の表示処理は、第１の実施の形態における表示処理と同様である。

【０１２０】（第５の実施の形態）次に第５の実施の形態を説明する。

【０１２１】第５の実施形態の構成は、基本的に第１の実施形態の構成と同じであるので、第５の実施形態の説明においては、第１の実施形態の構成を流用する。

【０１２２】第５の実施形態では、携帯型情報処理装置０１で行われる制御処理の内容が、第４の実施形態と類似している。

【０１２３】図２９は、第５の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。この表示処理でも、第４の実施形態と同様に、引き出しメニューの数が４から８に増加される。図３０は、画像表示ディスプレイ０９の画面上に表示される増加引き出しメニューを示す図である。以下、図３０を参照しながら、図２９に示すフローチャートのステップに沿って第５の実施の形態の特徴を説明する。

【０１２４】図２９のフローチャートにおいて、ステップＳ７０１、Ｓ７０２、Ｓ７０３、Ｓ７０４は、図２７に示すステップＳ６０１、Ｓ６０２，６０３，Ｓ６０４とそれぞれ同一の内容となっているので、それらの説明を省略する。ただし、ステップＳ７０３～Ｓ７０４では、引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄをトリガーエリアａ，ｂ，ｃ，ｄにそれぞれ読み変えるものとする。なお、図２９のフローチャートでは、トリガーエリアａを選択操作することによってａ分類詳細メニューが表示される処理を特に説明する。

【０１２５】ステップＳ７０５では，入力デバイス０５の接触によってトリガーエリアａが座標検出されると、図３０の画面Ｄ８２に示すように、設定メニューを起動する起動ボタンがポップアップ表示され、この部分がハイライト表示されるとともに、ブザー音が発生する。なお、ここで入力デバイス０５がＯＦＦされれば、ステップＳ７０１へ戻る。

【０１２６】そのポップアップ表示の状態で，図３０の画面Ｄ８３に示すように，入力デバイス０５がやや右斜め上方向へスライドされ、起動ボタン領域内に達し（Ｓ７０６）、ＯＦＦされると、起動ボタンに関連するメニュー表示処理が実行処理され、図３０の画面Ｄ８４に示すような詳細設定メニューが表示される（Ｓ７０７）。

【０１２７】詳細設定メニューを閉じるには、図３０の画面Ｄ８４に示す「設定」文字付近を入力デバイス０５で座標指示した後、入力デバイス０５をトリガーエリアａ領域へ移動する。なお、図３０の画面Ｄ８４のどこかに、閉じるボタンをレイアウトするようにしてもよい。

【０１２８】なお、第５の実施の形態でも、最大４つのカテゴリーの基本メニューと，それ以外の詳細設定メニュー４つのカテゴリーとに分けることが可能であるが、この詳細メニューの表示は、使用頻度が少なく誤操作が起こりにくいことを前提とするので，詳細メニューの数を２つぐらいにとどめておいたほうが、使いやすさの点では望ましい。

【０１２９】図３１は、画像表示ディスプレイ０９の画面上に表示される増加引き出しメニューの他の表示例を示す図である。

【０１３０】さらに使いやすさを考慮すると、詳細メニューの数を２つにとどめた場合でも、その２つの詳細メニューをどの位置に表示するかという点において，ユーザーの利き手に応じて位置を変えられることが望ましい。すなわち，右利きにとって自然なストローク方向は左下→右上（図３１の画面Ｄ８７），左利きにとって自然なストローク方向は左上→右下（図３１の画面Ｄ８８）という原則に応じて表示位置が変えられることが必要であり、右利き用には，図３１の画面Ｄ８５のような表示位置を割り当て，左利き用には、図３１の画面Ｄ８６のような表示位置を割り当てる。

【０１３１】従来装置のように、画面上のソフトボタンを入力デバイスで単に選択する操作方法に比べ、選択した後に画面上をスライドさせてコマンドを処理させる操作を多用することにより、この利き手を考慮したメニューの表示が実現する。

【０１３２】（第６の実施の形態）次に第６の実施の形態を説明する。

【０１３３】第６の実施形態の構成は、基本的に第１の実施形態の構成と同じであるので、第６の実施形態の説明においては、第１の実施形態の構成を流用する。

【０１３４】第６の実施形態では、引き出しメニューを同時に複数、画像表示ディスプレイ０９に表示することができるようにする。すなわち、画像表示ディスプレイ０９の画面サイズが大きい場合に適用可能な方法であり、引き出しメニューを２つ、３つ、または４つ同時に表示することができるようにする。

【０１３５】まず、引き出しメニューを２つ同時に表示する場合、引き出す２つのメニューの位置関係に応じて，直角方向（隣接位置）の関係と平行方向（対面位置）の関係に区別され、それぞれ直角方向は４通り、平行方向は２通りの位置関係の表示パターンがある。さらに引き出す順番によっても表示方法が異なり，先に表示したメニューの表示方法は，後から引き出されるメニューの影響を受ける。

【０１３６】以下説明の都合上、最大引き出し量は画面の半分として説明するが、これに限定されるものではなく、また、前記各実施の形態で示したように、引き出し途中の任意の位置で引き出しメニューの表示を保持した

り、仕様によっては最大引き出し量を全画面まで拡張するようにしてもよい。

【０１３７】図３２は，第６の実施形態における２つ以上４つまでの引き出しメニューの同時表示の処理の手順を示すフローチャートである。

【０１３８】ステップＳ８０１で、Ａ～Ｄ分類メニューのうちのいづれか１つが表示される。

【０１３９】次に、Ａ～Ｄ分類メニューのうち、ステップＳ８０１で表示された引き出しメニューを除くいづれか１つが、入力デバイス０５によって選択された場合に、ステップＳ８０２で示すように，両引き出しメニューの間の位置関係によって、その後の処理が分かれる。すなわち，両引き出しメニューの間の位置関係が，平行方向（対面位置）の関係であるならばステップＳ８０３へ進み、直角方向（隣接位置）の関係であるならばステップＳ８０５へ進む。

【０１４０】後から表示された引き出しメニューが継続的に引き出された場合、ステップＳ８０３では、両引き出しメニューの間の距離を一定に保ちながら、最初に表示された引き出しメニューを同一軸の方向に変倍縮小表示する。そして、ステップＳ８０４では、後から表示された引き出しメニューのサイズが，画面の１／４になったところで固定される。

【０１４１】ステップＳ８０５では、後から表示された引き出しメニューが継続的に引き出された場合、最初に表示された引き出しメニューを、後から表示された引き出しメニューの引き出し方向へ変倍縮小表示する。そして、ステップＳ８０６では、後から表示された引き出しメニューのサイズが、画面の１／２になったところで固定される。

【０１４２】図３３及び図３４は、図３２に示す処理手順の具体的な手順を示すフローチャートである。また、図３５～図３８は，引き出し量に応じて画像表示ディスプレイ０９の画面上に同時に表示される２つの引き出しメニューを示す図であり、図３９～図４２は，引き出し量に応じて画像表示ディスプレイ０９の画面上に同時に表示される３つの引き出しメニューを示す図であり、図４３～図４６は，引き出し量に応じて画像表示ディスプレイ０９の画面上に表示される４つの引き出しメニューを示す図である。なお，図３５～図４６の各引き出しメニュー上に記載されている数字は引き出した順番を示す数字であり，画像表示されるものではない。以下，図３５～図４６を適宜参照しながら，図３３及び図３４に示したステップに沿って説明する。

【０１４３】まずステップＳ９０１で、最初にＡ分類メニューが引き出され表示されたとする。

【０１４４】次に、Ｂ～Ｄ分類メニューのうちのいづれか１つが入力デバイス０５によって選択された場合に（Ｓ９０２）、ステップＳ９０３で示すように，両引き出しメニューの間の位置関係によって、その後の処理が分かれる。

【０１４５】Ｄ分類メニュー（ツール）が選択されていれば、平行方向（対面位置）の関係にあるので、ステップＳ９０４へ進み、Ｄ分類メニュー（ツール）が継続的に引き出された場合、Ｄ分類メニュー（ツール）との間の距離を一定に保ちながら、Ａ分類メニュー（ツール）をＸ軸の方向に変倍縮小表示する。これを，図３７の画面Ｄ１０９～Ｄ１１１に示す。

【０１４６】次にステップＳ９０５で、３つの引き出しメニューとして、Ｂ，Ｃ分類メニューのうちのいづれか１つが入力デバイス０５によって選択された場合に、Ｂ分類メニュー（ツール）が選択されていれば、ステップＳ９０７に進んで，Ｙ軸方向の引き出し量に応じてＢ分類メニュー（ツール）を表示すると同時に、既に表示されているＡ分類メニュー（ツール）とＤ分類メニュー（ツール）とをＹ軸方向に、Ｂ分類メニュー（ツール）のＹ軸方向の引き出し量に応じて変倍縮小表示する。これを、図４１の画面Ｄ１２５～Ｄ１２７に示す。

【０１４７】また，ステップＳ９０５で、Ｃ分類メニューが入力デバイス０５によって選択された場合には，ステップＳ９０８に進んで，Ｙ軸方向の引き出し量に応じてＣ分類メニュー（ツール）を表示すると同時に、既に表示されているＡ分類メニュー（ツール）とＤ分類メニュー（ツール）とをＹ軸方向に、Ｃ分類メニュー（ツール）のＹ軸方向の引き出し量に応じて変倍縮小表示する。

【０１４８】次にステップＳ９０９で、４つ目の分類メニューが入力デバイス０５によって選択された場合に、それがＣ分類メニュー（ツール）であれば、ステップＳ９１０に進んで，Ｙ軸方向の引き出し量に応じてＣ分類メニュー（ツール）を表示する。これを、図４５の画面Ｄ１３８～Ｄ１４０に示す。

【０１４９】また、ステップＳ９０９で、４つ目の分類メニューが入力デバイス０５によって選択された場合に、それがＢ分類メニュー（ツール）であれば、ステップＳ９１１に進んで，Ｙ軸方向の引き出し量に応じてＢ分類メニュー（ツール）を表示する。

【０１５０】ステップＳ９０２に戻って、２つ目の引き出しメニューとして、Ｂ～Ｄ分類メニューのうちのいづれか１つが入力デバイス０５によって選択された場合に，Ｂ，Ｃ分類メニュー（ツール）が選択されていれば、Ａ分類メニュー（ツール）に対して直角方向（隣接位置）の関係にあるので、ステップＳ９１２，Ｓ９１３へ進む。

【０１５１】Ｂ分類メニュー（ツール）が選択されていれば、ステップＳ９１２において，Ｙ軸方向の引き出し量に応じてＢ分類メニュー（ツール）を表示すると同時に、既に表示されているＡ分類メニュー（ツール）をＹ軸方向に、Ｂ分類メニュー（ツール）のＹ軸方向の引き出し量に応じて変倍縮小表示する。これを、図３５の画

面Ｄ１０１～Ｄ１０３に示す。

【０１５２】また、Ｃ分類メニュー（ツール）が選択されていれば、ステップＳ９１３において、Ｙ軸方向の引き出し量に応じてＣ分類メニュー（ツール）を表示すると同時に、既に表示されているＡ分類メニュー（ツール）をＹ軸方向に、Ｃ分類メニュー（ツール）のＹ軸方向の引き出し量に応じて変倍縮小表示する。

【０１５３】次にステップＳ９１４で、３つの引き出しメニューが入力デバイス０５によって選択された場合に、ステップＳ９１５で示すように、２つ目の引き出しメニューとの間の位置関係によって、その後の処理が分かれる。

【０１５４】２つ目の引き出しメニューがＢ分類メニュー（ツール）であって、３つ目の引き出しメニューがＣ分類メニュー（ツール）である場合，または２つ目の引き出しメニューがＣ分類メニュー（ツール）であって、３つ目の引き出しメニューがＢ分類メニュー（ツール）である場合、平行方向（対面位置）の関係にあるので、ステップＳ９１６へ進み，ＣまたはＢ分類メニュー（ツール）が継続的に引き出された場合、Ｙ軸方向の引き出し量に応じてＣまたはＢ分類メニュー（ツール）を表示すると同時に、既に表示されているＢまたはＣ分類メニュー（ツール）をＹ軸方向に、ＣまたはＢ分類メニュー（ツール）のＹ軸方向の引き出し量に応じて変倍縮小表示する。そして、Ａ分類メニュー（ツール）は位置を移動するだけで変倍縮小は行わない。これを、図３９の画面Ｄ１１７～Ｄ１１９に示す。

【０１５５】一方、３つ目の引き出しメニューがＤ分類メニュー（ツール）である場合、２つ目の引き出しメニューに対して直角方向（隣接位置）の関係にあるので、ステップＳ９１７へ進み、Ｄ分類メニュー（ツール）が継続的に引き出された場合、Ｘ軸方向の引き出し量に応じてＤ分類メニュー（ツール）を表示すると同時に、既に表示されているＢまたはＣ分類メニュー（ツール）をＹ軸の方向に変倍縮小表示する。そして、Ａ分類メニュー（ツール）を、Ｄ分類メニュー（ツール）の引き出し量に応じて、Ｄ分類メニュー（ツール）との間の距離を一定に維持したまま、変倍縮小表示する。Ｘ軸方向の引き出し量に応じて位置を移動するだけで変倍縮小は行わない。これを、図４０の画面Ｄ１２１～Ｄ１２３に示す。

【０１５６】次にステップＳ９１８で，４つ目の分類メニューが入力デバイス０５によって選択された場合に、それがＤ分類メニュー（ツール）であれば、ステップＳ９１９に進んで、Ｘ軸方向の引き出し量に応じてＤ分類メニュー（ツール）を表示する。

【０１５７】また、ステップＳ９１８で、４つ目の分類メニューが入力デバイス０５によって選択された場合に、それがＢ分類メニュー（ツール）であれば、ステップＳ９２０に進んで、Ｙ軸方向の引き出し量に応じてＢ分類メニュー（ツール）を表示する。

【０１５８】図３５と図３６とは，２つの引き出しメニューの関係が直角方向（隣接位置）の関係にある場合である。図３５の画面Ｄ１００～Ｄ１０３に示す２つの引き出しメニューと、図３６の画面Ｄ１０４～Ｄ１０７に示す２つの引き出しメニューとは，個々の２つの引き出しメニューの位置関係は同じであっても，引き出す順番によって、表示される方法が異なっている。後から引き出したメニューの表示に優先権があり、後から引き出したメニューはそのメニュー内を通常どおり表示し，それに伴い、最初に引き出したメニューの表示は、その影響を受ける。すなわち、図３５の画面Ｄ１０１に示すように、すでにＡ分類メニューが引き出されている状態で、画面Ｄ１０２に示すように、直角の位置関係にあるＢ分類メニューを引き出す場合は，Ａ分類メニューのＹ軸方向が、Ｂ分類メニューが引き出される量に応じて変倍縮小表示され、画面Ｄ１０３に示すように、Ｂ分類メニューは、最大引き出し量（画面の半分）の位置で固定される。

【０１５９】Ａ分類メニュー内の表示内容は、単純に形状だけが縮小されるが、表示内容自体を変えるようにしてもよい。例えば，画面Ｄ１０１では，Ａ分類メニュー内にアイコンと文字とを併記表示し、画面Ｄ１０３では，Ａ分類メニュー内にアイコンのみを表示するといったように，表示面積に応じて情報の種類を変化させるようにしてもよい。

【０１６０】また図３６において，画面Ｄ１０４に示すように、すでにＢ分類メニューが引き出されている状態で、直角の位置関係にあるＡ分類メニューを引き出す場合は，画面Ｄ１０６に示すように、Ｂ分類メニューを、Ａ分類メニューのＸ軸方向の引き出し量に応じて縮小表示し，画面Ｄ１０７に示すように、Ａ分類メニューの引き出しを最大引き出し量（画面の半分）の位置で固定する。

【０１６１】図３７及び図３８は、２つの引き出しメニューの関係が平行方向（対面位置）の関係にある場合を示す。

【０１６２】図３７の画面Ｄ１０８に示すように、Ａ分類メニューが表示されている状態で、平行位置関係にあるＤ類メニューが引き出されようとしたら，画面Ｄ１１０，Ｄ１１１に示すように、Ｄ分類メニューの引き出し量に応じて、両引き出しメニューの間の距離を一定に保ったまま、Ａ分類メニューが変倍縮小される。これにより、本来表示されるべき画像の表示エリアが常に一定量確保され、引き出しメニューと本来表示画像とが同時に常時表示されることになる。

【０１６３】図３８は、２つの引き出しメニューが上下位置にある場合であり，図３７の場合と同様に処理される。

【０１６４】図３９及び図４０は，２つ目の引き出しメ

ニューが１つ目の引き出しメニューに対して直角方向（隣接位置）の関係にある場合において、３つの引き出しメニューを同時に表示する場合を示す。図３９は、３つ目の引き出しメニューが２つ目の引き出しメニューに対して平行方向（対面位置）の関係にある場合を示し、図４０は、３つ目の引き出しメニューが２つ目の引き出しメニューに対して直角方向（隣接位置）の関係にある場合を示す。

【０１６５】図３９では画面Ｄ１１７～Ｄ１１９に示すように、Ａ分類メニューはＹ軸方向に縮小表示された状態になっているので、その状態を維持したまま、Ｃ分類メニューを引き出すと同時に、Ｂ分類メニューを縮小表示する。Ｂ分類メニューとＣ分類メニューとの間の距離は一定値を常時確保する。

【０１６６】図４０では画面Ｄ１２１～Ｄ１２３に示すように、Ｄ分類メニューを引き出すと同時に、Ａ分類メニュー及びＢ分類メニューをＸ軸方向に縮小表示する。Ｄ分類メニューとＡ分類メニューとの間のＸ軸方向の距離は一定値を常時確保する。

【０１６７】図４１及び図４２は、２つ目の引き出しメニューが１つ目の引き出しメニューに対して平行方向（対面位置）の関係にある場合において、３つの引き出しメニューを同時に表示する場合を示す。図４１は、３つ目の引き出しメニューがＢ分類メニューである場合を示し、図４０は、３つ目の引き出しメニューがＡ分類メニューである場合を示す。

【０１６８】図４１では画面Ｄ１２５～Ｄ１２７に示すように、Ｂ分類メニューの引き出しに伴い、すでに表示されているＡ分類メニュー、Ｄ分類メニューの両方が同時にＹ軸方向へ向かって縮小表示される。

【０１６９】図４２では画面Ｄ１２９～Ｄ１３１に示すように、Ａ分類メニューの引き出しに伴い、すでに表示されているＢ分類メニュー、Ｃ分類メニューの両方が同時にＸ軸方向へ向かって縮小表示される。

【０１７０】図４３～図４６は、４つの引き出しメニューを同時に表示する場合を示す。

【０１７１】図４３は、図３９の画面Ｄ１１９に示す状態の続きとして残りのＤ分類メニューを引き出した場合を示す。

【０１７２】図４４は、図４０の画面Ｄ１２３に示す状態の続きとして残りのＣ分類メニューを引き出した場合を示す。

【０１７３】図４５は、図４１の画面Ｄ１２７に示す状態の続きとして残りのＣ分類メニューを引き出した場合を示す。

【０１７４】図４６は、図４２の画面Ｄ１３１に示す状態の続きとして残りのＤ分類メニューを引き出した場合を示す。

【０１７５】なお、どの引き出しメニューの表示においても、いずれかの引き出しメニューを閉じたい場合は、引き出した順番にとらわれず、対応する引き出しメニュー内の座標を入力デバイス０５で選択し、そのまま各メニューの引き出し前の位置方向へドラッグする。

【０１７６】（第７の実施の形態）次に第７の実施の形態を説明する。

【０１７７】第７の実施形態の構成は、基本的に第１の実施形態の構成と同じであるので、第７の実施形態の説明においては、第１の実施形態の構成を流用する。

【０１７８】第７の実施形態では、引き出しメニューの引き出し量に応じて、本来表示されるべき主画像の形状の変形が行われる。

【０１７９】図４７は、第７の実施形態における引き出しメニューの表示と、引き出しメニューの表示に伴う主画像の形状の変形とに関わる処理手順を示すフローチャートである。図４８は、引き出しメニューを表示する処理過程において画像表示ディスプレイ０９に表示される画面を示す図である。図４８では主にＢ分類メニューを表示する場合を例にとっている。以下、図４８を適宜参照しながら、図４７に示すステップに沿って説明する。

【０１８０】図４８に示す主画像Ａは、例えば写真画像であったり、文章だったり、写真と文章とが混在したものであったりする。内蔵メモリーにすでに格納されていた再生画像だったり、撮影待機状態でカメラ部のＣＣＤがとらえたファインダー画像の場合も想定される。

【０１８１】図４７のフローチャートでは、ステップＳ１００１、Ｓ１００２、Ｓ１００３、Ｓ１００４、Ｓ１００５、Ｓ１００６、Ｓ１００９、Ｓ１０１０は、図１０に示すステップＳ１０１、Ｓ１０２、Ｓ１０３、Ｓ１０４、Ｓ１０５、Ｓ１０６、Ｓ１１２、Ｓ１１３とそれぞれ同一の内容となっているので、それらの説明を省略する。

【０１８２】引き出しメニュー表示トリガーエリア１１Ｂが選択され、その後連続的にＹ軸座標の検出値（引き出し量）ｙが変更されると、ステップＳ１０１１において、引き出し量ｙに応じてＢ分類メニューを表示するとともに、Ｙ軸方向の全画面サイズＹに対する量（Ｙ－ｙ）の比率で、主画像ＡをＹ軸方向に変倍縮小して表示する（図４８の画面Ｄ１５４、Ｄ１５５）。なお、この間に入力デバイス０５がＯＦＦされると、引き出し量ｙが所定の定義量よりも小さいならば、図４８の画面Ｄ１５４の状態から画面Ｄ１５０の状態へ戻り、引き出し量ｙが所定の定義量よりも大きいならば、図４８の画面Ｄ１５５の状態を維持する（図４８の画面Ｄ１５７）。

【０１８３】そして、引き出し量ｙが更に増加した場合、ステップＳ１０１２において、Ｂ分類メニューが最大引き出し量（Ｙ軸方向の画面サイズの半分）で固定され、また、主画像ＡもＹ軸方向に１／２に変倍縮小された大きさで保持される（図４８の画面Ｄ１５６）。なお、この場合に入力デバイス０５がＯＦＦされると、図４８の画面Ｄ１５６の状態を維持する（図４８の画面Ｄ

１５８）。

【０１８４】以上の説明は，Ｂ分類メニューを表示することを例にとっているが，Ｃ分類メニューを表示する場合も同様である。

【０１８５】次に、引き出しメニュー表示トリガーエリアＩＩＡ，Ｄが選択され、その後連続的にＸ軸座標の検出値（引き出し量）ｘが変更されると、ステップＳ１００７において、引き出し量ｘに応じてＡ，Ｄ分類メニューを表示するとともに，Ｘ軸方向の全画面サイズＸに対する値（Ｘ－ｘ）の比率で、主画像ＡをＸ軸方向に変倍縮小して表示する。なお、この間に入力デバイス０５がＯＦＦされると、引き出し量ｘが所定の定義量よりも小さいならば，主画像Ａだけを表示する画面の状態へ戻り、引き出し量ｙが所定の定義量よりも大きいならば，そのときの画面の状態を維持する。

【０１８６】そして、引き出し量ｘが更に増加した場合、ステップＳ１００８において、Ａ，Ｄ分類メニューが最大引き出し量（Ｘ軸方向の画面サイズの半分）で固定され、また、主画像ＡもＸ軸方向に１／２に変倍縮小された大きさで保持される。なお，この場合に入力デバイス０５がＯＦＦされると、そのときの画面の状態を維持する。

【０１８７】図４９は，表示された引き出しメニューを閉じるための処理手順を示すフローチャートであり、図５０は、引き出しメニューを閉じる処理の過程における表示画面（特に、Ｂ分類メニューが選択されていた場合の画面）を示す図である。以下、図５０を適宜参照しながら、図４９に示すステップに沿って説明する。

【０１８８】まずステップＳ１１０１で，図５０の画面Ｄ１６０に示すように，引き出しメニューが表示され、表示された引き出しメニューの引き出し量に応じて主画像Ａが変形されているとする。この状態で入力デバイス０５が画像表示ディスプレイ０９のタッチパネルセンサー１１に接触すると、その座標値が検出される（Ｓ１１０２）。検出された座標値が引き出しメニュー表示トリガーエリア内の値になっているか否かを判断し（Ｓ１１０３）、引き出しメニュー表示トリガーエリア内の値になっていれば、ステップＳ１１０４へ進み、なっていなければステップＳ１１０９へ進む。なお、ステップＳ１１０３で肯定（ＹＥＳ）の判断になる際に、図５０の画面Ｄ１６０の状態から直接、画面Ｄ１６３の状態になる場合と、図５０の画面Ｄ１６１の状態から、入力入力デバイス０５を画像表示ディスプレイ０９のタッチパネルセンサー１１から離さずにそのままスライドさせて，画面Ｄ１６２の状態になる場合とがある。

【０１８９】ステップＳ１１０９では、図５０の画面Ｄ１６２に示すように，引き出しメニュー内の機能ボタンのいずれかが入力デバイス０５によって選択されると（Ｓ１１０９），そのボタンに対応する機能が実行され（Ｓ１１１０），その処理結果が主画像Ａに反映される。なお、この状態で、図５０の画面Ｄ１６４に示すように入力デバイス０５０４が矢印方向にスライドされた場合、それは無視される。また、この状態で入力デバイス０５がＯＦＦされれば，ステップＳ１１０３へ戻る。

【０１９０】ステップＳ１１０４では、検出座標値が引き出しメニュー表示トリガーエリアＩＩＡ～ＩＩＤのいずれに含まれるかを判断する。引き出しメニュー表示トリガーエリアＩＩＡ，Ｄに含まれるならば、ステップＳ１１０５へ、引き出しメニュー表示トリガーエリアＩＩＢ，Ｃに含まれるならば，ステップＳ１１１１へ進む。

【０１９１】ステップＳ１１１１では、選択された引き出しメニュー表示トリガーエリアがハイライト表示され、同時にブザー発音して、選択されたことを示す。また、この状態で、入力デバイス０５がＯＦＦされると、ステップＳ１１０３へ戻る。そして、ステップＳ１１１２で、検出座標値のうち、Ｙ座標値だけを監視し、Ｘ座標値を無視する。ここでも、入力デバイス０５がＯＦＦされると、ステップＳ１１０３へ戻る。

【０１９２】次にステップＳ１１１３で、引き出し量ｙに応じて引き出しメニューを表示するとともに、Ｙ軸方向の全画面サイズＹに対する値（Ｙ－ｙ）の比率で、主画像ＡをＹ軸方向に変倍縮小して表示する（図５０の画面Ｄ１６５，Ｄ１６７）。なお、この間に入力デバイス０５がＯＦＦされると、引き出し量ｙが所定の定義量よりも大きいならば、図５０の画面Ｄ１６５の状態を維持し（図５０の画面Ｄ１６６）、引き出し量ｙが所定の定義量よりも小さいならば、図５０の画面Ｄ１６７の状態から主画像Ａを全画面表示する画面Ｄ１６８の状態へ移る。

【０１９３】さらに、引き出し量ｙが減少して、図５０の画面Ｄ１６９の状態になると、主画像Ａを全画面表示する画面Ｄ１７０の状態へ移る（Ｓ１１１４）。勿論、入力デバイス０５がＯＦＦされても、画面Ｄ１７０の状態へ移る。

【０１９４】一方、ステップＳ１１０４で、検出座標値が引き出しメニュー表示トリガーエリアＩＩＡ，Ｄに含まれると判断されたならば、ステップＳ１１０５で，選択された引き出しメニュー表示トリガーエリアがハイライト表示され，同時にブザー発音して，選択されたことを示す。また、この状態で、入力デバイス０５がＯＦＦされると、ステップＳ１１０３へ戻る。そして、ステップＳ１１０６で、検出座標値のうち、Ｘ座標値だけを監視し、Ｙ座標値を無視する。ここでも，入力デバイス０５がＯＦＦされると，ステップＳ１１０３へ戻る。

【０１９５】次にステップＳ１１０７で，引き出し量ｘに応じて引き出しメニューを表示するとともに，Ｘ軸方向の全画面サイズＸに対する値（Ｘ－ｘ）の比率で、主画像ＡをＸ軸方向に変倍縮小して表示する。なお、この間に入力デバイス０５がＯＦＦされると，引き出し量ｘが所定の定義量よりも大きいなもば，その表示状態を維

持し、引き出し量ｘが所定の定義量よりも小さいならば、主画像Ａを全画面表示する画面の状態へ移る。

【０１９６】さらに、引き出し量ｘが減少して０になると、主画像Ａを全画面表示する画面の状態へ移る（Ｓ１１０８）。勿論、入力デバイス０５がＯＦＦされても、主画像Ａを全画面表示する画面の状態へ移る。

【０１９７】なお、４つのうち、どの引き出しメニューを引き出すかによって、画像Ａの変形縮小表示の方法が異なる。これを図５１を参照して説明する。

【０１９８】図５１は、引き出しメニューの格納位置と主画像Ａとの関係を説明するための、画像表示ディスプレイ０９の画面を示す図である。

【０１９９】例えば、引き出しメニュー表示トリガーエリア１１Ｂを入力デバイス０５で選択してＢ分類メニューを引き出した図５１の画面Ｄ１８４では、入力デバイス０５で主画像Ａに書き込む文字の色の一覧を、Ｂ分類メニューに色のパレットのようにレイアウトしている。この画面Ｄ１８４の状態では、引き出しメニューを引き出したまま、色を選択して主画像Ａに文字の書き込みができ、また途中で色を変更しながらそのまま書き込みが続けられる。この場合、引き出しメニューを閉じると、文字は書かれたときの比率で主画像Ａの上に表示するようにしてもよいし、また、主画像Ａが元の比率に戻るのとあわせて、文字も同じ比率で縦方向に変倍するようにしてもよい。

【０２００】さらに、画面Ｄ１８２，Ｄ１８４，Ｄ１８６，Ｄ１８８において、主画像Ａを元の縦横比率で表示したい場合は、変倍された主画像Ａの角をドラッグするなどの方法によって元に戻すようにしてもよい。この結果、例えば、画面Ｄ１８４の状態でこの操作を行うと、後述する図５３の画面Ｄ１９３のようになる。

【０２０１】なお、第７の実施の形態を第６の実施の形態に適用してもよい。

【０２０２】（第８の実施の形態）次に第８の実施の形態を説明する。

【０２０３】第８の実施形態の構成は、基本的に第１の実施形態の構成と同じであるので、第８の実施形態の説明においては、第１の実施形態の構成を流用する。

【０２０４】第８の実施形態では、引き出しメニューが引き出されても、本来表示されるべき主画像の縦横比率が一定に維持される。

【０２０５】図５２は、第８の実施形態における、引き出しメニューの表示に伴なう主画像表示の処理の手順を示すフローチャートである。図５３は、引き出しメニューを表示する処理過程において画像表示ディスプレイ０９に表示される画面を示す図である。図５３ではＢ分類メニューを表示する場合を例にとっている。以下、図５３を適宜参照しながら、図５２に示すステップに沿って説明する。

【０２０６】図４８に示す主画像Ａは、例えば写真画像であったり、文章だったり、写真と文章とが混在したものであったりする。内蔵メモリーにすでに格納されていた再生画像だったり、撮影待機状態でカメラ部のＣＣＤがとらえたファインダー画像の場合も想定される。

【０２０７】図５２のフローチャートでは、ステップＳ１２０１，Ｓ１２０２，Ｓ１２０３，Ｓ１２０４，Ｓ１２０５，Ｓ１２０６，Ｓ１２０９，Ｓ１２１０は、図１０に示すステップＳ１０１，Ｓ１０２，Ｓ１０３，Ｓ１０４，Ｓ１０５，Ｓ１０６，Ｓ１１２，Ｓ１１３とそれぞれ同一の内容となっているので、それらの説明を省略する。

【０２０８】引き出しメニュー表示トリガーエリア１１Ｂが選択され、その後連続的にＹ軸座標の検出値（引き出し量）ｙが変更されると、ステップＳ１２１１において、引き出し量ｙに応じてＢ分類メニューを表示するとともに、主画像Ａの縦横比率を維持したまま変倍縮小して表示する（図５３の画面Ｄ１９１，Ｄ１９２）。なお、この間に入力デバイス０５がＯＦＦされると、そのときの画面の状態を維持する。

【０２０９】そして、引き出し量ｙが更に増加した場合、ステップＳ１２１２において、Ｂ分類メニューが最大引き出し量（Ｙ軸方向の画面サイズの半分）で固定され、また、主画像ＡもＸ軸方向、Ｙ軸方向ともに１／２に変倍縮小された大きさで保持される（図５３の画面Ｄ１９３）。なお、この場合に入力デバイス０５がＯＦＦされると、図５３の画面Ｄ１９３の状態を維持する。

【０２１０】以上の説明は、Ｂ分類メニューを表示することを例にとっているが、Ｃ分類メニューを表示する場合も同様である。

【０２１１】次に、引き出しメニュー表示トリガーエリア１１Ａ，Ｄが選択され、その後連続的にＸ軸座標の検出値（引き出し量）ｘが変更されると、ステップＳ１２０７において、引き出し量ｘに応じてＡ，Ｄ分類メニューを表示するとともに、主画像Ａの縦横比率を維持したまま変倍縮小して表示する。なお、この間に入力デバイス０５がＯＦＦされると、そのときの画面の状態を維持する。

【０２１２】そして、引き出し量ｘが更に増加した場合、ステップＳ１２０８において、Ａ，Ｄ分類メニューが最大引き出し量（Ｘ軸方向の画面サイズの半分）で固定され、また、主画像ＡもＸ軸方向、Ｙ軸方向ともに１／２に変倍縮小された大きさで保持される。なお、この場合に入力デバイス０５がＯＦＦされると、主画像ＡもＸ軸方向、Ｙ軸方向ともに１／２に変倍縮小された大きさで保持される。

【０２１３】なお、第８の実施の形態を他の実施の形態と組み合わせ、操作設定やいづれかのボタンを押しながら行う操作手段によって、ユーザーが任意にどちらかの方法を選択できるようにしてもよい。

【０２１４】さらに、図５４に示すような主画像Ａの表

示を行うようにしてもよい。

【０２１５】図５４は、図５３に示す主画像Ａの表示方法と異なる表示方法を説明する，画像表示ディスプレイ０９に表示された画面を示す図である。

【０２１６】すなわち，画像表示ディスプレイ０９の画面Ｄ１９５～Ｄ１９７では，主画像Ａの形状や縦横表示比率は全く変化せずに，その上に引き出しメニューがかぶさる形で表示される。この主画像Ａの表示方法は，主画像Ａの一部が欠けてしまうという欠点をもつが，非常に高速に演算処理をできるＣＰＵを実装していない場合には，この表示方法は有効である。

【０２１７】なお，この表示方法では，入力デバイス０５がタッチパネルセンサー１１に接触している間は，引き出しメニューが主画像Ａに重なり，一方，入力デバイス０５がＯＦＦされると，主画像Ａを引き出しメニューの引き出し方向に縮小表示する。例えば，画面Ｄ１９５の状態でＯＦＦした場合，所要の処理時間を経た後，画面Ｄ１９８に切り換わる。また，画面Ｄ１９６の状態でＯＦＦした場合，所要の処理時間を経た後，画面Ｄ１９９に切り換わる。さらに，画面Ｄ１９７の状態でＯＦＦした場合，所要の処理時間を経た後，画面Ｄ２００に切り換わる。

【０２１８】（第９の実施の形態）次に第９の実施の形態を説明する。

【０２１９】第９の実施形態の構成は，基本的に第１の実施形態の構成と同じであるので，第９の実施形態の説明においては，第１の実施形態の構成を流用する。

【０２２０】第９の実施形態では，引き出しメニューの表示方法として「引き出しメニュー内一部切り出しヘルプ」という表示方法を採用する。

【０２２１】図５５及び図５６は，第９の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。図５７は，画像表示ディスプレイ０９に表示される第９の実施形態における引き出しメニューを示す図であり，特にＡ分類メニューを示す。図５８は，第９の実施形態における画像表示ディスプレイ０９に表示されるＢ～Ｄ分類メニューを示す図である。以下，図５７及び図５８を適宜参照しながら，図５５及び図５６に示すステップに沿って説明する。

【０２２２】上記の各実施の形態では，引き出しメニューを表示するまでは，それぞれの引き出しの中に記載されている機能項目を把握することができないので，ユーザーは，それぞれどのような機能項目が記載されているか，あらかじめ覚えておく必要がある。こうした煩わしさを避けるため，第９の実施形態では，引き出しメニューを巡わず使いこなすための補助的機能を，第１の実施形態の引き出しメニュー表示処理に追加する。

【０２２３】すなわち，パソコンなどでは一般的に，機能に対応するアイコンにマウスなどのポインティングデバイスを置くだけで，そのアイコンがどういう機能に対応するかを，文字で簡潔に説明する吹き出しが表示される。しかし，本実施の形態では，そうした機能を説明する吹き出しではなく，引き出しメニューが表示されたときと同じ表現で，引き出しメニューの一部を切り取って「引き出しメニュー内一部切り出しヘルプ」として表示し，引き出しメニューの中身を簡単に確認できるようにする。

【０２２４】図５５に示す処理は，前述のように第１の実施形態の引き出しメニュー表示処理に追加される処理であり，図５５においてステップＳ１３０１は，図１０のステップＳ１０３と同一の処理を行う。

【０２２５】次に，ステップＳ１３０２で，「引き出しメニュー内一部切り出しヘルプ」の機能の実行があらかじめ設定されているか否かを判断する。設定されていなければ，図１０のステップＳ１０４以降の処理に移る。

【０２２６】一方，「引き出しメニュー内一部切り出しヘルプ」の機能の実行があらかじめ設定されていれば，ステップＳ１３０３に進んで，検出座標値が引き出しメニュー表示トリガーエリア１１Ａ～１１Ｄのいずれかに含まれるかを判断し，引き出しメニュー表示トリガーエリア１１Ａ，１１Ｄに含まれるならばステップＳ１３０５へ，引き出しメニュー表示トリガーエリア１１Ｂ，１１Ｃに含まれるならばステップＳ１３１１へ進む。

【０２２７】ステップＳ１３０５では，引き出しメニュー表示トリガーエリア１１Ａ，１１Ｄにおいて入力デバイス０５が接触している位置のＹ座標値が検出され，そのＹ座標値に最も近いＹ座標値を持つ機能項目を表示される。これを，引き出しメニュー表示トリガーエリア１１Ａが入力デバイス０５によって接触された場合を例にとって，図５７の画面Ｄ２０３に示す。この状態から，引き出しメニュー表示トリガーエリア１１Ａの上を入力デバイス０５が外装フレームに沿って上下方向にスライドされると，図５７の画面Ｄ２０３～Ｄ２０５のようになる。このように，引き出しメニューを全て表示しなくても中身を確認することができ，所望の機能項目が見つからなかった場合は，他の引き出しメニュー内を同様な方法で探すことができる。以下，図５７の画面Ｄ２０２～Ｄ２０５に表示される引き出しメニューの一部を成す画像を「切り出しヘルプ」と呼ぶ。

【０２２８】こうして所望の機能項目が見つかり，入力デバイス０５がＯＦＦされると，ステップＳ１３０６において，ＯＦＦ後に所定時間（２～３秒間）が経過したか否かを判断する。所定時間が経過していなければステップＳ１３０７へ進み，所定時間の経過前に切り出しヘルプ内の機能項目（アイコン）を入力デバイス０５が選択する。これにより，ステップＳ１３０８で，切り出しヘルプの表示を停止するとともに、選択された機能項目（アイコン）に対応する機能が実行される。

【０２２９】なお，ステップＳ１３０６において，所定時間が経過していると判断された場合，ステップＳ１３

０９に進んで、切り出しヘルプの表示を停止する。

【０２３０】一方、ステップＳ１３１１では、引き出しメニュー表示トリガーエリア１１Ｂ，１１Ｃにおいて入力デバイス０５が接触している位置のＸ座標値が検出され、そのＸ座標値に最も近いＸ座標値を持つ機能項目を表示される。

【０２３１】こうして所望の機能項目が見つかり、入力デバイス０５がＯＦＦされると、ステップＳ１３１２において、ＯＦＦ後に所定時間（２～３秒間）が経過したか否かを判断する。所定時間が経過していなければステップＳ１３１３へ進み、所定時間の経過前に切り出しヘルプ内の機能項目（アイコン）を入力デバイス０５が選択する。これにより、ステップＳ１３１４で、切り出しヘルプの表示を停止するとともに、選択された機能項目（アイコン）に対応する機能が実行される。

【０２３２】なお、ステップＳ１３１２において、所定時間が経過していると判断された場合、ステップＳ１３１５に進んで、切り出しヘルプの表示を停止する。

【０２３３】図５８は、引き出しメニュー表示トリガーエリア１１Ｂ，１１Ｃ，１１Ｄが入力デバイス０５によって接触された場合の切り出しヘルプを表示する。なお、切り出しヘルプの中身のアイコンなどの図示を省略してある。また、矢印は入力デバイス０５のスライド方向を示す。

【０２３４】さらに、第９の実施の形態を基にした他の実施の形態を、図５９を参照して説明する。すなわち、第９の実施の形態に示す引き出しヘルプが、何らかの制約条件により、上述のように表示できない場合の他の引き出しヘルプの表示例を示す。

【０２３５】図５９は、第９の実施の形態を基にした他の実施の形態における各引き出しメニューを示す図である。ここに図示した画像表示ディスプレイ０９の上の画面Ｄ２１１～Ｄ２１５はすべて、引き出しメニュー表示トリガーエリア１１Ａを座標指示した場合の表示例である。

【０２３６】画面Ｄ２１１では、引き出しヘルプの表示領域をもう少し多めに確保している。これによって、引き出しヘルプの中身を見やすくしている。

【０２３７】画面Ｄ２１２では、図２６を参照して説明した第３の実施の形態と同様に、第９の実施の形態でも最大引き出し量を拡張した場合に想定される切り出しヘルプを示している。

【０２３８】画面Ｄ２１３では、引き出しメニュー表示トリガーエリア内で入力デバイス０５がスライドされることなく、引き出しメニュー内の全部の機能項目を引き出しヘルプに表示する。

【０２３９】画面Ｄ２１４では、引き出しヘルプ内に、機能項目の名称の文字表記だけを行う。これによって、主画像Ａの表示面積の減少を最小限に留めるようにする。

【０２４０】画面Ｄ２１５では、引き出しメニュー表示トリガーエリア内で入力デバイス０５をスライドされることが実現できない場合を想定して、引き出しヘルプ内にスクロールボタンをソフト的にレイアウトさせる。

【０２４１】（他の実施の形態）以上説明した各実施の形態を適宜組み合わせるようにしてもよい。

【０２４２】また、上記の各実施の形態において、携帯型情報処理装置０１は、そのサイズが手帳サイズの携帯情報端末であるものとして説明したが、本発明の適用はそれに限られるものではなく、操作方法については異なる点があるが、他のポインティングデバイスを操作手段として有する大画面画像表示ディスプレイや、接眼式のビューファインダーなどにも、本発明は適用可能である。

【０２４３】また、本発明は、ステルカメラ、ビデオカメラ、ノートパソコン、ヘッドマウントディスプレイ、カーナビゲーションシステム等の画像表示画面を伴った機器にも適応可能である。

【０２４４】また、本発明は、据え置き型のパソコンやワークステーションなどにも応用可能である。例えばパソコンの場合、マウスを上下左右の任意方向にスライドさせ、カーソルが画面上の端に到達したら、その表示位置で引き出しメニューを引き出すためのバーを表示する。そして、その状態から中央方向へマウスをドラッグさせるという操作方法を取り入れることで本発明を適用することができる。この場合、機能項目の一覧リストを迅速に表示することができ、ユーザーが表示領域の量を任意に調整できるというメリットがある。

【０２４５】また、メカスイッチが上下左右に十字の形にレイアウトされた、いわゆる十字キーを搭載している装置では、上下左右のいずれかを押すことによって、引き出しメニューのどれかが選択され、十字キーから指を離すと、引き出しメニューが引き出された状態で固定表示を行うという操作方法を併用し、ユーザーが、入力デバイス０５を使って操作する場合と、十字キーを使って操作する場合とを、使用状況に応じて使い分けるようにしてもよい。

【０２４６】また、上記の各実施の形態において、引き出しメニューの引き出し途中では任意の引き出し位置で無段階に止めることができるようにしているが、これに代わって、あらかじめ停止できる引き出し位置を複数箇所に限定するようにしてもよい。これにより、引き出しメニューの表示処理速度をよりいっそう早くできる。

【０２４７】さらに、前述した各実施の形態の機能を実現するソフトウェアのプログラムコードを記録した記憶媒体を、システムあるいは装置に供給し、そのシステムあるいは装置のコンピュータ（またはＣＰＵやＭＰＵ）が記憶媒体に格納されたプログラムコードを読み出して実行することによっても、本発明が達成されることは言うまでもない。

【０２４８】この場合、記憶媒体から読み出されたプログラムコード自体が、前述の各実施の形態の機能を実現することになり、そのプログラムコードを記憶した記憶媒体が本発明を構成することになる。

【０２４９】プログラムコードを供給するための記憶媒体として、例えば、フロッピィディスク，ハードディスク、光ディスク、光磁気ディスク，ＣＤ－ＲＯＭ，ＣＤ－Ｒ，磁気テープ，不揮発性のメモリカード、ＲＯＭなどを用いることができる。

【０２５０】また、コンピュータが読み出したプログラムコードを実行することにより、前述した各実施の形態の機能が実現されるだけでなく，そのプログラムコードの指示に基づき、コンピュータ上で稼働しているＯＳなどが実際の処理の一部または全部を行い、その処理によって前述した各実施の形態の機能が実現される場合も、本発明に含まれることは言うまでもない。

【０２５１】さらに、記憶媒体から読み出されたプログラムコードが、コンピュータに挿入された機能拡張ボードやコンピュータに接続された機能拡張ユニットに備わるメモリに書き込まれた後、そのプログラムコードの指示に基づき，その機能拡張ボードや機能拡張ユニットに備わるＣＰＵなどが実際の処理の一部または全部を行い、その処理によって前述した各実施の形態の機能が実現される場合も、本発明に含まれることは言うまでもない。

【０２５２】

【発明の効果】以上詳述したように本発明によれば，座標指定手段によって複数の所定領域のいずれかが座標指定され、引き続き、前記座標指定手段によって座標指定が継続されるとともに，該指定された座標が画像表示部のほぼ中央方向に変化したとき、前記座標指定された所定領域に対応する機能一覧表を、前記指定座標の変化量に応じて前記画像表示部に表示する。それと同時に、前記機能一覧表が表示される直前に前記画像表示部に表示されていた主画像を、前記機能一覧表の表示量に応じて変倍縮小して前記画像表示部に表示する。

【０２５３】これにより、小さな画像表示部に機能一覧表と主画像とを同時に表示しても、主画像が全て表示されているので、編集作業に支障をきたすことはない。

【０２５４】また、機能一覧表を引き出して表示する動きに連動して、主画像がリアルタイムに変倍縮小表示され、座標指定手段による指定座標の変化が止まったところで、機能一覧表の引き出しも主画像の変倍縮小も同時に止まる。

【０２５５】かくして、機能一覧表を表示している最中でも、主画像が覆い隠されることなく表示され、処理対象の主画像の全体を見ることができ、その結果、機能一覧表の中の機能を選択して実行させた場合に、その機能実行による主画像への処理結果をすぐに把握することができ、意図通りでなかった場合のキャンセルや変更がスムーズに行える。

【図面の簡単な説明】

【図１】本発明に係る携帯型情報処理装置の第１の実施の形態の構成を示す正面図である。

【図２】図１に示す携帯型情報処理装置の上面図である。

【図３】図１に示す携帯型情報処理装置の背面図である。

【図４】図３に示す携帯型情報処理装置におけるＡ－Ａ'横断面図である。

【図５】タッチパネルセンサーの構成を示す図である。

【図６】画像表示ディスプレイに表示される引き出しメニューを示す図である。

【図７】Ｂ分類メニューが引き出しメニューとして表示された画像表示ディスプレイの画面を示す図である。

【図８】携帯型情報処理装置のシステム構成を示すブロック図である。

【図９】携帯型情報処理装置における全体の動作手順の概要を示すフローチャートである。

【図１０】引き出しメニューを表示する際の処理手順を示すフローチャート（１／２）である。

【図１１】引き出しメニューを表示する際の処理手順を示すフローチャート（２／２）である。

【図１２】引き出しメニューを表示する処理過程における表示画面（特に、Ｂ分類メニューを選択して表示する場合の画面）を示す図である。

【図１３】表示された引き出しメニューを閉じるための処理手順を示すフローチャート（１／２）である。

【図１４】表示された引き出しメニューを閉じるための処理手順を示すフローチャート（２／２）である。

【図１５】引き出しメニューを閉じる処理の過程における表示画面（特に、Ｂ分類メニューが選択されていた場合の画面）を示す図である。

【図１６】引き出しメニューの大きさを引き出し量に応じて決定する処理の手順を示すフローチャートである。

【図１７】引き出し量に応じて表示されるＡ分類メニューの画面を示す図である。

【図１８】引き出し量に応じて表示されるＢ分類メニューの画面を示す図である。

【図１９】引き出しメニュー表示トリガーエリアと、引き出されるＡ～Ｄ分類メニューとの関係を説明するための画像表示ディスプレイの画面を示す図である。

【図２０】第２の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。

【図２１】画像表示ディスプレイの画面上における範囲ａ，ｂ，ｃを示す図である。

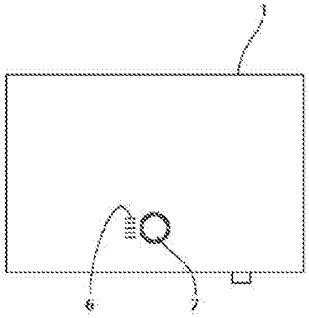
【図２２】引き出し量に応じて表示されるＡ分類メニューの画面を示す図である。

【図２３】引き出し量に応じて表示されるＢ分類メニューの画面を示す図である。

【図２４】引き出し量に応じて表示されるＣ分類メニューの画面を示す図である。
【図２５】第３の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。
【図２６】引き出し量に応じて画像表示ディスプレイの画面上に表示されるＡ分類メニューの画面を示す図である。
【図２７】第４の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。
【図２８】画像表示ディスプレイの画面上に表示される増加引き出しメニューを示す図である。
【図２９】第５の実施形態における引き出しメニューの表示処理の手順を示すフローチャートである。
【図３０】画像表示ディスプレイの画面上に表示される増加引き出しメニューを示す図である。
【図３１】画像表示ディスプレイの画面上に表示される増加引き出しメニューの他の表示例を示す図である。
【図３２】第６の実施形態における２つ以上４つまでの引き出しメニューの同時表示の処理の手順を示すフローチャートである。
【図３３】図３２に示す処理手順の具体的な手順を示すフローチャート（１／２）である。
【図３４】図３２に示す処理手順の具体的な手順を示すフローチャート（２／２）である。
【図３５】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される２つの引き出しメニューを示す第１の図である。
【図３６】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される２つの引き出しメニューを示す第２の図である。
【図３７】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される２つの引き出しメニューを示す第３の図である。
【図３８】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される２つの引き出しメニューを示す第４の図である。
【図３９】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される３つの引き出しメニューを示す第１の図である。
【図４０】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される３つの引き出しメニューを示す第２の図である。
【図４１】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される３つの引き出しメニューを示す第３の図である。
【図４２】引き出し量に応じて画像表示ディスプレイの画面上に同時に表示される３つの引き出しメニューを示す第４の図である。
【図４３】引き出し量に応じて画像表示ディスプレイの画面上に表示される４つの引き出しメニューを示す第１の図である。
【図４４】引き出し量に応じて画像表示ディスプレイの画面上に表示される４つの引き出しメニューを示す第２の図である。
【図４５】引き出し量に応じて画像表示ディスプレイの画面上に表示される４つの引き出しメニューを示す第３の図である。
【図４６】引き出し量に応じて画像表示ディスプレイの画面上に表示される４つの引き出しメニューを示す第４の図である。
【図４７】第７の実施形態における引き出しメニューの表示と、引き出しメニューの表示に伴う主画像の形状の変形とに関わる処理手順を示すフローチャートである。
【図４８】引き出しメニューを表示する処理過程において画像表示ディスプレイに表示される画面を示す図である。
【図４９】表示された引き出しメニューを閉じるための処理手順を示すフローチャートである。
【図５０】引き出しメニューを閉じる処理の過程における表示画面（特に、Ｂ分類メニューが選択されていた場合の画面）を示す図である。
【図５１】引き出しメニューの格納位置と主画像Ａとの関係を説明するための画像表示ディスプレイの画面を示す図である。
【図５２】第８の実施形態における、引き出しメニューの表示に伴なう主画像表示の処理の手順を示すフローチャートである。
【図５３】引き出しメニューを表示する処理過程において画像表示ディスプレイに表示される画面を示す図である。
【図５４】図５３に示す主画像Ａの表示方法とは異なる表示方法を説明するための画像表示ディスプレイに表示された画面を示す図である。
【図５５】第９の実施形態における引き出しメニューの表示処理の手順を示すフローチャート（１／２）である。
【図５６】第９の実施形態における引き出しメニューの表示処理の手順を示すフローチャート（２／２）である。
【図５７】画像表示ディスプレイに表示される第９の実施形態における引き出しメニューを示す図である。
【図５８】第９の実施形態における画像表示ディスプレイに表示されるＢ～Ｄ分類メニューを示す図である。
【図５９】第９の実施の形態を基にした他の実施の形態における各引き出しメニューを示す図である。
【符号の説明】
０１　携帯型情報処理装置（情報処理装置）
０４　外装カバー部材（枠体）
０５　入力デバイス（座標指定手段）
０６　マイク

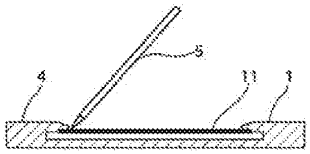
０７　カメラ部
０８　シャッタースイッチ
０９　画像表示ディスプレイ（画像表示部）
１０　スピーカー
１１　タッチパネルセンサー（座標指定手段）
１１Ａ～１１Ｄ　メニュー表示トリガーエリア（所定領域）
１１Ｅ　イメージ表示用エリア
１１ｂ　引き出しメニュー（機能一覧表）
２１　ＣＰＵ（機能一覧表表示手段、主画像表示手段）
２２　ＣＣＤ
２３　ＲＡＭ
２４　フラッシュメモリー
２５　ＲＯＭ

【図１】

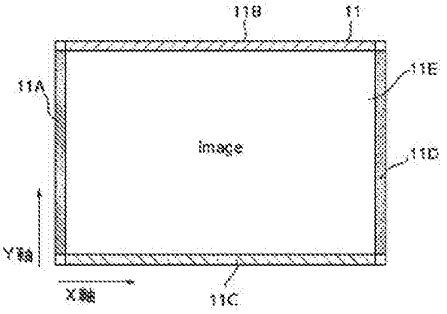


【図２】

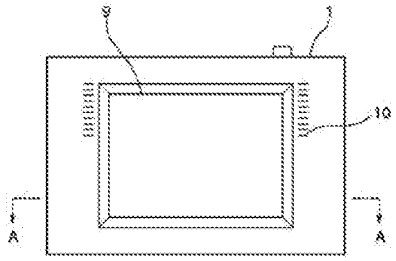
【図４】



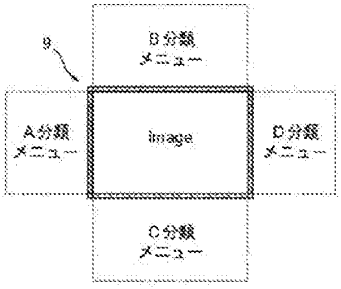
【図５】



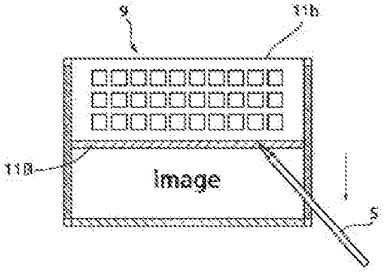
【図３】



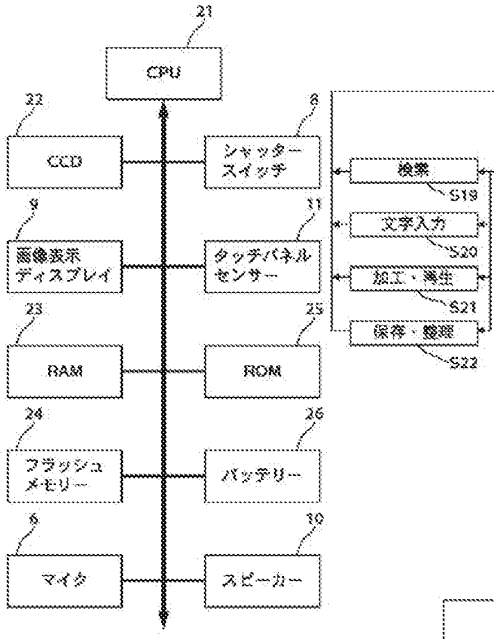
【図６】



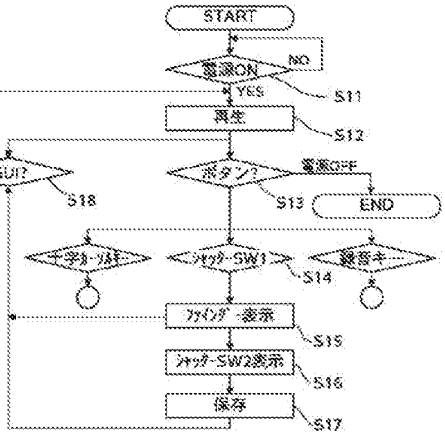
【図７】



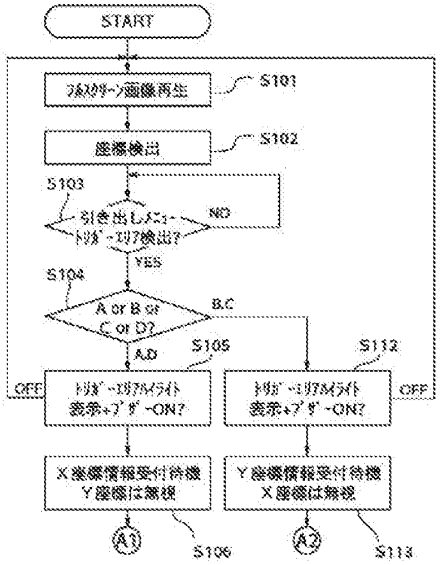
【図８】


21
CPU
22
CCD
8
シャッタースイッチ
検索
S19
GUI?
S18
9
画像表示ディスプレイ
11
タッチパネルセンサー
文字入力
S20
加工・再生
S21
23
RAM
25
ROM
保存・整理
S22
24
フラッシュメモリー
26
バッテリー
6
マイク
10
スピーカー

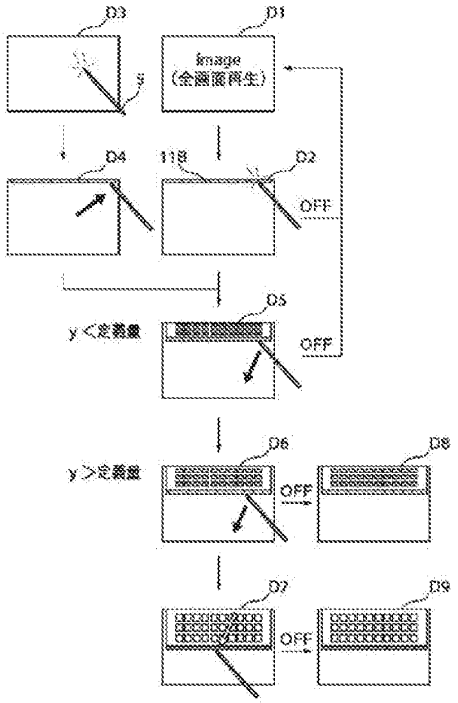
【図９】


START
電源ON
NO
YES
S11
再生
S12
ボタン?
電源OFF
S13
END
ﾌｫｰｶｽ移動
ｼｬｯﾀｰSW1
S14
撮影ｷｰ
ﾌｧｲﾝﾀﾞｰ表示
S15
ｼｬｯﾀｰSW2表示
S16
保存
S17

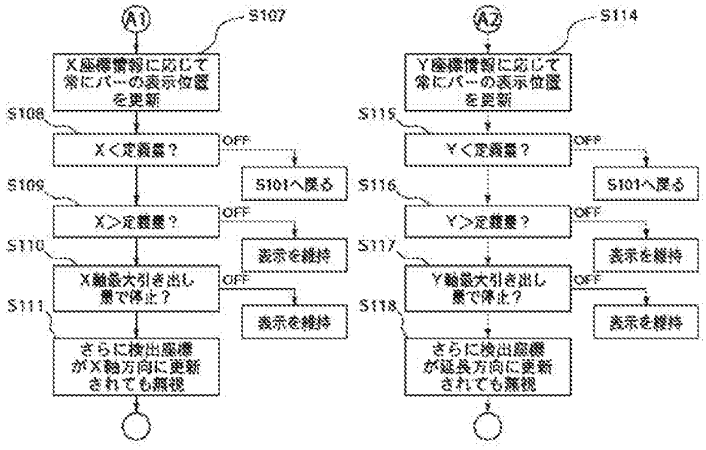
【図１０】


START
S101
S102
S103
NO
YES
S104
A or B or C or D?
B,C
A,D
S105
S112
OFF
OFF
X座標情報受け待機 Y座標は無視
Y座標情報受け待機 X座標は無視
A1
A2
S106
S113

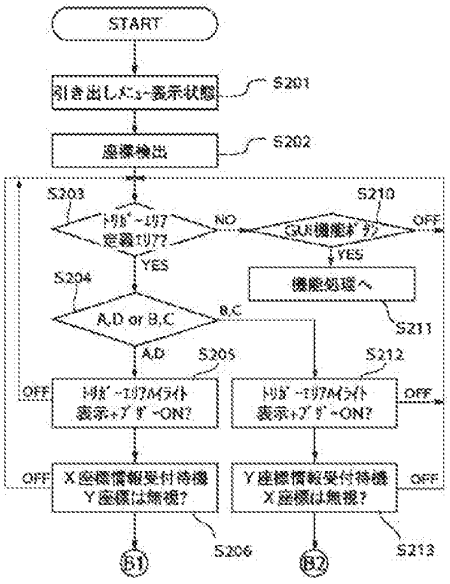
【図１２】


D3
D1
Image
(全画面再生)
D4
118
D2
OFF
D5
OFF
D6
D8
OFF
D7
D9
OFF

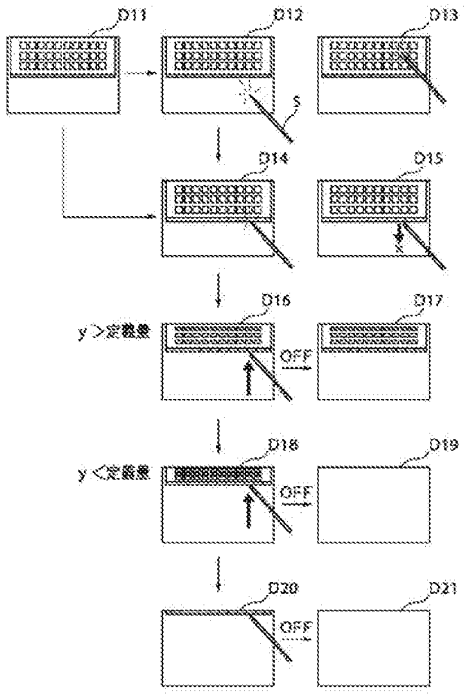
【図１１】


A1
S107
X座標情報に応じて
常にバーの表示位置
を更新
S108
X<定義値？
OFF
S101へ戻る
S109
X>定義値？
OFF
表示を維持
S110
X軸最大引き出し
量で停止？
OFF
表示を維持
S111
さらに検出座標
がX軸方向に更新
されても無視
A2
S114
Y座標情報に応じて
常にバーの表示位置
を更新
S115
Y<定義値？
OFF
S101へ戻る
S116
Y>定義値？
OFF
表示を維持
S117
Y軸最大引き出し
量で停止？
OFF
表示を維持
S118
さらに検出座標
が延長方向に更新
されても無視

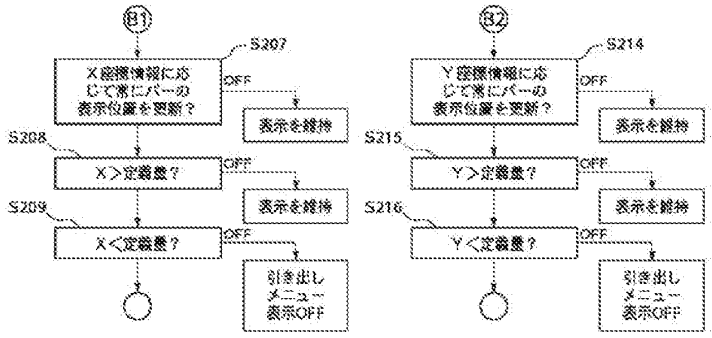
【図１３】


START
引き出しメニュー表示状態
S201
座標検出
S202
S203
S210
NO
OFF
YES
YES
S204
機能領域へ
A,D or B,C
B,C
S211
A,D
S205
S212
OFF
OFF
OFF
OFF
S206
S213
B1
B2

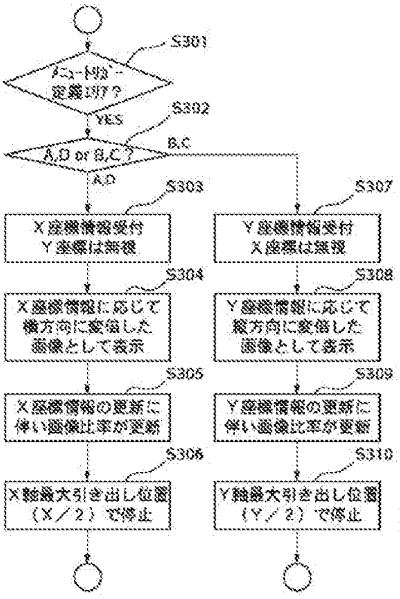
【図１５】


D11
D12
D13
S
D14
D15
y>定義値
D16
D17
OFF
y<定義値
D18
D19
OFF
D20
D21
OFF

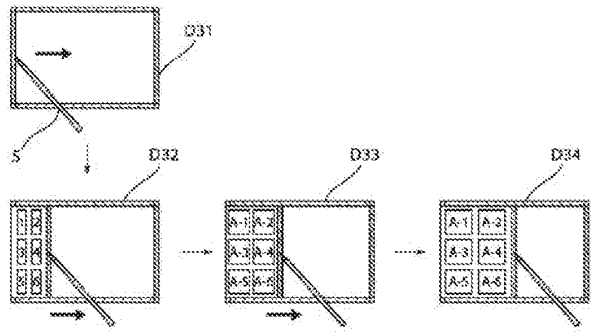
【図１４】



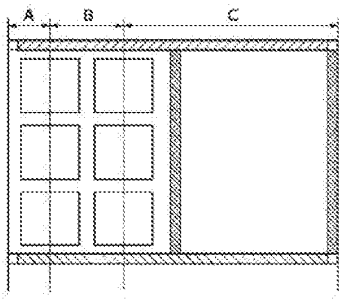
【図１６】



【図１７】



【図２１】



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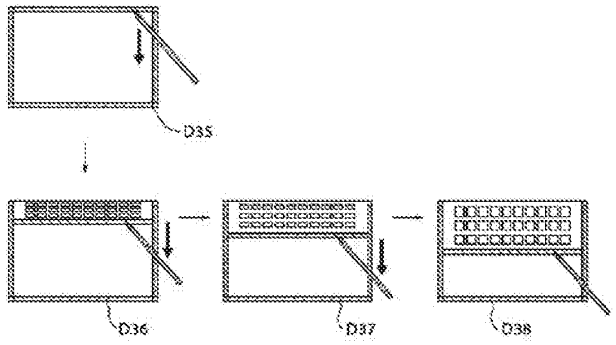
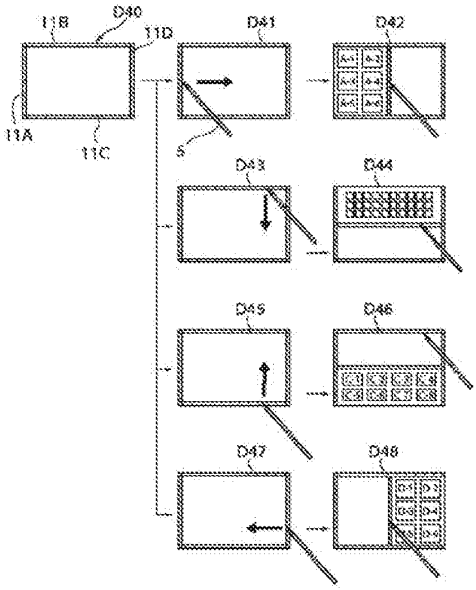
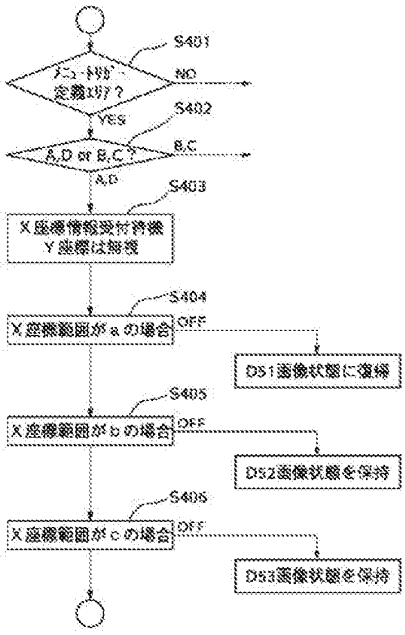
【図１８】



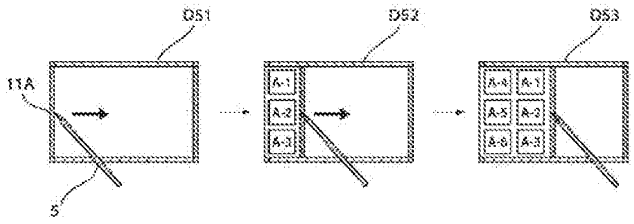
【図１９】



【図２０】



【図２２】



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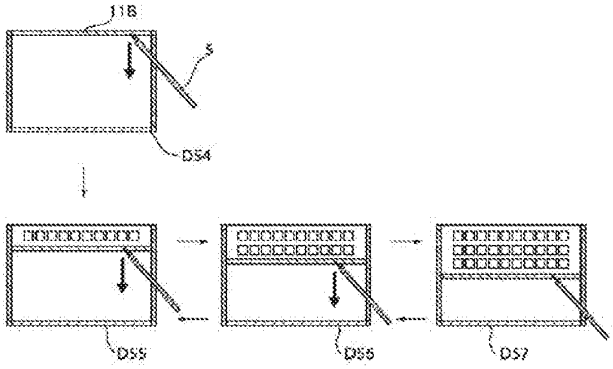
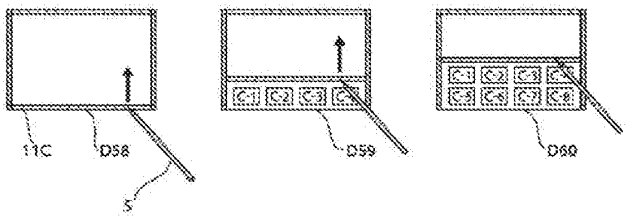
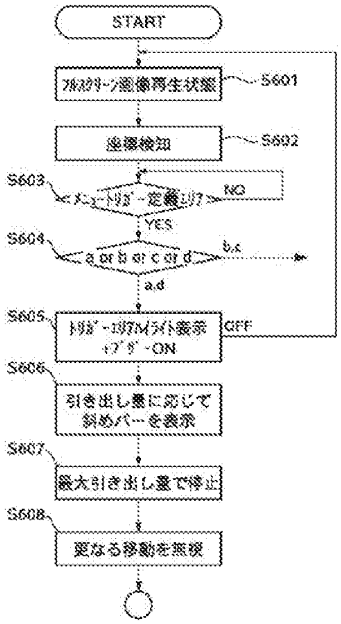
【図２３】



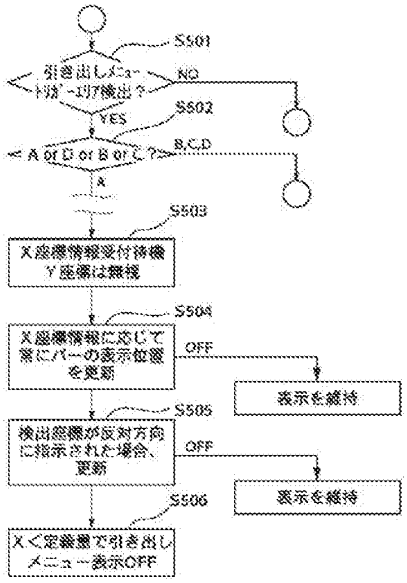
【図２４】



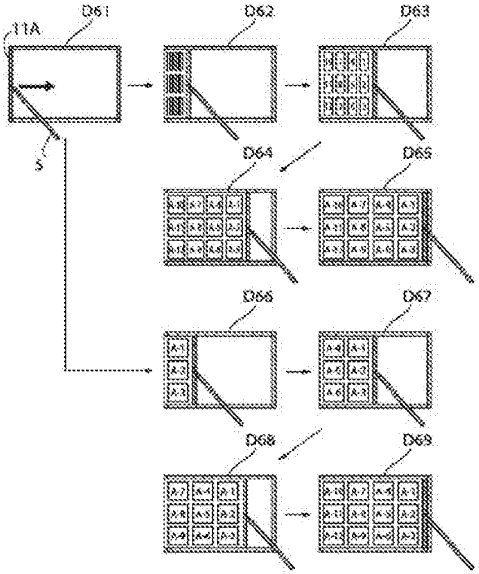
【図２７】



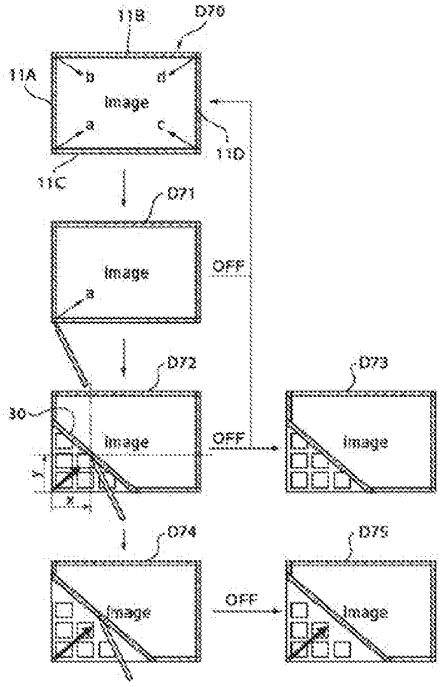
【図２５】



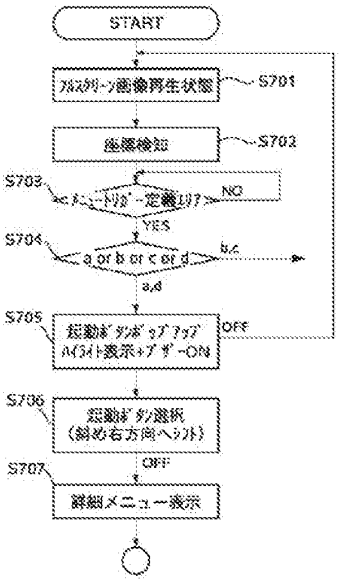
【図２６】



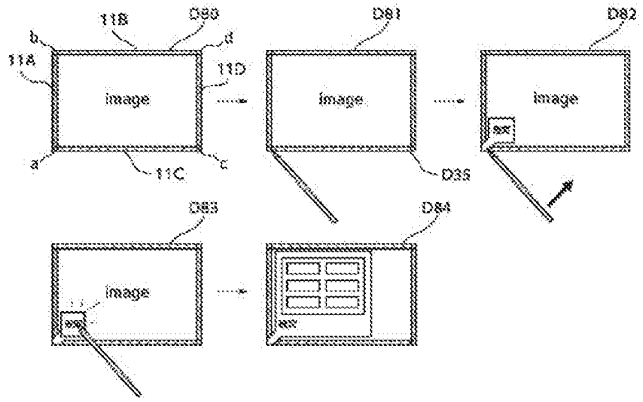
【図２８】



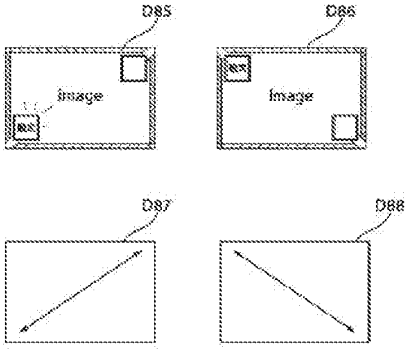
【図２９】



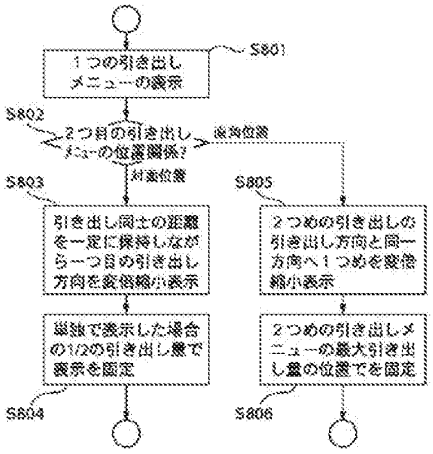
【図３０】



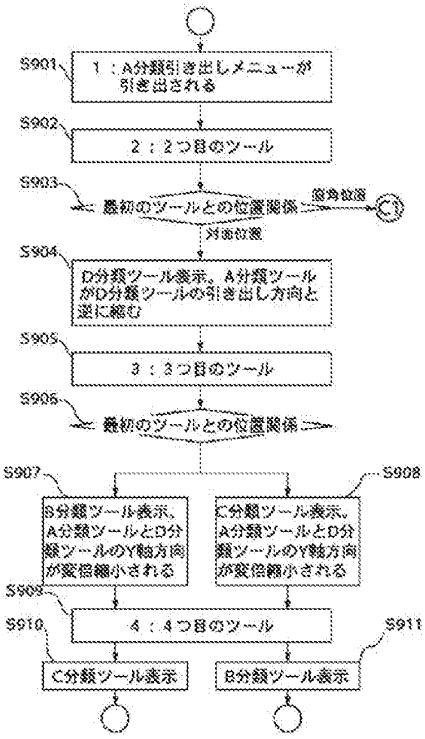
【図３１】



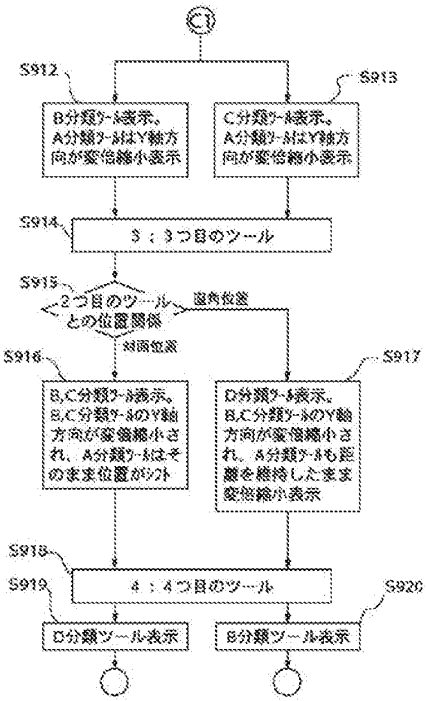
【図３２】



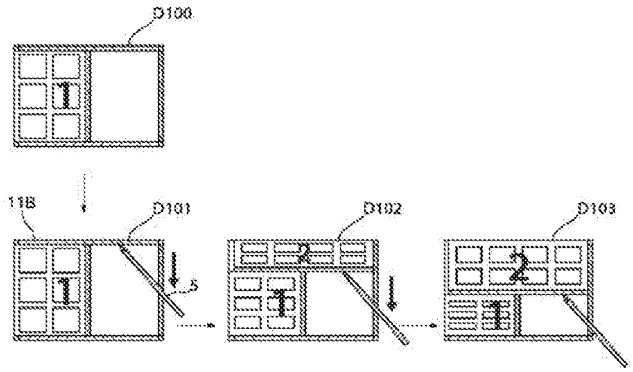
【図３３】



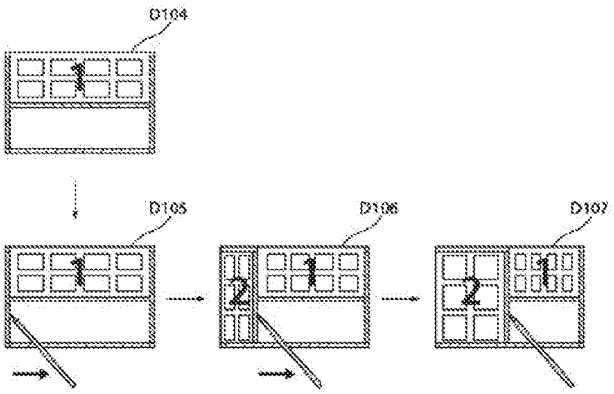
【図３４】



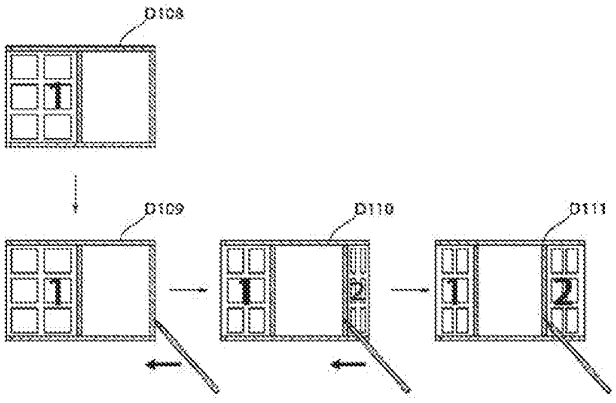
【図３５】


D100
1
11B
D101
D102
D103
S

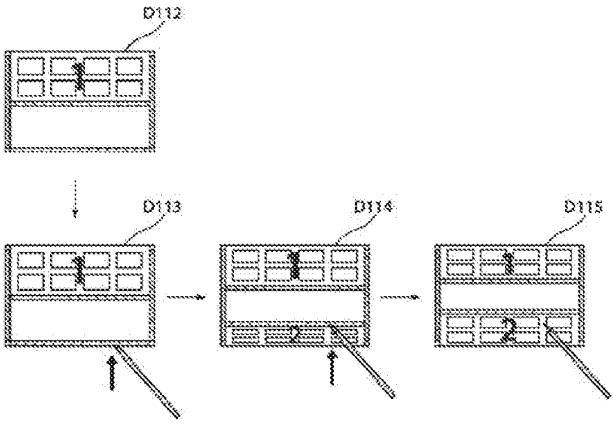
【図３６】


D104
D105
D106
D107

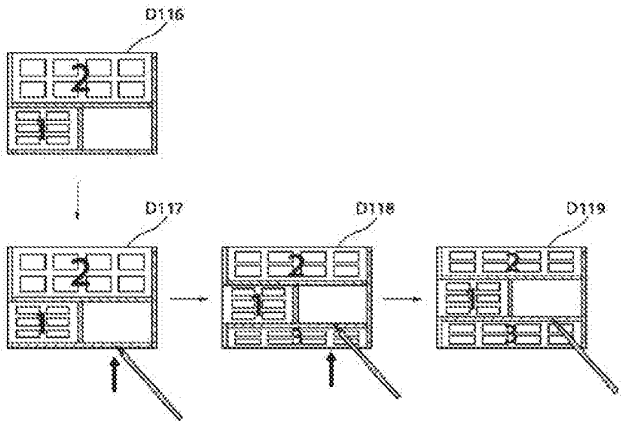
【図３７】


D108
D109
D110
D111

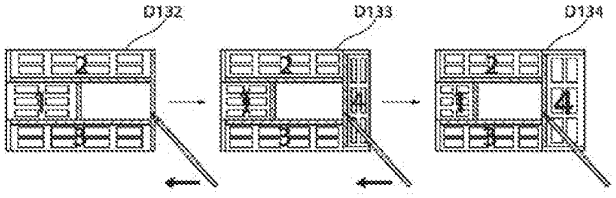
【図３８】



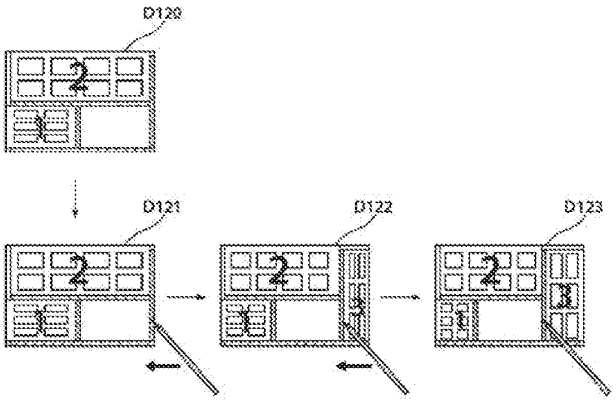
【図３９】



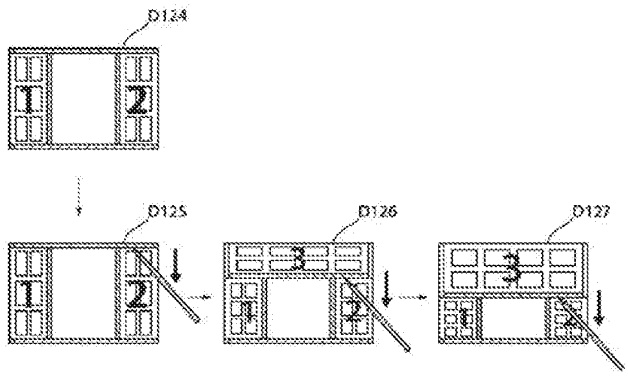
【図４３】



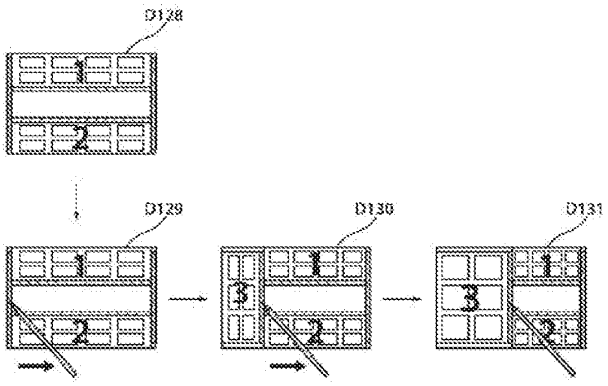
【図４０】



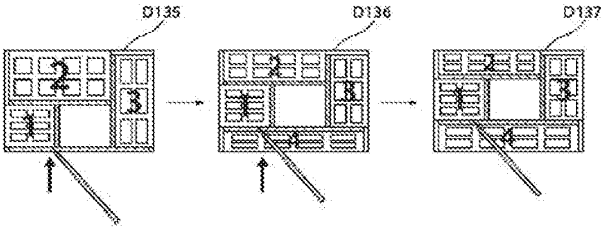
【図４１】



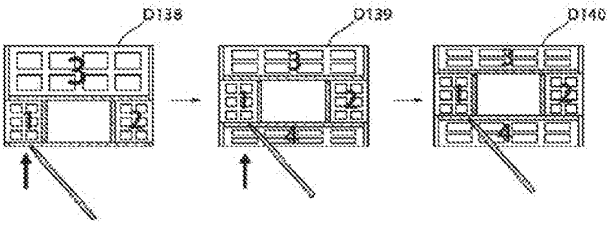
【図４２】



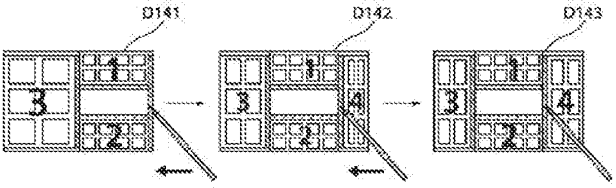
【図４４】



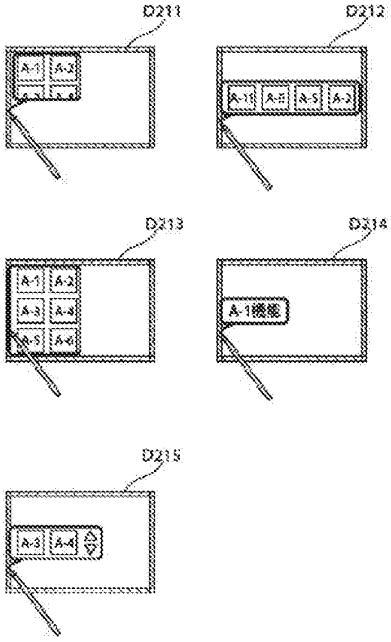
【図４５】



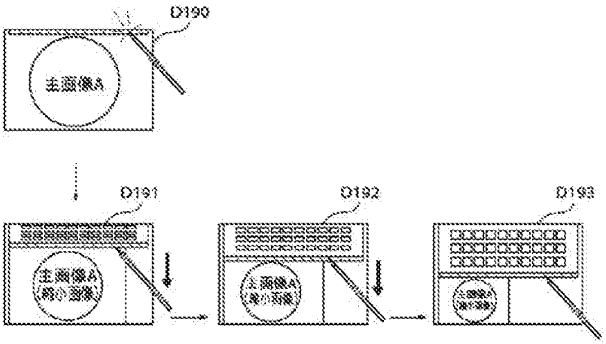
【図４６】



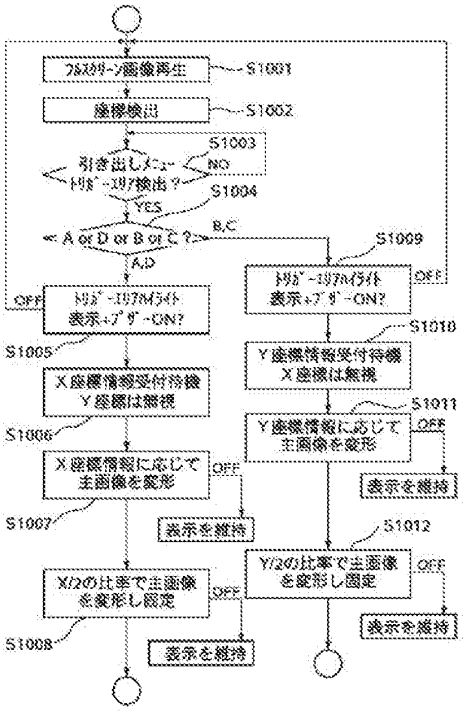
【図５９】



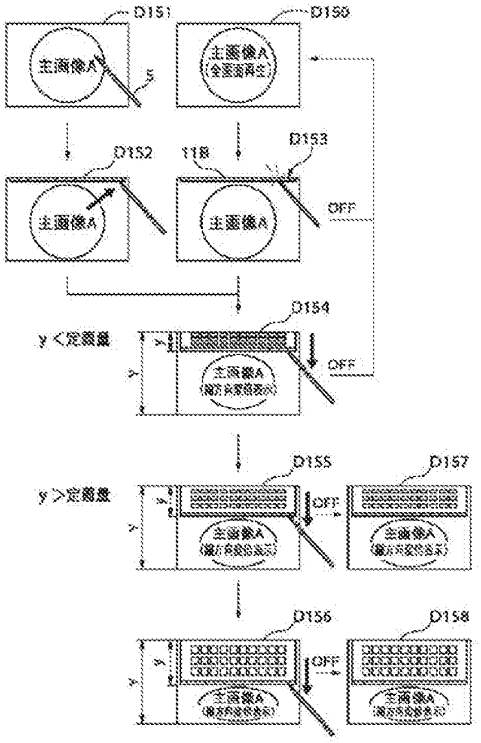
【図５３】



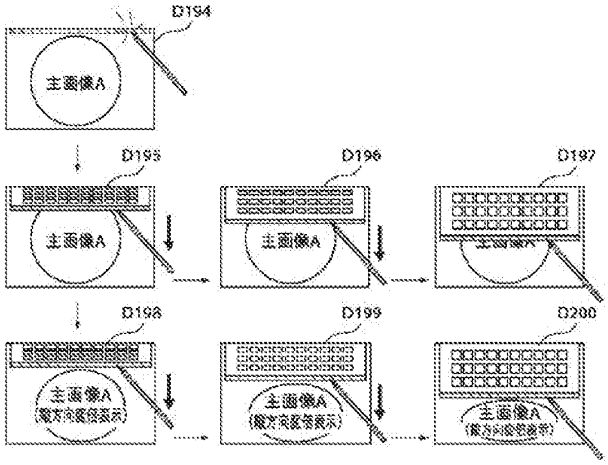
【図４７】



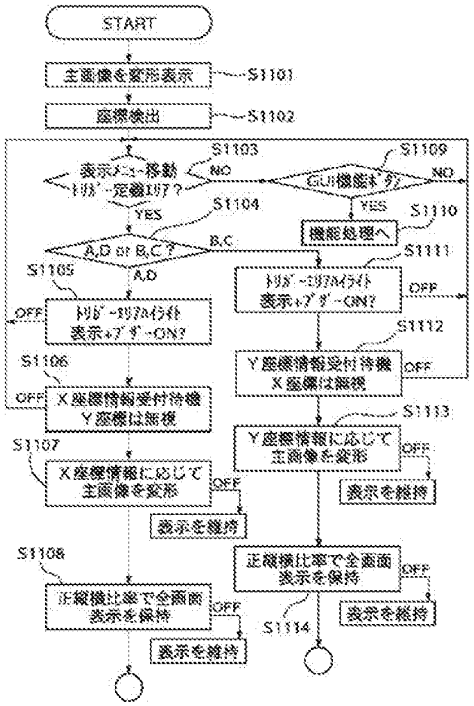
【図４８】



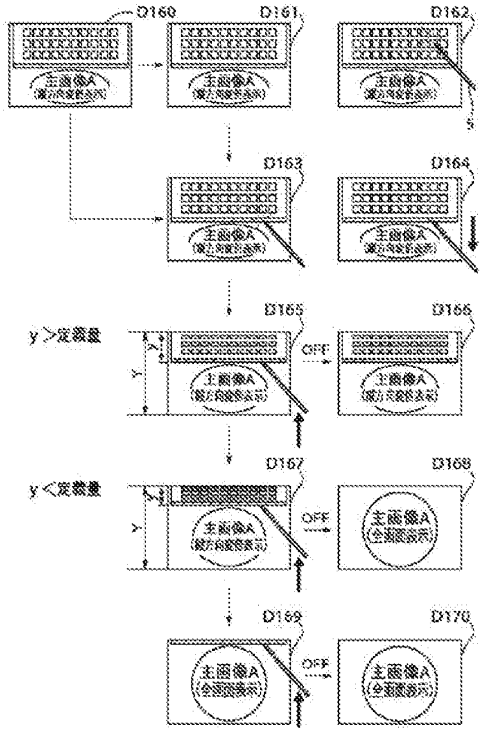
【図８４】



【図４９】


START
主画像を変形表示
S1101
座標検出
S1102
S1103
S1109
NO
YES
S1104
S1110
機能処理へ
A,D or B,C ?
B,C
S1111
A,D
S1105
OFF
S1112
S1106
S1113
S1107
S1108
S1114

【図５０】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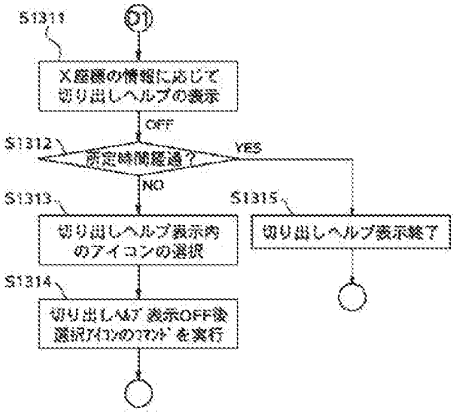
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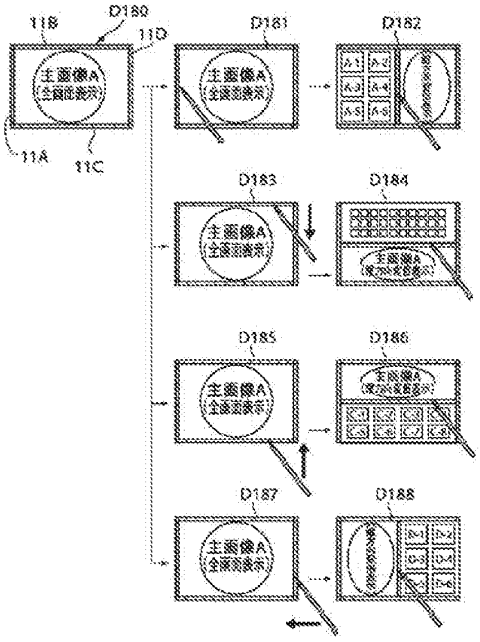
S1314

【図５１】



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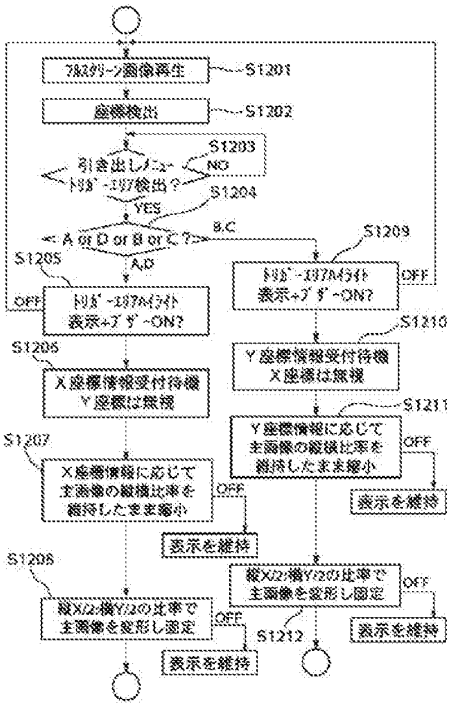

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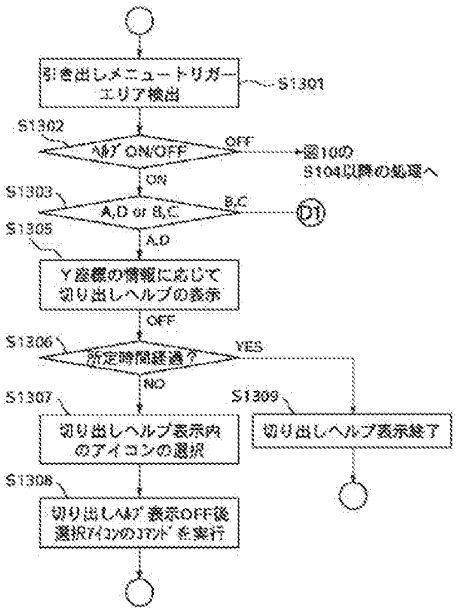

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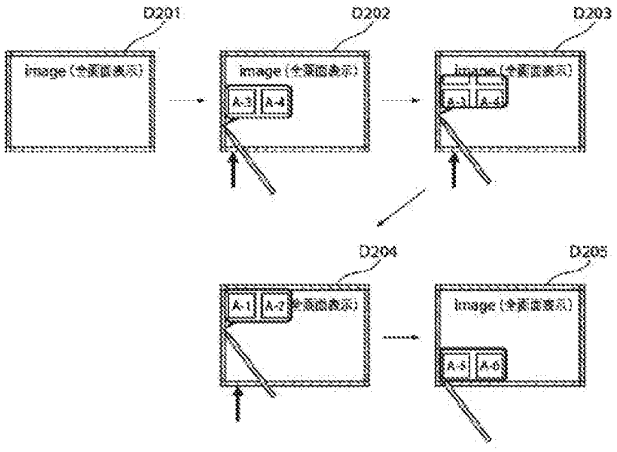

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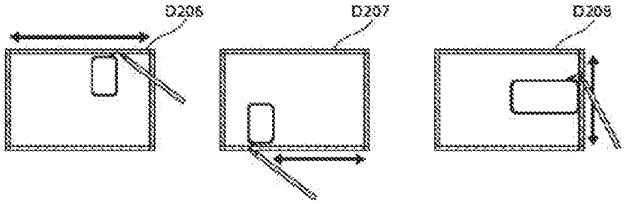

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ＥＡ０８　ＥＡ０９　ＥＢ０６　ＦＡ０６　ＦＢ０３
ＦＢ０４　ＦＢ２２　ＦＢ４３

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	16796880	Filing Date	2020-02-20	Docket Number (if applicable)	AEQUITAS.P001	Art Unit	2174
First Named Inventor	Magnus Goertz			Examiner Name	Conrad R. Pack		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☒ Amendment/Reply

☒ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☐ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No _____

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Signature of Registered U.S. Patent Practitioner			
Signature	/Marc A. Berger/	Date (YYYY-MM-DD)	2021-07-25
Name	Marc A. Berger	Registration Number	44029

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Attorney's Docket No.: AEQUITAS.P001 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Patent Application of:	)	
	)	Examiner: Conrad R. Pack
Magnus Goertz	)	
Joseph Shain	)	Art Unit: 2174
	)	
Application No: 16/796,880	)	
	)	
Filed: February 20, 2020	)	
	)	
For: TOUCH SCREEN ELECTRONIC	)	
DEVICE AND ASSOCIATED	)	
USER INTERFACE	)	
	)	

Mail Stop AMENDMENT
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT AND RESPONSE TO OFFICE ACTION

UNDER 37 C.F.R. §1.116

In response to the final Office action dated January 26, 2021 (the "Office Action") and pursuant to 37 C.F.R. §1.116, Applicant respectfully requests that the above-identified application be amended as follows. A Request for Prioritized (Track One) Examination, and a Request for Continued Examination (RCE) is being filed herewith, and the requisite fees for the Track One request, for the RCE, for a three-month extension of time and for one excess claim are being submitted herewith.

IN THE CLAIMS:

Please cancel claim **23** without prejudice.

Please substitute the following claims for the claims with the same number.

1. - 20. (canceled)

21. (currently amended) A portable handheld wireless computer ~~system~~ device, comprising:

a top surface comprising a touch sensitive display, ~~the top surface containing no movable button,~~ the display having a maximum width of such length as to enable a user to hold the device in one hand and simultaneously provide input to the device by touching the display and gliding on the display away from the touched location by a distance of up to the maximum width using the thumb of the same hand;

a processor;

a transceiver for sending and receiving wireless signals over a communications network;

a solid-state memory storing computer instructions configured to:

enable the portable handheld wireless computer ~~system~~ device to run at least two ~~partially or totally overlapping~~ applications simultaneously, the applications ~~comprising~~ selected from a group consisting of a telephone, chat or SMS, a camera, a music player, and email;

cause the portable handheld wireless computer device to present a selected application on top of another application previously presented in said display; [[and]]

cause the portable handheld wireless computer ~~system~~ device to present at least two communication options on said display for given text, wherein the communication options comprise two or more of call, email, and chat or SMS;

enable the portable wireless computer system to present a user interface, the user interface comprising at least two states, namely: (a) a tap-present state, wherein tap-activatable icons for activating a plurality of corresponding pre-designated applications, functions, services or settings are present, each of the plurality of pre-designated applications, functions, services or settings configured to be activated in response to a tap on its corresponding icon, and wherein the tap-activatable icons are not enclosed by a window frame, and (b) a tap-absent state, wherein no tap-activatable icons are present, the tap-absent state configured to be transitioned to the tap-present state in response to a multi-step user gesture comprising a user's thumb or finger: (i) touching a graphic located in an edge area of said display, and then (ii) gliding on said display away from the edge area, wherein neither the direction nor the final destination of the gliding determines the content or format of such content presented on said display as a result of the transition to the tap-present state, and wherein the graphic does not move to a different location on said display after the transition; and

cause the portable handheld wireless computer device to register input to said display from contact between (a) the user's thumb or finger, and (b) said display; and

a housing surrounding said display and enclosing said processor, said transceiver, and said solid-state memory.

22. (currently amended) The portable handheld wireless computer ~~system~~ device of claim **21**, wherein the plurality of applications comprise:

(a) a first application ~~providing~~ that, when activated, provides options on said display for editing, deleting and sending a picture, (b) a second application and a third application capable of running simultaneously, the second application capable of being presented on top of the third application on said display, and (c) a fourth application and a fifth application capable of running simultaneously, the fourth application being a music player, and the fifth application being email, chat or SMS.

23. (canceled)

24. (currently amended) The portable handheld wireless computer ~~system~~ device of claim [[**23**]] **22**, wherein the plurality of tap-activatable icons represent applications comprising a telephone, chat or SMS, a camera, a music player and email.

25. (currently amended) The portable handheld wireless computer ~~system~~ device of claim **22**, ~~wherein the~~ including computer instructions [[are]] configured to activate a function in response to a multi-step user gesture comprising the ~~object~~ user's thumb or finger touching said display at a location corresponding to ~~a demarcated representation of~~ an icon representing the function followed by the ~~object~~ user's thumb or finger gliding away from the location along said display, wherein a maximum diagonal dimension of the ~~representation~~ icon is less than a thumb's width, the ~~representation~~ icon represents only [[the]] a single function, and is not relocated or replicated during the multi-step user gesture, and ~~the function is not activated differently based on a direction or final destination of the gliding~~ neither the direction nor the final destination of the gliding determines the particular function activated or the content presented on the display as a result of activation of the function.

26. (currently amended) The portable handheld wireless computer ~~system~~ device of claim **25**, wherein the function is ~~a member of a group consisting of an application, and~~ a menu for configuring services or settings for an operations system or an application, and wherein the maximum diagonal dimension of the ~~representation~~ icon is less than one inch.

27. (currently amended) The portable handheld wireless computer ~~system~~ device of claim **26**, wherein the computer instructions are configured (a) to enable the portable handheld wireless computer ~~system~~ device to scroll content on said display, in response to the ~~object~~ user's thumb or finger touching a first location on said display and gliding up or down on said display from the first location, and (b) to enable the portable handheld wireless computer ~~system~~ device to move an application, a function, a service or a setting one step forward or backward or to close or remove an application, a function, a service or a setting on said display, in response to the ~~object~~ user's thumb or finger touching a second location on said display and gliding to the right or to the left from the second location, wherein the first and second locations may be anywhere within said display.

28. (currently amended) The portable handheld wireless computer ~~system~~ device of claim **25**, wherein the function activated in response to the multi-step user gesture ~~presents one or more alphanumeric characters~~ enters a character in a keyboard user interface on said display.

29. (currently amended) The portable handheld wireless computer ~~system~~ device of claim **22**, wherein the computer instructions are configured to enable the portable handheld wireless computer ~~system~~ device:

(a) to enable a graphical user interface for accessing first, second, third and fourth gadgets for news, stock market information, weather and social media, respectively, each gadget comprising an area containing at least a portion of dynamically generated data related to that gadget, wherein the user interface:

(i) arranges the gadgets in a layout that is larger than said display, whereby some of the gadgets are in said display and others of the gadgets are out of said display;

(ii) expands one of the gadgets in said display beyond an edge of said display to show more data therein by shifting other gadgets; and

(iii) pans the layout within said display to bring some of the gadgets into said display and/or to move some of the gadgets out of said display, in response to the ~~object~~ user's thumb or finger touching one of the gadgets on said display, and then the ~~object~~ user's thumb or finger gliding along said display away from the touched location; and

(b) to detect ~~an object~~ the user's thumb or finger touching with hard pressure an on-screen element selected from a group consisting of a gadget, a letter, a key, a button or an icon and then to activate the on-screen element, thereby resulting in: (i) enlarging the on-screen element, (ii) displaying a callout balloon with a copy of the on-screen element inside, or (iii) a combination thereof.

30. (currently amended) A mobile phone ~~system~~ device, comprising:

a top surface comprising a touch sensitive display, ~~the top surface having no movable button,~~ the display having a maximum width of such length as to enable a user to hold the device in one hand and simultaneously provide input to the device by touching the display and

gliding on the display away from the touched location by a distance of up to the maximum width using the thumb of the same hand;

a processor coupled to said display;

a transceiver for sending and receiving wireless signals over a communications network;

a solid-state memory storing computer instructions configured to enable the mobile phone ~~system~~ device: (a) to activate a function in response to a first multi-step user gesture comprising ~~an object~~ a user's thumb or finger touching an area corresponding to ~~a demarcated representation of~~ an icon representing the function followed by gliding away from the area on said display, wherein the ~~demarcated representation~~ icon represents only [[the]] a single function ~~and does not relocate during the first multi-step user gesture~~, and is not relocated or replicated during the multi-step user gesture, and ~~the function is not activated differently based on a direction or final destination of the gliding~~ neither the direction nor the final destination of the gliding determines the particular function activated or the content presented on said display as a result of activation of the function, (b) to present a plurality of functions, applications, services or settings in response to a second multi-step user gesture comprising the ~~object~~ user's thumb or finger touching a border area of said display followed by gliding within said display away from the border area, (c) to run a first application wherein a touch keyboard presented on said display enables a user to edit or save text in the first application, (d) to run a second application configured to provide options for editing, deleting and sending a picture on said display, (e) to present at least two communication options for given text, the communication options comprising two or more of call, email, and chat or SMS, (f) to scroll content on said display in response to the ~~object~~ user's thumb or finger touching a first location on said display and gliding up or down on said display from the first location, wherein the

first location may be anywhere within said display [[and]] (g) to move an application, a function, a service or a setting one step forward or backward or to close or remove an application, a function, a service or a setting on said display in response to the ~~object~~ user's thumb or finger touching a second location on said display and gliding to the right or to the left from the second location, wherein the ~~first and second locations~~ second location may be anywhere within said display, and (h) to register input to the touch sensitive display from contact between (1) the user's thumb or finger, and (2) said display; and

a housing surrounding said display and enclosing said processor, said transceiver, and said solid-state memory.

31. (currently amended) The mobile phone ~~system~~ device of claim **30**, ~~wherein the~~ including computer instructions [[are]] configured to enable the mobile phone ~~system~~ device to present a user interface, the user interface comprising at least two states, namely, (a) a tap-present state, wherein ~~a plurality of~~ tap-activatable icons for activating a plurality of corresponding pre-designated applications, functions, ~~services,~~ services or settings ~~or tasks~~ are present, each of the plurality of pre-designated applications, functions, ~~services,~~ services or settings ~~or tasks~~ being activated in response to a tap on its corresponding icon, and wherein the tap-activatable icons are not enclosed by a window frame, and (b) a tap-absent state, wherein no tap-activatable icons are present, the tap-absent state configured to be transitioned to the tap-present state in response to a third multi-step user gesture comprising: the ~~object~~ user's thumb or finger (i) touching a graphic located in an edge area of said display, and then (ii) gliding on said display away from the edge area, wherein neither the direction nor the final destination of the gliding determines the content or format of such content presented on said display as a result of the

transition to the tap-present state, and wherein the graphic does not move to a different location on said display after the transition.

32. (currently amended) The mobile phone ~~system~~ device of claim **31**, wherein the plurality of tap-activatable icons represent applications comprising a telephone, chat or SMS, a camera, a music player and email.

33. (currently amended) The mobile phone ~~system~~ device of claim **30**, wherein the computer instructions are configured to enable the mobile phone ~~system~~ device to run a plurality of applications, the applications comprising: (a) a telephone, chat or SMS, a calculator, a camera, an alarm, a clock, a music player, and email; (b) a third application and a fourth application capable of running simultaneously, the third application capable of being presented on top of the fourth application on said display; and (c) a fifth application and a sixth application capable of running simultaneously, the fifth application being a music player and the sixth application being email, chat or SMS.

34. (currently amended) The mobile phone ~~system~~ device of claim **30**, wherein the first application is not an address book, and wherein the text saved in the first application is configured for use as an address, a telephone number, or a message in phone call, email, chat or SMS.

35. (currently amended) The mobile phone ~~system~~ device of claim **30**, wherein the function activated in response to the first multi-step user gesture enables an alphanumeric character to be entered using a keyboard presented on said display.