(19) (KR)
(12) (B1)

(45) 2010 04 21
(11) 10-0953795
(24) 2010 04 12

(51) Int. Cl.
G06F 3/033 (2006.01) *G06F 3/03* (2006.01)
(21) 10-2008-7000097( )
(22) ( ) 2002 10 16
2008 02 01
(85) 2008 01 02
(65) 10-2008-0018243
(43) 2008 02 27
(62) 10-2004-7005119
( ) 2002 10 16
2004 04 09
(86) PCT/US2002/033805
(87) WO 2003/036457
2003 05 01
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10/256,716 2002 09 26 (US)
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(56)
JP11194863 A
JP11272378 A
US5179648 A
US5903229 A
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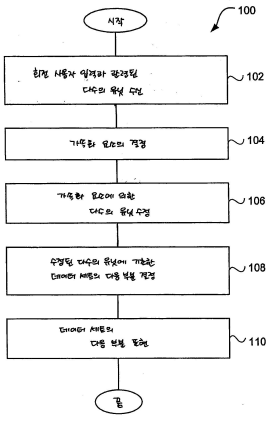

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60/346,237	2001	10	22	(US)
60/359,551	2002	02	25	(US)
60/387,692	2002	06	10	(US)

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(spinning action)

;

(rate of movement) (rotation detection assembly);

, ,

(scrolling rate)

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(transition)

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(speed threshold value) ,

(consecutively) ,

,

(acceleration) ,

(duration threshold)

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(spinning action)

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(rate of movement) (rotation detection assembly);

, ,

(scrolling rate)

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(transition)

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(acceleration) ,

(duration threshold)

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(piezoelectric buzzer) , .

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- ;

(rate of movement)

(scrolling rate)

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(transition)

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(speed threshold value) ,

(consecutively) ,

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(duration threshold) ,

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(rate of movement)

(scrolling rate)

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(transition)

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(duration threshold) ,

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111

112

[0001] , , -
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[0002] .
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, , , , (trackballs), , ,
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(, enter, delete, number) . - PDA(
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[0003] , . ,
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(tap), , (tap).
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[0004] (GUI)
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GUI .
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x y
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[0005] , , , CD
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LCD (, ,)
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[0006]

[0007]

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[0009]

[0010] -

[0011] -

[0012]

[0013]

[0014]

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[0016] , . ,
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[0017] .

[0018] . .
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[0019]
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[0020] 1 (100) . (100)
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(102).
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[0021] , (104). (100)
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(106). , . ,
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[0022] (106), ,
(108). (108) , (110). ,
(100)
(110). ,
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(110), (100) . (100)
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[0023] , , .
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[0024] . , (,) . , (, MP3 , ,) . , . , . , , .

[0025] 2 (200) . (200) (,) (202). . (204) . , . , (,), .

[0026] (206). (206) . , , . , (,) . , (200) (208). , , (208). , (200) (210). . .

[0027] 3 (300) . (300) 0) , , . , (300) , , 1 (104) . , (300) , , 2 (206) - .

[0028] (300) (302). 1 , . , (302). , , (302). , .

[0029] (302), (304). , . , . . (300) .

[0030] , (AF) (0) (306). (,), (Δt1) 1 (TH1) (308). (Δt1) 1 (TH1) , (310). , (310) .

[0031] (306) (310) , (312). . (308) , . (308) (312) , 1 (TH1) , (300) .

[0032] (312). .

(308) (, Δt1)
. (312) ,
(308) 1 (TH1) , (300) .

[0033] (300) , , 0
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[0034] 4 (400) .
(400) 3 (300) . (400)
. , (400)
(Δt2) 2 (TH2) (402)
. (402) (Δt2) 2 (TH2)
, (0) (306) . 2 (TH2)
, (400)
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[0035] , (doubling)(, (310))
, . (400) (AF) (AF_{MAX})
(404) . (404) (400)
. , (AF) 8 . ,
- 8 .

[0036] , (400) (406). (t2)
( ) . ,
(t2) (Δt2) .

[0037] , (300,400) , ,
. 3 4 , (,)
, (0) (300,400) (bypass) .
, , , 5
, 20 . ,
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[0038]
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[0039] 5 (500) . (500)
. 1 (502) - . 1 (502) ,
, (500) 1 (502) .
, (500) 1 (502) 2 (504) . 2 (504) 2x
, 1 2 .
(500) 2 (504) , ,
(500) 1 (502) . ,
(500) 2 (504) 3 (506) . 3 (506) 4x ,
1 (502) 4 2 (504) 2 .
3 (506), , (500) 3 (506)
1 (502) . , , (500) 3

(506) 4 (508) .

[0040] 4 (508), 8x , 1 (502) 8 , 2 (504) 4 , 3 (506) 2 . 4 (508), , (500) 4 (508) 1 (502) . , , (500) 4 (508) .

[0041] 6 . (600) , , 1 (108) .

[0042] (600) (602). , 1 (106) , (106), . (604). , , . , (chunking value) (606), . . , , . , , . , (606) (608). (608) , (600) . , , .

[0043] , . 51 . 2 . 102 (51 x 2). , . 3 , 105 (102 + 3). , , (105) (chunking value)(, 5) . 20 20 ( ) .

[0044] , , , , . . . , . , . , . 2002 7 30 U.S 60/399,806 , .

[0045] 7A (650) . (650) (650) (base housing)(652) . , , , I/O , . (652) (654) . (652) (650) (656) . , (656) . (658) (650) . , (658) (660) (662) . (662) , (662) . ( ) (650) , (656) . (658) (662) (664) . 7A , (664) (662) . , (664) , . , (662) .

[0046] 7B (700) . " "
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- .(, -). - ,
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). , (, MP3) ,
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- (, 2.43*4.02*0.78
6.5).

[0047] (700) , (, ,
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, (700) - MP3 ,
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[0048] 7B , (700) (700)
( ) (702) .
, (, ROM RAM), (,),
, , / . ,
(DSP) , .
, (, CCD, CMOS) (, , ,)
.
. , (702) (700) .

[0049] (700) (704) . (704) GUI
(, , ,) . , (704) LCD
. ,
LED . , ,
(704) 2 , 160 x 120 .
(704) . 7B ,
(704) (702) (705) , (705) (706) ,
(700) . , (706) (700)
(702) .

[0050] (700) (710) . (710) (700)
. (700)
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(704) (,) . ,
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(704) (,) .

[0051] , ,
(browsing) . (704) , , (,

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[0052] , (700) (712) . (712)
(700)
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. (710) (712) . , ,
. , (712) (710)
. , (712) (710)
. , (710) 4 (712A)
, (712B) . , (712) , / ,
, , .

[0053] , (700) (714), (716), (718)
. (714) (700) . (716)
(700) .
(718)
/ . , (718) (700)
(700) . (718)
. , PS/2 , , , USB ,
, . , (718) (RF)
(IR) . 7B , (700)
(700) / .
, (718) .

[0054] 8A (800) . (800) ,
, (700) .

[0055] (800) (800)
(802) . (800)
(804) (806) . (804) , .
(800) . (804)
, (800) (806) . (806) ,
(RAM) . (806)
(804) . (806) (804) . ,
(804) , , (806) .
(800) ( ) .

[0056] (800) (800) (800)
(808) . , (808) , ,
. , (800) ,
(802) (810)( ) . (811)
(804), (806), (802) / (CODEC)(812)
. (800) ( )
( ) .

[0057] , (800) (,) (804)
. ,

(810) . , (808) ,
. (802)
, (,) / (CODEC)(812) .
CODEC(812) (814) . (814) (900)
, . ,
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[0058] 8B (850) . (850) ,
, 7A (650) , 7B (700), 8A
(800) .

[0059] (850) (854) (852) . (852)
/ . (854)
(850) . (854)
, (854) .
, (854) (,),
. (856)
(854) . , (856) (854)
.

[0060] (850) (858), (860) (862) .
(858) . (858) (850)
(860) (86
2) . , (860) (862) ,
(858) .

[0061] (858) (860) . ,
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. (854) , .
(858) (856) . (858) (860)
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(858) . ,
, (858) .

[0062] (858) (862)
. , , (862) .
, (862) (piezoelectric buzzer) .
, . , (854)
, ,
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.

[0063] 9 (920) 7B (700)
. , (920) (923) (904)
(922) ((924)). ,
(900) (926) , (928) . , (920)
(910) . , (926)
(930) (931) (900) , (928) (932)
(910) .

[0064] 9 , , (910) (934)
(932) . ,
. , 360 . (904)
(922) .

[0065] 10A (1000) . (1000) , , 7A (650) 7B (700) .

[0066] (1000) (1002). , (1004). , , . , . , (navagation wheel) . , . (1004) , (1006). (1008). , , , . (,) . , (,) (,) . (1008) , (1000) .

[0067] 10B (1050) . (1050) , , 7A (650) 7B (700) .

[0068] (1050) (1052-1060) 10A (1000) . , (1050) (1056) . , (1054) , (1056). (, ,) . , . , - , - . , (,). , . , 8B (862) . (650) (700) , .

[0069] 11 (1100) . (1100) , , 7A 7B (700) .

[0070] (1100) (1102) . (highlight) . , . . , (1104). , (1106). , (1100) . , (1108). (1108) , (1100) . , 1106 , (1100) (1104) .

[0071] (1104) , (1110). , (1112). , (1114). ( ) . , (-) . , . (1114) ,

(1100) . , , (1100) (1104)
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[0072] 12 . ,
(1200) 7A (650) 7B
(700) . (1200) (120
2) (1204) . (1202) (,
) (1204) (1208) .
, (1202) (1202) (1202)
. , (1202)
(1206) (1204) (1211)
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[0073] (1200) (1202) (1212) .
(1212) , (1214)
. , (1212) ASIC , ASIC
, (1214)
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[0074] (1214) (1212) (1204) . (1214)
(1204) . , (1214)
(1212) , , (1204) (1211)
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[0075] , (1214) .
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[0076] ,
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ROM, RAM, CD-ROM, DVD, , , .
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[0077] 1 .

[0078] 2 .

[0079] 3 .

[0080] 4 .

[0081] 5 .

[0082] 6 .

[0083] 7A .

[0084] 7B .

[0085] 8A .

[0086] 8B .

[0087] 9 7B .

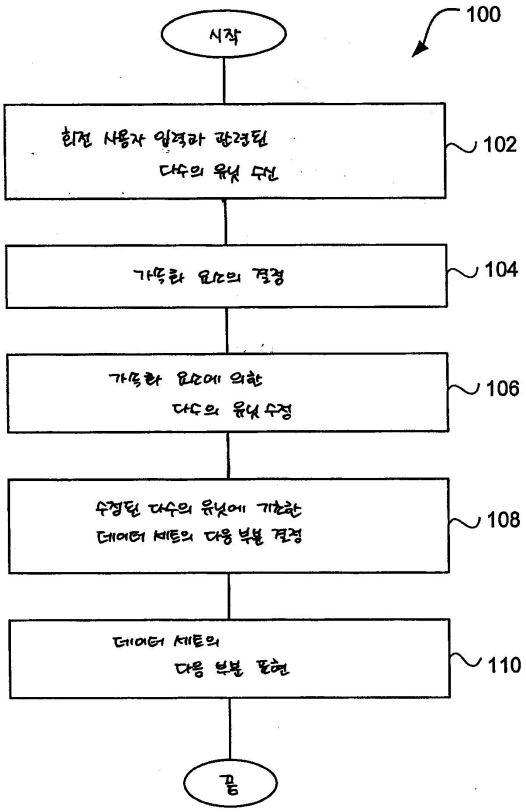
[0088] 10A .

[0089] 10B .

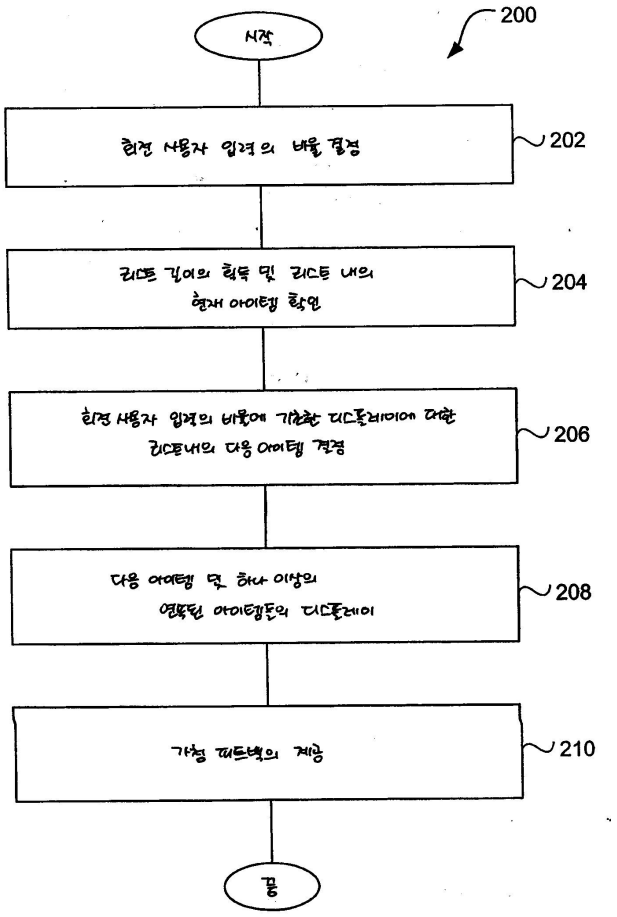
[0090] 11 .

[0091] 12 .

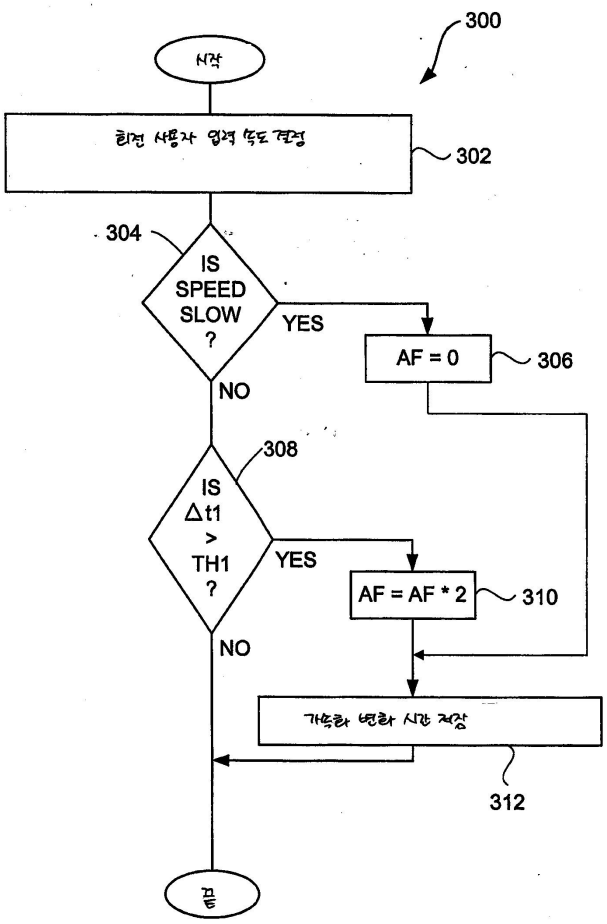
1



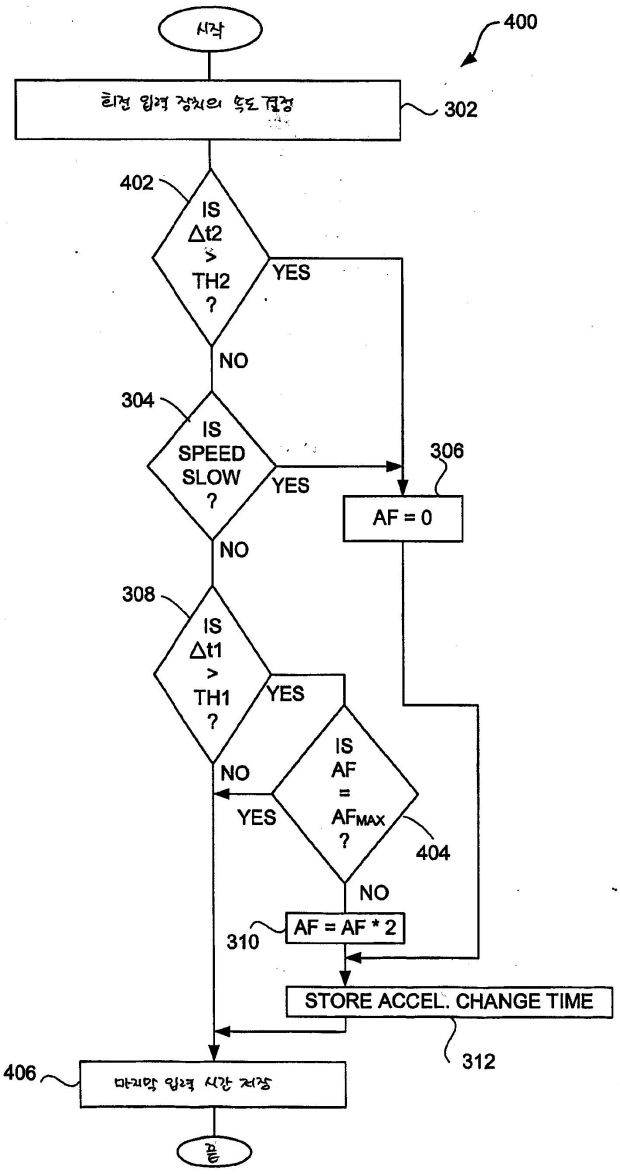
2


200
시작
현재 사용자 입력의 내용 결정
202
리드 길이의 획득 및 리드 내의 현재 아이템 확인
204
현재 사용자 입력의 내용에 기반한 디스플레이에 대한 리드내의 다음 아이템 결정
206
다음 아이템 및 하나 이상의 연속된 아이템들의 디스플레이
208
가청 피드백의 제공
210
끝

3

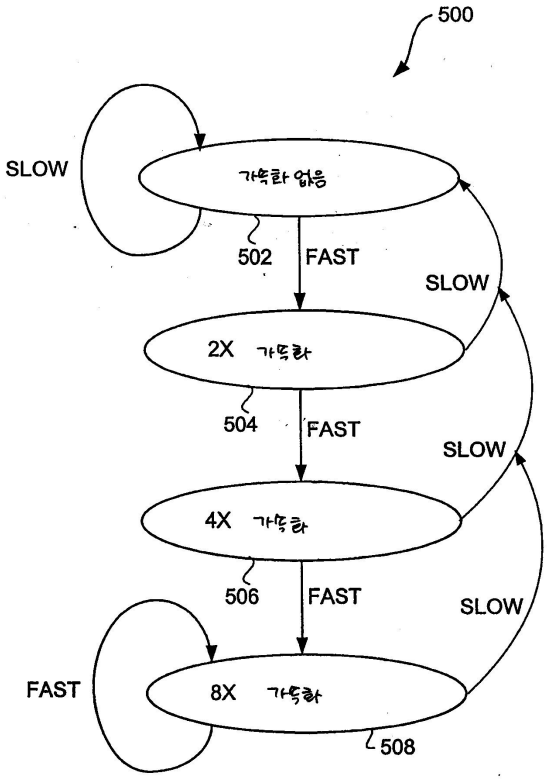

300
시작
현재 사용자 입력 속도 결정
302
304
IS SPEED SLOW ?
YES
AF = 0
306
NO
308
IS Δt1 > TH1 ?
YES
AF = AF * 2
310
NO
가속화 변화 시간 저장
312
끝

4

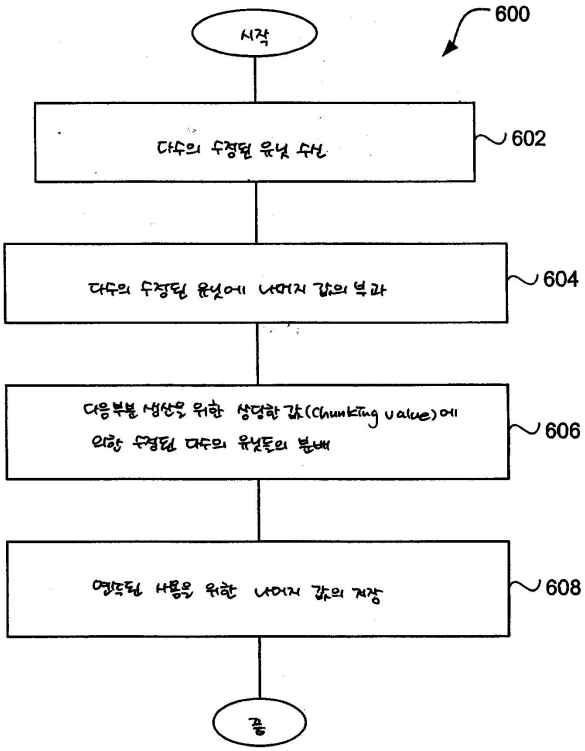


400
시작
최전 입력 장치의 속도 결정
302
402
IS Δt2 > TH2 ?
YES
NO
304
IS SPEED SLOW ?
YES
306
AF = 0
NO
308
IS Δt1 > TH1 ?
YES
NO
IS AF = AFMAX ?
YES
404
NO
310
AF = AF * 2
STORE ACCEL. CHANGE TIME
312
406
마지막 입력 시간 저장
끝

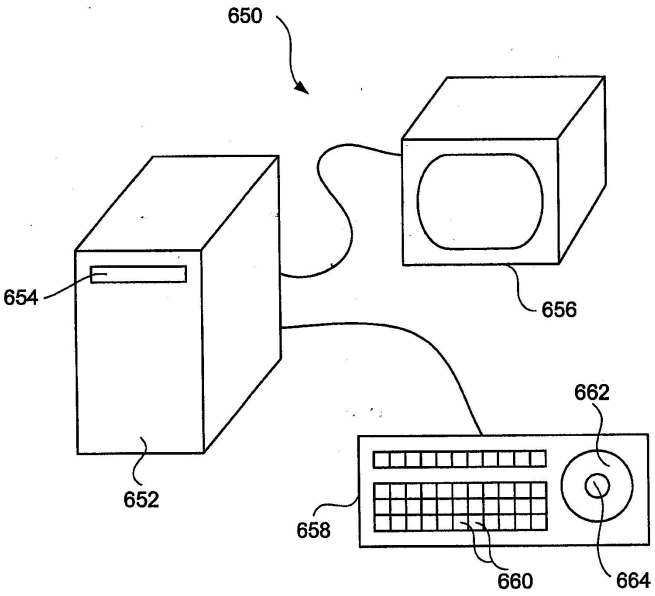
5


500
SLOW
가속화 없음
502
FAST
SLOW
2X 가속화
504
FAST
SLOW
4X 가속화
506
FAST
SLOW
FAST
8X 가속화
508

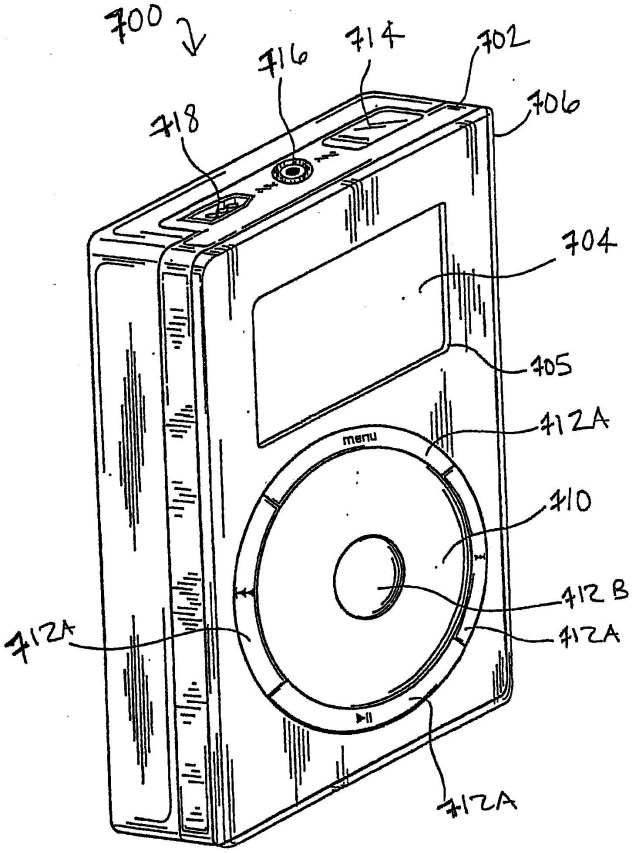
6


600
시작
다수의 수정된 유닛 수신
602
다수의 수정된 유닛에 나머지 값의 복사
604
다음부분 생산을 위한 상당한 값(Chunking value)에 의한 수정된 다수의 유닛들의 분배
606
영속된 사용을 위한 나머지 값의 저장
608
끝

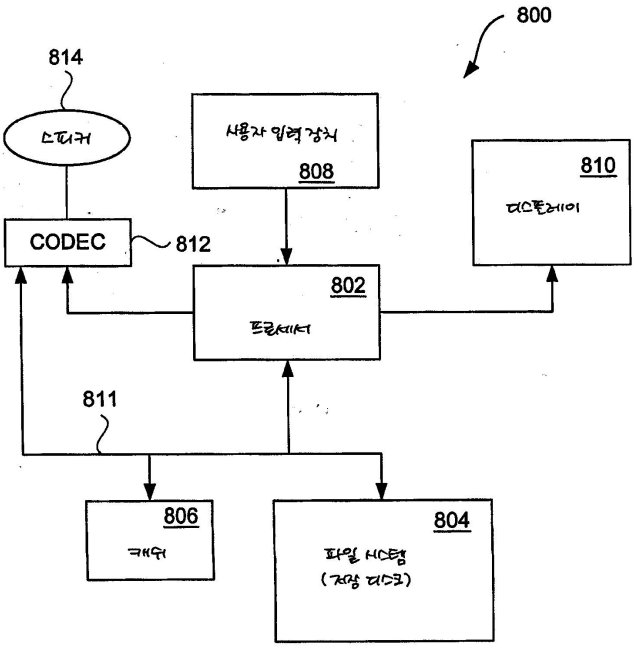
7a


650
654
656
662
652
658
660
664

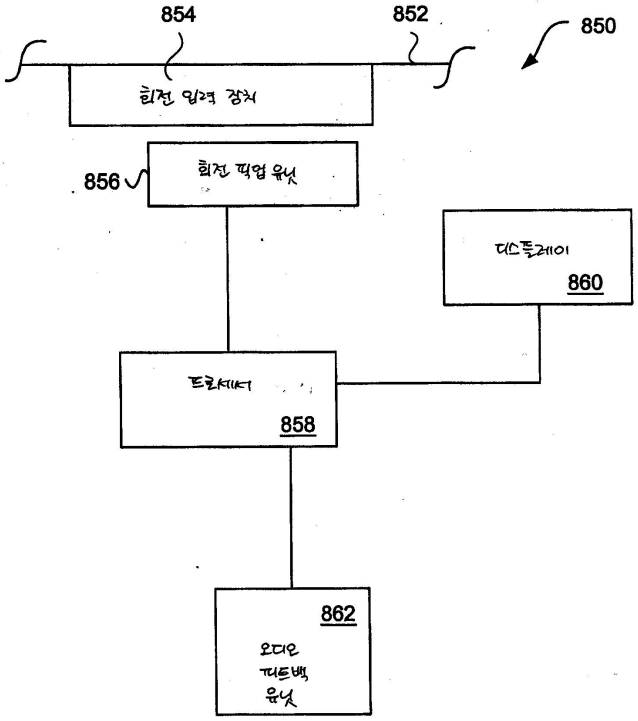
7b


700
716
714
702
718
706
704
705
712A
menu
710
712B
712A
712A
712A

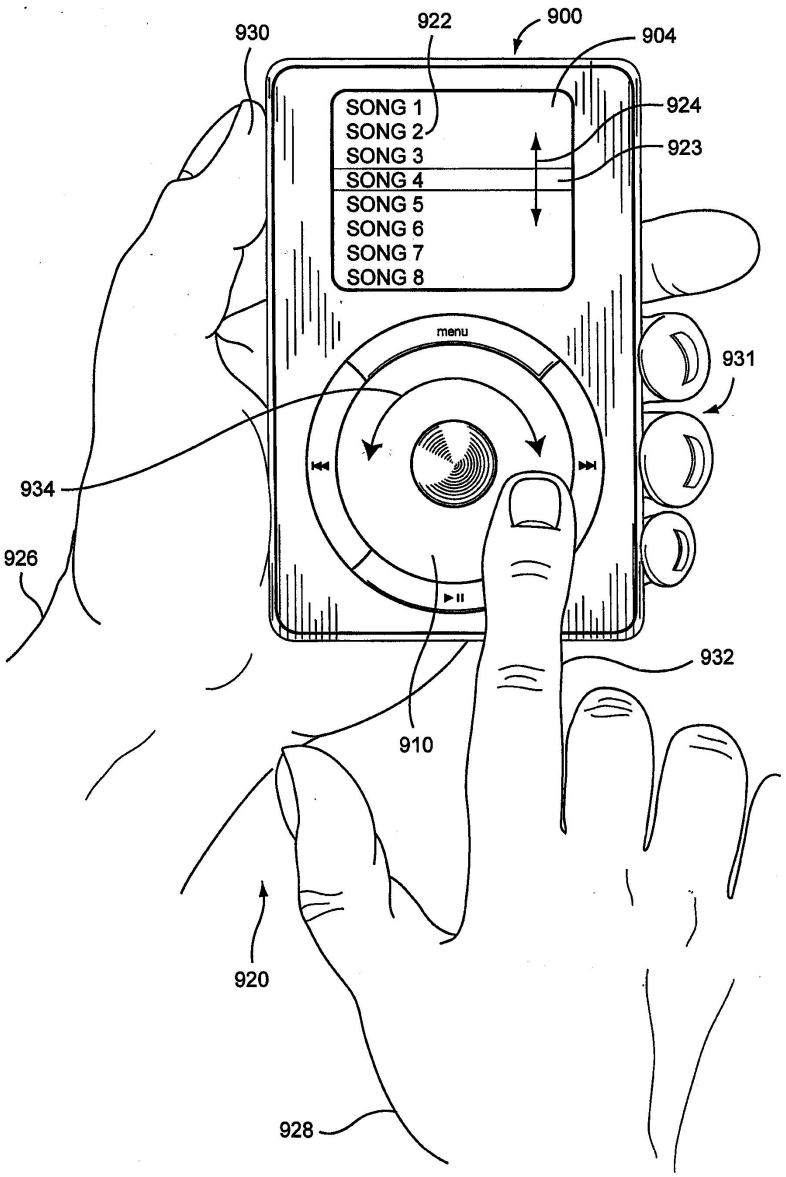
8a


800
814
스피커
사용자 입력 장치
808
810
디스플레이
CODEC
812
802
프로세서
811
806
메모리
804
파일 시스템
(저장 미디어)

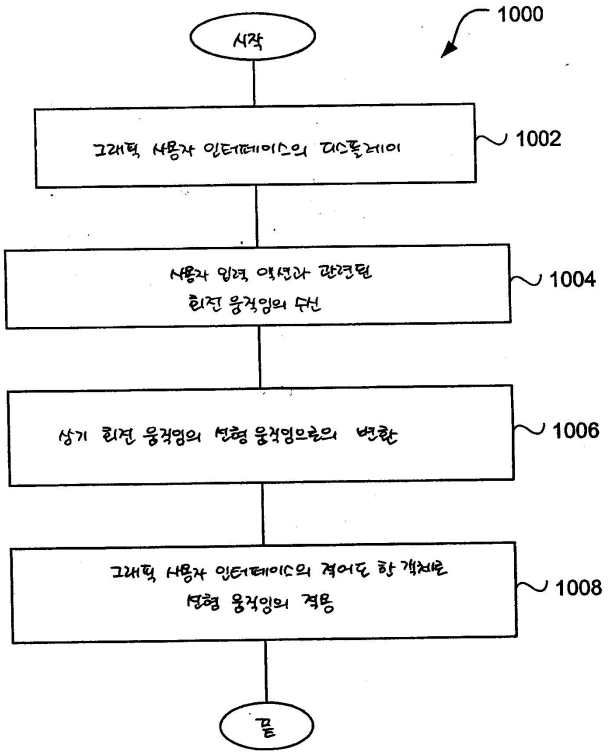
8b


854
852
850
회전 입력 장치
856
회전 픽업 유닛
디스플레이
860
프로세서
858
862
오디오
피드백
유닛

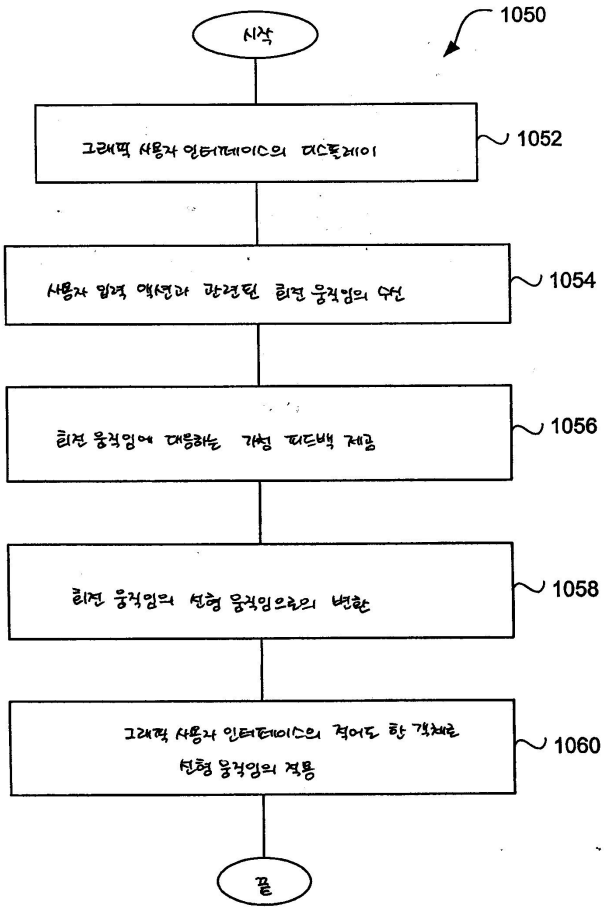
9


930
922
900
904
SONG 1
SONG 2
SONG 3
SONG 4
SONG 5
SONG 6
SONG 7
SONG 8
924
923
menu
931
934
926
932
910
920
928

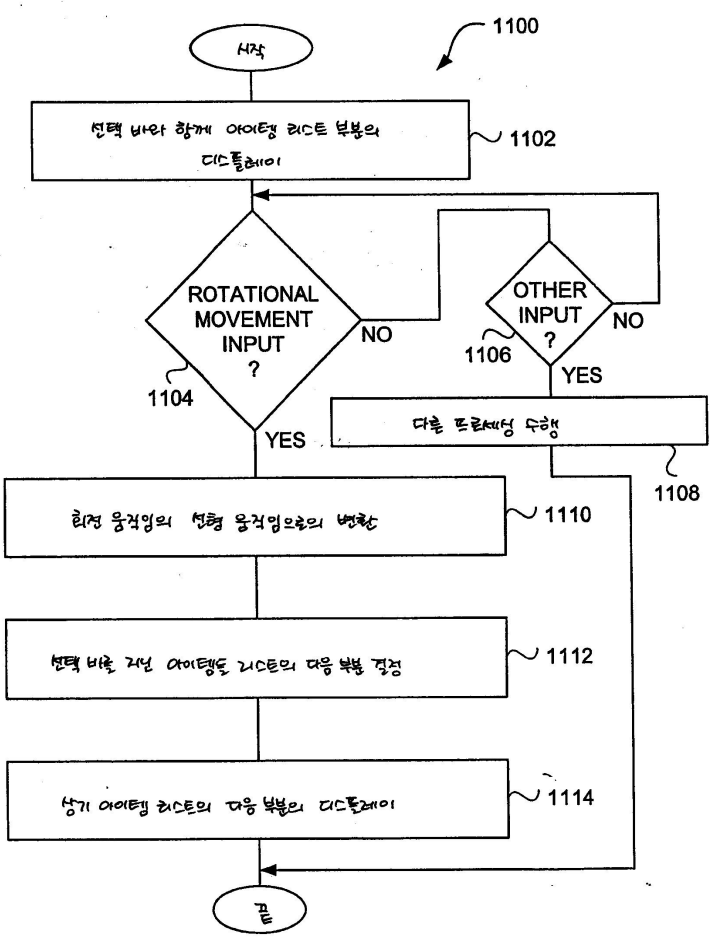
10a


1000
시작
그래픽 사용자 인터페이스의 디스플레이
1002
사용자 입력 액션과 관련된
회전 움직임의 수신
1004
상기 회전 움직임의 선형 움직임으로의 변환
1006
그래픽 사용자 인터페이스의 적어도 한 객체로
선형 움직임의 적용
1008
끝

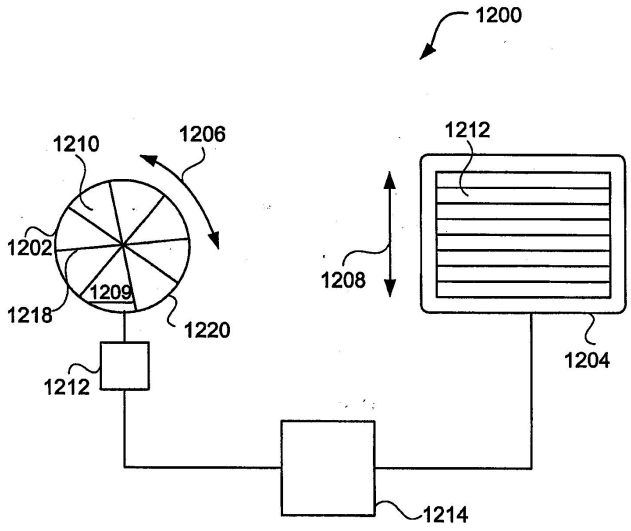
10b


시작
1050
그래픽 사용자 인터페이스의 디스플레이
1052
사용자 입력 액션과 관련된 리턴 움직임의 수신
1054
리턴 움직임에 대응하는 개정 피드백 제공
1056
리턴 움직임의 선형 움직임으로의 변환
1058
그래픽 사용자 인터페이스의 적어도 한 객체를
선형 움직임의 적용
1060
끝

11


1100
시작
선택 바와 함께 아이템 리스트 부분의 디스플레이
1102
ROTATIONAL MOVEMENT INPUT ?
1104
NO
YES
OTHER INPUT ?
1106
NO
YES
다른 프로세싱 수행
1108
회전 움직임의 선형 움직임으로의 변환
1110
선택 바로 지난 아이템들 리스트의 다음 부분 결정
1112
상기 아이템 리스트의 다음 부분의 디스플레이
1114
끝

12


1200
1210
1206
1212
1202
1208
1209
1218
1220
1204
1212
1214